

The City of  
Redlands



Permit-Required Confined Space Program  
Rev. March 2017

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## Permit-Required Confined Space Program

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### I. Policy

This program has been developed to protect City employees from the serious hazards associated with entering and working within confined spaces. All entries into confined spaces will be in accordance with Cal/OSHA rules and regulations, as well as the procedures outlined in this program. Only employees trained and authorized may enter a confined space. This program will establish the responsibilities, training standards, and procedures for work performed in confined spaces.

### II. Authority

California Code of Regulations, Title 8, 5156-5158

California Code of Regulations, Title 8, 1950-1962

### III. Scope

This program applies to all City employees working in areas exposed or with potential for exposure to the atmospheric hazards and/or physical hazards present in confined spaces, whether infrequently or on a regular basis.

### IV. Definitions

- A. **Acceptable Entry Conditions**- the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.
- B. **Adjacent Spaces**- Those spaces in all directions from a confined space, including all points of contact, corners, diagonals, decks, tank tops and bulkheads.
- C. **Alternate Entry Procedures**- procedures that may be used when the only hazard of a confined space, based upon monitoring and inspection data, is an actual or potential hazardous atmosphere in which continuous forced air ventilation alone is all that is needed to maintain the permit required confined space for safe entry.
- D. **Attendant**- an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.
- E. **Authorized Entrant**- an employee who is authorized by the employer to enter a permit space.
- F. **Blanking or Blinding**- the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.
- G. **Confined space**- space that:
  - 1. Is large enough and so configured that an employee can bodily enter and perform assigned work;
  - 2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
  - 3. Is not designed for continuous employee occupancy.
- H. **Double Block and Bleed**- the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.
- I. **Emergency**- any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

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- J. **Engulfment**- the surrounding and effective capture of persons by liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or can exert enough force on the body to cause death by strangulation, constriction, or crushing.
- K. **Entry**- the action by which a person passes through an opening into a permit-required space. Entry is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.
- L. **Entry Permit (Permit)** - the written or printed document that is provided by the employer to allow and control entry into a permit space.
- M. **Entry supervisor**- the person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section. NOTE: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this section for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.
- N. **Hazardous Atmosphere**- an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:
1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
  2. Airborne combustible dust at a concentration that meets or exceeds its LFL; NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 M) or less.
  3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
  4. Atmospheric concentration of any substance for which a dose is published in Group 14 for Radiation and Radioactivity or a permissible exposure limit is published in section 5155 for Airborne contaminants and which could result in employee exposure in excess of its dose or permissible exposure limit;
  5. Any other atmospheric condition that is immediately dangerous to life or health.
- O. **Hot Work Permit**- the employer's written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.
- P. **Immediately Dangerous to Life or Health (IDLH)** - means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.
- Q. **Inerting**- the displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible. NOTE: This procedure produces an IDLH oxygen-deficient atmosphere.
- R. **Isolation**- the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: Blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.
- S. **Line breaking**- the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure or temperature capable of causing injury.

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- T. **Lower Explosive Limit (LEL)** - the limit below which there is not enough gas/vapor concentration to create a flame upon contact with a source of ignition.
- U. **Non-Permit Confined Space**- a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.
- V. **Oxygen Deficient Atmosphere**- an atmosphere containing less than 19.5 percent oxygen by volume.
- W. **Oxygen Enriched Atmosphere**- an atmosphere containing more than 23.5 percent oxygen by volume.
- X. **Permit-Required Confined Space (Permit Space)**- a confined space that has one or more of the following characteristics:
  - 1. Contains or has a potential to contain a hazardous atmosphere;
  - 2. Contains a material that has the potential for engulfing an entrant;
  - 3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
  - 4. Contains any other recognized serious safety or health hazard.
- Y. **Permit-Required Confined Space Program (Permit Space Program)**- the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.
- Z. **Permit System**- the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.
- AA. **Prohibited Condition**- any condition in a permit space that is not allowed by the permit during the period when entry is authorized.
- BB. **Rescue service**- the personnel designated to rescue employees from permit spaces.
- CC. **Retrieval System**- the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.
- DD. **Testing**- the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space. If electronic or thermal equipment is used to perform such tests, and the possibility exists of an explosive substance or a hazardous atmosphere due to flammable gases and vapors, then the testing equipment must be approved for use in such explosive or flammable conditions as required by section 2540.2.

