



CITY OF TOPEKA



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WPC CONFINED SPACE

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WPC Confined Space Program

The OSHA regulation that established conditions and procedures for permit-required confined space and related training (29 CFR 1910.146) became effective April 15, 1993. It defines permit-required spaces and requires employers to identify such spaces and develop a program to train and protect workers authorized to enter them.

What is confined space?

A confined space, according to OSHA, is large enough and shaped in a way that allows an employee to enter and perform assigned work. It's also a space that has limited or restricted means for getting in or out and is not designed for continuous occupancy.

Permit required confined space

OSHA estimates that about 1.6 million industrial workers enter confined spaces each year. Nearly 13,000 are injured – over 5,000 seriously. More than 60 die. But most confined space injuries and deaths can be prevented – if everyone follows the precautions discussed.

OSHA has identified some general hazards of confined spaces that are risky enough to form the definition of a permit-required confined space. No one can go into such spaces without a permit and without taking a number of specific precautions. A permit-required confined space is one that has – or has the potential for – one or more of these hazards:

1. Contains or could contain hazardous atmosphere.
2. Contains materials that could engulf entrant.
3. Space whose walls converge inward or whose floor slopes and tapers down.
4. Other hazards that could lead to danger in a confined space are:
 - Combustible – anything that can burn or explode.
 - Heat – can build up quickly and cause exhaustion.
 - Falling in a confined space can be fatal.
 - Noise is a hazard because sounds reverberate.

Non-permit required confined space

This is a space that does not contain, or with respect to atmospheric hazards, have the potential to contain, any hazard capable of causing death or physical harm.

Written Program --

Identifying Hazards: confined-space hazards may not be obvious. A used tank that appears empty, for instance, could contain residues of hazardous substance. A spark or flammable vapor from a tool used in a tank could lead to a fire or explosion. Sometimes the person most at risk is the person who tries to rescue someone else already in difficulties in a confined-space, but lacks the proper training or equipment.

Remember that any hazard that can exist in your workplace can exist in a confined space – along with the atmospheric, engulfment, and space-design hazards that automatically qualify a confined space for the permit-entry system.

Evaluation of hazards:

In addition to methods of identifying permit-required spaces, this program covers ways to prevent unauthorized entry and to ensure the safety of authorized entrants. These include:

- Testing and monitoring conditions inside the space.
- A system for preparing, issuing, using, and canceling entry permits.
- Stationing an attendant outside permit spaces during entry.
- Procedures to summon rescuers and prevent unauthorized personnel from attempting rescue (would-be-rescuers have accounted for almost half of the past fatalities in confined space!)
- Coordinated entry for more than one employer – such as contract workers (it is the “host” employer’s responsibility to provide information to the contractor on the potential hazards and on the permit program.)
- Procedures for concluding entry operations and canceling the permits.
- Review of the entire permit program as needed, but at least annually.
- Appropriate signs and barriers to inform and protect exposed employees not involved in the entry operation.

Control of hazards

The OSHA regulation provides a detailed and cautious approach to protecting workers from the hazards of working in confined spaces. Once evaluated, any confined space that meet the hazard criteria should have:

- Post signs or other warnings to alert employees to the dangers of the particular confined space.
- Use barriers or others means to keep authorized employees out of permit spaces.
- Develop and use a written space entry program.
- Conduct air monitoring and other test to identify and evaluate hazards in each permit space.
- State the conditions that will make the space acceptable to enter safely and verify that those conditions will be maintained as long as work goes on in the space.
- Flush, ventilate, or otherwise eliminate or control the space’s atmospheric hazards before allowing entry into the space.

PPE

All products used should be approved and certified as conforming to the standards. At a minimum for confined space you should have multiple-gas detector, retrieval system explosion proof electrical equipment, personal protective like hard-hat, rubber, gloves, eye protection, hearing, protection, vest, reflectors etc.

Working with contractors

We do not change our program, we educate the contractors on our program to follow and collaborate.

