



Confined Space Entry Program

The University of Texas at El Paso

Environmental Health & Safety Office

I. STATEMENT OF PROGRAM

The purpose of The University of Texas at El Paso's (UTEP) Confined Space Entry Program is to set procedures that will ensure workers safe entry into confined spaces and Permit-required confined spaces to perform routine tasks associated with their employment. This procedure is designed to provide the minimum safety requirements in accordance with the Occupational Safety and Health Administration's (OSHA) Confined Space Standard, 1910.146 and assist UTEP in achieving the overall goal of a safer work place. A copy of this Confined Space Entry Program is available, upon request. A copy of this written confined space entry program will be kept at the Environmental Health & Safety Office (EH&S) and on line at: ehs.utep.edu/manuals.html. This program is subject to revision. If questions arise, please alert EH&S to find clarification.

II. APPLICABILITY

This program shall apply to all employees at The University of Texas at El Paso campus, and related facilities and operations.

III. BACKGROUND

Confined space is defined as any location that has limited openings for entry and egress, is not intended for continuous employee occupancy, and is so enclosed that natural ventilation may not reduce air contaminants to levels below the threshold limit value (TLV). Examples of confined spaces include: manholes, stacks, pipes, storage tanks, trailers, tank cars, pits, sumps, hoppers, and bins. Entry into confined spaces without proper precautions could result in injury, impairment, or death due to:

- a. an atmosphere that is flammable or explosive;
- b. lack of sufficient oxygen to support life;
- c. contact with or inhalation of toxic materials; or
- d. general safety or work area hazards such as steam or high pressure materials
- e. entrapment due to configuration of confined space
- f. electrical shock or mechanical hazards due to potentially exposed surfaces in tight spaces

Confined spaces at UTEP will be identified and evaluated using a standard checklist. All confined entry workspaces will be evaluated to ensure awareness and protection of our employees and to inform contractors when potential hazards are recognized. In the event a new hazard is introduced or if one is eliminated at a confined space, re-evaluate and update the hazard assessment for the area.

All University employees who may be required to enter a confined space will be trained on the Confined Space Entry Program and all required elements. Training will be documented and recorded by EH&S.

Contractors may be hired to complete work in spaces recognized as confined spaces. They will not be allowed to enter these areas until a briefing has been completed by the supervising Competent Person representing the Contractor. In the event both UTEP employees and Contractor personnel are entering a confined space, both groups will follow their respective confined space programs with each preparing its own required entry Permit and safety briefing.

IV. ASSIGNMENT OF RESPONSIBILITY

Environmental Health & Safety -

- a. Administer and manage the Confined Space Program
- b. Issue, monitor and maintain a file of all Confined Space Entry Permits issued by the University or Contractors serving interests of the University.
- c. Facilitate and record participation in training classes for all UTEP employees.
- d. Preview and update the program requirements as needed.
- e. Provide technical assistance as needed.

Supervising Department Representative (or Contractor's Competent Person) –

- a. Ensure requirements for entry have been completed before entry is authorized.
- b. Ensure confined space monitoring is performed by employees qualified and trained in confined space entry procedures.
- c. Ensure monitoring equipment is calibrated according to manufacturer's guidelines.
- d. Know and communicate the hazards that may be faced during entry. Potential hazards may include but are not limited to:
 - Toxic vapors and gases
 - Deficient or Oxygen enriched
 - Flammable atmosphere
 - Electrical
 - Falls
 - Entanglement and engulfment
 - Mechanical injury
 - Vision limiting
 - Environmental (high/low temperatures)
- e. Obtain a Confined Space Entry Permit from EH&S., or in the case of a Contractor submit a copy of Entry Permit or approved Entry work-plan to EH&S; notify employees of the Permit entry requirements.
- f. Know and communicate established entry requirements.
- g. Require a Permit review and signature from the authorized Entry Supervisor or Contractor's Competent Person.
- h. Post the Permit in a conspicuous location at the Confined Space Entry site.
- i. Renew the Permit or have it reissued as required (a new Permit is required every 8 hour shift).
- j. Identify the number of Attendants required to perform the work.
- k. Ensure all Attendant(s) know how to communicate with the entrants and how to obtain assistance.
- l. Post any required barriers and signs.
- m. Remain alert to changing conditions that might affect the conditions of the Permits (i.e., continuous atmospheric monitoring will provide immediate feedback.
- n. Request EH&S change or reissue the Permit as necessary.
- o. When atmospheric hazards are the primary hazard of concern, ensure continuous atmospheric monitoring with periodic readings noted on the Permit.
- p. Ensure that employees doing the work adhere to Permit requirements.

