

Confined Space Entry

Policy

All DHS facilities with confined spaces must implement and maintain an entry procedure in conformance with this policy.

Employees who are required to enter a confined space must verify that a toxic atmosphere, oxygen deficiency, or other hazard does not exist in the space before entry.

Employees may not enter a confined space without a properly completed Confined Space Entry Permit, when atmospheric monitoring equipment indicates the presence of an unsafe atmosphere, or without employing the alternate procedures, specified in 1910.146(c)(5)(ii) for nonpermit required spaces.

All employees involved with confined space entries must receive annual training in entry procedures, rescue procedures and the hazards of confined space entry.

Authority

- 29CFR1910.146 Permit-Required Confined Spaces
- Minnesota Rules 5207.0300 Confined Spaces

Purpose

To ensure that employees are aware of the dangers associated with entry into a confined space and know the correct confined space entry procedure.

To ensure that the atmospheric condition in a confined space has been proven safe before an employee is allowed entry.

Definitions

Alternate procedures: The procedures specified in 1910.146(c) (5) (ii), which may be used in confined spaces that have been studied and found not to contain the possible hazards that necessitate obtaining a permit.

Atmospheric testing or monitoring device (Multigas meter): A device that determines the concentration of specific contaminants and the oxygen concentration of an air sample.

Confined space: Any area that: 1) has adequate size and configuration to allow an employee to bodily enter and do assigned work; 2) has limited or restricted means of entry and exit; and 3) is not designed for continuous occupancy.

Confined space entry: An action resulting in any part of the worker's body, breaking the plane of any opening of the confined space including any resulting work activities inside the confined space.

Dangerous air contamination: An atmosphere presenting a threat of death, acute injury, illness, or disablement due to the presence of flammable, explosive, toxic, or otherwise harmful or incapacitating substances.

Engulfment: The surrounding and capture of a person by finely divided particulate matter or a liquid.

Hazardous atmosphere: An atmosphere with an oxygen deficiency, oxygen enrichment or a dangerous amount of air contamination.

Locked out: The process of ensuring that valves, switches, accumulators, etc. are secured with an individual lock to prevent unauthorized startup.

Lower Explosive Level (LEL): The concentration of a gas or vapor in air above which an explosion may occur in the presence of an ignition source.

Oxygen deficiency: An atmosphere containing oxygen at a concentration of less than 19.5 percent by volume.

Oxygen enrichment: An atmosphere containing oxygen at a concentration of more than 23.5 percent by volume.

Part Per Million (PPM): Parts of a contaminant per million parts of air by volume.

Permit required confined space: A special configuration that: 1) contains or has the potential to contain a hazardous atmosphere; 2) contains a material that has the potential for engulfing the entrant; 3) has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or floor that slopes downward, tapering to a smaller cross section; and 4) contains any other recognized serious safety or health hazard.

Zero Mechanical State (ZMS): The process of ensuring that any equipment power source (electrical, pressurized fluid, mechanical) is secured (locked out) in as safe a position as possible to prevent movement and possible subsequent employee injury.

Responsibilities

- Regional or site administrators

Establish facility procedures and obtain the necessary equipment to implement this policy.

- Safety administrators and physical plant supervisors/directors/managers
 - Inform exposed employees of the existence, location and dangers of confined spaces.
 - Identify and label all confined spaces at each facility.
 - Arrange or provide training to employees who may be required to enter a confined space. The training must include: a) hazards of confined spaces; b) atmospheric testing procedures; c) permit requirements; d) appropriate entry procedures; and e) rescue procedures.
 - Sign the Confined Space Entry Permit (Attachment I) before an employee entry. A qualified designee also may sign the permit.
 - Ensure that the atmospheric testing devices are properly calibrated. A qualified designee may also ensure the calibration.
 - Ensure that Confined Space Entry Permits are maintained for one year.
- Supervisors
 - Ensure that all employees engaging in confined space entry work are properly trained.
 - Ensure that the atmosphere in all possible confined spaces is tested and proven safe immediately before employee entry.
 - Ensure that the Confined Space Entry Permit is properly completed immediately before entry and is present on the site.
 - Ensure that the confined space atmosphere is continuously monitored and ventilated while employees are in the space.
 - Ensure that trained employees and appropriate rescue equipment is in place.
 - Maintain the completed permit for one year.

Procedures

- Confined Space Entry Permit - A Confined Space Entry Permit (Attachment I) must be completed for each permit required confined space entry. Permit completion requires that:
 - All lines that convey flammable, corrosive or other harmful substances into the space are disconnected, blanked or locked out.
 - All drive mechanisms and equipment in the confined space must be placed and secured in a zero mechanical state.
 - Confined space covers must be removed and replaced using tools designed for that purpose. When removing or replacing confined space covers, care must be exercised to position the feet and hands to avoid back properly and extremity injuries. Open flames must not be permitted within 20 feet of the confined space opening.
 - All confined spaces must be ventilated before entry with a mechanical blower. The blower must be located to assure that engine exhaust gases or other contaminants are not blown into the confined space. Five times the volume of the confined space must be supplied to the confined space before entry.

- During entry the ventilation rate must be a minimum of 200 cfm per worker inside, or in confined spaces larger than 2,000 cubic feet, the ventilation rate must change the air in the confined space six times per hour.
- The atmosphere in the confined space must be tested, with a Multigas meter, for the presence of oxygen (must be between 19.5 percent and 23.5 percent); carbon monoxide (must be below 35ppm); hydrogen sulfide (must be below 10ppm); and flammable or combustible gasses or vapors (must be below 10 percent LEL methane).
- The Multigas meter must be calibrated (using unexpired calibration gases) once per month or before each use. The results of the calibration must be documented and retained for one year.

IMPORTANT: If the atmospheric test indicates conditions outside the above parameters, the confined space must not be entered until ventilation and retesting indicate that the atmosphere is safe.

- Appropriate personal protective equipment must be provided and used by employees who will enter the space. The use of a self contained or a supplied air respirator is not permitted.
- Appropriate rescue equipment must be in place and ready for use by trained employees
- All tools and material must be handed down or lowered by hand lines.
- Only approved low voltage (12-volt) lights or extension cords, or electrical apparatus provided with a ground fault circuit interrupter will be used in confined spaces.
- The permit must be signed by the supervisor and safety administrator or designee before employee entry. The employees who will enter the space also must sign it. The permit must be posted near the confined space during an entry.
- While the confined space is occupied, continuous atmospheric monitoring and ventilation must be provided.
- Whenever continuous atmospheric monitoring of the occupied confined space identifies a hazardous condition, the employee must immediately exit the confined space. The safety administrator will identify subsequent steps to be taken before re-entry.
- Confined space rescues are prohibited until backup persons with adequate personal protective equipment are onsite.
- Confined space labeling: All facility permit required confined spaces must be posted with a sign reading: "Danger — Permit Required Confined Space Do Not Enter."
- Nonpermit required spaces must only be entered using the alternate procedures specified in 146(c) (5) (ii).

References/Attachments

- DHS Confined Space Entry Permit/Check List
- DHS Policy - Personal Protective Equipment
- DHS Policy - Respiratory Protection Program
- DHS Policy - Employee Right to Know Program
- DHS Policy - Zero Mechanical State

Cancellations

This policy supersedes DHS Policy dated December 19, 2008.

Policy Contact:

Name: [Michelle Lakso](#), Safety and Health Manager

Phone: (651) 231-2975