NOTE: Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

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### **V. Responsibilities**

#### **RISK MANAGEMENT**

- A. Review the permit space program, using canceled permits within 1 year after each entry and revise the program as necessary, to ensure that employees participating in entry operations are protected from permit space hazards.
- B. Review and revise the Program:
  1. On an annual basis;
  2. When changes occur to CCR T8, that prompt revision of this document;
  3. When operational changes occur that require a revision of this document; and
  4. When there is an accident or near miss that relates to this section.
- C. Review entry operations when there is reason to believe that the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized.
- D. Maintain records of all submitted confined space permits.
- E. Review and grant approval of a contractor's confined space pre-qualifications prior to start of project.
- F. Coordinate necessary training and consult on the necessary Personal Protection Equipment (PPE) required for hazards in entry procedures.
- G. Respond to inquiries from City employees regarding the confined space program.

#### **DIRECTORS, MANAGERS, AND SUPERVISORS**

- A. Ensure proper training has been received by entry and rescue teams prior to any entries.
- B. Provide proper equipment for entry and rescue teams.
- C. Ensure all permit required confined spaces are posted.
- D. Ensure rescue teams are available and accessible during entry into permit required confined spaces.
- E. Maintain gas monitor/instrument bump test and calibration records.
- F. Should an incident occur, complete a Report of Employee Injury or Incident form and any additional documentation needed to investigate work related injuries and illnesses.

#### **ENTRY SUPERVISOR**

**Entry supervisors are responsible for the overall permit space entry and must coordinate all entry procedures, tests, permits, equipment and other relevant activities.**

- A. Thoroughly understands confined space entry procedures.
- B. Prior to entry, understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- C. Prior to entry, verify that the permit is accurately completed, all test specified by the permit have been conducted, and all procedures and equipment warranted by the permit are in place before endorsing the permit and allowing entry to begin.
- D. Ensure that all employees entering the permit space follow procedures for signing in and out.
- E. Terminate entry and cancel the permit when the entry is complete and/or a condition that is not allowed under the entry permit arises in or near the permit space.
- F. Verify that rescue services are available and that the means for summoning them are operable.
- G. Remove unauthorized persons who enter or attempt to enter the space during entry operations.

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### **ATTENDANT**

**At least one attendant is required outside the permit space into which entry is authorized for the duration of the entry operation.**

- A. Prior to entry, understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- B. Is aware of possible behavioral effects of hazard exposure in authorized entrants.
- C. Continuously maintain an accurate count of entrants in the permit space and ensure a means to accurately identify authorized entrants.
- D. Remain outside the permit space during entry operations until relieved by another attendant.
  - 1. Once properly relieved, the former attendant may participate in other permit space activities, including rescue if they are properly trained and equipped.
- E. Communicate with authorized entrants as necessary to monitor entrant status and alert entrants of any need to evacuate.
- F. Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
  - 1. The attendant detects a prohibited condition;
  - 2. Detects entrant behavioral effects of hazard exposure;
  - 3. Detects a situation outside the space that could endanger the entrants; or
  - 4. The attendant cannot effectively and safely perform all the attendant duties.
- G. Initiate on-site rescue procedures and, if necessary, summon additional rescue and other emergency services as soon as the attendant determines the entrants need assistance to escape the permit space hazards.
- H. Perform non-entry rescue procedures.
- I. Attendants may enter a permit space to attempt a rescue if they have been trained and equipped for rescue operations and have been relieved by another attendant.
- J. Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.
- K. Take the following action when unauthorized persons approach or enter a permit space while entry is under way:
  - 1. Warn the unauthorized persons that they must stay away from the permit space;
  - 2. Advise unauthorized persons that they must exit immediately if they have entered the space; and
  - 3. Immediately inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

### **ENTRANT**

**All Entrants must be authorized by the Entry Supervisor to enter permit spaces. Prior to entry, Entrants must have received the required training, be provided and have an understanding of the required equipment, and have reviewed the entry procedures and permit.**

- A. Prior to entry, know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

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- B. Properly use the equipment required for safe entry including:
  - 1. Testing and monitoring equipment;
  - 2. Ventilating equipment;
  - 3. Communications equipment;
  - 4. Personal protective equipment;
  - 5. Lighting equipment
  - 6. Barriers and shields;
  - 7. Equipment, such as ladders, needed to for safe ingress and egress by authorized entrants;
  - 8. Rescue and emergency equipment; and
  - 9. Any other equipment needed for safe entry into and rescue from permit spaces.
- C. Communicate with the attendant as necessary to enable the attendant to monitor the status of the entrants and alert the entrants of the need to evacuate the space, if necessary.
- D. Alert the attendant whenever:
  - 1. The entrant recognizes any warning signs or symptoms of exposure to a dangerous situation, or
  - 2. The entrant detects a prohibited condition.
- E. Exit the permit space as quickly as possible whenever:
  - 1. The attendant or entry supervisor gives an order to evacuate the permit space,
  - 2. The entrant recognized any warning signs or symptoms of exposure to a dangerous situation,
  - 3. The entrant detects a prohibited condition, or
  - 4. An evacuation alarm is activated.