- q. Ensure the confined space is safely closed and all workers are cleared from the area.
- r. Ensure the Permit is fully completed and returned to EH&S office timely when the work is done.

3. Entry Supervisors and/or Contractor Competent Persons -

- a. Determine if conditions are acceptable for entry.
- b. Authorize entry and overseeing entry operations.
- c. Terminate entry procedures as required.
- d. Serve as an Attendant, as long as the person is trained and equipped appropriately for that role.
- e. Ensure measures are in place to keep unauthorized personnel clear of the area.
- f. Check the work at least twice a shift to verify and document Permit requirements are being observed (more frequent checks shall be made if operations or conditions are anticipated that could affect Permit requirements).
- g. Ensure that necessary information on chemical hazards (Safety Data Sheet) is kept at the worksite for the employees or rescue team.
- h. Notify 911 in an emergency.
- i. Maintain current certification in First Aid and cardio pulmonary resuscitation (CPR).

4. Attendants –

- a. Be knowledgeable of potential confined space hazards.
- b. Maintain a sign-in/sign-out log with a count of all persons in the confined space, and ensure all entrants sign in and out.
- c. Monitor surrounding activities to ensure the safety of affected employees.
- d. Maintain effective and continuous communication with personnel during confined space entry, work, and exit.
- e. Order personnel to evacuate the confined space if he/she:
 - observes a condition which is not allowed on the entry Permit;
 - notices the entrants acting strangely, possibly as a result of exposure to hazardous substances;
 - notices a situation outside the confined space which could endanger personnel;
 - notices a hazard within the confined space that has not been previously recognized or taken into consideration;
 - must leave his/her work station; or
 - Must focus attention on the rescue of personnel in some other confined space that he/she is monitoring.
- f. Keep unauthorized persons out of the confined space work area; order them out, or notify authorized personnel of an unauthorized entry.
- g. Maintain current certification in First Aid and CPR.

5. Rescue Team -

UTEP employees will not enter the confined space to perform a rescue. The Entry Supervisor or Attendant will call 911 to request outside emergency response.

6. Entrants/Affected Employees -

Employees authorized to enter a confined space shall:

- a. Be knowledgeable of and observe the entry Permit requirements.
- b. Remain alert to the hazards that could be encountered while in the confined space.
- c. Properly use the personal protective equipment that is required by the Permit.
- d. Immediately exit the confined space when:
 - they are ordered to do so by an authorized person;
 - they notice or recognize signs or symptoms of exposure;
 - a prohibited condition exists;
- e. Alert Attendant(s) when a prohibited condition exists and/or when warning signs or symptoms of exposure exist.

V. PREVENTION OF UNAUTHORIZED ENTRY

University service employees shall be trained to recognize confined spaces requiring Permits. All identified confined spaces shall be investigated and Permitted prior to entry. Confined spaces that are identified as having an unabated hazard will be identified by exterior signage restricting entry. All Permit required confined spaces shall be controlled to prevent entry by unauthorized individuals.

VI. HAZARDS IN CONFINED SPACES

The most common confined space hazards are identified below:

- a. Atmospheric Hazards
- b. Risk of Engulfment
- c. Falls
- d. Electricity and Machinery
- e. Traffic and Exhaust Risks
- f. Other Risks – Heat, Cold, Noise, Vibration, Fatigue

The following order of precedence shall be followed in reducing confined space risks:

- a. Engineering Controls - Controls that eliminate or reduce the hazard through implementation of sound engineering practices.
- b. Work Practice (Administrative) Controls - Controls which eliminate or reduce the hazard through changes in the work practices (i.e., rotating workers, reducing the amount of worker exposure, and housekeeping.
- c. Personal Protective Equipment - If the hazard cannot be eliminated or reduced to a safe level through engineering and/or work practice controls, PPE should be used.

VII. PERMIT REQUIRED CONFINED SPACE PROCEDURES

- a. A Confined Space Entry Permit is mandatory for entry into a Permit required confined space. A Permit # and log entry will be recorded by staff in the EH&S office.

