

CHAPTER 13

RESPIRATORY PROTECTION PLAN

GENERAL

The OSHA standard for respiratory protection Section 5144, Title 8 of the California Code of Regulations requires that a respiratory protection program be established to effectively control employee exposures to respiratory hazards. The following procedures are based on the requirements established by the Occupational Safety and Health Administration and the American National Standard for Respiratory Protection, ANSI Z88.2.

POLICY

It is the policy of Shasta County to provide its employees with a safe and healthful work environment. The guidelines in this program are designed to help reduce employee exposure against occupational dusts, fogs, fumes, mists, gases, smokes, sprays or vapors. The primary objective shall be to prevent atmospheric contamination and to prevent employee exposure to airborne contaminants. This is accomplished as far as feasible by accepted engineering and work practice control measures. When effective engineering controls are not feasible, or while they are being implemented or evaluated, respiratory protection may be required to achieve this goal. In these situations, respiratory protection, training and medical evaluations are provided at no cost to the employees.

RESPONSIBILITIES

1. Division Heads/Management

It is management's responsibility to determine which specific applications require the use of respiratory protective equipment. Management must also provide proper respiratory protective equipment to meet the needs of each specific application. Employees must be provided with adequate training and instructions on all equipment.

2. Supervisors

Supervisors of each area are responsible for ensuring that all personnel under their control are completely knowledgeable of the respiratory protection requirements for the areas in which they work. They are also responsible for ensuring that their subordinates comply with all facets of this respiratory protection program, including respirator inspection and maintenance. They are responsible for implementing disciplinary procedures for employees who do not comply with respiratory protection requirements.

3. Employees

It is the responsibility of the employees to have an awareness of the respiratory protection requirements for their work areas (as explained by management). Employees are also

responsible for wearing the appropriate respiratory protective equipment according to proper instructions and for maintaining the equipment in a clean and operable condition.

DEFINITIONS

The following definitions are important terms used in the respiratory protection program.

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

Atmosphere-supplying respirator means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SAR's) and self-contained breathing apparatus (SCBA) units.

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

End-of-service-life indicator (ESLI) means 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.

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

Fit test means 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.)

Immediately dangerous to life or health (IDLH) means 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 means 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.

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

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

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

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of 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 Section 5144 (e), Title 8 CCR.

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

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

Qualitative fit test (QLFT) means 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) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory Protection Program Administrator (RPPA) Designee – Departmental Safety Coordinator or Safety Representative.

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

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

Tight-fitting face piece means a respiratory inlet covering that forms a complete seal with the face.

PROGRAM ADMINISTRATION

1. The Shasta County Safety Officer or his or her designee is responsible for the administration of the respiratory protection program:

Title: County Safety Officer
Division: Support Services – Risk Management
Telephone: (530) 225-5141 Fax: (530) 225-5251

This individual has the authority to act on any and all matters relating to the operation and administration of the respiratory protection program. All employees and departments of Shasta County will cooperate to the fullest extent. The County Safety Officer or his or

her designee is referred to as the *Respiratory Protection Program Administrator* in this program.

Shasta County has adopted a general Respiratory Protection Program for all employees and departments of the County. Those County departments and agencies that have adopted their own RPP will have an RPP that is compatible with the County RPP and will supply a copy of that RPP to the County Risk Management Office.

The Respiratory Protection Program Administrator's responsibilities include but are not limited to:

- Monitoring or conducting an exposure assessment of the respiratory hazard, developing worksite-specific procedures for this program, maintaining records, and conducting program evaluations.
- Contaminant identification and measurement, including technical support, air sampling, and laboratory analysis.
- Directing and coordinating engineering projects which are directly related to respiratory protection.
- Assisting divisions in the selection, issuance, training, and fit testing of respirators used by Shasta County employees, including record keeping.

MEDICAL EVALUATION

Every employee who is being considered for inclusion in the Respiratory Protection Program is required to participate in a medical evaluation. A determination will be made initially upon employment, or change into a job classification requiring respiratory protection and every 24 months thereafter.

Shasta County employees will fill out the "Medical Questionnaire for Respirator Users" which will be reviewed by a PLHCP (physician or other licensed health care professional) or undergo an initial medical examination that obtains the same information as the medical questionnaire. A copy of the Medical Questionnaire for Respirator Users is included in Appendix E.

