

CONFINED SPACES

1749

(November 1991)

CCR, Title 8, Article 108 prescribes minimum standards for preventing employee exposure to dangerous air contamination or oxygen deficiency, as defined by Title 8, Section 5156(b), within such spaces as silos, tanks, vats, vessels, boilers, compartments, ducts, sewers, pipelines, vaults, bins, tubs, and pits.

Confined space exists when ventilation is insufficient to remove dangerous air contamination which may lead to oxygen deficiency, and ready access or egress for the removal of a suddenly disabled employee is difficult due to the location or size of the opening(s).

CONFINED SPACE HAZARDS

1749.1

(November 1991)

Three of the most common atmospheric conditions that constitute hazards are:

- Oxygen-deficient atmospheres containing less than 19.5 percent oxygen. Normal fresh air contains 20.9 percent oxygen. Some of the most common causes of this problem are oxidation of metals, bacterial action, combustion, and displacement by other gases. Thus, an oxygen-deficient atmosphere can be in a space where general ventilation is insufficient to allow heavier-than-air gases or vapors to be diluted with fresh air. It can also occur in a tightly closed room and does occur in all tanks, including open water tanks.
- Atmospheres containing combustible gases or vapors which may explode or ignite if a source of ignition is present in, or is introduced into, the environment. This category includes naturally occurring gases and the vapors of a large group of liquids which are used as fuels and solvents. Some of the most common causes of this problem are accidental or intentional dumping of fuels or solvents that get into the drainage system and some types of bacteria which produce methane gas.
- Atmospheres containing toxic gases or vapors which include contaminants that, even in low concentration, can cause serious injury or death. This category includes asphyxiants and irritants.

There are many sources of atmospheric contamination. When entering a confined area, personnel should assume that there may be an atmosphere with an oxygen deficiency, combustible gases, or toxic substances.

Confined spaces that may contain these potential hazards and that do not have a positive ventilation system may include water tanks (including engine tanks), retardant tanks, pits, etc. When employees are required to work in such spaces, a positive ventilation system with adequate air volume shall be provided. Portable ventilating devices shall have a minimum of 1,200 CFM blower with a 30-foot long, 6-inch diameter flexible duct.

As appropriate, employees shall use an approved safety belt with a lifeline attached whenever they are wearing respiratory equipment required within confined spaces. Even when not wearing respiratory equipment, employees should still use safety belts with safety lines within confined spaces that test gas-free.

If entry is through a top opening, the safety belt shall be the harness type that suspends a person in an upright position.

OPERATING PROCEDURE FOR CONFINED SPACES **1749.2** **(November 1991)**

Employees should adhere to the following operating procedure when working in confined spaces. The intent of these procedures is to provide a safe working environment for employees required to work in confined spaces in compliance with applicable safety orders.

- Personnel should ventilate the area for a minimum of 15 minutes prior to entry. Pumping plants with wet pits need not be ventilated if the updraft of air is determined sufficient to indicate the natural ventilation system is functioning and required tests are satisfactory.
- The supervisor should test and continually monitor the air with an appropriate instrument for combustible gases and oxygen-deficient atmosphere and keep a record of such tests at the job site.
- At least one person must stand by on the outside of the confined space ready to give assistance in case of emergency.
- Smoking is prohibited in or near the confined space.
- Employees entering confined spaces should be in good physical condition and psychologically suited for the job.
- Employees should use an approved safety belt or harness with lifeline when appropriate (see Section 1759.2.3 Rope and Chain).

- Employees, including standby persons, must be trained in operating and rescue procedures, including instruction as to the hazards they may encounter.
- A "Confined Space Pre-Work Check List" must be posted at the work site and must be completed and signed by the supervisor, the employee entering the confined space, and the employee attending the employee entering the confined space before entry into the confined space.

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