### VI. Confined Space Evaluation

- A. At the discretion of Risk Management, evaluations will be conducted to develop an inventory of those locations and/or equipment throughout the City that meets the definition of a non-permit confined space or permit required confined space. This information shall be communicated to personnel, and appropriate confined space procedures shall be followed prior to entry.
- B. Before allowing authorized employees to enter, all confined spaces will be evaluated to determine the locations with conditions that may pose a hazard.
- C. Results of the Confined Space Evaluation will be logged into the Confined Space Inventory
- D. The evaluation will include:
  - 1. Testing the internal atmosphere with a calibrated direct-reading instrument for oxygen content, flammable/toxic gases and vapors. The atmosphere of these spaces will be continuously tested during the evaluation period to ensure that the continuous ventilation is preventing the accumulation of a hazardous atmosphere; and
  - 2. Inspecting for engulfment, entrapment, or other recognized serious hazards.

**Note: Use the Permit Required Confined Space Decision Flow Chart (Attachment A) and the Confined Space Evaluation Form (Attachment B) for guidance in this process.**

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### **VII. Preventing Unauthorized Entry**

- A. To prevent the unauthorized /accidental entry of a permit space, department managers shall implement the following procedures to inform employees and contractors of the existence, location, and danger posed by permit spaces in the workplace:
  - 1. Conduct confined space evaluation of all facilities and off site locations to identify all permit-required spaces;
  - 2. Install physical security measures necessary to prevent unauthorized entry;
  - 3. Warn exposed employees and contractors by posting danger signs or by any other equally effective means, a sign shall read "Danger Permit Required Confined Space, Do Not Enter" or other similar language.

### **VIII. Program**

#### PERMIT SYSTEM

- A. Permit-required confined space entries will be controlled by the following documentation:
  - 1. Before entry is authorized, the department shall document the completion of the measures required for safe entry by preparing an entry permit;
  - 2. Before entry begins, the entry supervisor identified on the permit shall sign the entry permit to authorize entry;
  - 3. The completed permit shall be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it at the entry portal or any other equally effective means, so that the entrants can confirm the pre-entry preparations have been completed;
  - 4. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit, or a single work shift;
  - 5. The entry supervisor shall terminate the entry and cancel the entry permit when:
    - a. The entry operations covered by the permit have been completed; or,
    - b. When a condition that is not allowed under the entry permit arises in or near the permit space.
    - c. The department shall retain each cancelled entry permit for at least 1 year to facilitate the review of the permit-required confined space program.
    - d. Any problems encountered during entry operations shall be noted on the permit so that appropriate revisions to the permit spaces program can be made.
- B. A copy of the completed permit will be forwarded to Risk Management within 5 working days of the entry.
- C. The entry permit shall identify the following:
  - 1. The permit space to be entered;
  - 2. The purpose of the entry;
  - 3. The date and authorized duration of the entry permit;
  - 4. The personnel, by name, authorized to serve as entrants;
  - 5. The personnel, by name, authorized to serve as attendants;
  - 6. The individual, by name, currently serving as entry supervisor, with a space for his/her signature;
  - 7. The hazards of the permit space to be entered;
  - 8. The measures used to isolate the permit space and to eliminate or control permit space hazards before entry (those measures, can include the lockout or tag-out of equipment and procedures for purging, inserting, ventilating, and flushing spaces);
  - 9. The acceptable entry conditions;

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10. The results of initial and periodic atmospheric tests, the names or initials of the testers and the times the tests were performed;
11. The rescue and emergency services that can be summoned and the means (such as the equipment to use and the phone numbers to call for summoning those services);
12. The communication procedures used by authorized entrants and attendants to maintain contact during entry;
13. Equipment, such as personal protective equipment, testing equipment, communication equipment, alarm system, and rescue equipment if needed;
14. Any other information given pertaining to the particular confined space, in order to ensure employees safety; and
15. Any additional permits, such as Hot Work that has been issued to authorize work in the permit space.

### **Note: Use Confined Space Permit (Attachment C)**

#### **BUMP TEST AND CALIBRATION**

- A. All direct-reading portable gas monitors or instruments must have a Bump Test with the appropriate gases as required by the manufactures instructions, prior to each days use.
  1. Always make sure to check the expiration date of the gas before usage.
- B. If an instrument fails a bump test, the operator should perform a full calibration on it before use.
- C. If the instrument fails a full calibration, the instrument must be taken out of service.
- D. For calibration frequency, use the manufactures guidelines.
- E. Bump test and calibration records must be kept on file for the life of the instrument.
- F. Operators using this equipment must be trained on proper usage, storage, and calibration/bump test procedures.