- b. A Job Hazard Analysis/Work Plan shall be completed prior to beginning task, and in all cases will be attached to or serve as the Permit, or vice-versa.
- c. The department supervising representative shall be responsible to obtain an Entry Permit from EH&S.
- d. EH&S staff shall assign a number, and log the Entry Permit.
- e. The requesting department supervising representative will complete the Entry Permit indicating the purpose for entry, location, and identify Entry Supervisor, Attendant, and Entrants for the work to be performed.
- f. The department supervising representative shall conduct a work hazard analysis of the work area and complete; results of the Analysis will be shared with confined space entry team.
- g. The Entry Permit shall be posted in a conspicuous location at the job site.
- h. Required barriers and signs shall be posted or placed prior to beginning work; field calibration of the testing equipment shall be performed prior to entry.
- i. Atmospheric monitoring of the confined space shall be tested prior to and during entry.
- j. If a hazardous atmosphere is found, forced air ventilation from a clean source must be used to ventilate. This ventilation will continue while work is being completed.
- k. The Entry Supervisor shall ensure subsequent periodic atmospheric monitoring is performed and documented on the Permit.
- l. If an atmospheric hazard is detected the Entry Supervisor/Attendant will:
 - evacuate the entrants from the space
 - evaluate how the condition was generated
 - implement measures to protect the entry employee from the hazardous atmosphere before re-entry
 - re-enter only following investigation and written certification, date, location and signature of person providing certification on the entry Permit
- m. Information on chemical hazards (SDS) shall be available at the worksite;
- n. The supervising department representative shall ensure that employees use all required equipment (Appendix C) properly. Before each entry, the Entry Supervisor will inspect and test the equipment for proper operation according to manufacturer's instructions.
- o. EH&S staff, the department supervising representative, and Facilities Services Safety Coordinator share responsibility in monitoring the work site to ensure compliance with the Confined Space Entry Program.
- p. A new Entry Permit shall be required for every 8 hour shift.
- q. Completed, signed Entry Permits will be returned to EH&S Office on the same day issued and will be logged and filed.

VIII. UNEXPECTED PERMIT REQUIRED ENTRY

As noted in Section IV., a Confined Space Entry Permit is mandatory for any Permit required space entry. On occasions when unexpected confined space entry is necessary on holidays, weekends, or beyond the regular work schedule, the department supervisor is responsible for assuring that employees follow all safety procedures noted in this document. Under no circumstance shall entry occur without first having a full Job Hazard Analysis performed and validated through testing. The ONLY exception will be that the Supervisor will use an unnumbered Confined Space Entry Permit. The Permit must be completed as instructed in Section IV., D. of this document. Upon completion of the task, but within 24 hours, or next business day, the completed, signed Permit will be submitted to EH&S for logging and filing.

IX. CONFINED SPACE RESCUE

UTEP employees will not attempt to rescue individuals in confined spaces. This will require a call to 911 to request outside emergency response team.

X. TRAINING

Training on the Confined Space Entry Program will be conducted by the Facilities Services Safety Coordinator, with EH&S staff, prior to the employee's initial confined space work assignment and will include:

- a. Program contents and location of written Confined Space Entry Program.
- b. How to detect potential hazards:
 - proper use and calibration of testing equipment
 - exposure limits (PELs, TLVs, LELs, UELs, etc.)
- c. Symptoms of hazards
- d. Hazards to monitor at regular intervals
 - Normal Oxygen (O₂) Level is 21% (20.9%)
 - Oxygen-deficient (O₂), Level is below 19.5%
 - Considered Oxygen-enriched (O₂), Level is above 23.5%
 - Carbon Monoxide (CO) < 35 ppm
 - Lower Explosive Limit (LEL); Upper Exposure Limit (UEL)
 - Immediately Dangerous to Life or Health Conditions (IDLH)
 - Hydrogen Sulfide (H₂S) < 10 ppm
- e. Checklist for Pre-entry:
 - Lockout Tag Out
 - Atmosphere checks
 - Fall protection
 - Communication
 - Use of ventilation
- f. Evacuation of trapped employees or contractors.
- g. Responsibilities of Entrants.
- h. Responsibilities of Attendants.
- i. Responsibilities of Entry Supervisors.
- j. Using the Permit.
- k. Confined Space Training shall be provided to each employee as follows:
 - Before first assigned task.
 - Before there is a change in assigned duties.
 - If identified spaces are changed or modified and hazards have changed.
 - Whenever the department supervisor or EH&S staff has reason to believe either that there are deviations from the Permit space entry procedures required by Paragraph IV., or that there are inadequacies in the employee's knowledge or use of these procedures.

