

UT Southwestern Environmental Health and Safety Policy Library--Policy

**PERMIT-REQUIRED CONFINED SPACE PROGRAM**

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**Sponsoring Office:** Environmental Health and Safety

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## **POLICY STATEMENT**

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The University of Texas Southwestern Medical Center aims to provide the safest possible work environment for our employees. Pursuant to that desire, Environmental Health & Safety (EH&S) has prepared the Permit-Required Confined Space Program. This policy applies to all employees of U.T. Southwestern Medical Center Physical Plant and related facilities and operations.

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## **RATIONALE**

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The objective of Environmental Health & Safety is to provide guidance to employees entering into confined spaces. Therefore, employees will comply in accordance with the procedures set forth.

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## **SCOPE**

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This program contains requirements for practices and procedures to protect employees from the hazards of entry into permit-required confined spaces. U.T. Southwestern Medical Center permit-required confined space program does not constitute as a legal interpretation of OSHA 29CFR 1910.146 standards, nor does it replace the prerequisite need to be familiar with, and to adhere to the actual standards.

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## **WEBSITE ADDRESS FOR THIS POLICY**

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N/A

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## **RELATED STATUTES, POLICIES, REQUIREMENTS OR STANDARDS**

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UT System Administration Policies & Standards	Other Policies & Standards
N/A	<b>Regulations (Standards - 29 CFR) Permit-required confined spaces - 1910.146</b>
N/A	<b>NIOSH: Criteria for a Recommended Standard: Working in Confined Spaces</b>
N/A	<b>Welding, cutting, and brazing 29 CFR 1910.252(a), (b) and (c)</b>
N/A	<b>Telecommunications 29CFR 1910.268(o)</b>
N/A	<b>Electric power generation, transmission, and distribution 29CFR 1910.269(e)</b>

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## CONTACTS

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If you have any questions about Confined Space Program, contact the following office(s):

Subject	Office Name	Telephone Number	Email/URL
Radiation & Occupational Safety	Associate Director for EH&S	214-645-8330	<a href="mailto:Sylvia.Revell@utsouthwestern.edu">Sylvia.Revell@utsouthwestern.edu</a>
Occupational Safety	Occupational Safety	214-645-8334	<a href="mailto:Makesia.Finley@utsouthwestern.edu">Makesia.Finley@utsouthwestern.edu</a>
Senior Technical Trainer	Physical Plant	214-648-0219	<a href="mailto:Forrest.Cain@utsouthwestern.edu">Forrest.Cain@utsouthwestern.edu</a>

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## DEFINITIONS

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**Acceptable entry conditions** the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

**Attendant** an individual stationed outside one or more permit standards who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.

**Authorized entrant** is an employee who is authorized by the employer to enter a permit space.

**Confined space** means a space that is: Large enough and so configured that an employee can bodily enter and perform assigned work; Has limited or restricted means of entry or exit; Not designed for continuous employee occupancy  
(*These spaces may include, but are not limited to, boilers, manholes, crawl spaces, pits, underground vaults, tanks, air handler units, electrical manholes, sewer manholes, and pumping stations.*)

**Emergency** any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

**Engulfment** the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

**Entry** the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

**Entry permit** the written or printed document that is provided by the employer to allow and control entry into a permit space.

**Entry supervisor** the person (such as the employer or foreman) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required.

**Hazardous atmosphere** an atmosphere that may expose employees to the risk of death, injury, acute illness, incapacitation, impairment of ability to self-rescue from one or more of the following causes:

**Hot works permit** written authorization to perform operations capable of providing a source of ignition.

**Immediately Dangerous to Life or Health (IDLH)** any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

**Non-permit confined space** a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

**Oxygen deficient atmosphere** an atmosphere containing less than 19.5 percent oxygen by volume.

**Oxygen enriched atmosphere** an atmosphere containing more than 23.5 percent oxygen by volume.

**Permit-required confined space (permit space)** a confined space that has one or more of the following characteristics: Contains or has a potential to contain a hazardous atmosphere; Contains a material that has the potential for engulfing an entrant; has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section. Contains any other recognized serious safety or health hazard.

**Permit system** a permit, signed by the entry supervisor and verifying that pre-entry preparations 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.