#### **ENTRY PPROCEDURES**

- A. Prior to standard entry, affected personnel shall be trained to establish proficiency in the duties that will be performed within the confined space.
- B. Means for safe entry and exit shall be provided for confined spaces.
  1. Each entry and exit points shall be evaluated by Entry Supervisor to determine the most effective methods and equipment that will enable employees to safely enter and exit the confined space.
  2. Appropriate retrieval equipment or methods shall be used whenever a person enters a permit-required confined space.
  3. Use of retrieval equipment may be waived by the Entry Supervisor if use of the equipment increases the overall risks of entry or does not contribute to the rescue.
  4. A mechanical device shall be available to retrieve personnel from vertical confined spaces greater than five (5) feet in depth.
- C. When employees enter permit required confined spaces for any reason the following procedures shall be followed:
  1. **Prior to removing any cover**, eliminate any condition making it unsafe to remove the entrance cover **before** the cover is removed.

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2. The internal atmosphere immediately under the cover shall be tested, with a calibrated direct-reading instrument, for the following conditions in the order given:
  - a. Oxygen content;
  - b. Flammable gases and vapors; and
  - c. Potential toxic air contamination.
- D. Non-sparking tools shall be used to loosen or remove the cover. If a potential toxic air contaminant is present, then appropriate precautions shall be taken to protect the employees.
- E. When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and ensure protection for the employee working in the space from foreign objects entering the space.
- F. **Before** an employee enters the space, all hazards with-in the space shall be controlled by isolating the space, lock-out/tag-out of equipment or energy, ventilating, purging and flushing as necessary.
- G. **Before** an employee enters the space, the internal atmosphere shall be tested, with a calibrated direct-reading instrument, for the following conditions in the order given:
  1. Oxygen content;
  2. Flammable/Explosive gases, and vapors; and
  3. Potential toxic air contamination (e.g. Carbon Monoxide and Hydrogen Sulfide).
- H. All employees required to enter the confined space will sign-in/out on the Confined Space Permit.
- I. Continuous forced air ventilation shall be so directed as to ventilate the immediate area or areas where an employee is or will be present within the space and shall continue until all employees have left the space;
- J. The air supply for the forced air ventilation shall be from a clean source and may not increase the hazards in the space;
- K. Acceptable entry conditions will be:
  1. Oxygen greater than 19.5% but less than 23.5% by volume.
  2. LEL (Lower Explosive Limit) less than 10% by volume.
  3. Hydrogen Sulfide less than 10 ppm
  4. Carbon monoxide less than 25 ppm.
- L. The atmosphere within the space shall be continuously tested/monitored to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere.
- M. All pumps and lines which may cause contaminants to flow into a confined space must be disconnected, blinded, locked out, or effectively isolated by other means to prevent development of dangerous air contaminants or engulfment. Lockout/Tagout procedures must be followed for isolating. If blocking and/or isolation require entry into the space, provisions for entry into a permit-required confined space must be implemented.
- N. If a hazardous atmosphere is detected during entry the following procedures shall be followed:
  1. Each employee shall leave the space immediately;
  2. The space shall be evaluated to determine how the hazardous atmosphere developed;
  3. Measures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.
- O. Confined space surrounding areas must be surveyed to avoid hazards such as drifting vapors from tanks, piping, sewers, etc.
- P. Appropriate personal protective equipment must be obtained before entry into the permit-required confined space.

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- Q. Employees required to wear respiratory protection must comply with the City of Redlands Respiratory Protection Program.
- R. All portable equipment to be used in a confined space must have a ground fault circuit interrupter installed at the electrical outlet.
- S. All electrical tools or equipment must be explosion-proof or intrinsically safe and spark-generating operations must be prohibited where there is the possibility of flammable liquids or gases being generated prior to entry.
- T. Compressed gas cylinders, other than for respiratory protection, are prohibited in permit-required confined spaces.

