OSHA Safety and Health Review

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Coverage of the OSHA Act

- Extends to all employers / employees in all 50 states, District of Columbia, Puerto Rico and other territories

- Applies to every employer with 1 or more employees (state, and local government employees excluded)

- Note: Some state plan jurisdictions
OSH Act: Key Provisions

- Duty of Employers to Provide Safe Workplaces
- Occupational Safety and Health Standards
- Inspections, Investigations, Recordkeeping
- State Jurisdiction and State Plans
- Training and Education
- State Consultation Programs
- Federal Agency Safety and Health Programs and Responsibilities
Employer / Employee Duties

OSHA's main goal is to maintain the safety and health of every worker every day at the workplace.

- **Employers**
  - Furnish each employee with employment and places of employment free from recognized hazards.
  - Comply with safety and health standards

- **Employees**
  - Comply with safety and health standards
Employer Rights

- Comment on standards and regulations
- Apply for temporary or permanent variance
- **Be present during an inspection**
- Informal Conference or File a Notice of Contest
- Have confidentiality of trade secrets
- Obtain assistance in compliance efforts
Employee Rights

- Work in safe environment
- Complain to OSHA
- Comment on standards/regulations in formative process
- Review OSHA 300 Log, medical or monitoring records
- Be informed of variance
- Testify at a hearing
- Review citations
- Have employee representative present during inspection
- Observe monitoring or measuring of toxic substances
INSPECTION PRIORITIES

- Imminent Danger
- Fatalities and Catastrophes
- Complaints
  - Formal
  - Non-formal
- Referrals
- Programmed
- Follow Up
Inspection Tour

- Observe construction process and work practices.
- Interview employees.
- Take photos, videos, instrument readings, air samples.
- CSHO will note and discuss unsafe conditions observed.
- Recommend feasible abatement methods.
OSHA has developed a construction standard for Confined Spaces (29 CFR 1926 Subpart AA) — that applies to any space that meets the following three criteria:

- Is large enough for a worker to enter it;
- Has limited or restricted means of entry or exit; and
- Is not designed for continuous occupancy.
Confined spaces include but are not limited to:

- Storage tanks
- Compartments of ships
- Process vessels
- Pits
- Silos
- Vats
- Degreasers

- Reaction vessels
- Boilers
- Ventilation and exhaust ducts
- Sewers
- Tunnels
- Underground utility vaults
- Pipelines
Census of Fatal Occupational Injuries

U.S. Department of Labor (USDOL), Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI) program, fatal injuries in confined spaces averages 92 fatalities per year, about two fatalities per week, with over 11,000 injuries.

https://www.bls.gov/iif/home.htm
How many people die or get hurt seriously in confined space accidents?

About 2.1 million workers enter permit confined spaces annually. According to the National Institute for Occupational Safety and Health (NIOSH), approximately 60 percent of confined-space fatalities are rescuers.

The Occupational Safety and Health Administration reported that when multiple deaths occur during a rescue, the majority of the victims are "would-be" rescuers.
What are the hazards associated with confined spaces?

- Toxic Atmosphere. A toxic atmosphere may cause various acute effects, including impairment of judgement, unconsciousness and death. ...
- Oxygen Deficiency. ...
- Oxygen Enrichment. ...
- Flammable or Explosive Atmospheres. ...
- Flowing Liquid or Free Flowing Solids. ...
- Excessive Heat.
Engulfment Hazards

- Loose, granular materials stored in bins and hoppers - grain, sand, coal, etc.
- Crusting and bridging below a worker.
- Flooding of confined space.
- Water or sewage flow.
OSHA Investigating After Westmont Public Works Employee Killed Repairing Water Main Break – NBC Chicago
Other Fatal Incidents

Confined space hazards in sewer systems have led to worker deaths. Several tragic incidents in sewers have included:

• A worker who lost consciousness and died when he climbed into a sewer vault to retrieve a tool. His co-worker also died when he attempted a rescue.
• While repairing a natural gas leak, a worker entered a drainage pipe to retrieve survey equipment. The natural gas ignited, killing the worker.
OSHA Barge Marine Accident Investigation -

Two workers overcome from Oxygen deficient atmosphere when entering the water compartment, however fortunately rescued and survived.

