III. PERMIT REQUIRED CONFINED SPACE (OSHA 1910.146)

A. Confined Space.

1. Every confined space has the potential to be dangerous. All employees need to be trained to recognize all types of hazards. All safety and rescue procedures need to be understood and followed. Respiratory and personal protective equipment need to be used and maintained. These procedures need to be adhered to by all City employees as well as contracted service personnel. These procedures are meant to provide a reasonably safe working environment for the employees. A confined space by definition means an enclosed space that:

    a. Is large enough and so configured that an employee can bodily enter and perform assigned work.
    b. Has limited or restricted means for entry or exit.
    c. Is not designed for continuous employee occupancy.
    d. Has one or more of the following characteristics.
        1. Contains or has a known potential to contain a hazardous atmosphere.
        2. Contains a material with the potential for engulfment or an entrant.
        3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or a floor which slopes downwards and tapers to a smaller cross-section.
        4. Contains mechanical devices such as motors, mixer blades, etc.
        5. Contains any other recognized serious safety or health hazard.

B. Confined Space Hazards

1. Lack of oxygen enrichment.
    a. Causes - fire, rusting, air-using bacteria, the accumulation of other gases.
    b. Effects - workers can collapse almost instantly,.
    c. Details - normal air holds 21% oxygen, anything below 19.5% is hazardous.

2. Toxic gases or vapors.
    a. Causes - carbon monoxide, hydrogen sulfide, sulfur dioxide, other toxic gases.
    b. Effects - can irritate skin, eyes, nose, throat; can injure or kill; workers can be overcome and collapse.
    c. Details - some toxic gases have no odor and can't be detected.

3. Combustible gases or vapors.
   a. Causes - include some fuels and solvents.
   b. Effects - may cause fire and explosions.
   c. Details - some combustible gases and vapors are also toxic.

4. Chemicals.
   a. Causes - solvents, residue, scale in tanks, silos, etc.
   b. Effects - skin problems, eye irritation, etc., systemic toxicity.

5. Physical Hazards.
   a. Heat.
      1. Causes - high temperature.
      2. Effects - heat exhaustion, cramps, dizziness, etc.
      3. Details - effects can be accelerated due to poor ventilation and/or inadequate protective equipment or clothing.
   b. Noise.
      1. Causes - sound reverberation.
      2. Effects - can interfere with communication; can cause hearing loss.
      3. Details - effects depend on intensity, frequency, and duration of exposure.
   c. Mechanical Equipment.
      1. Causes - motors, other moving parts.
      2. Effects - can cause sparks or physical injury.
      3. Details - should be locked out/tagged out before entering.
   d. Falling.
      1. Causes - obstacles, insecure footing, inadequate room to work, slick or wet floors or piping.
      2. Effects - workers can fall and be trapped.
      3. Details - rungs and railings may not be sound; shape of space may cause falls.
   e. Other.
      1. Causes - snakes, animals, spiders, etc.
      2. Effects - bites.

C. <u>Confined Space Entry Policy.</u>

1. Review specific confined space entry permit form and permit requirements.
   a. If a hazardous condition exists that is not covered under the permit, do not enter until the condition is corrected or equipment to provide safe entry is acquired.

2. Conduct a pre-entry meeting.
   a. Discuss entry purpose, permit requirements, needed equipment and the tests to be run.
   b. Discuss emergency procedures.

1. Use more equipment if necessary.

c. Discuss who will enter, who will be the attendant, who will standby.

d. Discuss the method of communication between all parties.

3. Collect all necessary equipment.

a. Air monitoring equipment must be worn at all times by the person entering the confined space.

b. Personal protective equipment.

1. Hard hats.
2. Gloves.
3. Rubber boots.
4. Any other equipment that is needed.

c. Use proper ground fault circuit interrupter device for electrical lines.

d. Inspect, test, and calibrate all equipment according to manufactures instructions.

