



**PDHonline Course G220 (3 PDH)**

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## **Confined Space Awareness**

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**2020**

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# **CONFINED SPACE AWARENESS TRAINING**

*Presented by:*

**Jeffrey R. Sotek, PE, CSP, CIH**

# Purpose

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- To review what is a Permit Required Confined Space
- To review confined space hazards
- To provide OSHA overview regarding confined space

# Definitions

- A Confined Space is any space that:
  - Is large enough or so configured that an employee can bodily enter and perform assigned work
  - Has limited or restricted means for entry or exit
  - Is not designed for continuous employee occupancy

# Definitions

- Permit Required Confined Space is a confined space that is potentially hazardous and has one or more of the following characteristics:
  - Contains or has a potential to contain a hazardous atmosphere
  - Contains a material that has the potential for engulfing an entrant
  - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly-converging walls or by a floor that slopes downward and tapers to a smaller cross-section
  - Contains any other recognized serious safety or health hazard

# Definitions

- Examples of Permit Required Confined Spaces include:
  - Tanks
  - Boilers
  - Silos
  - Sewers
  - Vessels
  - Pipelines
  - Manholes
  - Tank / rail cars
  - Hoppers



# Definitions

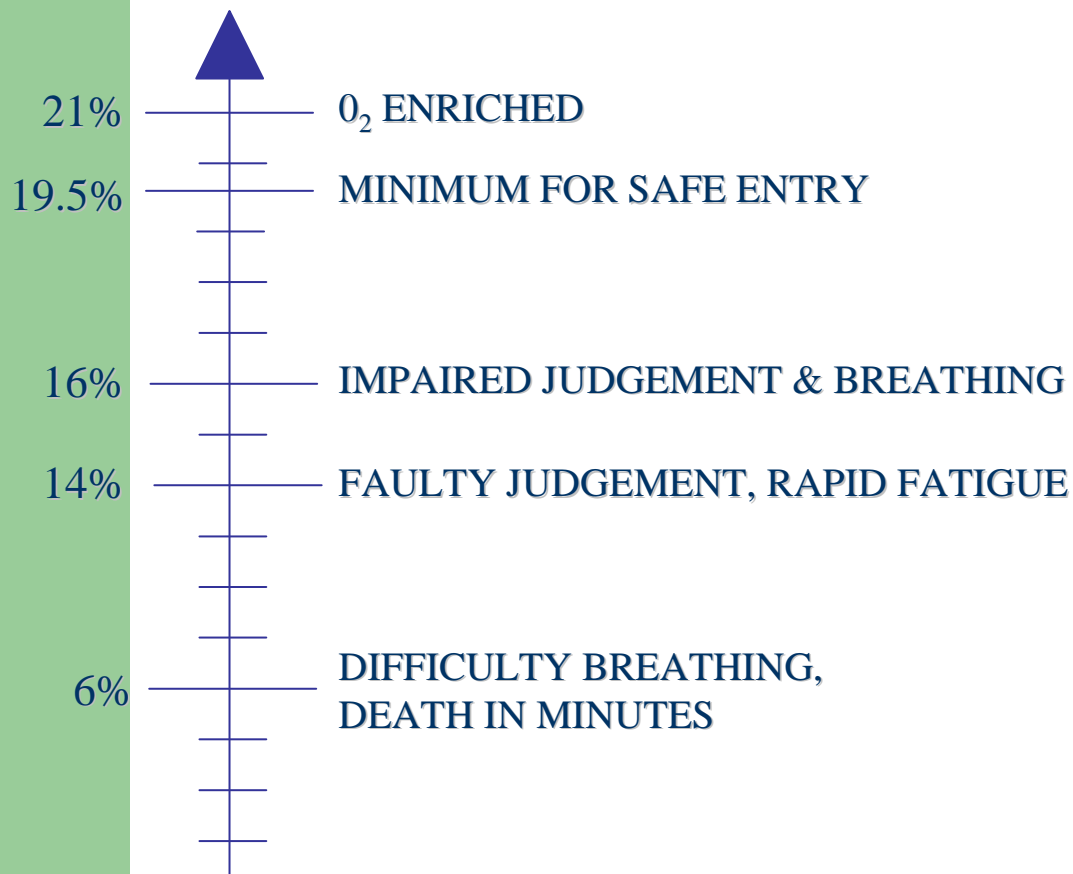
- A **Non-Permit Confined Space** is a confined space that does not contain, nor has the potential to contain, any hazard capable of causing death or serious physical harm (with respect to atmospheric hazards).

# Definitions

- **"Acceptable entry conditions"** means the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.