XI. CONTRACTORS

When UTEP engages outside employers by purchase order or contract (contractor) to perform work that involves confined space entry, the hiring UTEP department shall provide reasonable notification to the hired contractor and sub-contractors that confined space entry is allowed only through compliance with a Permit space program meeting the requirements of OSHA 1910.146. All known information about the suspected hazards of that space will be shared with the contractor, sub-contractor prior to their providing bid or proposal for the work.

The Contractor shall:

- a. Assign a Competent Person (supervisor) to plan and direct execution of the work plan.
- b. Evaluate the known and unknown hazards of the work space, planning accordingly to mitigate the hazard risks identified.
- c. Exhibit proficient knowledge of safe entry procedures.
- d. Supply all needed equipment to perform a safe entry.
- e. Demonstrate competence by submitting the company's completed Confined Space Entry Permit or Work Plan to the UTEP department and EH&S office prior to entry or performing any portion of the work.
- f. Provide feedback related to any hazards encountered during entry.
- g. Provide information about any safety deficiencies noted while working in the confined space.
- h. In an entry emergency, notify 911 immediately of the situation and remain to assist emergency rescue response personnel.

Appendix A

CONFINED SPACE ENTRY PERMIT

Confined Space Location/Description/ID Number

Date:

Purpose of Entry

Time In: _____

Permit Canceled Time: _____

Time Out: _____

Reason Permit Canceled: _____

Supervisor: _____

Rescue and Emergency Services-

Hazards of Confined Space	Yes	No	Special Requirements	Yes	No
Oxygen deficiency			Hot Work Permit Required		
Combustible gas/vapor			Lockout/Tagout		
Combustible dust			Lines broken, capped, or blanked		
Carbon Monoxide			Purge-flush and vent		
Hydrogen Sulfide			Secure Area-Post and Flag		
Toxic gas/vapor			Ventilation		
Toxic fumes			Other- List:		
Skin- chemical hazards			Special Equipment		
Electrical hazard			Breathing apparatus- respirator		
Mechanical hazard			Escape harness required		
Engulfment hazard			Tripod emergency escape unit		
Entrapment hazard			Lifelines		
Thermal hazard			Lighting (explosive proof/low voltage)		
Slip or fall hazard			PPE- goggles, gloves, clothing, etc.		
			Fire Extinguisher		

Communication Procedures:

DO NOT ENTER IF PERMISSABLE ENTRY LEVELS ARE EXCEEDED		Test Start and Stop Time:	
	Permissible Entry Level	Start	Stop
% of Oxygen	19.5 % to 23.5 %		
% of LEL	Less than 10%		
Carbon Monoxide	35 PPM (8 hr.)		
Hydrogen Sulfide	10 PPM (8 hr.)		
Other			

Name(s) or Person(s) testing: _____

Test Instrument(s) used- Include Name, Model, Serial Number and Date Last Calibrated:

CFM-Ventilation	Size-Cubic Feet	Pre Entry Time	☐ Central Notified Before Entrance	Time Notified:	
			☐ Central Notified After Entrance	Time Notified:	

Authorized Entrants

Authorized Attendants

PERMIT AUTHORIZATION	
I Certify that all actions and conditions necessary for safe entry have been performed.	
Name-Print:	
Signature:	
Date:	Time:

Entry Procedure Checklist: Complete the following steps before, during, and after a confined space entry:

Step 1

Obtain a Permit-Confined Space Entry Form from Program Coordinator.

Step 2

Notify Supervisor before the **Confined Space Entry Step 3**

Verify Confined Space Meter has been calibrated and is in working order

Step 4

Complete the top portion of the Permit-Confined Space Entry Form

Step 5

Ensure all rescue equipment (e.g. tripod, body-belt, lanyard) is in place prior to entry

Step 6

Monitor the confined space with the MSA 4-Gas Detector prior to entry. The entrant and attendant should sign the Permit authorization section on the bottom of the Permit to ensure all actions and conditions necessary for safe entry have been performed.

Step 7

Employee entering the confined space should wear the 4-Gas Detector after the pre-atmosphere test. The employee should also have a full body harness and lanyard attached to the rescue tripod. Employee shall have a radio and any other necessary personal protective equipment.

Step 8

Employee can enter the confined once Step 7 is completed. The entrant and attendant should complete the Hazards of Confined Spaces and Special Requirements Section of the Permit-Confined Space Entry Form once the employee is within the confined space. The entrant should also gather the % Oxygen, % Explosive Gases, Carbon Monoxide, and Hydrogen Sulfide readings and communicate them to the attendant to place on the Permit Form.

