



Overview of Confined Space Regulations

General Industry – Permit Required Confined Space – Section 5157

- ▶ Limited entrance and exit + potential atmospheric hazard or other hazards = “Permit Required Confined Space”
- ▶ Applies to most workplaces such as:
 - Food production
 - Chemical manufacturing
 - Recycling operations
 - Sewer plants
 - Plating shops
 - Amusement parks

Other Industries –Section 5158

- ▶ Limited entrance and exit + hazardous atmosphere = “Confined Space”
- ▶ Applies to:
 - Construction,
 - Agriculture,
 - Marine terminals,
 - Telecommunication manholes and unvented vaults
 - Grain handling facilities,
 - Natural gas utility operation within distribution and transmission facility vaults

Cal-OSHA Confined Space Special Emphasis Program

- ▶ In place February 2012 and Continues Today
- ▶ All Cal-OSHA units
 - Enforcement
 - Consultation
 - Every inspection will include an evaluation of confined spaces

Goal

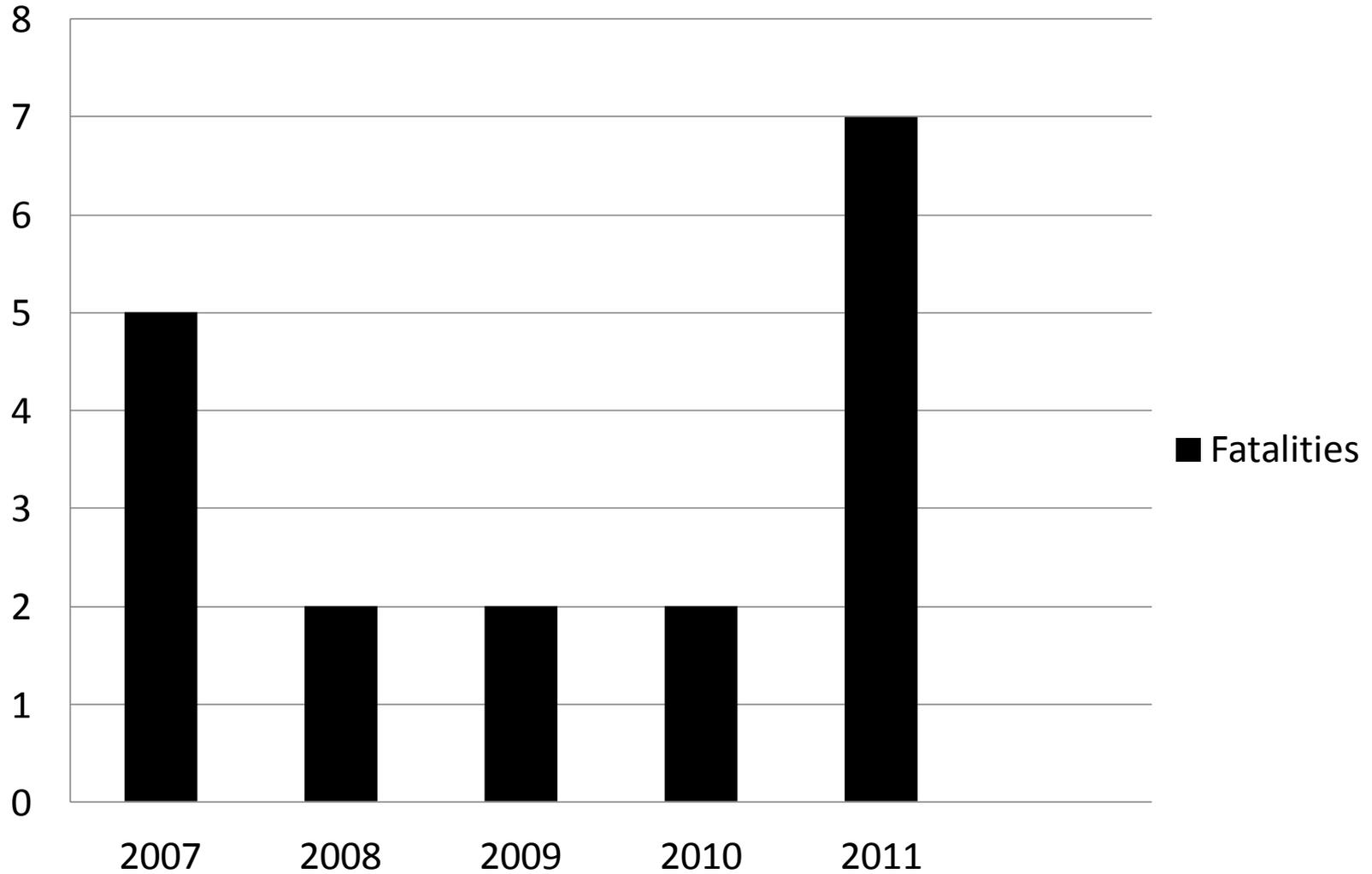
Increase awareness of:

- ▶ How to identify confined spaces
- ▶ How to evaluate hazards
- ▶ Confined space program requirements
- ▶ Resources available for program assistance

The Problem

- ▶ Confined spaces present very special work requirements and preparations
- ▶ Safety incidents involving confined spaces may result in fatalities; many have multiple serious injuries

Confined Space Fatalities in California



The Solution

- ▶ If confined spaces exist in your workplace
 - Post the space
 - Warn employees of the hazard
 - Prevent employees from entering until an effective and fully implemented confined space program is in place.



What is a “Confined Space”?



Look for spaces that are...

- Large enough and configured so that they can be entered, and
- Have restricted means for entry or exit, and
- Are not designed for continuous employee occupancy

Typical Examples of Confined Spaces:

- ▶ Tanks
- ▶ Boilers
- ▶ Vats
- ▶ Kilns
- ▶ Vaults
- ▶ Silos
- ▶ Pipelines
- ▶ Sewers
- ▶ Manure pits
- ▶ Storage bins
- ▶ Double hulls
- ▶ Pumping stations
- ▶ Pits, sumps
- ▶ Vessels
- ▶ Manholes
- ▶ Water reservoirs







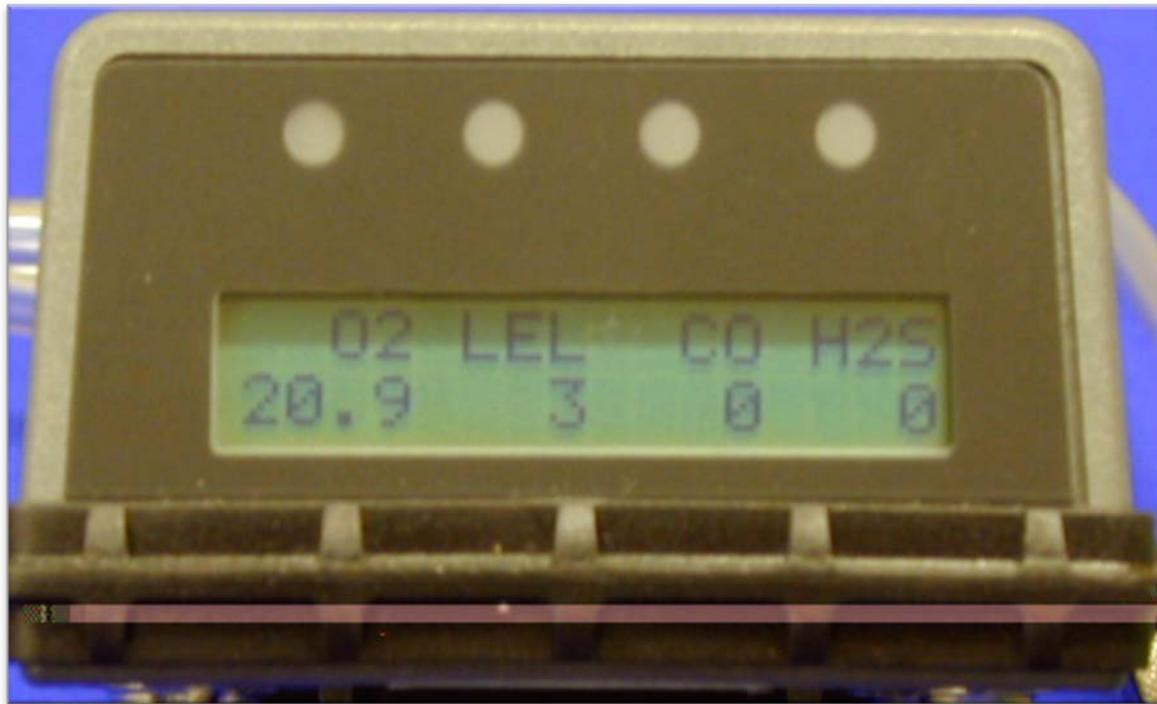


Hazardous Atmospheres

- ▶ If a confined space has a hazardous atmosphere, or has the potential for a hazardous atmosphere, special confined space procedures must be taken
- ▶ Hazardous atmosphere includes:
 - Oxygen deficiency or enrichment
 - Flammable atmosphere
 - Acutely toxic (Immediately Dangerous to Life or Health, or impairs ability to self-rescue)

Air Monitoring

- ▶ Calibration
- ▶ Sample Locations



Causes of Hazardous Atmospheres

- ▶ Inerting of the space
- ▶ Product stored in a confined space:
 - Gases released when cleaning.
 - Materials absorbed into walls of confined space, even if space has been emptied or cleaned.
 - Rotting organic materials and other decomposition

Causes of Hazardous Atmospheres Cont.

