



WORLD CLASS HEALTH & SAFETY EVENT

Michigan Safety Conference

Confined Spaces - Know the Risks



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Course Objectives

- Understand Resources Available- Industry
- OSHA CS/PRCS Definition
- Know Hazards Associated With CS Work
- Roles and Responsibilities
- Provide Examples of Confined Spaces

Confined Spaces



Standards and Resources

- Permit-Required Confined Spaces
 - 29 CFR 1910.146
 - 29 CFR 1926.1200 Subpart AA
 - MIOSHA Part 35 and Part 90/490



29 CFR 1910.146

Permit-Required Confined Spaces

- Scope & application
- Definitions
- General requirements (to include dev. of written plan)
- Permit-required confined spaces
- Permit system
- Entry permit
- Training
- Duties of authorized entrants
- Duties of attendants
- Duties of entry supervisors
- Rescue & emergency services
- Employee participation



Appendices

- Appendix A - Permit-Required Confined Space Decision Flow Chart
- Appendix B - Procedures for Atmospheric Testing
- Appendix C - Examples of Permit-Required Confined Space Programs
- Appendix D - Confined Space Pre-Entry Checklist
- Appendix E - Sewer System Entry
- Appendix F - Rescue Team or Rescue Service Evaluation Criteria



Confined Space

Confined space is space that:

- Is large enough & so configured that employee can bodily enter & perform assigned work
- Has limited or restricted means for entry or exit (i.e. tanks, vessels, silos, pits, vaults or hoppers)
- Is not designed for continuous employee occupancy



Permit-Required Confined Space

Permit-Required Confined Space is confined space that has one or more of following characteristics:

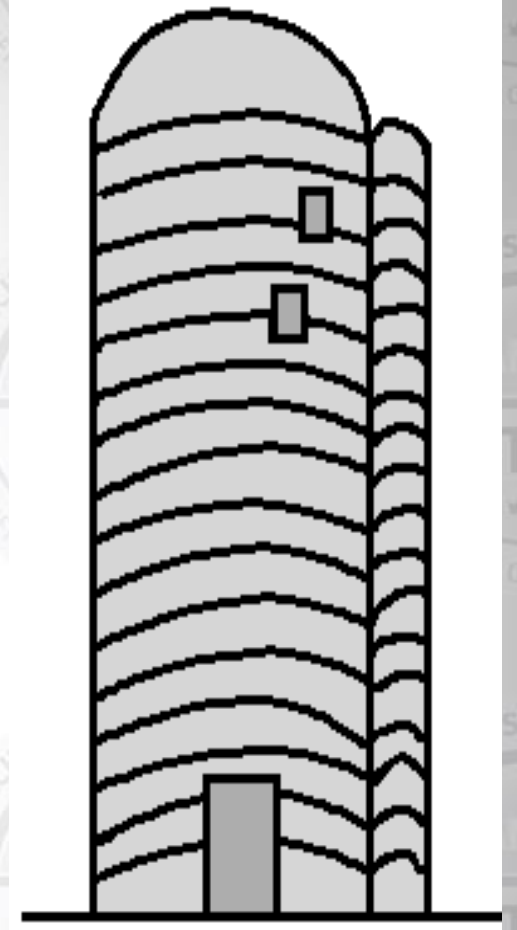
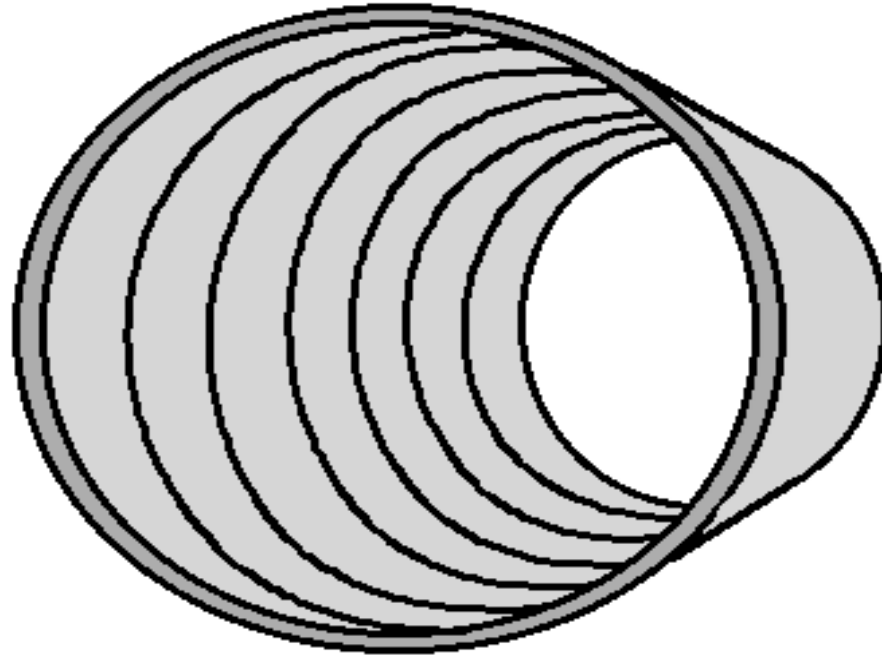
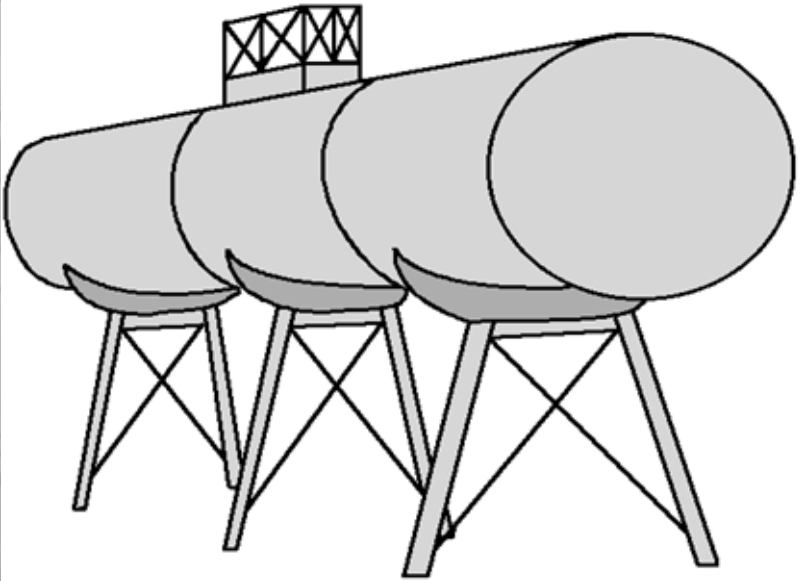
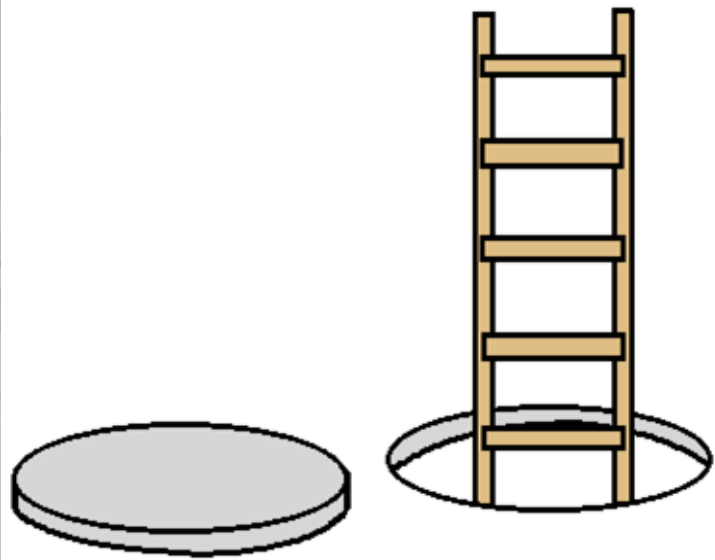
- Contains or has potential to contain hazardous atmosphere
- Contains material that has potential for engulfing entrant



Permit-Required Confined Space

- Has internal configuration such that entrant could be trapped or asphyxiated by inwardly converging walls or by floor which slopes downward & tapers to smaller cross-section
- Contains any other serious safety or health hazard

Examples



Characteristics

- Internal configuration
 - **Open** - no obstacles, barriers or obstructions within space (i.e. water tank)
 - **Obstructed** - permit space contains some type of obstruction that rescuer would need to maneuver around, such as baffle or mixing blade
 - Large equipment, such as ladder or scaffold brought into space for work purposes, would be considered obstruction if positioning or size of equipment would make rescue more difficult

Characteristics

- Space access
 - Horizontal
 - Use of retrieval lines could be difficult
 - Vertical



Definitions

- Attendant
 - Individual stationed outside one or more permit spaces who monitors authorized entrants & performs all attendant's duties assigned in employer's permit space program

Duties of Attendants

- Knows hazards that may be faced during entry
- Aware of possible behavioral effects of hazard exposure in authorized entrants
- Continuously maintains accurate count of authorized entrants
- Remains outside permit space during entry operations until relieved by another attendant

Duties of Attendants

- Communicates with authorized entrants
- Monitor's activities inside & outside space
- Summons rescue & other emergency services
- Performs non-entry rescues as specified by employer's rescue procedure
- Performs no duties that might interfere with primary duty to monitor & protect authorized entrants



