

PERMIT REQUIRED CONFINED SPACE

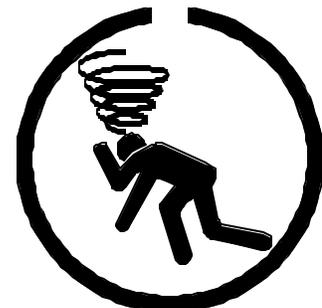
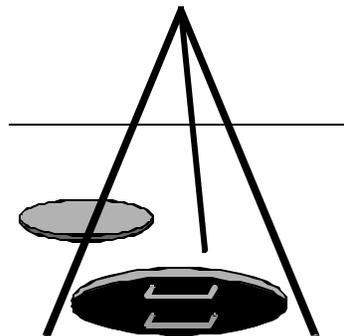
OSHA 29 CFR 1910.146
Compliance Guidelines



Center for Environmental
Health and Safety

Southern Illinois University Carbondale

2000



Identification of a Permit Required Confined Space

The term “permit-required confined space” refers to those spaces that meet the definition of a “confined space” and pose health or safety hazards, thereby requiring a permit for entry.

A confined space has:

- ❑ Limited or restricted means of entry or exit,
- ❑ Is large enough for an employee to enter and perform assigned work,
- ❑ And is not designed for continuous occupancy by the employee.

These spaces may include, but are not limited to, underground vaults, tanks, storage bins, pits and diked areas, vessels, and silos.

A permit-required confined space is one that meets the definition of a confined space and has one or more of these characteristics:

- ❑ Contains or has the potential to contain a hazardous atmosphere,
- ❑ Contains a material that has the potential for engulfing an entrant,
- ❑ Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section, and/or
- ❑ Contains any other recognized serious safety or health hazards.

Requirements for Permit-Required Confined Space Entry

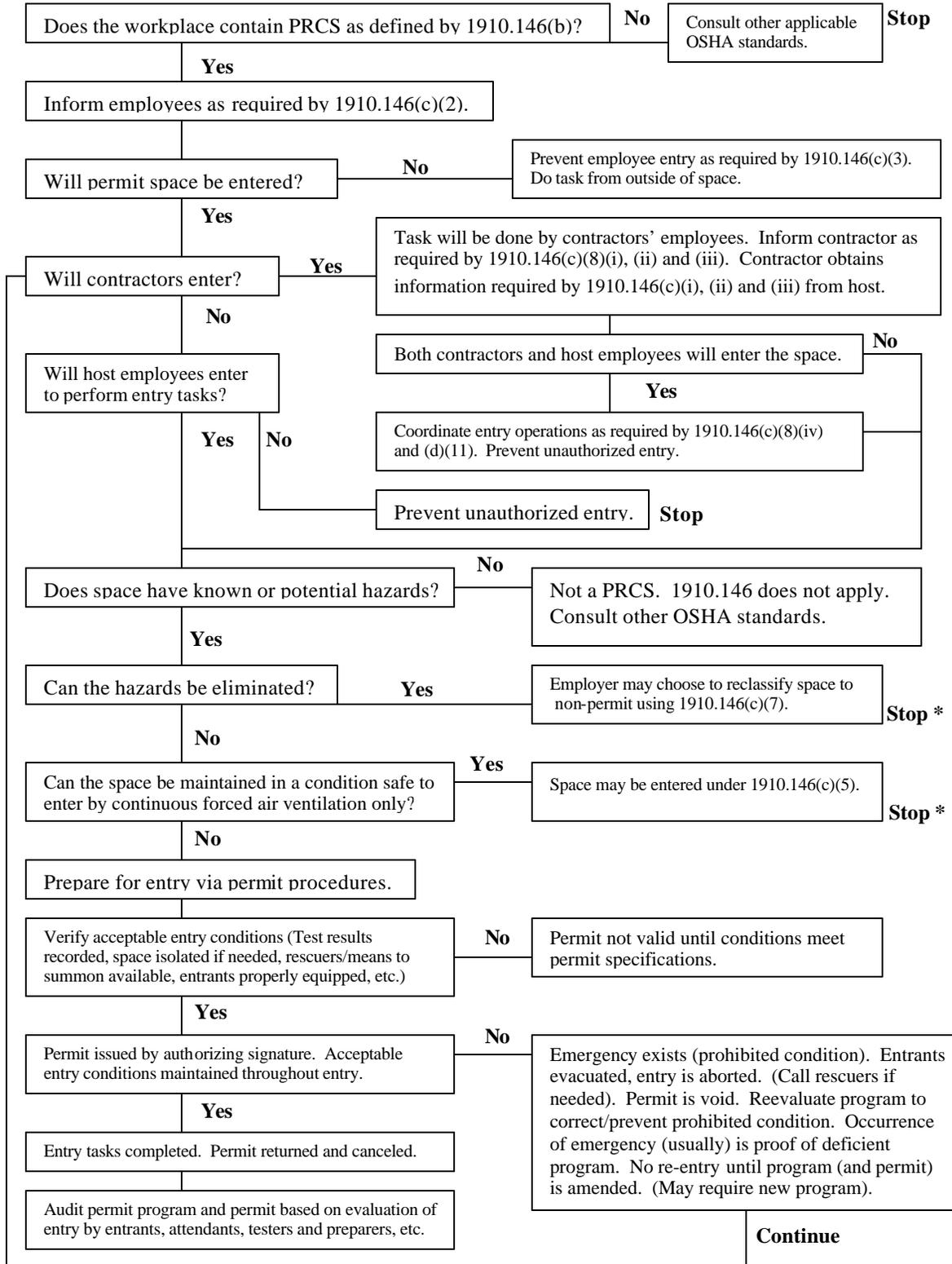
In order to comply with OSHA Title 29 CFR Part 1910.146, entry into a permit required confined space requires certain actions to be performed by the employer.