4. Monitor air from top to bottom of confined space for percent of oxygen, percent of Lower Explosive Level (L.E.L.) and toxics.

a. Follow proper procedures when monitoring air.

b. Check space for other possible hazards such as loose or broken ladders, animals or snakes, etc.

1. If unsafe - DO NOT ENTER.

5. Set up equipment needed to enter the space.

a. Put on harness.

b. Air monitor.

1. The continuous air monitoring equipment will be worn by the entrant at all times.

c. Person protective equipment.

6. The attendant is to maintain visual contact or some other method of communication with the entrant.

a. The attendant is never to leave the worksite.

b. If equipment is needed the entrant must leave the space.

7. Enter all confined spaces with care.
8. Complete task.
9. After task completion - clean, inspect, and return all equipment to storage.

D. Confined Space Permit Required Entry Locations and Requirements for Entry

Permits are to be filled out prior to entry at any of these locations:

1. Contact Tank: Water Treatment Facility

a. Minimum of two (2) people

b. Air monitor

c. Fall protection

    d. Hard hats

2. Filters: Located inside the Water Treatment Facility
    a. Minimum of two (2) people
    b. Hard hat

3. Basins: Rapid mix flaccation, sedimentation basins at Water Treatment Facility
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hats

4. Recycle tank: at Water Treatment Facility
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

5. Separation Tanks: at Water Treatment Facility
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

6. Separation Basins: at Water Treatment Facility
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

7. Chemical storage tanks: Water Treatment Facility, Reclamation, Zuni
    a. Minimum of two (2) people
    b. Air monitor
    c. A way to pull someone out
        1. Do as much work from the outside as possible

8. Groundwater pump vault: at Water Treatment Facility
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

9. Irrigation vault: at Water Treatment Facility
    a. Minimum of two (2) people

10. Recycle vault: at Water Treatment Facility
    a. Minimum of two (2) people

11. Glasser Reservoir raw water control vault: at Glasser Reservoir
    a. Minimum of two (two) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

12. Glasser Reservoir control valve manhole: at Glasser Reservoir
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

13. Raw Water Pump Station cistern: at Great Western Reservoir
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

14. Great Western toe drain manholes: at Great Western Reservoir
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

15. Great Western valve vault: at Great Western Reservoir
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

16. Manholes: at Water Treatment Facility, Great Western Reservoir, in field
    a. Minimum of two (2) people
    b. Air monitor
    c. Fall protection
    d. Hard hat

CONFINED SPACE ENTRY PERMIT

LOCATION and DESCRIPTION
of Confined Space _____ Date _____

PURPOSE of Entry _____ Time _____M

DEPARTMENT _____ Expiration _____M

PERMIT REQUIREMENTS	YES	NO		YES	NO
LOCK OUT - DE-ENERGIZE	____	____	TRIPOD EMERGENCY ESCAPE UNIT	____	____
LINES BROKEN - BLANKED	____	____	LIFELINES	____	____
PURGE, FLUSH, VENT	____	____	FIRE EXTINGUISHERS	____	____
VENTILATION	____	____	LIGHTING	____	____
SECURED AREA	____	____	PROTECTIVE CLOTHING	____	____
BREATHING APPARATUS	____	____	RESPIRATOR	____	____
RESUSCITATOR	____	____	COMMUNICATION DEVICE	____	____
ESCAPE HARNESS	____	____	PRE-ENTRY MEETING	____	____
CONTINOUS AIR MONITORING	____	____			

TESTS TO BE RUN	YES	NO	P.E.L.	%
% OF OXYGEN	____	____	19.5% + 23%	____
% OF L.E L.	____	____	ANY % over 10	____
TOXICS	____	____	Reading Max	____

SUPERVISOR AUTHORIZING ENTRY _____

L.E.L. Lower Explosive Level
P.E.L. Permissible Entry Level

Meter Type _____
_____

DATE	CREW INITIALS	PERMIT REQUIREMENTS CHECKED	TEST RESULTS WITHIN PARAMETERS	STANDBY PERSON

SFT:CONFSPAC.FRM