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Double Fatality: August 28, 2014
Worker 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

- The site superintendent who is worker’s uncle, entered the manhole to attempt rescue. He became unconscious and fell on top of worker.
- Another worker left the site in order to call emergency services. He returned with a volunteer who had his own SCBA.
The importance of properly secured septic tank lids and safety equipment can't be overestimated.

A recent tragedy in North Dakota again highlights the need to properly secure septic tank lids and is a sad reminder of how dangerous it is to enter septic tanks without the appropriate equipment.

A 19-year-old man from Jud died trying to save a puppy that had fallen into an uncovered septic tank, according to a news release from LaMoure County sheriff Bob Fernandes.

Source: KFGO
Other Hazards

• Noise
  • Amplified due to acoustics within the space.
  • Damaged hearing, affect communication.

• Slick / Wet Surfaces
  • Slips and falls.
  • Increased chance of electric shock

• Falling Objects
  • Topside openings expose workers inside confined space to falling objects
Permit-Required Confined Space

Potential to contain a hazardous atmosphere

Potential for engulfment

Internal configuration - trapped or asphyxiated by inwardly converging walls, sloped or tapered floors

Any other serious safety or health hazard
Preparation: Before workers can enter a confined space, employers must provide pre-entry planning.

- This includes:
  
  Having a competent person evaluate the work site for the presence of confined spaces and hazards, including designating permit-required confined spaces.
Unfavorable Natural Ventilation

- Lack of air movement in and out of the space can create an atmosphere much different than the outside atmosphere.

- Deadly gases can be trapped inside.

- Organic materials can decompose.

- May not be enough oxygen due to presence of other gases or chemical reactions such as rusting.
Oxygen Deficient Atmospheres

19.5%  
Minimum acceptable oxygen level.

15 - 19%  
Decreased ability to work strenuously.  
Impair coordination. Early symptoms.

12-14%  
Respiration increases. Poor judgment.

10-12%  
Respiration increases. Lips blue.

8-10%  
Mental failure. Fainting. Nausea  
Unconsciousness. Vomiting.

6-8%  
8 mins - fatal, 6 mins - 50% fatal  
4-5 mins - possible recovery.

4-6%  
Coma in 40 seconds. Death
Testing The Atmosphere

- Verify presence of safe work atmosphere.
- Test all areas of a confined space.
  - Top, Middle, Bottom
- Methane is lighter than air.
- Carbon Monoxide is the same as air.
- Hydrogen Sulfide is heavier than air.
- Oxygen Deficiency.
Confined Space Testing

• **FOUR-GAS DETECTOR**
  - Oxygen content
  - Flammability / explosion potential
  - Carbon monoxide
  - Hydrogen sulfide

• Critical issues
  - Training
  - Procedures
  - Calibration
Ventilation

• First option to correct problems.
• Must be aware of hazards you are trying to correct in the confined space.
• Air intake in a safe location to draw fresh air only.
• Continuous ventilation whenever possible.
• Retest the confined space before entry.
• Never enter or stick your head into a septic tank. In addition to harboring infectious agents, decomposing wastes in the septic tank produce hazardous gases that can displace oxygen, creating a dangerous atmosphere with very little oxygen to breathe.

• Methane and Hydrogen Sulfide produced in the septic tank are explosive. Make sure the work area is ventilated, use caution when operating electrical devices, and never smoke or light a flame near a septic tank.
All employees required to enter confined or enclosed spaces shall be instructed:

- Nature of the hazards involved, the necessary precautions to be taken.
- Use of protective and emergency equipment required.
- Employer shall comply with any specific regulations that apply to work in dangerous or potentially dangerous areas.
- Rescue plan, procedures, equipment and team required for Permit Confine Space Entry
Confine Space Entry Quiz

Is this safe entry, PPE and rescue system?
Information and Outreach

  - Fact Sheets and FAQs
  - Small Entity Guide forthcoming
  - Additional outreach documents forthcoming
  - Webinars and presentations
    - AGC 6-23-2015
    - AGC 6-30-2015
Reporting Fatalities and Severe Injuries

- All employers are required to notify OSHA when an employee is killed on the job or suffers a work-related hospitalization, amputation, or loss of an eye.
- A fatality must be reported **within 8 hours**.
- An in-patient hospitalization, amputation, or eye loss must be reported **within 24 hours**.
