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Occupational Safety
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Confined Spaces in Construction: The Big Picture 29 CFR 1926 Subpart AA

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Background

- General Industry Standard published 1993
- United Steelworkers settlement 1994
- Consultation with ACCSH and stakeholder meetings, SBREFA panel.
- Proposal 2007
  - Comment period & hearing
- Final Rule published May 4, 2015; effective August 3, 2015

Basics

- What is a confined space?
  - Big enough to enter
  - Not for regular occupancy
  - Difficult to exit
- Examples include: Sewers, pits, crawl spaces, attics, boilers, tanks, etc.
- Hazards include: Low oxygen, toxic atmospheres, flammables/explosives, animals and insects, etc., and hazards caused by the work being done!

What is a Permit Space?

- Permit-Required Confined Space (Permit Space)
  - A confined space WITH
    - Hazardous or potentially hazardous atmosphere;
    - Engulfment hazard;
    - Physical Hazard;
    - Other serious safety or health hazard

Who does what?

- Site evaluation:
  - Any employer whose employee may enter a confined space needs to ensure that the site is evaluated and spaces are posted, but the evaluation and posting may be coordinated through a single employer.
  - Site evaluation involves hazard recognition – hazards already in the space, and hazards created as a result of the work being done.

What do you mean by “posted”?

- Employers who identify or are made aware of permit spaces must make sure that exposed workers are made aware of the existence, location, and danger of each permit space.
  - A sign reading “DANGER – PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER” would satisfy the requirement for posting.

Who does what?

- Permit issuance:
  - Entry employers (employers who direct workers to enter a permit space) must develop and post permits.
    - Permits list required entry conditions, equipment that must be used, and track who is inside the space.

What do you mean by “permit”?

- The term “permit” is used in the general industry rule, and was retained here for consistency.
- This is similar to a “hot work” permit, sometimes required for welding or use of other sparking tools on certain work sites.
- This rule does not require an employer to file a permit with OSHA or a municipal or other authority.

What needs to be on the permit?

- The space to which the permit applies.
- The purpose of the entry.
- The date and duration of the permit.
- The names or other designation of the authorized entrants (can refer to a roster or tracking system).
- Methods used to detect increases in hazardous atmospheric conditions.

What needs to be on the permit? (cont'd)

- Name of attendant(s).
- Name of entry supervisor(s), and signature or initials of each supervisor who authorizes entry.
- Hazards in the space and measures used to eliminate or control permit space hazards.
- Acceptable entry conditions.
- Results of atmospheric tests and monitoring and names/initials of testers, and dates of tests.

What needs to be on the permit? (cont'd)

- Rescue and emergency services that can be summoned and the means (such as equipment to use and numbers to call) for summoning those services.
- Communication procedures used by entrants and attendants during entry.
- Equipment necessary for entry.
- Any additional permits (such as hot work) issued to authorize work being performed in the space.

What do you mean by "program"?

- A written program developed under this rule outlines what the employer will do to protect its workers from permit space hazards.
  - Programs will often be used for more than one work site – they will give general information about the hazards and methods of addressing hazards used by that employer.
  - In contrast, permits contain specific information about the particular space entered under that permit.

What's in a Program?

- Site evaluation for confined spaces and permit-required confined spaces (permit spaces).
- Posting of all permit spaces.
- Steps taken to prevent unauthorized entry of permit spaces.
- Training of all workers exposed to permit space hazards, including hazards of unauthorized rescue.

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What's in a Program? (cont'd)

- Plans for elimination or isolation of physical hazards.
- Plans for air testing and monitoring.
- Plans for ventilation.
- Plans for engulfment hazard monitoring, if necessary.
- Plans for rescue (non-entry if possible).
- Plans and training for entrants, attendants, and entry supervisors.

What's in a Program?

- Personal protective equipment, if necessary.
- Plans for working around and with other contractors.
- Plans for summoning emergency services.
- Plans for regular review (at least annually) of permits and identification of areas in need of improvement.

What are “alternate procedures”?

- For an employer to use “alternate procedures” to enter a permit-required space, the space must:
  - Have only atmospheric hazards (or potential hazards)
    - If physical hazards must be eliminated or isolated, this has to happen without entering the space OR by entering under full permit conditions until the physical hazards are eliminated.

What are “alternate procedures”? (cont’d)

- To use “alternate procedures” to enter a permit space, the employer:
  - Must show that continuous forced air ventilation is sufficient to control atmospheric hazards and that workers can exit the space safely in the event of an emergency
  - Must use continuous or periodic monitoring to ensure the forced air is effective.
  - Must document that the space is safe and that pre-entry measures have been taken.

