

Revised: 6/10/99

.1 Policy Statement

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It is the policy of the City of Tulsa to provide our employees with a safe and helpful working environment. It is therefore necessary that all personnel who respond and function in areas ~~of~~ with hazardous concentrations of atmospheric contaminations be equipped by their department with the proper respiratory protection and trained in its use and maintenance. Respiratory protection shall meet or exceed the minimum requirements of ANSI Z88.2-~~1998~~ 2015 as required by 29 CFR 1910.134, 156, 1001; ~~and 29 CFR 1926.58~~ 29 CFR 1926.103, 103 and 40 CFR 769.121.

~~.3~~ .2 Purpose

The primary objective in controlling employee exposure to hazardous atmospheric conditions is to prevent contamination. This shall be accomplished to the extent feasible through engineering controls. The practices and procedures described here constitute the program under which ~~respirators are~~ respiratory protection is effectively utilized by employees of the City of Tulsa when engineering controls are not feasible or do not reduce the hazardous concentrations to acceptable levels.

~~.4~~ .3 Definitions

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.

Assigned protection factor means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program.

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 (SARs) 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.

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

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

End-of-service/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.

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

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

Filtering facepiece (dust mask) means 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 means a quantitative estimate of the fit of a particular respirator/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 means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

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

High efficiency/High efficiency particulate/Particulate air/Air (HEPA) filter means 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 means 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) means an atmosphere poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an ~~individual's ability~~individual's ability to escape from a dangerous atmosphere.

~~Loose fitting facepiece 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 facepiece 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 Licensed health Health care Care professional 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 under respiratory protection standards. by this OSHA.~~

~~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.~~

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

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

Quantitative fit-Fit test-Test (QNFT) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

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

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

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

Supplied-air-Air respirator-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 facepiece means a respiratory inlet covering that forms a

complete seal with the face.

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

#### 5.4 Responsibilities

This outline of responsibilities for those persons involved will help the overall program development. The following responsibilities are not all ~~inclusive, but inclusive but~~ are designed to give guidance.

.41 The Respirator Program Administrator is the ~~Manager of Safety and Health~~Senior Safety Coordinator and shall be responsible for:

- ~~• Ensuring that EPA, OSHA, ANSI, and Oklahoma Department of Labor Rules and Regulations are followed, including the manufacturer's specifications. In the event of any conflict between specification and rules the most stringent shall apply.~~
- Providing Technical assistance in determining the need for respirators and in the selection of the appropriate types.
- Periodically evaluating the respiratory protection program
- ~~• Providing surveillance of work area conditions~~
- Providing educational materials to be used in employee training
- Assisting in the Implement~~implementation of~~ training and instructional programs
- Establishing written procedures for regularly evaluating the effectiveness of the respirator program
- Administering the overall program

.42 ~~Department~~Division/Section Managers of Division/Section Head shall be responsible for:

- Ensuring that all management personnel are aware of the Respiratory Protection Program
- Ensuring that all divisions/sections who use respirators are adequately budgeted to include purchase of appropriate respirators, cartridges, canisters, cleaning agents and fit testing services.
- Establishing and implementing a written respiratory protection program with worksite specific procedures to include written procedures for proper use of respirators in routine and reasonably foreseeable emergency situations
- ~~• Establishing and implementing a written respiratory protection program with worksite specific procedures to include written procedures for proper use of respirators~~
- ~~• in routine and reasonable foreseeable emergency situations; written procedures for cleaning, disinfecting, storing, inspecting, repairing, discarding and maintaining respirators along with written schedules; written procedures to ensure adequate air quality, quantity and flow of air for atmosphere supplying respirators; written training outline covering proper use of respirators, how to~~

~~put on and take off respirators, limitations of respirators and maintenance of respirators.~~

- ~~• Conduct or ensure~~Ensuring a review and evaluation of their division/section's overall rRespiratory pProtection pProgram including perusal of training documentation, cleaning and maintenance documentation and routine inspection documentation
- Appoint a division/section Respiratory Program Coordinator and submit this name in writing to the Senior Safety Coordinator
- ~~• Appoint a department and/or division/section Respiratory Program Coordinator and submit this name(s) in writing to the Manager of Safety & Health~~

