



# Confined Space Program



**Wes Bauer**  
**Safety & Health Supervisor**



# What You Should Learn

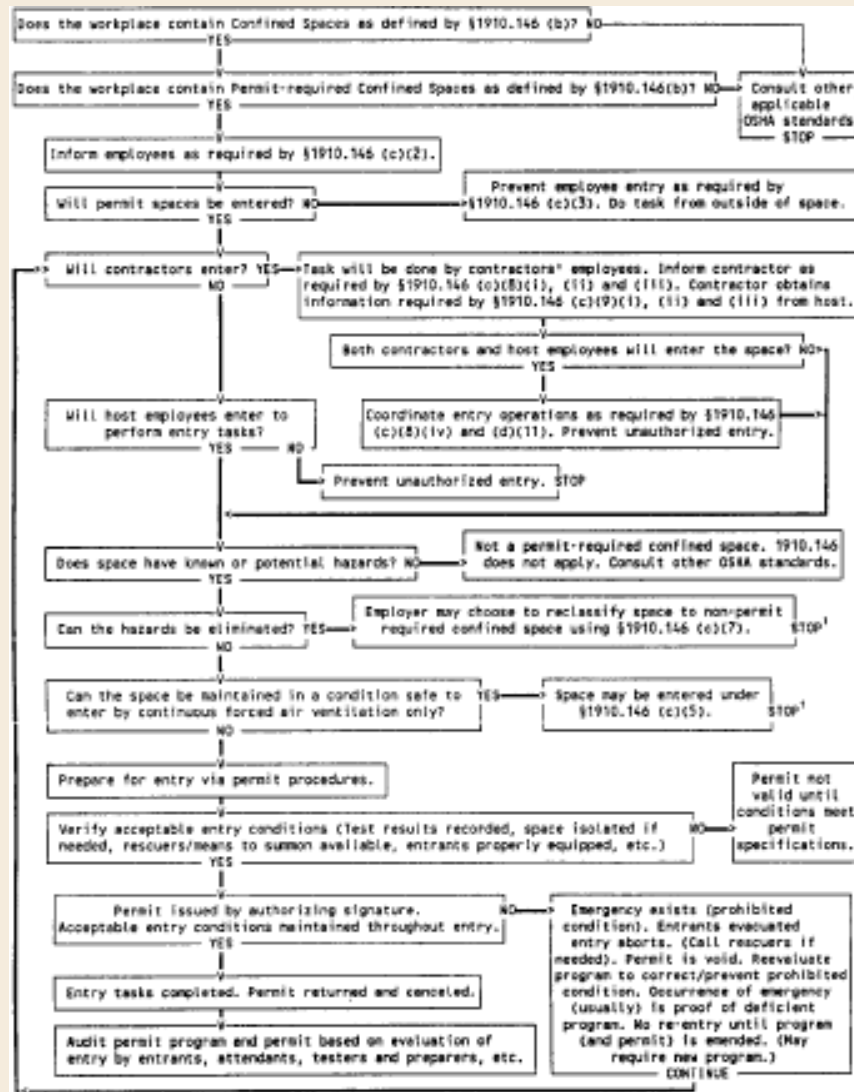
- At the end of this presentation you should have a basic understanding of:
  - Program Requirements
  - Permit Required Confined Space Entry Requirements
  - Contractor Requirements



# What Are The Confined Space Requirements?

- Employer must evaluate the workplace for Permit Required Confined Spaces.
  - Must have an inventory of spaces and logic for determination.
- Have to provide notice to employees of PRCS with signage.
- If the employer's employee will enter PRCS then a written program is required.

# Inventorying Confined Spaces



<sup>1</sup> Spaces may have to be evacuated and re-evaluated if hazards arise during entry

# Easier Inventorying Determination

## CONFINED SPACE INVENTORY

Site: Plant 1, Plant 2, 15 Pump Stations      Assessment by: John Frattali

### SECTION 1 - CONFINED SPACE DETERMINATION

1A) SIZE: Large enough and so configured that employee can bodily enter and perform assigned work?

1B) ACCESS: Limited means for entry and exit?

1C) DESIGN: Not designed for continuous employee occupancy?

