



STATE OF CALIFORNIA

Department of Industrial Relations

Division of Occupational Safety and Health

Date: January 31, 2012

To: DOSH field personnel (Enforcement and Consultation), Regional Managers, Seniors Safety Engineers, District and Area Managers

From: Ellen Widess, Chief *Ellen Widess*

Chris Lee, Deputy Chief for Enforcement *Chris Lee*

Vicky Heza, Consultation Service Program Manager *Vicky Heza*

Re: Confined Space Initiative and Special Emphasis Program

Introduction

Confined space deaths are often among the most heart-wrenching of all the preventable workplace fatalities we investigate because about 60% of deaths in these incidents are would-be rescuers, often family members and close friends of the original victim. In California, we experienced seven confined space deaths in 2011 – including 16-year-old and 22-year-old brothers – up from two reported deaths in each of 2009 and 2010. In addition to fatalities, many confined space incidents produce severe and life-long injuries to workers and rescuers alike.

Starting in February, DOSH will conduct a Special Emphasis Program to prevent confined deaths involving both Enforcement and Consultation units of the Division. The goal of this initiative is zero confined space deaths in 2012. The SEP includes an education and outreach campaign to both employers and employee organizations; integration of confined space program evaluation in all Consultation Service on-site visits; and compliance evaluation of confined space procedures, training and rescue preparations in all Enforcement inspections of workplaces with confined spaces on site. This Division-wide campaign will start with the release of a DOSH Hazard Alert in the first week of February, public education events with the mass media, and concerted effort to reach out to employer and worker organizations.

Internally, there will be a webinar on of the Confined Space SEP on Friday, February 3rd at 9:30 am. All enforcement inspections involving evaluation of confined spaces under the SEP will be coded in the IMIS system (as described below) for tracking and analysis purposes.

Consultation Service procedures

On January 18th, Consultation Service managers discussed the implementation of the Confined Space SEP in all appropriate on-site visits. The specifics of the Consultation implementation will be transmitted to all On-Site Offices, Managers and Senior Safety Engineers through the normal channels.

Enforcement inspection protocol

From February 6, 2012, forward all enforcement safety and health officers conducting field inspections shall follow the following inspection protocol:

- During every inspection – Programmed and Unprogrammed – ask employer if they have identified any confined spaces (refer to appropriate definition below).
- Determine if any spaces have been identified as Permit-Required Confined Spaces (PRCS).
- During the walk-around inspection, look for confined spaces (see examples below).
 - Identify existing or potential hazards: atmospheric, such as toxics or oxygen deficiency/enrichment; safety hazards, such as mechanical, electrical, etc.
 - Verify PRCS are labeled or otherwise identified properly.
- Ask the employer how they maintain or service the areas, and who does this maintenance and service work.
- Ask the employer if their employees make entry, or if they rely on others to make entry, and whose confined space program is used for those entries.
- Obtain and review the written permit-required confined space program or “operation procedures” for confined space entry at the facility.
- Evaluate the completeness of the written program’s procedures for:
 - Issuing and cancelling entry permits (for PRCS);
 - Testing procedures before employee entries into confined spaces;
 - Monitoring employees while they are in the confined spaces;
 - Training of entrants, attendants, rescuers, and supervisors in normal procedures and during rescue operations;
- Review entry and on-site rescue procedures. Note that simply stating that they will call 911 does not comply with 5157. If an emergency response agency is to be used, there must be prearrangement, and the agency must have had an opportunity to practice in the space.
- Review the completeness of any alternate entry and space reclassification procedures.
- Audit entry permits for last six months; or review permits for a year or longer if entry is infrequent.
- Interview employees who have made entries to determine the effectiveness of their training and knowledge about the employer’s confined space program.

Citations for identified and documented violations

Over the last 10 years, the Title 8 regulation subsections listed in the chart below have been the most frequently issued confined space standard citations. In evaluating the employer's confined space program procedures, these should be compared to the Title 8 sections in the chart below, but all deficiencies under these and other subsections in the employer's program and its implementation shall be cited.