- ▶ Work performed in a confined space:
 - Welding, cutting, brazing, soldering
 - Painting, scraping, sanding, degreasing
 - Sealing, bonding, melting
- ▶ Connections or pipes to other spaces, or leakage from adjacent areas or soils.



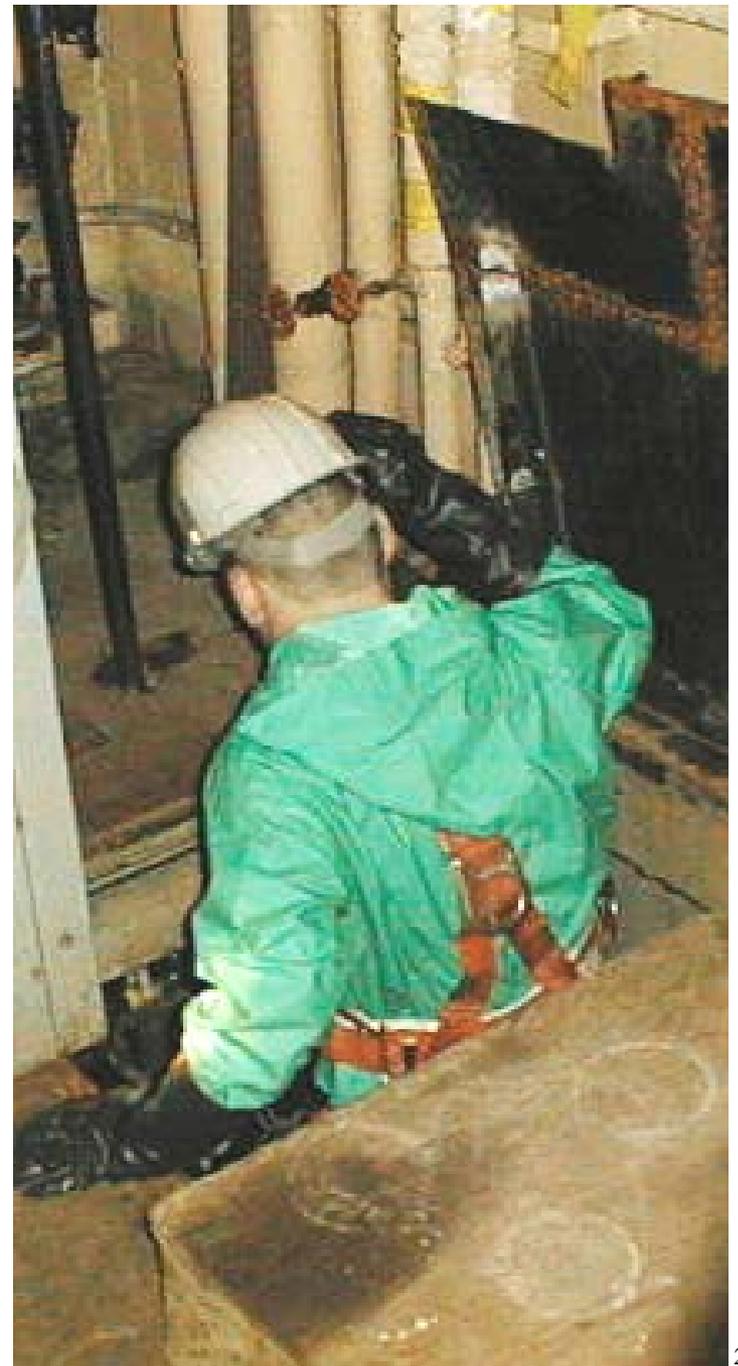
In most industries confined space precautions must also be taken if:

- ▶ Water or other materials in the space, such as sand or sugar, are an “engulfment” hazard
- ▶ A person may be trapped in the space due to sloping floor, converging walls, or piping or other obstacles
- ▶ Any other recognized serious safety hazard such as energy sources, mechanical hazards, steam, or heat



Entry into a confined space

“Entry” occurs as soon as *any part* of the entrant’s body breaks the plane of the opening into the space, including any extremities (hands or feet).



If confined spaces are to be entered the employer must...