A PLHCP shall review the answers to the medical questionnaires and provide a written recommendation regarding the employee's ability to use a respirator. The written recommendation shall provide only the following information pursuant to Section 5144 (6)(A):

- 1) Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
- 2) The need, if any, for follow-up medical evaluations; and
- 3) A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

All written recommendations will be returned to the Department. The written recommendations will be addressed to the Department Head. The Department Head can review the recommendations or delegate someone in the department to carry out the necessary actions to achieve full compliance with any limitations for respirator use rendered by the PLHCP.

A follow-up medical examination may be necessary for the PLHCP to make a medical determination about the employee's ability to wear a respirator. A follow-up medical examination will be provided for an employee who gives a positive response to any questions 1 through 8 in Section 2, Part A of the "Medical Questionnaire for Respirator Users" or whose initial medical examination demonstrates the need for a follow-up medical examination. The medical examinations will include any medical tests, consultations or diagnostic procedures that the PLHCP deems necessary to make a final determination.

The medical questionnaire and examinations will be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The questionnaire will be returned to the PLHCP after it has been completed. The employee may discuss the questionnaire and examination results with the PLHCP.

The purpose of the questionnaire and the initial and follow-up examination is to assure that the employees are physically and psychologically able to perform their work while wearing respiratory protective equipment. If the PLHCP denies approval, the employee will not be able to participate in the Respiratory Protection Program.

Additional medical evaluations that comply with the above requirements may be required if:

- A. An employee reports medical signs or symptoms that are related to ability to use a respirator;
- B. A PLHCP, supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated;
- C. Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or
- D. A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

Medical Records: Copies of the completed medical evaluation and questionnaire will be kept by the medical provider in accordance with CCR Title 8, Section 3204.

The following medical provider has been contracted to provide the medical evaluation requirements listed above:

- ◆ *Redding Industrial and Occupational Health (RIOH)*

WORK AREA EXPOSURE EVALUATION

1. WORK AREA EVALUATION

Exposure evaluation will be performed on a periodic basis to provide for a continuing healthful environment for employees and to aid in proper respirator selection. In order to determine the exposure level, air samples of the work place representative of the work period; exposure assessment based on analogous processes; or professional judgment will be used. Personal sampling equipment may be used in accordance with accepted industrial hygiene practice or standards to sample each work area. Results of these samples will pinpoint areas where respiratory protection is required.

The exposure assessment will be performed prior to commencing any routine or non-routine task requiring respiratory protection. Periodically thereafter as required by OSHA substance specific standards or every 12 months, a review of the exposure assessment will be made to determine if respiratory protection continues to be required. If respiratory protection is still necessary, the previously chosen respirators will be reviewed to assure that they still provide adequate protection.

Records of all exposure assessments will be kept by the Respiratory Protection Program Administrator.

2. RESPIRATOR SELECTION

Respirators will be selected and approved for use by management. The selection will be based upon the physical and chemical properties of the air contaminants and the concentration level likely to be encountered by the employee. County departments or their designee will consult with the RPPA, or his or her designee prior to making respirators available to each employee who is placed as a new hire or a transferee to a job that requires respiratory protection. Replacement respirators/cartridges and filters will be made available as required.

The selection of the proper respirator type will be made following the most current respirator selection information. Appendix B contains the respirator selection guide to be used by Shasta County employees.

All respirators shall be NIOSH approved. Respirators will be purchased from various vendors who sell approved respiratory protection equipment.

3. USE OF RESPIRATORS

A. Face piece seal protection

Facial hair or any other condition that prevents direct contact between the face and the edge of the respirator will not be permitted with tight fitting half or full face pieces (negative or positive pressure) or loose fitting face pieces where a contaminant concentration exists at or above the Permissible Exposure Level (PEL) or in an atmosphere that is immediately dangerous to life and health (IDLH). Eyeglasses, goggles, and other personal protective equipment will be worn in a manner that does not interfere with the respirator sealing surface.

Facial hair or any other condition that interferes with the function of exhalation or inhalation valves will not be permitted.

All users of tight fitting face pieces will perform a user seal check each time they put on the respirator as follows

Face piece Positive and/or Negative Pressure Checks.

A. Positive pressure check. Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For 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.

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

C. 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 the department can demonstrate that the manufacturer's procedures are equally effective as those described above.

Methods for performing the user seal checks will be covered in employee training.