# Confined Space Hazards



- Hazardous Atmospheres
  - Oxygen Deficiency or Oxygen Enrichment
  - Combustible / Flammable / Explosive Gases and Vapors
  - Toxic Gases and Vapors

# Confined Space Hazards



- Hazardous Atmospheres
  - Toxic Gases and Vapors
    - Hydrogen sulfide, carbon monoxide, welding fumes, solvents
  - Combustible Dusts

# Confined Space Hazards



- Engulfment Hazards
  - Silos, product bins
- Entrapment or Configuration Hazards
- Mechanical Hazards

# Confined Space Hazards



- Other Hazards
  - Corrosive Chemicals
  - Electrical
  - Access with Ladders
  - Poor Visibility
  - Temperature Extremes
  - Falling / Tripping / Insecure Footing
  - Falling Objects
  - Weather Conditions

# Examples of Confined Space Entry Tragedies

- In 1985 a city worker was removing an inspection plate from a sewer line in a deep pump station when the plate blew off and sewage entered the room. Two colleagues and a policeman attempted to rescue him from the sludge filled room. All four died.
- In 1986 a self-employed truck driver died after entering the top of a sawdust bin. He suffocated when the sawdust inside the bin collapsed and buried him.
- In 1986 a worker entered a chemical degreaser to clean the bottom. He collapsed. Two colleagues entered to rescue him. All three died.

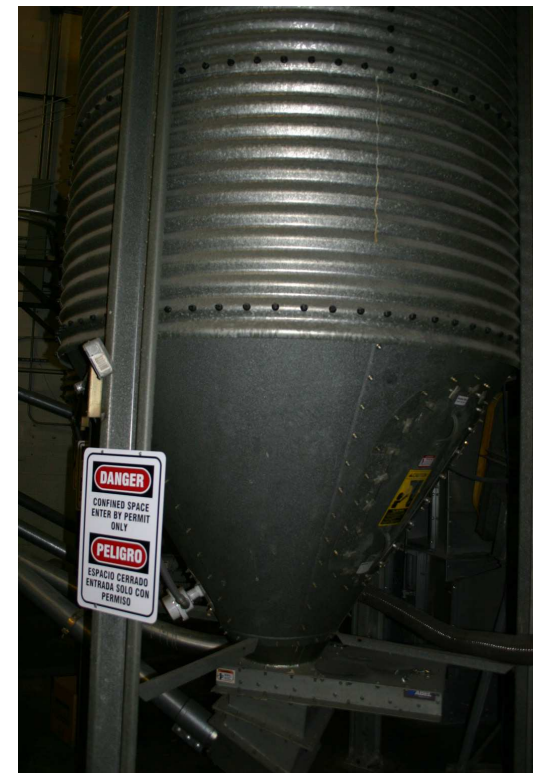


# Overview of OSHA Requirements

1. Identify Permit Required Confined Spaces
2. Develop Confined Space Entry Program or company policy to not enter confined spaces
3. Employee training

# Permit Required Confined Space Identification

- Most commonly identified by signage
- Other methods include training, memos



# Overview of OSHA Requirements

- A Written Confined Space Entry Program must Include:
  - Measures to prevent unauthorized entry
  - Identifying hazards
  - Development of procedures for safe entry
  - Providing, maintaining and using appropriate equipment
  - Testing atmospheric hazards
  - Providing attendants
  - Duties of permit space team members
  - Development and cancellation of entry permits
  - Coordination of entries during multi-employer operations
  - Review of the program



# Overview of OSHA Requirements



- Roles and Responsibilities
  - Entrants
  - Attendants
  - Entry Supervisor
  - Rescue Team
- Other Options
  - Alternate and Reclassification of Permit
  - Require Confined Spaces

# Roles and Responsibilities

- "Attendant" means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.
- "Authorized entrant" means an employee who is authorized by the employer to enter a permit space.

# Roles and Responsibilities

- "Entry supervisor" means the person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

# Roles and Responsibilities

- "Rescue service" means the personnel designated to rescue employees from permit spaces.

# Alternate Procedures

- The employee may not enter until forced ventilation has eliminated the atmospheric hazard
- All other hazards must be eliminated prior to entry
- Pre-entry and periodic atmospheric testing must be completed
- Written certification must be made



# Reclassification

- Can be used when:
  - The permit space poses no actual or potential atmospheric hazards
  - All other hazards within the space can be eliminated without entry into the permit space

# Training

- 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 shall be provided to each affected employee:
  - Before the employee is first assigned duties under this section;
  - Before there is a change in assigned duties;



**Thank You!**

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