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Definitions

- Authorized entrant
 - Employee authorized by employer to enter permit space

Duties of Authorized Entrants

- Know hazards that may be faced during entry, including information on mode, signs or symptoms & consequences of exposure
- Properly use equipment as required by paragraph (d)(4)
- Communicate with attendant as necessary to enable attendant to monitor entrant status & enable attendant to alert entrants of need to evacuate space as required by paragraph (i)(6)



Duties of Authorized Entrants

- Alert attendant whenever:
 - Entrant recognizes any warning sign or symptom of exposure to dangerous situation
 - Entrant detects prohibited condition

Duties of Authorized Entrants

- Exit from permit space...
 - Order to evacuate is given by attendant or entry supervisor
 - Entrant recognizes any warning sign or symptom of exposure to a dangerous situation
 - Entrant detects prohibited condition
 - Evacuation alarm activated



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Definitions

- Entry Supervisor
 - Person (such as employer, foreman or crew chief) responsible for determining if acceptable entry conditions are present at permit space where entry is planned, for authorizing entry & overseeing entry operations & for terminating entry
 - Note: entry supervisor *may* serve as attendant or authorized entrant, as long as that person is trained & equipped as required for each role filled
 - Duties of entry supervisor may be passed from one individual to another during entry operations

Duties of Entry Supervisor

- Knows hazards that may be faced during entry, including information on mode, signs or symptoms & consequences of exposure
- Verifies, by checking that appropriate entries have been made on permit, all tests specified by permit have been conducted & all procedures & equipment specified by permit are in place before endorsing permit & allowing entry to begin
- Terminates entry & cancels permit as required by paragraph (e)(5)



Duties of Entry Supervisor

- Verifies that rescue services are available & means for summoning are operable
- Removes unauthorized individuals who enter or attempt to enter permit space during entry operations
- Determines, whenever responsibility for permit space entry operation is transferred & at intervals dictated by hazards & operations performed within space, that entry operations remain consistent with terms of entry permit & acceptable entry conditions are maintained



Definitions

- Rescue service
 - Personnel designated to rescue employees from permit spaces
- Note: rescue personnel may be industry emergency personnel, outside rescue service or combination of teams





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Rescue & Emergency Services

- Employer who designates rescue & emergency services, pursuant to paragraph (d)(9) shall:
 - Evaluate prospective rescuer's ability to respond to rescue summons in timely manner, considering hazard(s) identified



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Definitions - Potential Hazard

- Hazardous atmosphere
 - Atmosphere that may expose employees to risk of death, incapacitation, impairment of ability to self-rescue (i.e. unaided escape from permit space), injury or acute illness from one or more following causes:
 - Lower than 19.5 % Oxygen or higher than 23.5%

Definitions - Potential Hazard

- Engulfment
 - Surrounding & effective capture of person by liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging respiratory system
 - Can exert enough force on body to cause death by strangulation, constriction or crushing

Definitions - Potential Hazard

- Engulfment and Atmospheric (previous)
- Static Electricity
- Heat and Cold
- Pest, Rodents and Insects/Snakes
- Creating New Hazards
- ? Anymore

Other Hazards

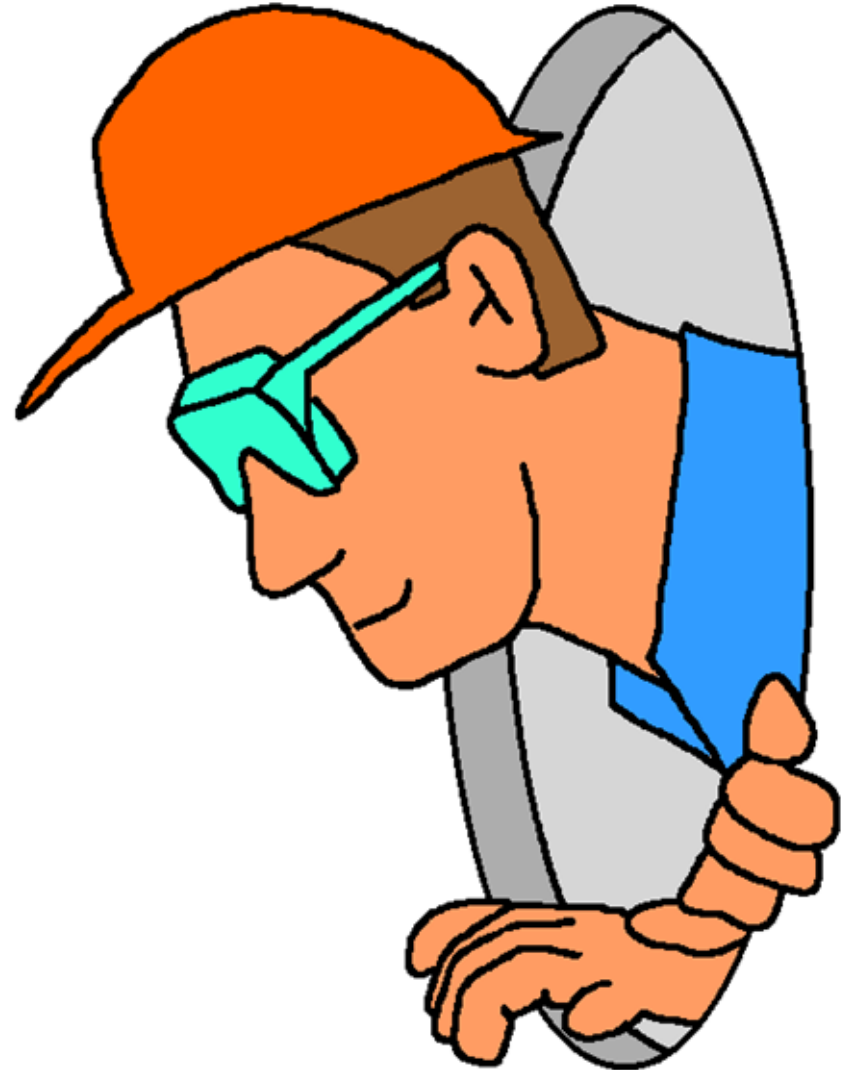
- Unstable or dangerous work surfaces
- Falling objects
- Chemicals
- Fire/Explosion
- Biological