B. Continuing respirator effectiveness

Supervisors will maintain ongoing surveillance of employee exposure or stress. If conditions change such that respirator effectiveness may be affected, the respiratory protection program administrator will re-evaluate the respirator selection.

Employees will be allowed to leave the contaminated area:

1. To wash face and face piece as necessary to prevent skin or eye irritation
2. Upon detection of vapor or gas breakthrough, changes in breathing resistance, or face piece leakage
3. To replace the respirator or filter, cartridge, or canister
4. Upon malfunction of the respirator
5. If severe discomfort in wearing the respirator is detected
6. Illness of the respirator wearer, including: sensation of dizziness, nausea, weakness, breathing difficulty, coughing, sneezing, vomiting, fever and chills

If an employee leaves the work area for any of the above reasons, they will not re-enter until the specific problem has been identified and corrected. This may require repair or replacement of the respirator and/or medical reevaluation of the employee.

RESPIRATOR TRAINING AND FITTING

1. TRAINING

Employees, upon assignment to an area requiring respirators, will be instructed by their Supervisors relative to their responsibilities in the respiratory protection program. They will also be instructed in the need, use, limitations, and care of their respirator. The person responsible for respiratory protection training will provide the specific training content pursuant to this document and the Respiratory Protection Standard.

Retraining will be given at least every 12 months after initial training and when changes in the workplace or the type of respirator make the previous training obsolete, inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill, or any other situation arises in which retraining appears necessary to ensure safe respirator use. Records of the training given each individual will be maintained by the Respiratory Protection Program Administrator.

2. FIT TESTING

Employees who use tight fitting half mask air-purifying respirators will be properly fitted and tested for a face seal prior to use of the respirator in a contaminated area. QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less and will be performed every 12 months. This will be done by utilizing the mandatory fit test procedures listed in Appendix G.

Quantitative fit testing will be performed for fit testing of full face piece respirators used in the negative pressure mode for protection greater than 10 times the exposure limit but not to exceed 50 times the exposure limit. If quantitative fit testing is necessary, the testing will comply with the mandatory quantitative fit test protocols in Section 5144, Appendix A-(C), Title 8 of the California Code of Regulations. Quantitative fit testing must also be performed every 12 months.

Fit testing will be done initially upon employee assignment to an area where respirators are required. All tight fitting respirators (negative and positive pressure) will be fit tested. Positive pressure tight fitting respirators will be fit tested in the negative pressure mode.

Additional fit tests will be conducted whenever the employee reports, or the PLHCP, supervisor, or program administrator makes visual observations of changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

If after passing a fit test, the employee subsequently notifies management (e.g., supervisor, program administrator, or PLHCP) 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.

Individual fit testing records will be kept on each individual by completing the Qualitative Fit Test Record and may be found on file at the Departmental Safety Representative's Office or by contacting the respiratory protection program administrator. A copy of the Fit Test Record form is included in Appendix H.

NOTE: If it is determined that an individual cannot obtain an adequate fit or face seal with any negative pressure respirator, a loose fitting powered air purifying or supplied air respirator will be used instead.

Fit testing of employees with any hair growth such as stubble beard growth, beard or long sideburns that extends under the face seal or interferes with valve function is prohibited.

RESPIRATOR INSPECTION, MAINTENANCE AND STORAGE

Respirators will be properly maintained to retain their original effectiveness by periodic inspection, repair, cleaning and proper storage.

1. INSPECTION

The wearer of a respirator will inspect it daily whenever it is in use, prior to use and during cleaning. Supervisors will periodically spot check respirators for fit, usage, and condition. The use of defective respirators will not be permitted. If a defective respirator is found during inspection, it will be returned to the Respiratory Protection Program Administrator.

2. REPAIR

During cleaning and maintenance, respirators that do not pass inspection will be replaced or repaired immediately. Repair of the respirator will be done with parts designed for the respirator in accordance with the manufacturer's instructions. No attempt will be made to replace components or make adjustments, modifications or repairs beyond the manufacturer's recommendation.

3. CLEANING

Respirators not discarded after one shift use will be cleaned on a daily basis (or after each use if not used daily) according to the manufacturer's instructions by the assigned employee or other person designated by the Respiratory Protection Program Administrator. Respirators issued to more than one employee will be cleaned and disinfected before being worn by different individuals. This may require cleaning more frequently than on a daily basis. Respirators used in fit testing and training will be cleaned and disinfected after each use. Facilities and supplies for cleaning respirators will be made available. Cleaning procedures are detailed in Appendix I.

