LEUCADIA WASTEWATER DISTRICT | LEADERS IN ENVIRONMENTAL PROTECTION

Respiratory Protection Program

Revised April 27, 2017

Respiratory Protection Program

CONTENTS

1.0 PURPOSE (Page 2)

2.0 SCOPE (Page 2)

3.0 POLICY (Page 2)

4.0 DEFINITIONS (Pages 3-6)

5.0 APPLICABILITY (Page 6)

6.0 PROGRAM REQUIREMENTS (Pages 6-7)

7.0 EVALUATING ATMOSPHERIC HAZARDS (Pages 7-8)

8.0 EQUIPMENT SELECTION, MAINTENANCE, AND USE (Page 8)

9.0 RESPIRATOR SELECTION (Pages 8-9)

10.0 PERSONAL HYGIENE (Page 9)

11.0 ANNUAL MEDICAL EVALUATIONS (Pages 9-10)

12.0 REQUIRED TRAINING AND FIT TESTING (Page 10)

13.0 USE OF RESPIRATORY PROTECTION EQUIPMENT (Pages 10-11)

14.0 USER SEAL CHECK FOR TIGHT FITTING RESPIRATORS (Page 11)

15.0 TRAINING (Page 11-12)

16.0 MAINTENANCE, CLEANING, SANITIZING AND STORAGE (Pages 12-13)

17.0 PROGRAM EVALUATION (Page 13)

18.0 MAINTAIN RECORDS (Page 13)

19.0 VOLUNTARY USE OF RESPIRATORS (Page 14)

RESPIRATORY PROTECTION PROGRAM

1.0 PURPOSE

The CAL-OSHA General Industry Safety Order for respiratory protection Title 8, Section 5144 requires that a respiratory protection program shall be established by an employer if it requires employees to use respiratory protection equipment. The following program is based on Title 8 California Code of Regulations (T8CCR) Section 5144 as established by the state of California.

Occupational Health and Safety Administration and applicable government standards. The guidelines in this program are designed to help reduce employee exposures against harmful dusts, fumes, mists, gases, and vapors. The primary objective is to prevent excessive exposure to these contaminants. Where feasible, exposure to contaminants shall be eliminated by engineering controls (example, general and local ventilation, enclosure or isolation, and substitution of a less hazardous process or material). When effective engineering and/or administrative controls are not feasible or applicable, use of personal respiratory protective equipment may be required to achieve this goal.

2.0 SCOPE

The Respiratory Protection Program establishes requirements for the approval, selection, use and storage of respirators, medical approval, and periodic environmental monitoring if needed. This program also provides guidance for the selection and use of respiratory protection based on the hazards and conditions of District operations.

3.0 POLICY

Engineering and/or administrative controls shall first be employed to eliminate or reduce employee exposure to airborne contaminants. When employee exposure cannot be controlled through these methods, because engineering controls are either infeasible, ineffective or being installed, or when emergency conditions exist, personnel shall wear respiratory protection equipment in accordance with this program. The District Field Services Supervisor shall be the administrator for the program.

4.0 DEFINITIONS

AIR-SUPPLY DEVICE: A blower, a compressor, compressed air bottles/cylinders or other source of grade D air for the air-line respirator.

ASSIGNED PROTECTION FACTOR (APF): The minimum anticipated protection provided by a properly functioning respirator or class of respirators to a given percentage of properly fitted and trained users.

BREAKTHROUGH: When the capacity of an air purifying cartridge or canister is exceeded, and contaminants are no longer removed from the breathed air (see Service life).

BREATHING TUBE: A tube through which air flows to the face piece, mouthpiece, helmet, hood or suit.

CANISTER (AIR-PURIFYING): A container with a filter, sorbent, catalyst or any combination thereof, which removes specific contaminants from the air drawn through it.

CARTRIDGE: A container filled with a medium which purifies the air by removing specific chemical contaminants by filtering, absorption, reaction, or a combination of these.