### **ALTERNATE ENTRY PROCEDURES**

- A. Alternate procedures can be used to enter a permit-required confined space when the only hazard(s) of the space are atmospheric contaminants that can be controlled by continuous forced air; and
  - 1. No other hazards exist; and
  - 2. Atmospheric hazards can be effectively removed and controlled by forced ventilation; and
  - 3. Workers can safely enter and do work in the space; and
  - 4. All testing results and monitoring data are documented, retained, and made available to each employee who enters the space; and
  - 5. The space is classified as an "Alternate Space" by the confined space evaluation form.
- B. Entry must be in accordance with the following requirements:
  - 1. Any condition making it unsafe to remove an entrance cover shall be eliminated before removing the cover. When entrance covers are removed, the opening shall be promptly and effectively guarded.
  - 2. Before entry, the internal atmosphere shall be tested with a calibrated direct-reading instrument, for the following conditions in the order given:
    - a. Oxygen content: 19.5- 23.5%
    - b. Flammable gases and vapors:  $\leq 10\%$  of LEL
    - c. Potential toxic air contaminants:  $< \text{PEL}$
- C. There may be no hazardous atmosphere within the space whenever any employees is inside the space.
- D. Continuous forced air ventilation shall be used as follows:
  - 1. Entry not permitted until hazardous atmosphere is eliminated.
  - 2. Ventilation shall be directed to immediate areas where employees are or will be present and will continue until all employees have left the space;
  - 3. Air supply shall be from a clean source and may not increase hazards in space.
- E. Atmosphere within the space shall be periodically tested as necessary to ensure ventilation is adequate. If hazardous atmosphere is detected during entry:
  - 1. Each employee shall leave space immediately;
  - 2. Space shall be re-evaluated to determine how hazardous atmosphere developed;
  - 3. Measures must be taken to protect employees from hazardous atmosphere before any subsequent entry.
- F. The entry supervisor will verify that the space is safe for entry and that all of the above requirements have been satisfied. Such verification will be in writing to include the date, location of the space, and the signature of the person providing the certification, and shall be made available to each employee before entry (See Attachment E).

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### **RESCUE AND EMERGENCY SERVICES**

**All Emergencies should be immediately called in to 911 Emergency Services, Department Managers, and Risk Management upon occurrence of the incident.**

- A. Non-entry rescue attempts shall take precedence over entry rescues.
- B. Entry Supervisors will ensure that standby persons at the site are trained and immediately available to perform rescue and emergency services.
- C. The following requirements apply to all employees who enter permit spaces to perform rescue services:
  1. Department Management will ensure that each member of the rescue service is provided with, and is trained to use properly, the personal protective equipment and rescue equipment necessary for making rescues from permit spaces.
  2. Each member of the rescue service shall be trained to perform the assigned rescue duties and shall receive the training required of authorized entrants.
  3. Each member of the rescue service shall practice making permit space rescues at least once every 12 months, by means of simulated rescue operations in which they remove dummies from the actual permit spaces or from representative permit spaces.
  4. Representative permit spaces shall, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.
  5. Each member of the rescue service shall be trained in basic first aid and cardio pulmonary resuscitation (CPR).
  6. All members of the rescue service shall hold current certification in first aid and CPR.
  7. To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems shall meet the following requirements:
    - a. Each authorized entrant shall use a full body harness, with a retrieval line attached at a suitable point (for example at the center of the entrant's back near shoulder level) so that when extracted, the entrant presents the smallest possible profile.
    - b. Wristlets may be used in lieu of the full body harness if it can be demonstrated that the use of a full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.
    - c. The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary.
    - d. A mechanical device shall be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.
  8. If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information shall be made available to the medical facility treating the exposed entrant.

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### **CONTRACTORS**

- A. When the City arranges to have employees of another company (contractor) perform work that involves permit space entry, the City shall follow the following procedures:
  - 1. Inform the contractor that the workplace contains permit-required confined spaces and that permit space entry is allowed only through compliance with a permit space program meeting;
  - 2. Give notice to the contractor of the elements, including the hazards identified and the City's experience with the space, that make the space in question a permit required space;
  - 3. Give notice to the contractor of any precautions or procedures that the City has implemented for the protection of employees in or near permit spaces where contractor personnel will be working;
  - 4. Coordinate entry operations with the contractor, when both City personnel and contractor personnel will be working in or near permit-required spaces;
  - 5. Debrief the contractor at the conclusion of entry operations
- B. Contractors who perform work on City property must adhere to the City's Confined Space Entry Program. It is the responsibility of the Project Manager to ensure these measures are carried out.
- C. Contractors must also submit a copy of their Confined Space Entry Program to Risk Management for review.
- D. Contractors with an insufficient program will not be allowed to begin work until their program meets or exceeds the requirements of the City's program.
- E. Contractors are expected to enforce these guidelines at all times while performing work for the City.
- F. If there is a conflict in procedures between Contractor and City programs, notification will be sent to Risk Management for support.