- **CONFINED SPACE** - If answer to ALL three questions is "YES"
- **NOT A CONFINED SPACE** - If answer to ANY question is "NO"

### SECTION 2 - HAZARD EVALUATION (PRCS DETERMINATION)

2A) ATMOSPHERE: Contains or has the potential to contain a hazardous atmosphere?

2B) ENGLUFMENT: Contains a material that has the potential for engulfing an entrant?

2C) CONFIGURATION: Internal configuration such that an entrant could be trapped or asphyxiated?

2D) OTHER: Any other recognized serious safety or health hazard?

- **PERMIT REQUIRED CONFINED SPACE** - If answer to ANY question is "YES"
- **NON-PERMIT REQUIRED CONFINED SPACE** - If answer to ALL questions is "NO" unless if space only has atmospheric hazards that will be routinely tested and declassified by universal OCSD confined space policy.

### LEGEND

Y - Yes

N - No

D - Damaged/Missing/Incomplete/Deficient

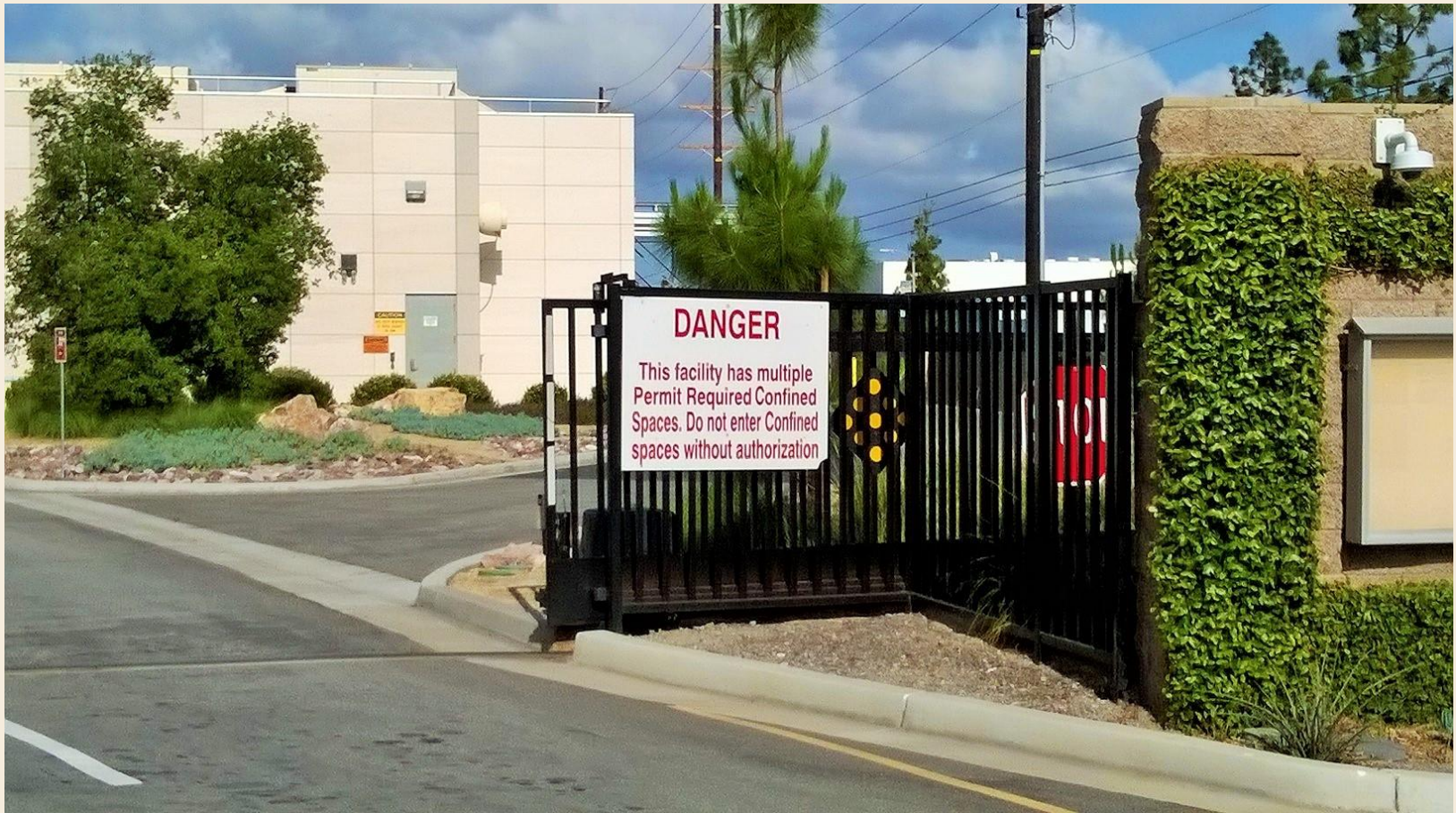
### Confined Space Information and Location