DEMAND FLOW RESPIRATOR: An atmosphere-supplying respirator which delivers airflow only when negative pressure is created inside the face piece 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 potentially harmful release of an airborne.

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; example, that the sorbent is approaching saturation and is no longer effective.

ESCAPE ONLY RESPIRATOR: Respiratory protection devices that are designed for use only during escape from hazardous atmospheres.

FACEPIECE: That portion of a respirator that covers the wearer's nose and mouth in a quarter-mask (above the chin) or half-mask (under the chin) face piece, or that covers the nose, mouth, and eyes in a full-face piece respirator.

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: Use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

FULL FACE AND HALF FACEMASKS WITH CARTRIDGES: These devices contain cartridges that remove gases and vapors. They may be single-use (disposable) or replaceable cartridges.

FUME: A solid condensation particulate, usually of a vaporized metal.

GAS: An aeriform fluid that is in a gaseous state at standard temperature and pressure.

HAZARDOUS ATMOSPHERE: Any atmosphere that is oxygen deficient or which contains a toxic or disease-producing contaminant exceeding the legally stablished limit.

HIGH-EFFICIENCY PARTICULATE AIR FILTER (HEPA): A filter that is at least 99.97% efficient in removing mono-dispersive particulates of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): Exposure to airborne contaminants that is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment.

LOOSE-FITTING FACE PIECE: A respiratory inlet covering that is designed to form a partial seal with the face.

MIST: A liquid condensation particulate

NEGATIVE PRESSURE RESPIRATOR (TIGHT FITTING): 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: An atmosphere with oxygen content below 19.5% by volume.

PHYSICIAN OR OTHER LICENSED HEALTH CARE PROFESSIONAL: Individual whose legally permitted scope of practice allows them to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by T8 CCR 5144(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 face piece when the positive pressure is reduced inside the face piece by inhalation.

QUALITATIVE FIT TESTING (QLFT): A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's sensory response to the test agent.

QUANTITATIVE FIT TESTING (QNFT): An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

RECOMMENDED EXPOSURE LIMIT (REL): An 8 or 10-hour time-weighted average (TWA) or ceiling (C) exposure concentration recommended by NIOSH that is based on an evaluation of the health effects data.

RESPIRATOR: A device designed to protect the wearer from the inhalation of harmful atmospheres. Respirator types: air-line; air-purifying; positive pressure; powered air-purifying; pressure-demand; self- contained breathing apparatus (SCBA); supplied-air.

RESPIRATORY INLET COVERING: The 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 face piece, 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 length of time required for an air- purifying element to reach a specific effluent concentration. Service life is determined by the type of substance being removed, the concentration of the substance, the ambient temperature, the specific element being tested (cartridge or canister), the flow rate resistance, and

the selected breakthrough value. The service life for a self- contained breathing apparatus (SCBA) is the period of time, as determined by the NIOSH certification tests, in which adequate breathing gas is supplied.

SINGLE-USE DUST OR DUST AND MIST RESPIRATORS: Respirators approved for use against particulate or mists that may cause pneumoconiosis and fibrosis.

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 FACE PIECE 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.

VAPOR: The gaseous state of a substance that is solid or liquid at standard temperature and pressure.

5.0 APPLICABILITY

This program applies to employees, supervisors, and managers, under the direct supervision of District personnel who performs or assists with specific operations, functions, or processes for which respiratory protection equipment is or may be required wherever they may be located.

6.0 PROGRAM REQUIREMENTS

This written respiratory protection program identifies the following:

- respirator selection,
- personal hygiene
- medical evaluations,
- fit testing,
- use of respirators,
- the maintenance and care of respirators,
- training, and
- program evaluation

6.1 Assessment and Evaluation of Hazards and Responsibilities

The Field Services Supervisor is responsible for:

A. Evaluating the environmental conditions in work areas, identifying the introduction of toxic substances, monitoring the potential for increase in potential exposure, and other conditions which could increase employee exposure or stress.