### **IX. Recordkeeping**

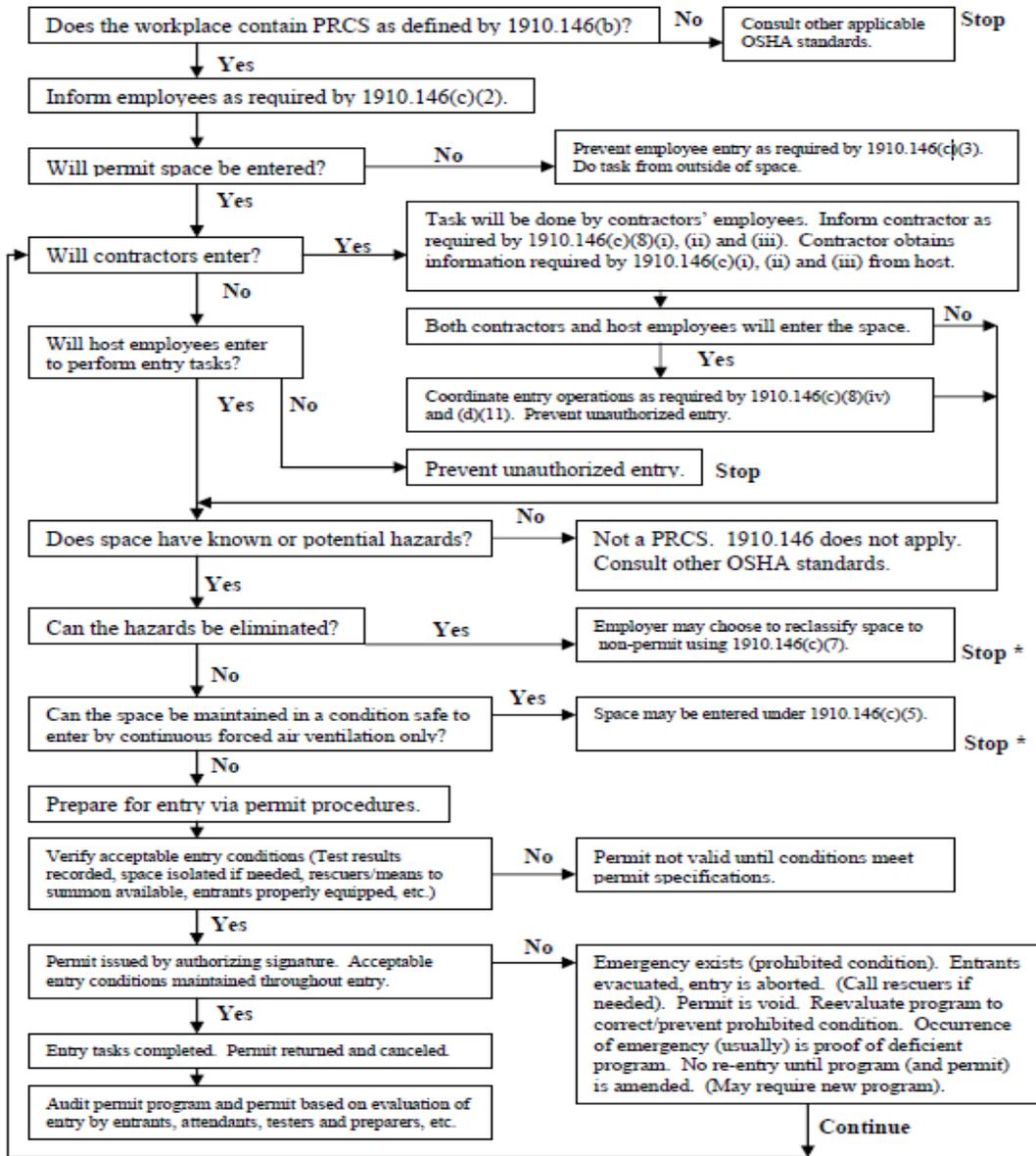
All training records, permits, and documents prepared in association with the Permit-Required Confined Space Entry Program will be maintained by the Office of Human Resources/Risk Management.  
Bump Test and calibration records will be maintained by department designees.

### **X. Additional References**

[http://www.dir.ca.gov/dosh/Confined\\_Space\\_Emphasis\\_Program.html](http://www.dir.ca.gov/dosh/Confined_Space_Emphasis_Program.html)

Attachement A

Permit – Required Confined Space Decision Flow Chart



\*Spaces may have to be evacuated and re-evaluated if hazards arise during entry.