Step 9

The attendant should maintain constant communication with the entrant until the entrant has exited the confined space.

Step 10

The attendant should contact Supervisor once the entrant has exited the confined space.

Step 11

The Permit-Confined Space Entry Form should be given to program coordinator, to file in the Confined Space Records.

Appendix B - Definitions

Breaking the Plane – Once the plane of the space has been broken it is considered “entered”. All rules regarding that space must be followed by all individuals who have broken the plane.

Confined Space – A workspace large enough to enter with a limited means of entry and exit; not designed for continuous occupancy.

Non-Permit Required 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.

Permit Required Confined Space – A confined space that may have one or more of the following characteristics:

- ✓ Contains or has the potential to contain a hazardous atmosphere per OSHA 1910.146
- ✓ Contains a material that has the potential for engulfment
- ✓ Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section.
- ✓ Contains any other recognized serious safety or health hazard.

Entry Supervisor – The Entry Supervisor is responsible for the overall confined space entry operation. He or she obtains and completes the entry Permit and makes sure all members of the Entry Team comply with the Confined Space Entry Program and departmental safety procedures. The Entry Supervisor is required to sign the Permit and ensure the Permit is returned to EH&S when work has been completed.

Authorized Entrant (s) – The Authorized Entrant enters the space to perform the tasks assigned. Entrants must be advised of and fully understand the hazards of the confined space.

Attendant – Attendants remain outside the confined space. They make sure only authorized employees enter the space; they communicate with the Entrants to monitor their status and alert them in the event of an emergency or conditions outside the space change; they summon rescue services if needed and perform non-entry rescues when necessary and possible. Attendants **MUST** remain at their posts until replaced by another Attendant or by an Entry Supervisor.

Acceptable Entry Conditions: Means the conditions that must exist in a space to allow entry and to ensure that the employees involved with a confined space entry can safely enter into and work within the space.

Immediately Dangerous to Life or Health (IDLH): Any condition, which poses an immediate threat of loss of life, may result in irreversible or immediate severe health effects, may result in eye damage, irritation or other conditions which impair escape from the Permit space.

Lower Exposure Limit (LEL): The lowest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in presence of an ignition source (arc, flame, heat).

Threshold Limit Value (TLV): The level to which it is believed a worker can be exposed day after day for a lifetime without adverse health effects.

Permissible Exposure Limit (PEL): The time-weighted average threshold limit a person working an 8 hour shift can be exposed to a chemical without suffering ill effects.

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.

Hot Work Permit: The employer's written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

Exclusion Zone: A hazardous area; an area that is off-limits because a hazardous substance is present or has been released.

Hot Zone: The Hot Zone is the area at an emergency scene where maximum danger exists. This is the zone within the immediate area of the confined space and the actual confined space. Size of the Hot Zone should be determined by the extent and characteristics of the situation. This zone will be marked by two (2) horizontal rows of barrier tape. Personal Protective Equipment and extreme caution must be used in this zone.

Warm Zone: The Warm Zone is a transition area between the Hot and Cold Zones (additional 100'). This zone acts as a buffer area. This zone will be marked by one (1) horizontal row of barrier tape. Caution must be exercised in this area. The Warm Zone is used for decontamination, equipment, and resupply.

Cold Zone: The Cold Zone is a safe area outside the Warm Zone (additional 100') and is free of contamination.

Parts Per Million (PPM): Measure of concentration that is used where low levels of concentration are significant; ppm means "out of a million." PPM is commonly used to express concentration and temperature coefficients.

APPENDIX C

EQUIPMENT

The following equipment shall be maintained and provided by the employing department and is subject to inspection by Facilities Services Safety Coordinator and EH&S staff:

1. Testing and monitoring equipment, multi-gas meter
2. Ventilating equipment for purging the air space
3. Communications equipment
4. Personal protective equipment
 - a. Hard Hat
 - b. Safety Glasses/goggles
 - c. Gloves
 - d. Safety Approved Footwear
 - e. Reflective Vests
 - f. Any PPE required via the Job Hazard Analysis
5. Lighting equipment
6. Barriers and shields
7. Equipment, such as ladders, for safe ingress and egress
8. Rescue and emergency equipment, full body harness with D ring between shoulders
9. Any other equipment necessary for safe entry into and rescue from Permit spaces.