B. Evaluating the need for and recommending engineering and/or administrative controls to eliminate or reduce respiratory hazards.

Management Responsibilities:

A. Determine what specific tasks or activities require use of respiratory equipment. Management must also provide proper respiratory protection equipment to meet the needs of each specific application. Management ensures that all affected employees attend annual respiratory protection training, have clear work instruction, and obtain annual medical clearance before wearing a respirator.

B. Managers, supervisors, or lead staff members of each area are responsible for insuring 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.

C. Implementing identified engineering and/or administrative controls to eliminate or reduce respiratory hazard.

6.2 Employees

It is the responsibility of the employee to attend scheduled respiratory protection training needed for their work areas prior to the use of a respirator. Employees are also responsible for wearing the appropriate respiratory protection equipment according to proper instructions and for maintaining the equipment in a clean and operable condition.

7.0 EVALUATING ATMOSPHERIC HAZARDS

Any environment in which it is not possible to determine or reasonably estimate oxygen content and/or identify unknown employee contaminant exposure shall be considered an Immediately Dangerous to Life and Health (IDLH) environment. Under normal operating conditions, employees shall not work in an environment with an atmosphere that is Immediately Dangerous to

Life and Health (IDLH). Trained Emergency Responders are the only exception to rule and then only with the concurrence of the Safety Officer.

7.1 Field Services Technicians shall inform the Supervisor or the Superintendent immediately when performing operations that involve respiratory hazards other than those which are normally encountered in the tasks to which they have been assigned.

7.2 After being contacted by the Field Services Technician, the Supervisor or Superintendent shall evaluate the atmosphere to determine if IDLH conditions exist or are likely to exist and shall provide assistance as necessary.

7.3 If atmospheric testing during an operation indicates that IDLH conditions exist that were not previously identified, the operation shall be stopped immediately and the area shall be vacated.

8.0 EQUIPMENT SELECTION, MAINTENANCE, AND USE

Specific respirator selection shall be made available by District Management based on assessment of employee exposure.

8.1 IDENTIFY RESPIRATORY HAZARDS

Many factors affect an employee's ability to use a respirator effectively. These factors include breathing without objectionable effort, adequate visibility under all conditions, provisions for wearing prescription glasses (if necessary), ability to communicate, ability to perform all tasks without undue interference and confidence in the face piece fit. Respirator protection factors range from 5 to 10,000. A respirator with a protection factor of 5 can be used safely when the concentration of a known substance is up to, but not more than, 5 times the substance's Permissible Exposure Limit. The Maximum Use Level of any respirator is a calculated number dependent upon on the encountered contaminants Permissible Exposure Limit (PEL) times the protection factor.

Maximum Use Level = Protection Factor x Permissible Exposure Limit

At no time shall an employee be allowed to use a respirator in an environment which exceeds the Maximum Use Level for that respirator.

Supervisors shall review work conditions and the specific jobs assigned to employees for identifying hazards requiring the use of a respirator.

9.0 RESPIRATOR SELECTION

9.1 If respiratory protection is required, the appropriate respirator shall be chosen by conducting a review of the following:

A. Potential exposure to airborne contaminant

B. Work operations to be performed

C. Fit and comfort level of employee performing work

9.2 Employees shall only use the brand and size of respirator for which they were trained and fit tested and shall only use the approved respirator that was selected for the specific operation.

9.3 A respirator shall not be worn while engaged in any activity which has been identified as resulting in exposure to dusts, mists, fumes, gases, or vapors that are outside of the maximum use level capability of that respirator.

10.0 PERSONAL HYGIENE

10.1 Facial Hair
CAL-OSHA TITLE 8, Section 5144(g)(1)(A)(1) specifically states that no facial hair is acceptable that is between the face and face piece. Additionally, remaining facial hair shall be groomed so as not to interfere with the face piece seal or operating parts of the respirator. Any employee who fails to maintain facial hair in this manner would not be approved to wear a respirator, even though previously fit tested with a particular device. Therefore, the District requires all employees required to wear a seal-type respirator to be clean shaven in the area of the face where the face piece of the respirator seals against the skin.