# Permit-Required Confined Space Program

## Attachment B Confined Space Evaluation Form

Date: \_\_\_/\_\_\_/\_\_\_ Department: \_\_\_\_\_ Facility: \_\_\_\_\_

Location: \_\_\_\_\_

Equipment Used: \_\_\_\_\_ Evaluator: \_\_\_\_\_  
Print Name & Title- Must be a Supervisor with training in Confined Space Entry

### Confined Space

1. Size	Is the space large enough or configured to permit bodily entry?	Yes	No
2. Access/Egress	Are there limited or restricted means of access or egress?	Yes	No
3. Occupancy	The space is not designed for continuous human occupancy?	Yes	No

### Permit Required Confined Space

4. Hazard	a. Is there a potential or actual hazardous atmosphere? If yes, explain _____	Yes	No
	b. Is there a potential for engulfment or entrapment?	Yes	No
	c. Is the internal configuration such that an entrant may be trapped or asphyxiated?	Yes	No
	d. Does the space contain any other safety or health hazard (e.g., mechanical, chemical, thermal, electrical, etc.)? If yes, identify _____	Yes	No
5. If the only hazards checked for question 4 above were "a" and "d", would continuous forced air ventilation be sufficient to maintain the confined space safe for entry? And 5 a. Can hazards from question "d" be eliminated?		Yes	No
6. Is objective monitoring data available to support question 5?		Yes	No

Based on the answers to the above questions, define the type of confined space.

- Type of space determined:
1. \_\_\_ Non-regulated space ("No" checked for one or more of questions 1-3)
  2. \_\_\_ Non-permit confined space ("Yes" checked for questions 1-3 only)
  3. \_\_\_ Permit required ("Yes" checked for questions 1-4 only)
  4. \_\_\_ Alternate space ("Yes" checked for questions 5, 5 a., and 6)

Evaluator Signature: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

# Permit-Required Confined Space Program

## Attachment C Permit-Required Confined Space Permit

Date:	Time Issued:	Time Expires:	Site location :						
Purpose of entry:									
Entry Supervisor:		Department/Division:	Contact #						
Communication procedures:									
Rescue procedures:									
<b>MINIMUM REQUIREMENTS TO COMPLETE AND REVIEW PRIOR TO ENTRY</b> Note: For Items that do not apply, enter N/A in the blank.									
REQUIREMENTS COMPLETED	✓	REQUIREMENTS COMPLETED	✓						
Lockout/De-energize/Tagout		Full Body Harness w/"D" Ring							
Line(s) Broken-Capped-Blank		Emergency Escape Retrieval Equipment							
Purge-Flush and Vent		Lifelines							
Ventilation		Fire Extinguishers							
Secure Area (Post and Flag)		Lighting (Explosive proof)							
Respirator(s)		PPE							
Standby Safety Person(s)		Other							
Hot Work Permit		Other							
Permissible Levels	Pre-Entry	Follow-Up Testing Results							
Oxygen (O <sup>2</sup> ) (>19.5% & < 23.5%)									
% LEL (< 10 %)									
Carbon Monoxide (CO) (< 25 ppm)									
Hydrogen Sulfide (H <sup>2</sup> S) (<10 ppm)									
Other*									
Time Monitoring Taken									

# Permit-Required Confined Space Program

Instrument	Model	Serial #	Bump Test Date/Time		Passed Bump Test	
					Y	N
					Y	N
					Y	N

Hazards of space to be entered:

Toxic Atmosphere	Engulfment	Mechanical
Oxygen Deficiency	Excessive Heat	Electrical
Oxygen Enrichment	Excessive noise	Visibility
Flammable/ Explosive Atmosphere	Chemical	Slips/Trips/Falls
Other: _____	Other: _____	Other: _____

\*Check all that apply

**SAFETY STANDBY IS REQUIRED FOR ALL PERMIT-REQUIRED CONFINED SPACE WORK**

Safety Standby Person(s)	Training?		Authorized Attendant(s)	Training?		Authorized Entrant(s)	Training?	
	Y	N		Y	N		Y	N
	Y	N		Y	N		Y	N
	Y	N		Y	N		Y	N
	Y	N		Y	N		Y	N
	Y	N		Y	N		Y	N

Note: If employee does not have training for role in confined space procedures, entry may NOT be granted.

\*Contract Employees must provide records of completed training.

**SUPERVISOR AUTHORIZATION** – I certify that all of the above information is correct and that all necessary conditions for safe entry are acceptable.

  X   \_\_\_\_\_ : \_\_\_\_\_ am/pm \_\_\_\_\_ : \_\_\_\_\_ am/pm \_\_\_\_\_

Entry Supervisor Signature

Time Issued

Time Canceled

### Sign In/Out Sheet

Name	In	Out	In	Out	In	Out	In	Out

## Permit-Required Confined Space Program

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Emergency Phone Numbers	
Fox Medical Center: (909) 884-1500	Department Supervisor:
Emergency Medical Services: <b>911</b>	Risk Management: (909)798-7514 Ext. 1728

This permit must be posted at Confined Space location. This Permit is valid for one (1) work shift only.