• ~~Exempt Supervisor shall be responsible for:~~

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- Ensuring that OSHA, ANSI, and Oklahoma Department of Labor Rules and Regulations are followed, including the manufacturer's specifications. In the event of any conflict between specification and rules the most stringent shall apply.
- Performing a written hazard assessment identifying and evaluating the respiratory hazard(s) in the workplace. (Keep a copy of form TUL-4765 A "Request for Medical Clearance" when filling out for employees' pulmonary function tests. ~~All pertinent information for a hazard assessment is on this form.~~)Information from this form can be used in performing the written hazard assessment.
- Providing surveillance of work area conditions
- Ensuring that affected employees receive initial and annual training on the use, limitation, maintenance, ~~cleaning~~ storagecleaning, storage and inspection or respirators is accomplished ~~on an annual basis~~ and that training documentation, (TUL-4711), including the signatures of the attendees, is on file and can be produced for Safety Compliance Audit.
- Ensuring that documentation of ~~inspections (once a month)~~monthly inspections is maintained (TUL- 4710A), ~~and) and~~ and can be produced for Safety Compliance Audit.
- Ensuring that the employees using respirators are fit tested annually and when the shape of the user's face has ~~changed~~changed, and that documentation is maintained and can be produced for Safety Compliance Audit.
- Ensuring that employees using respirators are sent to City Medical for their annual pulmonary function test and that documentation is maintained and can be produced for Safety Compliance Audit. (See Safety Policy #107.2 for schedule)
- Filling out the "Request for Medical Clearance" for (TUL-4765A) for their employees who use respirators.
- Ensuring that appropriate respirators are in use by their employees when needed and that respirators are maintained, cleaned, inspected and stored appropriately and employees fill

out inspection documentation on TUL-4710A.

~~.42.44~~ Employees shall be responsible for:

- Using the respirator supplied to him/her in accordance with instruction and training, always guarding against damage
- Properly maintaining, cleaning, inspecting (once a month), and storing the respirator and documenting the above procedures; documentation to be turned into their supervisor
- Reporting respirator malfunctions or other ~~respirator~~respiratory problems to their supervisor
- Taking their “Request for Medical Clearance for Respirator Use” form, filled out by their supervisor, with them to City Medical for their pulmonary function test

~~.45~~ Department Respirator Program Coordinator(s), who shall be an ~~exempt-competent~~ employee, shall be responsible for:

- Working with the Unit Manager/Section Head and Program Administrator in identifying all jobs requiring the use of respirators
- Working with the Unit Manager/Section Head and Program Administrator in identifying types of respirators to be used in jobs requiring respirators
- Working with the Unit Manager/Section Head and Program Administrator —in auditing the section for the appropriate documentation of training, fit testing, inspections, maintenance of respirators
- Assists exempt supervisors in scheduling of annual fit testing and medical surveillance for respirator wearers

~~.46~~ City Medical shall be responsible for:

- Making an individual determination as to whether or not each respirator wearer can wear the required respirator without physical or psychological risk. City Medical has set up a schedule for such determinations (See Safety Policy #107.2)
- Administering the Respirator Medical Evaluation Questionnaire at City Medical to the individual respirator wearer

~~.461—461~~ Procedures for Medical Surveillance:

- a) Exempt supervisors shall contact City Medical to schedule their employees’ pulmonary function tests.
- b) Exempt supervisors shall fill out form TUL-4765A “Request for Medical Clearance for Respirator Use” for each of their respirator wearers, keeping a copy for their records showing a written hazard assessment was performed.
- c) Employee takes the filled out TUL-4765 A form with them to

their appointment at City Medical and gives it to the City Medical Staff assisting with the “OSHA Medical Evaluation Questionnaire”

- d) After completing the “OSHA Medical Evaluation Questionnaire” with the employee, the Medical Staff makes a determination of whether or not the employee is permitted to use a respirator, marks the appropriate box on the TUL-4765A “Request for Medical Clearance for Respirator ~~Use~~;Use”, signs the form, keeps a copy and gives a copy to the employee.
- e) Employee takes his copy of “Request for Medical Clearance for Respirator Use” back to supervisor to be filed and used again later.
- f) When fit testing is scheduled the employee is to go to the scheduled appointment with his copy of TUL-4765A “Request for Medical Clearance”
- g) Fit testing ~~contractor-facilitator~~ will take the “Request for Medical Clearance” form which indicates permission for this employee to wear a ~~respirator, and respirator~~ and performs the fit test with the appropriate respirator.
- h) Fit testing ~~contractor-facilitator~~ will determine the fit of the respirator, ~~fill-out paper-work~~ complete the documentation and send employee back to work with a copy of the fit testing documentation.
- i) This fit testing documentation is to be given to the exempt supervisor and filed accordingly so that documentation can be produced for the Safety Compliance Audit.

