

# Safety Newsletter

## August 2012

### This Month's Topic: Confined Spaces

A Confined Space is defined by the following conditions: existing ventilation is insufficient to remove dangerous air contamination *and* ready access for the removal of a suddenly disabled employee is difficult due to the location and/or size of the opening(s). In the case of entering a Confined Space in which contaminated air is present, a safety plan must be developed. It should be noted that entering a Confined Space containing dangerous air contaminants should only be done so after all other methods of completing the task have been exhausted. That plan, as well as the procedures that apply when entering underground utility enclosures, manholes or excavations deeper than 4 feet that need to be entered during normal work situations, will be outlined below.

There are two types of Confined Spaces: permit-required and "other". Permit-Required Confined Spaces are locations that contain any of the following hazards: hazardous or potentially hazardous atmosphere, material that has the potential for engulfing an entrant, internal configuration that could trap or asphyxiate an entrant or any other recognized serious safety or health hazard. "Other" Confined Spaces are locations that are regulated by CCR Title 8, Section 5158 and defined by the concurrent existence of: insufficient ventilation and ready access or egress is difficult.

#### Requirements for Permit- Required Confined Space Containing Dangerous Air:

As previously stated above, entering a Confined Space containing dangerous air contaminants should only be done so after all other methods of completing the task have been exhausted:

- At least one employee trained in first aid and CPR shall be immediately available
- Appropriate, company approved, respiratory protection shall be provided and worn
- An approved safety belt with an attached line shall be used
- At least one employee shall stand outside of the Confined Space ready to offer emergency assistance

NOTE: All equipment being used must be properly fitted and maintained. Those using equipment should be properly trained on the use, care and limitations.

#### Requirements for "Other" Confined Space:

- Evaluate and control potential hazards
- Conduct tailboard
- Ensure safety of entrant personnel
- Determine if air is dangerous or oxygen deficient
- Testing for oxygen deficiency
- Testing for combustible gas (flammability)
- Testing for suspected toxic gases
- Recording air test results
- "Air OK" - enter with caution and continuously monitor air
- "Air Dangerous" or oxygen deficient- exit the space



PG&E offers these tips for confined spaces:

- Test the air continuously when an employee's face will be breaking the plane of an excavation regardless of depth or size
- If all covers of an enclosure are not completely opened or removed prior to air testing, treat as a manhole
- Work involving the use of flame, arc, spark, or other sources of ignition is prohibited within a permit-required Confined Space
- Excavations and trenches are considered "Other" Confined Space
- Follow: PG&E Safety, Health & Claims procedure 232
- Utility Operations (UO) Standard S4414 & attachment
- If there is an employee medical emergency inside the space, activate the site safety plan. **Do not enter the space unless a second air monitor is used to re-test the air in the space and the air monitor meets the requirements**

*"As engineers, we are very good designing facilities. Sometimes we overlook some safety aspects of the work. One of the areas that engineers should spend more time is evaluating confined space situations and design accordingly. Confined Spaces may be encountered in virtually any occupation; therefore, their recognition is the first step in preventing fatalities."*

—Mo Saghebi  
Alisto Principal Engineer

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#### **Entry into Excavations:**

Cal/OSHA establishes the following requirements to ensure acceptable, safe atmospheric conditions:

- Prior to entering an excavation that has been entered, the air should be retested
- Identify any hazards in and around the excavation
- Test the atmosphere for oxygen and other hazardous atmospheres including flammable, toxic or poisonous air contamination
- Test air at the top, middle and bottom of the excavation
- Air testing is required for the duration of work inside any space to validate acceptable air quality at all times

NOTE: If the air is unacceptable, visually inspect the site and remove or block any suspected sources. If the air inside cannot be made safe through ventilation, DO NOT ENTER. Contact the supervisor and await further instruction.

#### **Acceptable Results for Air Testing:**

- Oxygen: 19.5-23.5%
- Flammable Gas or Vapor (CH<sub>4</sub>): Less than 20% of the Lower Explosive Limit (LEL)
- Hydrogen Sulfide: Less than 10 PPM
- Carbon Monoxide: Less than 25 PPM

#### **RECAP:**

- Air testing reveals that air is safe for entry
- If air does not test safe for entry, air can be made safe prior to entry
- If air cannot be made safe prior to entry, then a more involved entry procedure (permit-required confined space) is required which involves use of respirators & rescue equipment to safely enter the enclosure, manhole or excavation
- Use approved PG&E gas detector (Alisto has two BW Gas Alert Micro 5 gas detectors)

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## Confined Spaces Working In Areas with with Limited Access and Insufficient Ventilation