Evaluate and Posting Spaces	§5157(c)(1)	- - -
Written Procedures	§5157(c)(4)	§5158(c)(1)(A)
Atmospheric Testing	§5157(d)(5)	§5158(d)(3)
Ventilation (if required)	§5157(c)(5)(B)(5)	§5158(d)(6)
Rescue Procedures	§5157(d)(9)	§5158(c)(1)
Training	§5157(g)(1)	§5158(c)(2)

Code inspections in IMIS

For every compliance inspection conducted under this Special Emphasis Program, the following codes shall be entered into the IMIS system. These codes shall be entered into Field 42 of the Form 1 for every inspection where confined spaces and programs are evaluated, whether or not citations are issued:

S	05	CS5157	Permit Required Confined Space
S	05	CS5158A	Agriculture [3437]
S	05	CS5158C	Construction [1502]
S	05	CS5158O	Other: Marine Terminal[3460]; Telecommunication manholes & unvented vaults [8616]; Grain handling facilities[5178]; Natural gas utility (distribution and transmission vaults)[49CFR]; Electric utility (underground vaults)[2700];
S	05	CS8355	Ship building [8355]

REFERENCE MATERIAL

Scope and Application

Title 8 Section 5156 defines which industries and operations are covered by Section 5157 and which are covered by Section 5158. All field staff shall familiarize themselves with the scope and application of these two Title 8 sections and consult their Senior Safety Engineers and Managers if they have questions about these regulations' applicability to the inspected work site.

Definitions for confined spaces

Title 8 Section 5157

Confined space means a space that:

- (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- (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.

Permit-required confined space (permit space) means 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.

Title 8 Section 5158

Confined Space. A space defined by the concurrent existence of the following conditions:

- (A) Existing ventilation is insufficient to remove dangerous air contamination, oxygen enrichment and/or oxygen deficiency which may exist or develop.
- (B) Ready access or egress for the removal of a suddenly disabled employee is difficult due to the location and/or size of the opening(s).

Title 8 Section 8355

“**Confined and Enclosed Spaces**” are not defined, but the standard references §5157 and §5158.

Examples of Confined Space

The following is a list of common confined spaces found in a variety of industries and operations. It is not an exhaustive list, however, so field inspectors should keep the Title 8 definitions in mind while inspecting any facility, and consult with their Senior Safety Engineers and Managers if they have questions.

Attic spaces	Autoclaves, Retorts	Bag houses, Duct collectors	Balers and compactors
Boilers	Caissons	Casings	Chimneys, stacks
Clarifiers	Cofferdams	Concrete mixers/ready mix trucks	Condenser pits
Cooling towers	Crawls spaces	Culverts	Cyclones
Engine Compartments	Excavations, Trenches	Fan rooms, mixing chambers	Elevator Pits
Feather and blood pits	Furnaces	Grain bins	Hoppers
Intermodal tank containers	Kilns	Manholes (*what do they access)	Mixing tanks
Offal collectors	Ovens	Pipe assemblies	Portable tanks
Tanks – Opened & Closed Top	Pump/lift stations	Reaction vessels, Drums	Rotary Kilns and Dryers
Bailwater tanks	Service pits	Sewers	Silos
Baker tanks	Steam condensers	Steam and utility tunnels	Storm drains
Digesters	Sumps	Trailers and Railcars	Utility chase
Fuel tanks	Vats	Vaults	Ventilation ducts
Storage tanks	Washers	Water separators	Wells

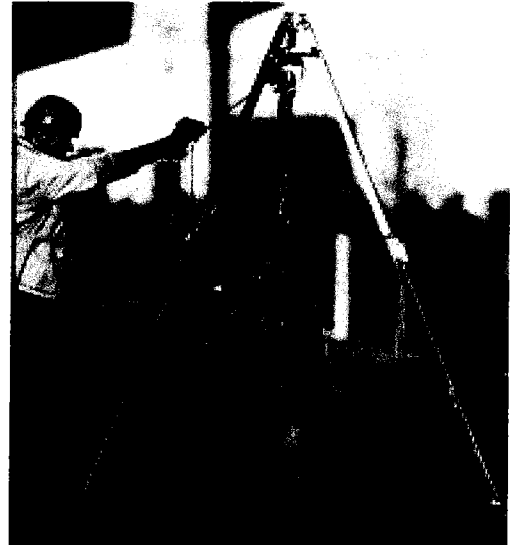
CONFINED SPACE HAZARD ALERT

January 2012

This hazard alert can help employers and employees prevent deaths and injuries in confined spaces. Since confined spaces may be encountered in virtually any industry their recognition is the first step in preventing fatalities and injuries.

Confined Spaces Can Be Deadly

- October 2011: Two brothers, aged 16 and 22, died in an underground drainage system at a recycling center when the younger brother was overcome by hydrogen sulfide and his brother rushed to the rescue and was overcome as well.
- July 2011: One worker at a commercial laundry died of traumatic asphyxia when he was unloading a large horizontal washer and was pulled into the space and crushed when the washer was inadvertently activated while the worker reached in to unload the machine.
- January 2011: One worker died and two co-workers seriously injured at a pharmaceutical plant. The first worker died when he entered a large reactor vessel in which nitrogen had displaced oxygen. Two other workers were injured when they attempted to rescue the first worker.