11.0 ANNUAL MEDICAL EVALUATIONS

11.1 An employee must obtain initial and subsequent annual medical clearance before using a respirator.

This shall be accomplished by using a physician or other licensed health care professional (PLHCP) to provide an initial examination for new employees that obtains the same information as the medical questionnaire required by Title 8, Section 5144 (Appendix D), for ***all personnel*** that are required to wear respirators. Each employee may discuss the questionnaire with the examining Physician.

11.2 A medical exam will be required for any employee that gives a positive answer to questions 1 through 8 in section 2, Part A, of the respirator medical evaluation questionnaire regarding the use of any type of respirator.

11.3 Departments are required to provide the PLHCP with the type of respirator used, the duration and frequency of use, the amount of effort required to do job, any additional PPE required and the weather conditions that may be encountered.

11.4 The PLHCP shall provide a written recommendation to the District and the employee concerning ability to utilize a respirator. The recommendation must identify any limitations on use and/or the need for further medical evaluations.

11.5 The employee's supervisor shall schedule a medical examination for the employee through the Administrative Services Supervisor. After receiving medical approval, the employee will be scheduled for fit testing on the make/model of respirator used.

11.6 Medical re-evaluations will occur under the following circumstances:

- Medical signs or symptoms that affect the ability to use a respirator.
- The District is informed that the employee needs to be reevaluated. This includes observations made during fit testing, program evaluation and changes to the work environment.

12.0 REQUIRED TRAINING & FIT TESTING

12.1 Employees must complete the requisite respiratory protection training and be fit tested before using a respirator. Upon completion of respirator training, the employee may be issued the appropriate respirator(s) and fit tested.

12.2 Employees must be fit tested at least annually after initial training.

12.3 The Port-a-Count quantitative fit tester or equivalent or Certified Negative Pressure test shall be used for the annual fit test in conformance with Title 8 CCR, Section 5144, Appendix A.

13.0 USE OF RESPIRATORY PROTECTION EQUIPMENT

13.1 RESPIRATORY PROTECTION EQUIPMENT MUST BE APPROVED AND ISSUED BY THE DISTRICT.

Examples of types of respirators that may be available for use are as follows:

A. Air Purifying Cartridge Respirators
B. Air-Line Respirators
C. Self-Contained Breathing Apparatus (SCBA)
D. Dust Masks

13.2 Respirators that are used by multiple employees shall be properly cleaned, sanitized, and stored after every use.

13.3 The employee must immediately advise the supervisor of problems or concerns regarding the use of a respirator so they may be promptly resolved.

13.4 Failure to follow instructions and warnings on the use of the approved product and/or failure to wear the approved respirator at all times during exposure can reduce respirator effectiveness.

14.0 USER SEAL CHECK FOR TIGHT FITTING RESPIRATORS

14.1 NEGATIVE *PRESSURE CHECK*

A. 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).

B. Inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds.

C. 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.

Note: 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.

14.2 POSITIVE *PRESSURE CHECK*

A. Close off the exhalation valve and exhale gently into the face piece.

B. 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.

Note: 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.

15.0 TRAINING

15.1 All personnel who use respiratory protection must be trained and fit tested as required by the respiratory protection regulation. This training shall include but not be limited to:

A. Knowledge of respiratory hazards typical to the District activities and operations
B. Types of respiratory equipment provided by the District.
C. Proper use of protective devices.
D. How to properly put on and take off, and test respiratory protection equipment
E. Sanitary care and proper storage of respiratory protective devices

F. Inspection and maintenance procedures
G. Equipment limitations

15.2 Supervisors of employees who are required to use respirators must attend a respiratory protection training class which includes a discussion of the requirements of this procedure which are applicable to their employee(s).