Before employees enter a permit required confined space the employer must:

- ❑ Follow the general requirements of paragraph (c) of the standard,
- ❑ Have a Permit-Required Confined Space Program that complies with paragraph (d) of the standard,
- ❑ Follow the permit system requirements of paragraph (e) of the standard,
- ❑ Complete the entry permit as required in paragraph (f),
- ❑ Comply with employee training requirements of paragraph (g),
- ❑ Ensure that authorized entrants, attendants, and entry supervisors know their responsibilities as required in paragraphs (h), (i) and (j),
- ❑ Provide for rescue and emergency services as stated in paragraph (k) and
- ❑ Insure that employees are allowed participation in these processes as required in paragraph (l) of the standard.

In general, employers must evaluate the workplace to determine if spaces are permit-required confined spaces. (See flow chart). If there are permit spaces in the workplace, the employer must inform exposed employees of the existence, location, and danger posed by the spaces. This can be accomplished by posting danger signs or by another equally effective means. If employees are not to enter and work in permit spaces, employers must take effective measures to prevent their employees from entering the permit spaces. If employees are expected to enter permit spaces, employers must comply with all requirements of the OSHA standard.

Permit – Required Confined Space Decision Flow Chart



***Spaces may have to be evacuated and re-evaluated if hazards arise during entry.**

Requirements of a Written Program

If the employer allows employee entry into a permit-required confined space, a written program must be developed and implemented.

Among other things, the OSHA standard requires the employer's program to:

- **Identify and evaluate permit space hazards before allowing employee entry,**
- **Test conditions in the permit space before entry operations and monitor the space during entry,**
- **Perform, in the following sequence, appropriate testing for atmospheric hazards; oxygen, combustible gases or vapors, and toxic gases or vapors,**
- **Implement necessary measures to prevent unauthorized entry,**
- **Establish and implement the means, procedures and practices (such as specifying acceptable entry conditions, isolating the permit space, providing barriers, verifying acceptable entry conditions, purging, making inert flushing, or ventilating the permit space) to eliminate or control hazards necessary for safe permit-space entry operations,**
- **Identify employee job duties,**
- **Provide, maintain, and require the use of personal protective equipment and any other equipment necessary for safe entry (e.g., testing monitoring, ventilation, communications, and lighting equipment, barriers, shields, and ladders,**
- **Ensure that at least one attendant is stationed outside the permit space for the duration of entry operations,**
- **Coordinate entry operations when employees of more than one employer are to be working in the permit space,**
- **Implement appropriate procedures for summoning rescue and emergency services,**
- **Establish, in writing, and implement a system for the preparation, issuance, use, and cancellation of entry permits,**
- **Review established entry operations and annually revise the permit-space entry program,**
- **When an attendant is required to monitor multiple spaces, implement the procedures to be followed during an emergency in one or more of the permit spaces being monitored.**

If hazardous conditions are detected during entry, employees must immediately leave the space, and the employer must evaluate the space to determine the cause of the hazardous atmospheres.

When entry to permit spaces is prohibited, the employer must take effective measures to prevent unauthorized entry. Non-permit confined spaces must be reevaluated when there are changes in their use or configuration and, where appropriate, must be reclassified.

Contractors also must be informed of permit spaces and permit space entry requirements, any identified hazards, the employer's experience with the space (i.e., the knowledge of hazardous conditions), and precautions or procedures to be followed when in or near permit spaces.

When employees of more than one employer are conducting entry operations, the affected employers must coordinate entry operations to ensure that affected employees are appropriately protected from permit space hazards. Contractors also must be given any other pertinent information regarding hazards and operations in permit spaces and be debriefed at the conclusion of entry operations.

Permit System

A permit, signed by the entry supervisor and verifying that pre-entry preparations (see paragraph (d)(3) of the standard) have been completed and that the space is safe to enter, must be posted at entrances or otherwise made available to entrants before they enter a permit space.

The duration of entry permits must not exceed the time required to complete an assignment. Also, the entry supervisor must terminate entry and cancel permits when an assignment has been completed or when new conditions exist. New conditions must be noted on the canceled permit and used in revising the permit space program. The standard also requires the employer to keep all canceled entry permits for at least one year.