**Qualified person** an entry supervisor who is trained to recognize and evaluate the anticipated hazard(s) of the confined space and who shall be capable of specifying necessary control measures to assure worker safety.

**Rescue Team** persons who the employer has designated prior to any permit-required confined space entry to perform rescues from confined spaces

**Retrieval system** the equipment used for non-entry rescue of persons from permit spaces and includes a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor. *A retrieval line is primarily of use in vertical confined spaces, and shall not be used in confined spaces consisting of horizontal tunnels or spaces where obstructions could increase the hazard to the entrant during emergency non-entry removal.*

**Testing** the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

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## RESPONSIBILITIES

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### PERMIT SPACE PROGRAM

Environmental Health & Safety, in accordance with State and Federal regulations, has implemented this program to ensure safe entry for employees into confined spaces. Before the initial work assignment begins the supervisor/manager must ensure that all affected employees who are required to work in permit spaces have been properly trained through EH&S.

After training, the supervisor/manager must ensure that the employees have acquired the understanding, knowledge, and skills necessary to safely perform their duties. Additional training will be required when: job duties change; change in the permit space program or the permit space operation presents a new hazard; an employee's job performance shows deficiencies.

### Authorized Entrant's Duties

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

### **Attendants Duties:**

- Remain outside permit space during entry operations unless relieved by another authorized attendant;
- Perform no-entry rescues;
- Know existing and potential hazards, including routes of exposure, signs or symptoms consequences of the exposure, and their physiological effects;
- Maintain communication with and keep an account of those workers entering the permit-required space;
- 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 entrant and entry supervisor if any unauthorized person enters the permit space.
- Perform no other duties that interfere with the attendant's primary duties.

The attendant must order evacuation of the permit space when:

- A prohibited condition exists
- A worker shows signs of physiological effects of hazardous exposure.
- An emergency outside the confined space exists.
- The attendant cannot effectively and safely perform required duties.

### **Entry Supervisor's Duties**

- Know space hazards including information on the mode of the exposure, signs, or symptoms and consequences.
- 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.
- Ensure that entry operations remain consistent with the entry permit and acceptable entry conditions are maintained.

### **Contractors**

When any facility on U.T. Southwestern campus arranges to have contractors perform work that involves permit spaces entry, the supervising department shall inform the contractors of:

- Any identified hazards and existing experience with the space
- Any safety measures that have been implemented for employees working in or around the space
- The elements that make the space in question a permit space, including the hazards identified and the host employer's experience with the space
- Any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working

*The employer must coordinate entry operations with the contractor, record when both host employer personnel and contractor personnel will be working in or near permit spaces, and debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.*

### **Contractor requirements**

In addition to complying with the permit space requirements that apply to all employers, each contractor who is retained to perform permit space entry operations should:

- Obtain any available information regarding permit space hazards and entry operations from the host employer.
- Coordinate entry operations with the host employer when both host employer personnel and contractor personnel will be working in or near permit spaces.
- Inform the host employer of the permit space program that the contractor must follow and of any hazards confronted or created in permit spaces, either through a debriefing or during the entry operation.
- Coordinate emergency rescue.

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# PERMIT SYSTEM

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## Evaluation and testing hazardous conditions of permit spaces

Permit space conditions must be evaluated and tested during entry operations. Employers must, among other requirements:

- Test the atmosphere first for oxygen content, then flammable gases and vapors, and then potentially toxic air contaminants before the employee enters the space.
- Allow employees to observe the pre-entry testing.
- Re-evaluate the permit space at the request of an entrant who has reason to believe that the evaluation of that space may not have been adequate.
- Immediately provide each authorized entrant or authorized representative with the results of any testing conducted.
- Prohibit employees from entering the space whenever there is a hazardous atmosphere.