15.3 Employees must receive quantitative fit testing at least annually after initial training.

16.0 MAINTENANCE, CLEANING, SANITIZING, AND STORAGE

16.1 Employees are responsible for the maintenance of respirators individually issued to them. The employee must maintain the respiratory protection equipment in proper working order. Respirators must be cleaned and sanitized after each use and inspected before each use in accordance with training received and manufacturer's instructions.

16.2 The following method shall be used when cleaning and sanitizing a respirator:

- ✓ Remove all filters cartridges, canisters, and hoses. Disassemble face piece per manufacturer's recommendations. This may include the speaking diaphragm, inhalation valves and exhaust valves. Discard or repair any defective parts.
- ✓ Wash components in warm water (110 deg. F. maximum) with a cleaner/sanitizer recommended by the manufacturer. A stiff bristle brush may be used to remove dirt.
- ✓ Rinse components in clean warm, preferably running water. Drain. The importance of rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces can be a source of dermatitis and/or may cause deterioration of rubber or corrosion of metal parts.
- ✓ Components should be hand dried or air dried.
- ✓ Reassemble face piece, replacing all parts removed.
- ✓ Test the respirator to ensure that all parts are working correctly.

16.3 Supervisors must insure that SCBAs maintained for emergency use under their control are inspected at least monthly, and records of the inspection are maintained with the respirator, attached to, or in its storage container.

16.4 Respiratory protective equipment must be stored in a convenient, clean and sanitary location, away from direct sunlight and extreme temperatures.

16.5 The following points should be considered for respirator inspection and maintenance:

- ✓ Respirators will be inspected before each use.
- ✓ Field Services Technicians will periodically spot check respirators for fit, usage, and condition.
- ✓ Respiratory protective equipment shall be repaired or replaced as required by the manufacturer.
- ✓ SCBA regulators shall be inspected during the annual fit test and repaired as necessary.
- ✓ Respirators when not discarded will be cleaned and sanitized after each use by the assigned employee.
- ✓ Respirators shall be stored in a suitable container to protect against dust, sunlight, extreme temperatures, excessive moisture, or damaging chemicals.
- ✓ Field Services Technicians shall inspect respirators after each cleaning for fatigue of the face piece, valves, straps, filters, cartridges, or canisters to insure proper working conditions.

17.0 PROGRAM EVALUATION

To assure the adequacy of this respiratory protection program, monitoring of the program's performance is conducted on an ongoing basis to identify deficiencies and make corrections as needed. The Field Service Supervisor or the Field Services Technicians shall verify that there are no feasible alternatives to respirators before their use. In addition, they shall conduct regular workplace evaluations for respiratory hazards to determine whether the correct respirators are being used and worn properly. The evaluation will also determine whether the training program needs to be updated.

18.0 MAINTAIN RECORDS

18.1 Training records, which include employee name, date of training, name of instructor and location of the training class shall be maintained for three years.

18.2 Fit test records that include employee name, date of training, name of instructor, the brand, model and size of respiratory protection shall be maintained for the length of employment.

19.0 VOLUNTARY USE OF RESPIRATORS ~ §5144 Appendix D

19.1 Information for Employees Using Respirators When Not Required Under the Standard (Mandatory)

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 the District provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.

2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

LWD's Respirator Inventory List:

Types of Respirators	Usage	Location(s)
Single Use Dust Masks (multiple)	For tasks requiring protection against smoke, dust, paint fumes, etc.	Operations Bldg No. 200 and inside pump truck #154
Air Purifying Cartridge Respirators/ (1) Disposable Half Facemask	Petrochemicals, chemical manufacturing, and construction	Operations Bldg No. 200
One Escape Only Respirator	Used only to escape from areas in emergency situations (confined space entries)	Operations Bldg No. 200
Two Self-Contained Breathing Apparatus (SCBA)	Confined space entries	Operations Bldg No. 200 (in bright orange cases)