Definitions

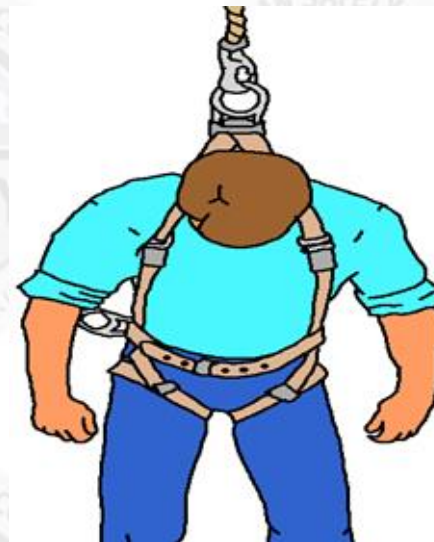
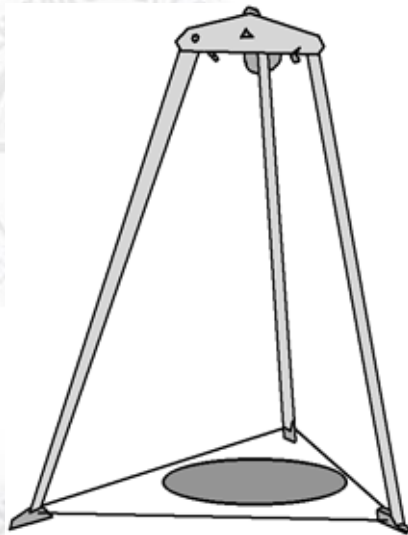
- Entry

- Action by which person passes through opening into permit-required confined space
- Entry includes ensuing work activities in space and is considered to have occurred as soon as **any** part of entrant's body breaks plane of opening into space



Definitions

- Retrieval system
 - Equipment (including retrieval line, chest or full-body harness, wristlets, if appropriate, & lifting device or anchor) used for non-entry rescue of persons from permit spaces



Entry Permits

- Permit space to be entered
- Purpose of entry
- Date & authorized duration of permit
- Authorized entrants
- Authorized attendants
- Name & signature of entry supervisor
- Hazards of permit space to be entered
- Isolation of hazard control measures
- Acceptable entry conditions
- Results of initial & periodic atmospheric monitoring
- Rescue & emergency services
- Communications procedures
- Equipment required for entry & rescue operations
- Other necessary information & other required permits





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Air Testing Protocol

- Before employee enters space, internal atmosphere shall be tested, with calibrated direct-reading instrument, for following conditions in order given
 - Oxygen content
 - Flammable gases & vapors
 - Potential toxic air contaminants





PRCS Signage









Knowledge Check – Use the Chat Box to Answer!

What are some potential hazards for employees associated with confined space work?



Knowledge Check – Use the Chat Box to Answer!

What is the primary duties of the authorized attendant?



Knowledge Check – Use the Chat Box to Answer!

What is a permit required confined space?



Knowledge Check – Use the Chat Box to Answer!

What information can be found on a confined space permit?



Questions? Contact:

- Tracy Hazel
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- advancedtrainingandconsulting.com
- https://www.osha.gov/sites/default/files/publications/confined_space_permit.pdf

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In Summary

- Confined Space Work Can Be Dangerous!
- Must Know and Understand Hazards.
- Have the appropriate planning, training and equipment BEFORE you begin.
- QUESTIONS FOR ME?



Confined Space Safety Video