4. STORAGE

Respirators not discarded after one shift use, will be stored in a suitable container away from areas of contamination. The respirators will be stored in a location where they are protected from sunlight, dust, heat, cold, moisture, and damaging chemicals and they will be stored or packed to prevent deformation of the face piece and exhalation valve. Whenever feasible, respirators not discarded after one shift use will be marked and stored in such a manner to assure that they are worn only by the assigned employee.

Respirators will be stored in a clean and dry container or bag. Employees are instructed to keep respirators stored in locations that are not in direct sunlight or in harsh weather.

5. COMPRESSED AIR SYSTEMS

Special precautions will be taken to assure breathing quality air when an airline respirator or SCBA is to be used. This air will meet the specifications for Grade D Air as stated in the Title 8 CCR, Section 5144 Paragraph (i)(1)(B)

Cylinders of purchased breathing air will have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air. Compressors used to supply breathing air to respirators will be constructed and situated so as to prevent entry of contaminated air into the air-supply system, will have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters will be maintained and replaced or refurbished periodically following the manufacturer's instructions. The compressor(s) will have a tag containing the most recent change date and the signature of the person authorized by the program administrator to perform the sorbent bed and/or filter change. The tag will be maintained at the compressor.

For non-oil lubricated compressors, the carbon monoxide levels in the breathing air will not be allowed to exceed 10 ppm. Oil lubricated compressors will use a high-temperature or carbon monoxide alarm or both to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply will be monitored at intervals sufficient to prevent carbon monoxide from exceeding 10 ppm in the breathing air.

EMERGENCY USE RESPIRATORS

Self contained breathing apparatus will be required in specific areas for emergency use. This equipment will be used only by trained personnel when it is necessary to enter hazardous atmospheres.

1. Locations

Self contained breathing apparatus (SCBA) will be found in the following location(s):

- Shasta County Jail
- Cottonwood Wastewater Treatment Plant
- Palo Cedro Wastewater Treatment Plant

2. Special Requirements

All potential users will be fully trained in the use of this equipment. They will also be medically qualified to wear the device.

When the equipment is used, it will be tested in an uncontaminated atmosphere prior to entering the hazardous area.

Respirators maintained for emergency use shall be cleaned and disinfected after each use.

Emergency respirators will be kept accessible to the work area, stored in compartments or covers that are clearly marked as containing emergency respirators and stored in accordance with any applicable manufacturer instructions.

Air and oxygen cylinders of SCBAs will be maintained in a fully charged state and will be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. Emergency use respirators will be certified by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings required, remedial action, and a serial number or other means of identifying the respirator.

This equipment will be inspected monthly and in accordance with the manufacturer's recommendations by trained department or group personnel. Inspection and maintenance information will be recorded in a log book or inspection reports stored in paper or electronic files or an inspection tag or label that is attached to the respirator storage compartment. The inspection/maintenance certification information will be maintained until replaced following a subsequent certification.

PROGRAM EVALUATION

This program will be periodically reviewed and evaluated every 12 months. The evaluations of the workplace will be carried out to ensure that the current written program is effectively implemented. They will include regular consultations with employees using respirators to assess their view on program effectiveness and to identify any problems. Factors to be assessed include: 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 workplace conditions the employee encounters, and proper respirator maintenance.

A written report will be made of each evaluation, summarizing the findings. For each deficiency identified, corrective action taken will be noted. Copies of the summary reports can be obtained from the Respiratory Protection Program Administrator.

VOLUNTARY USE OF RESPIRATORS BY EMPLOYEES

Employees who voluntarily use filtering face pieces (dust masks) in atmospheres that are validated to be below OSHA permissible exposure levels (PEL) are not required to be included in this Respiratory Protection Program. Approved air sampling methods must be used to validate employee exposure levels.

Air sampling requirements do not apply to biological contaminants such as *Mycobacterium tuberculosis* (*M. tuberculosis*) considering that: 1) *M. tuberculosis* in air represents a health hazard; and 2) OSHA has not established a PEL for *M. tuberculosis*.

Departments must determine that voluntary use of respirators will not in itself create a hazard. The respirator user shall be provided with the information contained in Appendix J (“Information for Employees Using Respirators When Not Required Under the Standard”).

Appendix K contains photos of typical respiratory protective equipment described in this program.