Facility	Building or Area Name	GIS Number	Location	Description of Space	1			Confined Space? (If yes complete Section 2)	2A				2C <sub>a</sub>	2C <sub>b</sub>	2D				Is the Confined Space Labeled?	Entry Procedure Available	Permit Required	Non Permit Required (See notation 2D)	Not A Confined Space	Latitude	Longitude	Entry Elevation	
					Size	Access	Design		Oxygen	Flammable	Hydrogen Sulfide	Dust/Mist	Gas/Vapor	Engulfment	Configuration	Mechanical	Pressure	Electrical									Heat/Cold (Thermal)
P1	Steve Anderson Lift Station	1334	Exterior, South of Bldg.	OCSD Sewer	Y	Y	Y	YES	Y	Y	Y	Y	Y						N	N	YES				33° 41' 38.14"	117° 56' 18.65"	Ground Level
P1	Steve Anderson Lift Station	1334	Exterior, South of Bldg.	Wet Well	Y	Y	Y	YES	Y	Y	Y	Y	Y						N	N	YES				33° 41' 38.14"	117° 56' 18.19"	Ground Level
P1	Steve Anderson Lift Station	1334	Exterior, Northwest of Bldg.	480V Vault	Y	Y	Y	YES	Y		Y								N	Y		YES			33° 41' 38.73"	117° 56' 19.02"	Ground Level
P1	Steve Anderson Lift Station	1334	Exterior, Northwest of Bldg.	12kV Electrical Vault	Y	Y	Y	YES	Y		Y								N	N		YES			33° 41' 38.68"	117° 56' 18.95"	Ground Level
P1	Steve Anderson Lift Station	1334	Exterior, Northwest of Bldg.	Data Vault	Y	Y	Y	YES	Y		Y								N	Y		YES			33° 41' 38.63"	117° 56' 18.90"	Ground Level
P1	Steve Anderson Lift Station	1334	Exterior, North of Bldg.	480V Vault	Y	Y	Y	YES	Y		Y								N	Y		YES			33° 41' 38.75"	117° 56' 18.28"	Ground Level
P1	Steve Anderson Lift Station	1334	Exterior, North of Bldg.	Electrical Vault	Y	Y	Y	YES	Y		Y								N	Y		YES			33° 41' 38.66"	117° 56' 18.20"	Ground Level
P1	Steve Anderson Lift Station	1334	Roof, West	Exhaust Air Unit	Y	Y	Y	YES						Y					N	N	YES				33° 41' 38.44"	117° 56' 18.01"	Roof
P1	Steve Anderson Lift Station	1334	Roof, East	Exhaust Air Unit	Y	Y	Y	YES						Y					N	N	YES				33° 41' 38.44"	117° 56' 17.83"	Roof
P1	Steve Anderson Lift Station	1334	Exterior, West of Bldg.	OCSD Sewer	Y	Y	Y	YES	Y	Y	Y	Y	Y						N	N	YES				33° 41' 38.36"	117° 56' 19.12"	Ground Level

# Signage for PRCs

- 1910.146(c)(2)
  - If the workplace contains permit spaces, the employer shall inform exposed employees, by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces.
- NOTE: A sign reading DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER or using other similar language would satisfy the requirement for a sign.

# Signage for PRCs



# Signage for PRCs





# Written Program

- If the employer decides that its employees will enter permit spaces, the employer shall develop and implement a written permit space program that complies with this section. The written program shall be available for inspection by employees and their authorized representatives.