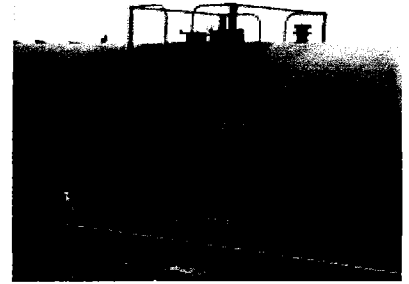
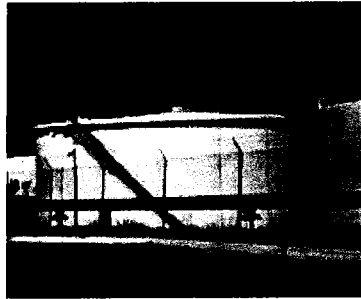
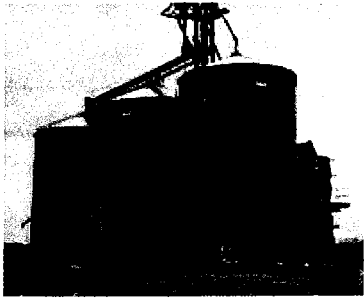
Entering a confined space without following all required procedures and having an effective emergency rescue plan can result in serious injuries or death. More than 60% of confined space fatalities occur among would-be rescuers.

What Is A Confined Space?

For all employers and employees a confined space exhibits these types of characteristics:

- Is large enough and configured such that an employee can bodily enter and perform work;
- Has limited openings for entry and exit;
- Is not designed for continuous employee occupancy;
- Has the potential for a hazardous atmosphere that may include the lack of or too much oxygen, and/or the presence of toxic or explosive vapors or gases such as hydrogen sulfide and methane; and/or
- Has physical safety hazards such as machinery, sources of electrical shocks, liquids (drowning or fires), steam (burn hazard), or loose, unstable materials that can cause employees to be trapped, crushed, or buried.

Examples of confined spaces include but are not limited to: water and sewer pipes, pumping stations, manholes, boilers, vats, kilns, vaults, silos, storage bins, meter vaults, tunnels, tanks, wastewater wetwells, grit chambers, utility tunnels, crawl spaces under floors, water reservoirs, holding tanks, pits, and sumps.



Why Are Confined Spaces Deadly?

Confined spaces are deceiving and often appear to be harmless. Danger signs (such as dead animals, rusting walls, odors) are often not apparent and the space may have been entered before without incident. **Never** assume that conditions have not changed and that the space is safe for entry at all times.

How Can Work Be Done Safely In Confined Spaces?

When possible, avoid entering these spaces by using devices or equipment that allows work to be done from the outside. If they must be entered, Cal/OSHA has regulations for working safely in confined spaces. **Please refer to the specific standard for your industry and operations.** For general industries such as manufacturing facilities, T8CCR 5157, "Permit-Required Confined Spaces" requirements apply. For employers and employees in Construction, Agriculture, Marine Terminals, Grain Handling, Telecommunications, Natural Gas and Electric Utilities, and Shipyard Operations, the regulations in T8CCR 5158, "Other Confined Space Operations" and other regulations apply.

In general, confined space regulations **require** all employers to have:

- A written confined space plan, including recognizing and marking all confined spaces on site;
- Procedures to test and monitor the air inside confined spaces before and during all employee entries;
- Procedures to prevent unauthorized entries and to have an attendant outside the space at all times;
- Effective controls of all existing atmospheric or safety hazards inside the confined space;
- Employee and supervisor training on safe work procedures, hazard controls, and rescue procedures; and
- Effective rescue procedures which are immediately available on site.

Employees should never enter the space until all the safety precautions are in place and they have been authorized to enter. Emergency procedures must be in place and ready before any employee enters a confined space.

Cal/OSHA Consultation Service

For more help on working safely in confined spaces, contact Cal/OSHA Consultation Service.
Toll-free Number: **1-800-963-9424**

Onsite Assistance Program Area Offices

Central Valley: 559-454-1295

No. California: 916 263-0704

SF/Bay Area: 510-622-2891

Santa Fe Springs/LA/Orange: 714-562-5525

San Diego/Imperial: 619-767-2060

San Bernardino: 909-383-4567

San Fernando Valley: 818-901-5754

Consultation Programs: <http://www.dir.ca.gov/dosh/consultation.html>

Publications: <http://www.dir.ca.gov/dosh/puborder.asp>