- Post the space and prevent unauthorized entry
- Develop a program
- Assess the space prior to and continually during each entry, including atmospheric monitoring
- Train employees in required roles – entrant, attendant, supervisor, rescuers
- Isolate the space from other energy sources & materials
- Have effective rescue procedures



Rescue & Emergency Services

- ▶ Non-entry rescue is preferred! You must utilize retrieval systems unless they would not be effective in the space
- ▶ In addition to the attendant, there must be at least one standby person at the site who is trained and immediately available to perform rescue and emergency services.
- ▶ Practice simulated rescue operations at least every 12 months in actual space or representative spaces based on opening size, configuration, and accessibility....
- ▶ **“CALL 911” IS NOT A RESCUE PLAN!!!**

Applicable California Confined Spaces Regulatory Requirements

Title 8, CCR Section 5157

This section provides definitions and requirements for General Industry application of permit-required confined spaces.

Applicable California Confined Spaces Regulatory Requirements

Title 8, CCR Section 5158

This section provides definitions and requirements for other industries including: Construction, Agriculture, Marine Terminals, Telecommunication Manholes, Grain Handling Facilities, Natural Gas Utility, Electric Utility

Confined Space – Agriculture

T8 CCR 5158. Other Confined Space Operations (Agriculture)

(a) Scope. This section prescribes minimum standards for preventing employee exposure to dangerous air contamination, oxygen enrichment and/or oxygen deficiency in confined spaces, as defined:

(b) Definitions.

(1) 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).

(Note: Implementing a permit-required confined space program in accordance with section 5157 shall meet the requirements of this section)

Confined Space – Agriculture

- ▶ Any confined space on a farm poses a particular danger, because the threat may not be apparent until it's too late. Silos, vats, tanks, wells, manure pits and other enclosed or partly enclosed structures can suffocate a person with vapors, dust or low oxygen levels.
- ▶ Tragically, rescuers coming to the aid of someone who has collapsed inside a confined space are usually overcome too. It is not unusual for numerous members of the same family to be killed in a single confined space accident.

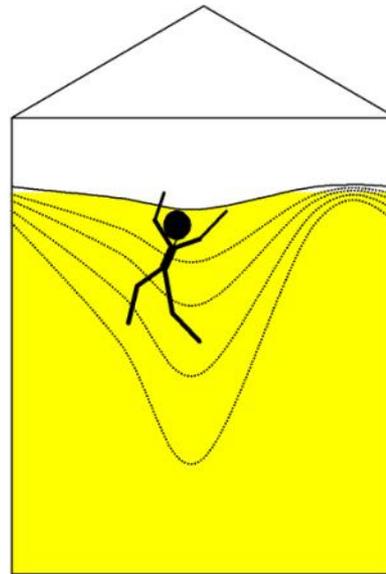


Grain Bin Safety and Confined Spaces

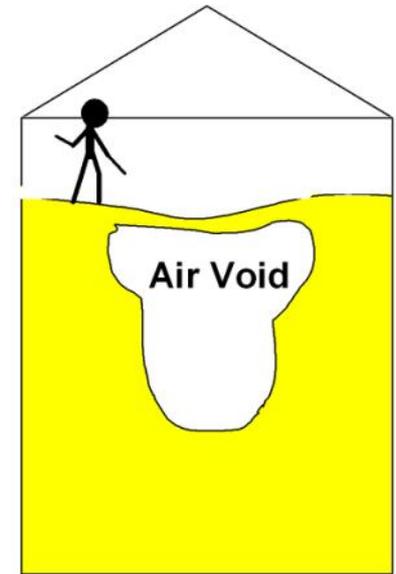
Suffocation

- ▶ Suffocation also occurs when you are no longer able to inhale air. Pressure in a grain mass can restrict your ability to breathe. This happens when the chest cavity

and diaphragm shrink as you exhale, and grain quickly flows around the body. On the next breath, you will have less room to expand the chest cavity and inhale air. Panic hastens the process and, as the capacity of each breath becomes smaller, you are unable to inhale enough air to survive.



Flowing grain can submerge a person



Air voids are unseen hazards that can collapse without warning

Confined Spaces Safeguards

- Written program
- Proper training
- Lockout/blockout
- Ventilation
- Test the atmosphere
- Wear appropriate PPE
- Emergency readiness



Finally Be Aware!

▶ Watch out for:

- The unusual, less common activities
- Employees working in confined areas where there is less natural ventilation
- Employees not wearing a respirator correctly
- No skin or eye protection with any cements, glues, polyurethanes, epoxies or solvents

Additional Resources

DOSH webpage

www.dir.ca.gov/dosh/ConfinedSpace

Cal/OSHA Consultation Service

Toll-free Number: 1-800-963-9424