Entry Permits

Entry permits must include the following information:

- **Test results,**
- **Tester's initials or signature,**
- **Name and signature of supervisor who authorizes entry,**
- **Name of permit space to be entered, authorized entrants, eligible attendants, and individuals authorized to be entry supervisors,**
- **Purpose of entry and known space hazards,**
- **Measures, to be taken, to isolate permit spaces and to eliminate or control space hazards i.e., locking out and tagging of equipment and procedures for purging, making inert, ventilation, and flushing permit spaces,**
- **Name and telephone numbers of rescue and emergency services,**
- **Date and authorized duration of entry,**
- **Acceptable entry conditions,**
- **Communication procedures and equipment to maintain contact during entry,**
- **Additional permits, such as for hot work, that have been issued to authorize work in the permit space,**
- **Special equipment and procedures, including personal protective equipment and alarm systems, and**
- **Any other information needed to ensure employee safety.**

Training and Education

Before initial work assignment begins, the employer must provide proper training for all workers who are required to work in permit spaces. Upon completing this training, employers must ensure that employees have acquired the understanding, knowledge and skills necessary for the safe performance of their duties. Additional training is required when:

- **The job duties change,**
- **There is a change in the permit-space program or the permit space operation presents a new hazard, and**
- **When an employee's job performance shows deficiencies.**

Upon completion of training, employees must receive a certificate of training that includes the employee's name, signature or initials of trainer and dates of training. The certification must be made available for inspection by employees and their authorized representatives. In addition, the employer also must ensure that employees are trained in their assigned duties.

Authorized Entrants Duties

- **Know space hazards, including information on the mode of exposure (e.g., inhalation or dermal absorption), signs or symptoms, and consequences of the exposure,**
- **Use appropriate personal protective equipment properly,**
- **As necessary, maintain communication with attendants to enable the attendant to monitor the entrant's status as well as to alert the entrant to evacuate,**
- **Exit from permit space as soon as possible when ordered by an authorized person, when the entrant recognizes the warning signs or symptoms of exposure exists, when a prohibited condition exist, or when an automatic alarm is activated, and**
- **Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist.**

Attendant's Duties

- **Remain outside permit space during entry operations unless relieved by another authorized attendant,**
- **Perform non-entry rescues when specified by employer's rescue procedures,**
- **Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences of the exposure, and their physiological effects,**
- **Maintain communication with and keep an accurate account of those workers entering the permit-required space,**
- **Order evacuation of the permit space when a prohibited condition exists, when a worker shows signs of physiological effects of hazard exposure, when**

- an emergency outside the confined space exists, and when the attendant cannot effectively and safely perform required duties,
- Summon rescue and other services during an emergency,
 - Ensure that unauthorized persons stay away from permit spaces or exit immediately if they have entered the permit space,
 - Inform authorized entrants and entry supervisor of entry by unauthorized persons, and
 - Perform no other duties that interfere with the attendant's primary duties.

Entry Supervisor's Duties

- Know space hazards including information on the mode of exposure, signs, or symptoms and consequences of exposure,
- Verify emergency plans and specified entry conditions such as permits, tests, procedures, and equipment before allowing entry,
- Terminate entry and cancel permits when entry operations are completed or if a new condition exists
- Take appropriate measures to remove unauthorized entrants, and
- Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.

Emergencies

The standard requires the employer to ensure that rescue service personnel are provided with and trained in the proper use of personal protective and rescue equipment. All rescuers must be trained in first aid and CPR and, at a minimum, one rescue team member be currently certified in first aid and CPR. The employer also must ensure that practice rescue exercises are performed yearly, and that rescue services are provided access to permit spaces so that they can practice rescue operations. Rescuers also must be informed of the hazards of the permit space.

Also, where appropriate, authorized entrants who enter a permit space must wear a chest or full body harness with a retrieval line attached to the center of their backs near shoulder level, or above their heads. Also, the employer must ensure that the other end of the retrieval line is attached to a mechanical device or to a fixed point outside the permit space. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

In addition, if an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or other written information must be made available to the medical facility treating the exposed entrant.

This and other safety information is available on the CEHS website at <http://www.cehs.siu.edu>

Atmospheric Testing and Monitoring

Confined space atmospheric testing requires knowledge of test instruments, how to test, what to test for, when to test, test result interpretation, actions to take after testing and during continuing monitoring. Consult CEHS for more information.

Confined Space Ventilation

Confined space ventilation is sometimes required to ensure a safe atmosphere for employees to work. Proper ventilation requires an understanding of ventilation systems, when to ventilate, what type of ventilation is needed to be effective, amount of ventilation needed and other specific information. Consult CEHS for more information.

For more information on permit-required confined space entry, consult the OSHA standard, 29 CFR 1910.146, or contact the Center for Environmental Health and Safety at 453-7180 or jhancock@cehs.siu.edu

CEHS personnel are available to assist with compliance guidelines, program development, OSHA required safety training, site inspections and monitoring.