WPC Permit Confined Space Entry Policy

- No one is to enter any manhole or other permit confined space unless a designated attendant is outside with the responsibility to observe and assist the person in the space.
- If the space is 12ft or deeper, no one may enter the space unless there is at least one additional attendant outside with the responsibility to assist the person in the space.
- Atmospheric measurements of O₂, % LEL and H₂S will be taken before ventilation and during entry. The confined space will be monitored every 10 minutes during operation.
- Before the entry, the space will be ventilated using a forced air blower for a minimal of 10 minutes with the end of the hose in the breathing zone or within 3 ft of the bottom of the space, as appropriate. Confined space will be ventilated the entire time they are occupied.
- When forced air ventilation is not practical, natural ventilation may be used if approved minutes with the end of the hose in the breathing zone or within 3 ft of the bottom of the space, as appropriate. Confined space will be ventilated the entire time they are occupied.
- When possible, upstream manholes will be opened to aid with ventilation. Protection must be provided for those manholes to prevent people, animals, and objects from entering the manhole.
- When forced air ventilation is not practical, natural ventilation may be used if approved by entry supervisor. The space must be ventilated a minimum of 30 minutes before entry and continuously thereafter. The atmosphere in the space must be safe to enter.
- A manhole or other confined space must not be entered if LEL readings are 10% or above.
- If gas detectors alarm go off during entry or work, the confined space will be evacuated immediately.
- When any confined space is entered, the attendant must have access to a two-way radio.
- Whenever a manhole or other confined space is entered, the entrant must wear a safety harness attached to a lifting robe attended by a person outside the space.
- A mechanical retrieval system such as tripod with winch or rope rigging, is required when:
 - ♣ A confined spaced deeper than 5 ft is entered
 - ♣ A manhole with an outlet pipe diameter of 18 inches or larger is entered
 - ♣ A manhole downstream of suspected industrial or potential hazardous discharge is entered
 - ♣ A manhole upstream or downstream of a stoppage is entered anytime before or within 8 hours of the flow being restored
 - ♣ The crew leader or supervisor directs
 - ♣ The person entering the manhole request
- If there is any question by the crew leader or the members with respect to the safety, the space will not be entered and the supervisor should be called to the location.
- If an emergency rescue is needed, 911 must be notified and non-entry rescue procedures begun immediately. An entry for rescue purposes may only be made by qualified entrants using permit required confined space procedures.

WPC Standard Operating Procedures

Wet Well Entry	
Crew: Varies as needed, with a minimum of 3 employees if the confined space is entered	Training: Basic training initially and refresher annually.
Potential Hazards: Confined space entry, O ₂ deficient, explosive, toxic atmosphere Exposure to hazardous chemical and waste products.	
Monitoring Equipment: LEL/ O ₂ /H ₂ S meter	
PPE Available: rubber/nitrile gloves, hard-hat, boots, safety glasses, harness, retrieval device and disposal suits.	

All work will be performed in accordance with applicable WPC safety policy.

1. Follow all safety precautions to begin work
 - Remove cover (or open wet well); allow to ventilate for 30 minutes (min).
 - When an employee enters the wet well, follow confined space entry procedures:
 - › Calibrate monitoring equipment to be used
 - › Monitor and ventilate prior to entry
 - › Don appropriate PPE
 - › Set up retrieval system if possible (potential for rotating and moving machinery?)
 - › Based upon the work to be done and the size of the pipes, determine if the flow must be blocked off
 - › Complete a confined space entry permit
 - › Set up barricades around the open wet well
2. Begin maintenance operations
 - › Get meters calibrated
 - › Bump test each time before use
 - › If Oxygen level, after ventilation is below 19.5% or H₂S above 10ppm, entry should not be performed.
 - › No one may enter the **manhole** if LEL exceeds 10%
3. While in the wet well, minimize contact with waste.
4. Should any tears or breaches in PPE occur, replace immediately.
5. Entrant should be in line of sight of the attendant or two-way radio must be used.
6. Decontaminate all equipment and personnel as required.

Supervisory and employee training

Training shall be provided to each affected employee

- (i) Before the employee is first assigned duties under this section
- (ii) Before there is a change in assigned duties
- (iii) Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained
- (iv) Whenever the employer has reason to believe either that there are deviations from the

permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

Proficiency of the training should be established by each employee and written certification of completed training is required.