No one may enter a permit-required confined space except for authorized entrants working under a valid entry permit. The entry permit must contain:

- A description of the space to be entered
- The purpose of the entry
- The date and authorized duration of the entry
- The authorized entrants listed in a way that will enable the attendant to quickly determine who is inside the confined space at any given time, such as a roster or tracking system
- The personnel serving as attendants
- The individual serving as the entry supervisor
- The hazards of the permit space to be entered
- The measures used to isolate the space and eliminate or control hazards before entry, such as the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces
- The acceptable entry conditions
- The results of initial and periodic tests performed, including the names or initials of the testers, and an indication of when the tests were performed
- The rescue and emergency services that can be called and how to call them
- The communication procedures used by entrants and attendants to maintain contact with each other
- Equipment, such as testing equipment, to be provided for compliance with the confined space regulation
- Any other information necessary to ensure employee safety
- Any additional permits issued for work in the space, such as hot-work permits

**Permit duration.** The duration of the permit must not exceed the time required to complete the assigned task or job identified on the permit.

**Terminated or canceled permit.** The entry supervisor must cancel entry permits when work in the confined space is completed or when a condition exists in or near the space that is not allowed by the permit. New conditions must be noted on the canceled permit and used in revising the permit space program.

## ALTERNATIVE TO FULL PERMIT ENTRY

Employees entering a permit space need not comply with the permit space program, entry permit, authorized entrant, or emergency requirements if all of the following conditions are met, including the requirements for entry without a permit and pre-entry certification:

- It has been demonstrated and documented that the only hazard is an actual or potentially hazardous atmosphere.
- It has been determined that the forced air ventilation alone is sufficient to maintain safe entry.
- The monitoring and inspection data required to support the hazardous atmosphere and forced ventilation determination are used.
- Test data collection that requires an initial entry must be performed in compliance with the permit space and entry supervisor requirements.
- The determinations and data required are documented and available to employees who enter the space.

## **Entry Without a Permit.**

Entry without a permit must be performed in accordance with the following requirements:

- Any condition making it unsafe to remove an entrance cover must be eliminated before the cover is removed.
- Before covers are removed, the entrance must be promptly guarded by a barrier that will prevent accidental fall through of the opening and will protect employees in the space from foreign objects entering the space.
- Before an employee enters the space, the internal atmosphere must be tested for the following conditions, in the order given, with a calibrated direct-reading instrument: Oxygen content; Flammable gases and vapors; and Potential toxic air contaminants
- There must be no hazardous atmosphere within the space whenever any employee is inside the space.
- Continuous forced air ventilation must be used as follows:
  - An employee may not enter the space until forced air ventilation has eliminated a hazardous atmosphere.
  - Forced air ventilation must be directed to ventilate the immediate areas where an employee is or will be, and must continue until all employees have left the space.
  - The air supply for the ventilation must be clean and may not increase the hazard.
  - The atmosphere within the space must be continuously tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere.
- If a hazardous atmosphere is detected during entry:
  - Each of the employees must leave the space immediately.
  - The space must be evaluated to determine how the hazardous atmosphere developed.

## **Emergency Response & Rescue**

*UT Southwestern Medical employees are prohibited from performing Entry Rescue of personnel and encouraged to use outside rescue services such as our local fire department. Outside rescue services must be informed of the hazards associated with confined spaces in our workplace so that they can develop rescue plans and conduct practice rescue operations.*

*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.*

### **Self-Rescue**

Even with a perfect permit system, the unforeseen can happen that requires the urgent removal of an entrant from the space, therefore self-rescue is the primary emergency. If self-rescue is not possible, the next best option is a non-entry rescue where attendants extract or retrieve the entrants from outside the space. If the attendant is unable to extract the entrant from the space, the last option is to use a rescue team e.i., Dallas Fire Department.

### **Non-Entry Rescue**

Retrieval systems or retrieval methods shall be used, unless the retrieval equipment would increase overall risk of entry or would not be of value. The entrant should use a chest or full body harness, with retrieval line attached at the center of their back near shoulder level, or above their head. Wristlets may be used if the supervisor can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard. The supervisor 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 space more than 5 feet deep.

The attendant should be able to retrieve an unconscious worker while remaining outside the confined space. Attendants should not attempt to retrieve an entrant unless he or she can confirm visually or verbally that the person can be moved safely. If the person cannot be seen or communicated with, call 911 and wait for the fire department.

*All rescuers must be trained in CPR and, at a minimum one rescue team member must be currently certified in CPR. The supervisor must ensure that practice rescue exercises are performed yearly. Rescuers must be informed of the hazards of the permit space.*