Submit copy to Safety Specialist within five days of entry completion.

# Permit-Required Confined Space Program

## Attachment D

### Alternate Method 5157 (c)(5) Confined Space Entry Certification

Date:	Location:	Volume of Space:
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1. Is this confined space listed as an alternate method space?	Yes	No
2. Before the cover is removed, has any condition that would make it unsafe to remove the cover been eliminated?	Yes	No
3. Before the cover is removed, has the atmosphere just beneath the cover been tested?	Yes	No
4. Is the opening guarded by temporary railing? * Only applicable if opening poses a fall hazard to employee(s).	Yes	No
5. Has the internal atmosphere been tested with a calibrated, direct-reading instrument before employee(s) enter the space?	Yes	No
6. Is continuous forced air ventilation ducted to the immediate area where the entry employee(s) will be working?	Yes	No
7. Will the internal atmosphere be tested continually and results logged every 15 minutes to ensure that a hazardous atmosphere does not accumulate?	Yes	No

**IF:**

- Any condition other than a hazardous atmosphere exists before entry
  - A hazardous atmosphere develops during the entry
  - Any of the above questions has a "NO" answer

**THEN:**

The entry will be canceled, all entrants will immediately exit the space and the Permit Required Confined Space procedures will be followed.

**Certification**

The pre-entry measures required by 5157(c)(5)(B) have been taken and this confined space is safe to enter. (To be executed by an Authorized Employee trained to the level of Entry Supervisor.)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Signature

This certificate must remain on site for the duration of the entry and be available for review by all entrants or their authorized representative.

Instrument Make/Model:	Calibration Date: ___/___/___
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## Permit-Required Confined Space Program

Test Performed By: \_\_\_\_\_

### Initial Testing

Time:                    AM PM		
<b>Under the Cover</b>	<b>50% Space Depth</b>	<b>Work Zone</b>
Oxygen: _____% (>19.5% & < 23.5%)	Oxygen: _____% (>19.5% & < 23.5%)	Oxygen: _____% (>19.5% & < 23.5%)
% LEL _____ (LEL < 10%)	% LEL _____ (LEL < 10%)	% LEL _____ (LEL < 10%)
Hydrogen Sulfide: _____PPM (<10 PPM)	Hydrogen Sulfide: _____PPM (<10 PPM)	Hydrogen Sulfide: _____PPM (<10 PPM)
Carbon Monoxide: _____PPM (<25 PPM)	Carbon Monoxide: _____PPM (<25 PPM)	Carbon Monoxide: _____PPM (<25 PPM)

### Periodic Log of Continuous Monitoring of Work Zone Atmosphere (15 min. intervals)

Time:        : AM/PM	Oxygen: _____% (>19.5% & <23.5%)	%LEL _____ (LEL <10%)	Hydrogen Sulfide: _____PPM (<10 PPM)	Carbon Monoxide: _____ PPM (<25 PPM)
Time:        : AM/PM	Oxygen: _____% (>19.5% & <23.5%)	%LEL _____ (LEL <10%)	Hydrogen Sulfide: _____PPM (<10 PPM)	Carbon Monoxide: _____ PPM (<25 PPM)
Time:        : AM/PM	Oxygen: _____% (>19.5% & <23.5%)	%LEL _____ (LEL <10%)	Hydrogen Sulfide: _____PPM (<10 PPM)	Carbon Monoxide: _____ PPM (<25 PPM)
Time:        : AM/PM	Oxygen: _____% (>19.5% & <23.5%)	%LEL _____ (LEL <10%)	Hydrogen Sulfide: _____PPM (<10 PPM)	Carbon Monoxide: _____ PPM (<25 PPM)
Time:        : AM/PM	Oxygen: _____% (>19.5% & <23.5%)	%LEL _____ (LEL <10%)	Hydrogen Sulfide: _____PPM (<10 PPM)	Carbon Monoxide: _____ PPM (<25 PPM)
Time:        : AM/PM	Oxygen: _____% (>19.5% & <23.5%)	%LEL _____ (LEL <10%)	Hydrogen Sulfide: _____PPM (<10 PPM)	Carbon Monoxide: _____ PPM (<25 PPM)
Time:        : AM/PM	Oxygen: _____% (>19.5% & <23.5%)	%LEL _____ (LEL <10%)	Hydrogen Sulfide: _____PPM (<10 PPM)	Carbon Monoxide: _____ PPM (<25 PPM)

Time Out: \_\_\_\_\_ : \_\_\_\_\_ AM/PM