- Entry supervisors must know the appropriate tests and monitoring, how to determine acceptable and prohibited conditions, and the proper permitting and entry procedures.
- Authorized entrants must be able to recognize signs and symptoms of exposure and know how to use any needed equipment, how to communicate with and alert attendants, and how to exit as promptly as possible when necessary.
- Attendants must know how to monitor activities and conditions of the space and the entrants, how to order exit or summon rescue services, and how to perform non-entry rescue.
- Rescue personnel need to have the same information as authorized entrants. The employer must provide on-site teams with proper personal protective and rescue equipment, and training in how to use it. They must also have first-aid training, including CPR, and must practice simulated rescues at least once every 12 months. Outside services must be permitted access to comparable permit spaces so they can develop rescue plans and practice rescues. Hospitals and treatment centers must be provided with any information that may assist in the treatment of rescued employees.

Refresher training

After the required training, refresher training must be provided whenever duties change, the hazards in the space change, or evaluation indicates that there are inadequacies in an employees knowledge.

Responsibilities by job assignment

A number of different individuals or teams are involved in assuring that the entry and the work inside the space are carried out safely from beginning to end. Entry supervisors authorize entry and prepare and sign the written entry permits. Often, this role is handled by supervisors who first make sure that all necessary tests have been conducted and that rescue services are available and can be readily contacted.

Supervisor responsibilities:

- Bar, or remove, unauthorized individuals from confined space
- Determine, when the shift changes or a new entry supervisor takes over, that acceptable conditions as defined in the permit continue
- Terminate entry and cancel permits when the work is completed or other circumstances warrant.

Authorized entrant responsibility:

- Be alert to conditions around them (e.g., odors, changes in temperature) and any symptoms they may develop (e.g., drowsiness, irritated eyes or throat) – and communicate these to the attendant
- Use protective and other equipment properly

- Exit promptly when a “prohibited condition” or danger symptom occurs, or when ordered to evacuate by an authorized person or an alarm.

Authorized attendant responsibility:

- Maintain a continuous count and identification of authorized entrants
- Communicate with entrants as needed to monitor their condition
- Monitor activities inside and outside of the permit space
- Order exit or summon rescuers when necessary (possibly even perform non-entry rescue themselves)
- Prohibit unauthorized entry
- Remain at their post until relieved

Rescue personnel may be company employees or from outside services. In either case, they must know the configurations and potential hazard of each permit-entry space, develop appropriate rescue plans for each, and participate in simulated rescue operations.

Rescue non-entry rescue only

WPC policy will be to perform ONLY non-entry rescue. We will call 911 for employee rescue.

Warning signs and devices

Signs with proper wording “Permit required Confined Space” must be posted where appropriate. Whenever possible these spaces must be secured or locked for unauthorized entry. Whenever work is performed in a high traffic area the space should be secured by means of barricades and cones.

Communication

Effective communication should be continuously maintained among workers in the permit space and the entry supervisor and support personnel outside of the confined space. A two-way radio must be used to communicate. The entry supervisor or attendant should order workers to evacuate the space any time they detect change in hazards and force the entrant to leave the space.

Atmospheric testing

Before initiating a confined space entry, calibrate gas monitoring equipment away from the work area and record the reading. Insert the probe to the confined space through bent holes to test for any lighter than air combustibles in the atmosphere. If no opening exists, it is recommended that the cover be pried open on the down wind side just enough to insert the probe.

If readings indicate that the access cover can be removed, use proper tools for removing the cover for venting. When entrance covers are removed, the opening shall be promptly guarded by railing or temporary barrier to prevent accidental falls through the opening or foreign objects entering the space.

Written permit system

Always expect the unexpected in a confined space – even if it doesn't require a permit. If there is a permit, it's worth taking the time to study it. That way, you'll know just what the potential hazards are in that space and can work out what you have to do to perform your job safely.

OSHA standard says that the following information must appear on the permit:

- Identification of the space
- Purpose of entry
- Date and duration of the permit
- List of authorized entrants
- Names of the current attendants and entry supervisor
- List of any hazards in the permit space
- List of measures to isolate the permit space and eliminate or control the hazards
- Acceptable entry conditions
- Results of test (initialed by the person or persons who performed them)
- Rescue and emergency services available, and how to summon them
- Communication procedures for attendants/entrants
- Required equipment (e.g., respirators, communication devices, alarms)
- Any other necessary information or other permits needed (such as for hot work)

Annual review

This program will be reviewed once a year.