# Training

- (1) The employer shall provide training so that all employees whose work is regulated by this section acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this section.

# Training

- (2) Training shall be provided to each affected employee:
  - (A) Before the employee is first assigned duties under this section;
  - (B) Before there is a change in assigned duties;
  - (C) Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained;
  - (D) Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures required by subsection (d)(3) or that there are inadequacies in the employee's knowledge or use of these procedures.

# Training

- (3) The training shall establish employee proficiency in the duties required by this section and shall introduce new or revised procedures, as necessary, for compliance with this section.
- (4) The employer shall certify that the training required by subsections (g)(1) through (g)(3) has been accomplished. The certification shall contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification shall be available for inspection by employees and their authorized representatives.

# Entering a PRCS

- What is required to enter a PRCS?
  - Entry Permit
  - You need three positions
    - Entrant
    - Attendant
    - Entry Supervisor
  - Rescue Plan

# Entry Permit

- Entry Permit needs to address the following:
  - Who will perform the Entrant, Attendant, and Entry Supervisor roles
    - Number of entrants needs to match the permit!
  - Atmospheric monitoring results before entry
  - Potential hazards and controls
  - Permit must be posted at the entry point
  - Permit must be closed and reviewed when done for the day.

# Rescue Plan

- There are 3 types of rescues:
  - Self rescue
    - Person walks out.
  - Attendant Rescue
    - Person stays tethered to the retrieval system by the full body harness.
  - Rescue team
    - Need to ensure a 180 pound person isn't trying to rescue a 300 pound person!

# Atmospheric Monitoring

- At least 3 gas needed to be monitored:
  - Oxygen
  - Lower Explosive Limit
  - Carbon Monoxide
- Other gases can be monitored depending upon possible exposures
- Don't forget to perform stratified sampling!
  - Take into consideration the length of sampling hose.



# Dynamic Atmospheric Environment

- What do you do when you have a dynamic atmospheric environment?
  - How do you protect your employees when you can't control the atmosphere they are being exposed to while working?
  - OSHA doesn't not come out and tell an employer what to do in a constant changing atmosphere.

# Contractor Entering Your PRCs

- Before entry operations begin, the host employer must provide the following information, if it has it, to the controlling contractor:
  - The location of each known permit space;
  - The hazards or potential hazards in each space or the reason it is a permit space; and
  - Any precautions that the host employer or any previous controlling contractor or entry employer implemented for the protection of employees in the permit space.

# Contractor Requirement

- Before it begins work at a worksite, each employer must ensure that a competent person identifies all confined spaces in which one or more of the employees it directs may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.

# Construction Inventory Requirement

- Must maintain an inventory of all confined spaces during the course of construction, and must provide a completed list and at end of construction completion.

# OCSD Contractor Expectations

- All entries into active, ponded, or live sewer systems shall ensure compliance with 1910.146 Appendix E Sewer System Entry. A “live sewer” is any pipe carrying raw sewage upstream of the Main Sewage Pumps at either plant, including the entire collection system. Specifically ensuring entrants are protected from all potential toxic atmospheres which could be unknown.

# OCSD Contractor Expectations

- Requirement
  - Contractors entering into OCSD active sewer systems who elect to use ventilation, in lieu of atmosphere-supplying respirators, must submit a Ventilation Plan. This plan shall be a component of the Confined Space Entry Procedures, and be reviewed and signed by a Professional Engineer (PE) qualified to practice in the state of California, Certified Safety Professional (CSP), or a Certified Industrial Hygienist (CIH).

# OCSD Contractor Expectations

- The plan must include, but not limited to:
  - Determination of the internal size (volume) and configuration of the permit space.
  - How have the physical properties (molecular weight, vapor pressure, etc.) of the atmospheric hazards been considered in the design of the Ventilation Plan.
  - The capacity of each piece of equipment being used, and does the capacity match the requirements of the space?
  - The air exchange rate required to maintain acceptable entry conditions.
  - Assessment of whether work or activities being performed within the sewer will contribute to the atmospheric hazard.

# **NFPA 350 Guide for Safe Confined Space Entry and Work**

- The purpose of this guide is to provide safe work practices for persons working in and around confined spaces.



Questions?