#### .6.5 Training

.51 Respirator training for affected employees shall occur at least annually and more often if changes in the work place or the type of respirator render previous training obsolete, or if inadequacies in the employee’s knowledge or use of the respirator indicate the employee has not retained the requisite understanding or skill.

.52 Training shall be comprehensive and understandable so that each respirator wearer can demonstrate knowledge of:

- why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator
- what the limitations and capabilities of their respirator are
- how to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions
- how to inspect, put on and remove, ~~use and check the seals of the~~

respirator perform seal checks on respirators

- what the procedures are for maintenance and storage of the respirators
- how to recognize medical signs and symptoms that may limit or prevent the effective use of respirators

~~.52.53~~ Training shall be provided prior to requiring the employee to use a respirator in the work place.

~~.53~~ ~~The exempt supervisor is responsible for seeing that comprehensive and understandable respirator training is accomplished and retraining is conducted at least annually.~~

.54 Respirator training shall be documented on TUL-4711, "Respiratory Training Log."

.7.6 Selection of Respirators

.61 The ~~Unit Manager/ Section Head~~division/section managers along with the division/ section Respirator Program Coordinator and the exempt supervisor shall select and provide the appropriate respirator based on the respiratory hazards to which the worker is exposed, and workplace and user factors that ~~effect~~affect respirator performance and reliability. They shall identify and evaluate in writing, the respiratory hazards and identify the contaminant's chemical state and form. (The exempt supervisor's copy of TUL-4765A "Request for Medical Clearance for Respirator Use" can serve as written documentation that a hazard assessment has been performed.)

.62 The above individuals selecting the respirators shall provide from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits the user.

.63 Only a NIOSH certified respirator shall be ~~selected~~selected, and they shall be used in compliance with the conditions of their certification.

.64 Where the exempt supervisor cannot identify or reasonably estimate the employee exposure, the Unit Manager/Section Head, division/section Respirator Program Coordinator and the exempt supervisor shall consider the atmosphere to be IDLH. All oxygen deficient atmospheres shall be considered IDLH.

.65 Department shall provide the following respirators for employee use in IDLH atmospheres:

~~.651~~651 A full facepiece demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or

~~.652~~652 A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

~~.653~~653 Respirators provided only for escape from IDLH

atmospheres in which they will be used.

.66 The department shall provide respirators appropriate for the chemical state and physical form of the contaminant (atmospheres that are not IDLH).

~~.661—661~~ For protection against gases and vapors the department shall provide an atmosphere-supplying respirator or an air-purifying respirator provided that the respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant.

~~.662~~ If there is no ESLI appropriate for conditions in the workplace, the department shall implement a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.

~~.662—663~~ For protection against particulates, the department shall provide an atmosphere-supplying respirator or an air-purifying respirator equipped with a filter certified by NIOSH as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84, or for contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

#### ~~.8.7~~ Fit Testing the Respirator

.71 Employees wearing tight-fitting facepiece respirators shall be fit tested annually and whenever a different respirator facepiece (size, make, model, style) is used. The employee shall have to pass an OSHA accepted qualitative fit test (QLFT) or quantitative fit test (QNFT) protocol.

~~.72~~ Employee must be fit tested with the same make, model, style and size of respirator that will be used in the workplace.

~~.72.73~~ Fit testing will be performed with the employee wearing any likely personal protective equipment needed in addition to a respirator.

~~Beards are prohibited or respirator users. Respirator wearers shall not have facial hair that comes between the sealing surface of the respirator and the face or affects the valve function.~~

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~~.73.71~~ Respirators shall not be worn when conditions prevent a good face seal. The following conditions that may effect a good face seal: sideburns, facial hair, skullcap that project under the facepiece, temple bars on glasses, the absence of one or both dentures,

~~cosmetic surgery, body weight.~~

~~.74.75~~ An out side contractor shall perform the fit test on all respirator users. Fit testing shall be scheduled by the Unit ~~Mananger~~Manager/Section Head or his/her designee.

~~.75.76~~ After failing a QLFT or QNFT the employee shall be given a reasonable opportunity by the department to select a different respirator facepiece and be re-tested at another time.

## .9.8 Use of Respirators

.81 ~~The department~~Exempt supervisors shall ensure that the employee wearing tight fitting respirators perform both a positive and negative pressure user seal check each time they put on the respirator.

.811 Positive Pressure Seal check procedure:

- 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 replace it after the test.
- ~~☐ 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 replace it after the test.~~
- ☐ Close off the exhalation valve and exhale gently into the facepiece.
- ☐☐☐☐ 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.