Proper Prior Planning…

- Awareness of hazards
- Addressing hazards BEFORE entering
- Preparation for rescue in the event of an emergency/unanticipated condition.
- With planning and forethought, many construction employers will be able to avoid the need for a permit space program.

What do workers need to know?

- Training must cover:
  - Hazards in permit spaces and methods used to protect workers from those hazards.
  - The dangers of unauthorized rescues.
  - Must result in proficiency in the duties assigned under this standard and new or revised procedures, as necessary.

When should workers be trained?

- Before the worker is assigned duties.
- Before there is a change in assigned duties.
- Whenever there is a change in permit space entry operations.
- Whenever there is a deviation from procedures or deficiencies in the worker's knowledge or use of those procedures.

More about Training

- Training must be provided at no cost to the worker.
- Training must be provided in a language and vocabulary the worker can understand.

What do workers going into the space have to do?

- Entrants must:
  - Know hazards that may occur, and the signs, symptoms, and consequences of exposure
  - Know how to use safety equipment
  - Communicate with the attendant
  - Alert the attendant if there is a sign of exposure or a prohibited condition
  - Evacuate the space if this occurs or if the attendant orders evacuation or an evacuation alarm sounds.

What do attendants have to do?

- Attendants must:
  - Know hazards that may occur, and the signs, symptoms, and consequences of exposure
  - Know possible behavioral effects of hazard exposure
  - Maintain an accurate count of entrants and be able to identify who is in the space
  - Remain outside the space until relieved by another attendant

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What do attendants have to do? (cont'd)

- Attendants must:
  - Communicate with entrants to assess their status and alert them of the need to evacuate
  - Assess conditions inside and outside the space, and order evacuation if:
    - A prohibited condition occurs
    - Behavioral effects of exposure are apparent
    - A condition outside the space could endanger the entrants
    - The attendant cannot perform the duties required under the standard.

What do attendants have to do? (cont'd)

- Attendants must:
  - Summon rescue and other emergency services as soon as entrants may need assistance to escape.
  - Warn unauthorized persons to stay away from the permit space, advise unauthorized entrants that they must exit immediately, and inform authorized entrants and the entry supervisor
  - Perform non-entry rescue as specified by the program.
  - Not perform any duties that might interfere with attendant duties.

What does an entry supervisor do?

- Entry supervisors must:
  - Know hazards that may occur and the signs, symptoms, and consequences of exposure
  - Verify that all tests req'd by the permit have been conducted, and permit procedures and equipment are in place before allowing entry
  - Terminate entry and cancel/suspend the permit in the event of work completion, prohibited conditions, or emergency.

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What does an entry supervisor do? (cont'd)

- Entry Supervisors must:
  - Verify that rescue services are available and that the designated means of summoning them functions, and that the rescue service will notify if it is unavailable
  - Remove unauthorized entrants
  - Determine that entry operations are consistent with the terms of the permit and that acceptable entry conditions are maintained throughout the entry

Rescue

- Non-entry rescue must be provided unless it increases risk or would not contribute to a successful rescue
  - **Full-body harness with retrieval line**
    - Attached at dorsal attachment point, or above the entrant's head, or at another point which allows the entrant to be pulled out safely.
    - The other end of the line must be attached to a mechanical device or fixed point outside the space. A mechanical device (such as a winch) must be available if the space is more than 5 feet deep.
  - **Unsuitable equipment must not be used.**

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Rescue

- If entry rescue is required, the employer must ensure the rescue service:
  - Can respond in a timely manner
  - Can perform rescue in the specific space(s)
  - Can reach victims in a time frame appropriate for the hazards identified
  - Is equipped for and proficient in the necessary services
  - Agrees to notify the employer in the event the service becomes unavailable

Rescue

- Entry rescue (cont'd)
  - Employers must inform the rescue service of the hazards it may confront
  - Employers must provide the rescue service with access to all permit spaces from which rescue may be necessary

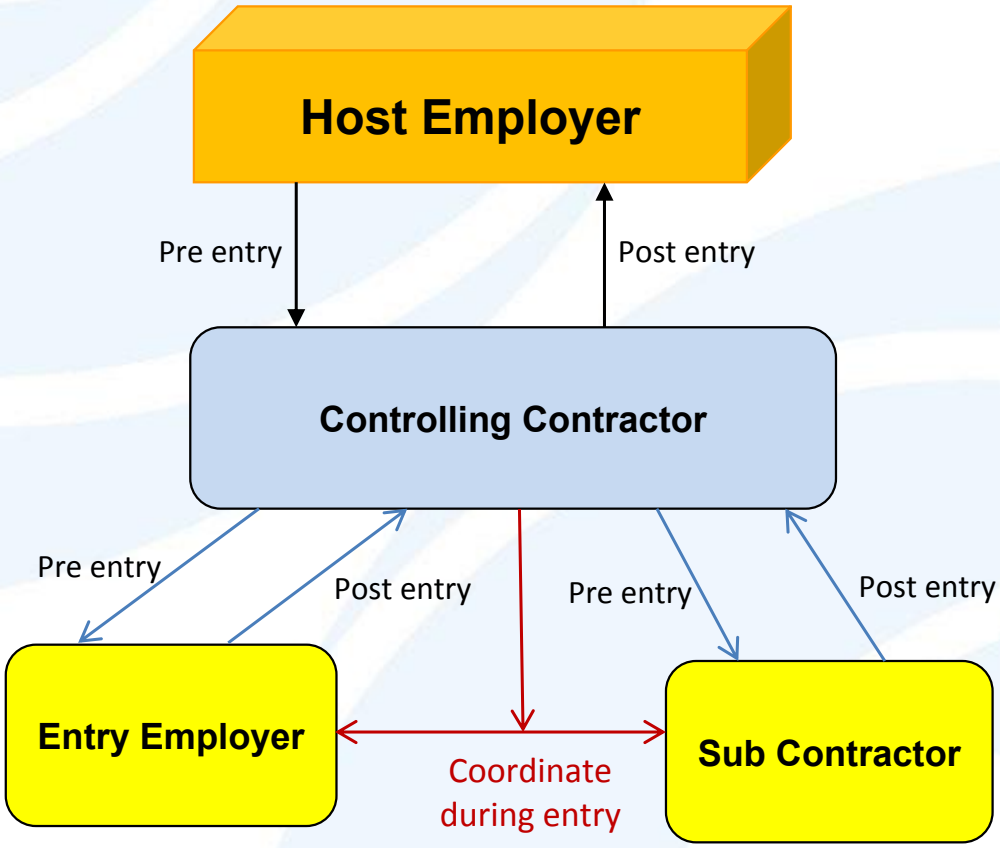
What about the rescuers?

- If an employer's workers will perform rescue, the employer must, at no cost to the workers:
  - Provide the necessary PPE and training
  - Train each worker how to perform assigned rescue duties
  - Train each worker in basic first aid and CPR, and ensure one member of the team has a current certification in both
  - Ensure each worker practices rescue before attempting an actual rescue, and at least every 12 months.

What's Different?

- General Industry Plus
  - Mostly the same requirements as 1910.146, with some additions
    - Continuous monitoring of atmospheric and engulfment hazards
    - Specific information exchange requirements for multi-employer work sites.

Information Exchange



What's Different

- Relying on 911 or local emergency responders for entry rescue
  - The construction rule explicitly states that the emergency responders must agree to notify the employer in the event that the rescue service becomes unavailable.
- A competent person must conduct worksite evaluation.

What's Different?

- General Industry Plus (cont'd)
  - Employers using "alternate procedures" for permit space entry may prevent physical hazard exposures through isolation methods, such as by placing a solid barrier to prevent a physical hazard from contacting an employee, not just be elimination.
  - Permits may be suspended instead of cancelled, in response to temporary changes like a one-time loss of power from a blown fuse, provided the space is returned to permit conditions prior to re-entry.

What's Different?

- General Industry Plus – Clarifications
  - Incorporation of general OSHA policies directly into the regulatory text.
  - Additional terms included, such as "entry employer" and "entry rescue".

General Industry vs. Construction

- What if an employer does construction AND maintenance work in the same space at the same time?
  - Employers with workers engaged in both types of work will be in compliance with both standards if they follow 1926 Subpart AA.

Double Fatality: August 28, 2014

- Bo Taylor entered a manhole at a construction site to apply aerosol sealant to a juncture approximately 5-7 feet down from the top of the space. This was his second entry to perform this task that day.
- He had previously noted the strong fumes from the sealant.
- He was overcome by fumes and fell face first into 3 feet of water at the bottom.

Double Fatality: August 28, 2014

- Trent Sorenson, the site superintendent and Bo's uncle, entered the manhole to attempt rescue. He became unconscious and fell on top of Bo.
- Tyler Sorenson left the site in order to call emergency services. He returned with a volunteer who had his own SCBA.

Double Fatality: August 28, 2014

- The volunteer attempted rescue, but a crack in the mask forced him to stop.
- EMTs arrived and extracted the victims 45 minutes after Bo's initial loss of consciousness.

Double Fatality: August 28, 2014

Information and Outreach

- http://www.osha.gov/confinedspaces/index.html#
  - Fact Sheets and FAQs
  - Small Entity Guide forthcoming
  - Additional outreach documents forthcoming
  - Webinars and presentations

Contact

Please send questions and comments to douma.jessica@dol.gov

OR

202-693-2020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