~~.812—812~~ Negative Pressure Seal check procedure:

- Close off the inlet opening of the canister or cartridge by covering with the palm of the hand or by replacing the filter seals.
- Inhale gently so that the facepiece collapses slightly, and slightly and hold the breath for ten seconds.
- If the design of the inlet opening on the cartridge does not permit the hand to cover it entirely then perform the test by covering the inlet opening with a thin latex or nitrile glove.
- If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected the tightness or the seal is considered satisfactory.

~~.813—813~~ 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 demonstrates that

~~the manufacturer's procedures are equally effective.~~

.82 Respirators shall not be removed in hazardous environments.

.83 Respirators shall not be worn when conditions prevent a good face seal or affect the function of exhalation valves. The following conditions that may ~~effect~~affect a good face seal or impact exhalation valves: sideburns, facial hair, skullcap that project under the facepiece, temple bars on glasses, the absence of one or both dentures, cosmetic surgery, body weight.

~~.82~~ ~~Respirators shall not be worn when facial hair is present between the face and respirator seal or when facial hair effects the function of the exhalation valve.~~

~~.83.~~.84 Use of respirators in IDLH atmospheres

~~.831—841~~ .841 The department shall ensure that one employee or, when needed, more than one employee is located outside the IDLH atmosphere.

~~.832—842~~ .842 Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH.

~~.833—843~~ .843 ~~The department~~An Exempt Supervisor shall ensure that the employee(s) located outside the IDLH atmosphere is trained and equipped to provide effective emergency rescue; \_\_\_\_\_ that they are equipped with pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; that they are equipped with appropriate retrieval equipment for removing the employee who entered the hazardous atmosphere.

~~.834—844~~ .844 The employee shall notify the ~~department~~Division Manager before ~~he/she enters~~entering the IDLH atmosphere.

~~.835—845~~ .845 The rescuing employee shall notify the Division Manager ~~department~~ before he/she enters the IDLH atmosphere.

.10.9 Maintenance of Respirators

The department shall ensure that a program for maintenance of respirators shall include cleaning sanitizing, inspection for defects and documentation of defects, repair of defects and documentation of the repair, and storage.

.91 Cleaning and disinfecting

~~.911—911~~ .911 Respirators shall be cleaned and disinfected at the following intervals:

- ☐—Those issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary and working condition.
- ☐—Those issued to more than one employee shall be cleaned and disinfected before being worn by different individuals.
- ☐—Those maintained for emergency use shall be cleaned and disinfected after each use.
- As instructed by the manufacturer.....

.912—912 Procedures for cleaning and disinfecting respirators:

- Remove filter, cartridges, or canisters. Disassemble facepiece by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, any components recommended by the manufacturer. Discard or repair defective parts.
- Wash components in warm water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- Rinse components thoroughly in clean, warm, preferably running water.
- ~~When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in hypochlorite solution (one milliliter of laundry bleach to one liter of water); or aqueous solution of iodine (0.8 milliliter of tincture of iodine to one liter of water).~~
- Double rinse components thoroughly in clean, w. Warm, preferably running water
- Components should be hand dried with a clean lint free cloth or air dried.
- Reassemble facepiece. Replacing filter, cartridges and canisters.
- Test the respirator to ensure that all components work properly.
- Document the cleaning and disinfecting

.92 Storage of Respirators

.921 The department shall ensure that all respirators are stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be stored in plastic zip-locked bags and packed in such a manner as to prevent deformation of the facepiece and exhalation valve.

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

.93 Inspection of Respirators

.931\_\_\_—The department shall ensure that all respirators are ~~inspected~~inspected, and that inspection is documented in writing on TUL-4710A.

~~.932—~~932\_\_\_ All respirators used in routine situations shall be inspected before each use and during cleaning.

~~.933—~~933\_\_\_ All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendation, ~~and shall be checked for proper function before and after each use.~~

~~.934—~~934\_\_\_ Emergency escape-only respirators shall be inspected before being carried into the workplace for use.

.94 Repairs and Part Replacement

The department shall ensure that respirators that fail an inspection or are otherwise found to be defective are removed from ~~service,~~ and service and are discarded or repaired or ~~adjusted—~~inadjusted in accordance with the manufacturer's recommendations and specifications, by only those individuals appropriately trained to perform such operations, and shall use only the respirator manufacturer's NIOSH approved parts designed for the respirator.

.10 —Voluntary Respirator Use

The use of respiratory protection on a voluntary basis is permissible as determined by department management. If employees are permitted to voluntarily utilize respiratory protection greater than filtering facepiece respirators the prescribed program, along with any training and medical evaluations is still required.