

Liberty University

Confined Space Entry Program/Policy



PURPOSE & SCOPE

Liberty University is committed to providing a safe and healthful work environment for our entire staff. In pursuit of this endeavor, the following Confined Space Entry Policy/Program has been developed to protect employees from potential exposures to chemicals and/or oxygen deficient spaces.

Entering and working in confined spaces has been and will continue to be an integral part of specific activities by Liberty University employees and contractors. This document has been developed to ensure the safety of personnel required to enter and conduct work in confined spaces. The program contained herein describes reasonable and necessary policies and procedures for any and all facilities, departments, and individuals who are associated with confined space entry operations. This program and all parts of 29 CFR 1910.146 shall apply to all confined space entry operations conducted at Liberty University. As it is the policy of Liberty University to provide its employees with the safest work environment possible, the University requires compliance with the procedures and policies set forth in this policy/program. A site-specific program may be used, providing it meets or exceeds the requirements set forth in this Policy/Program.

The requirements for confined spaces include:

1. Identification of confined spaces and informing employees of their existence
2. A written permit space program
3. Entry permits
4. Training for individuals with active roles in confined space work

POLICY

This document is considered an official policy of Liberty University and must be complied with at all times when performing work that requires entry into a Confined Spaces. Compliance with this document is not an option and the practices set forth in this document is for the protection of all employees and contractors. There are no exceptions to this document. No matter what the emergency, anytime one will enter a confined space the practices set forth in this document must be strictly followed.

APPLICATION, IMPLEMENTATION AND RESPONSIBILITIES

Contents of This Manual

This manual has been organized into four sections:

1. Identifying Confined Spaces--
Department Heads or their designated representatives should determine if any personnel under their supervision are required to enter or conduct work in confined spaces as defined in this section.

2. Identifying Confined Space Hazards--

This section gives information on the types of hazards that may be present in a confined space. It should be reviewed whenever the hazards of a confined space are being evaluated.

3. Conducting a Confined Space Entry --

If it is determined that department personnel are required to perform duties in confined spaces, the program outlined in The Permit System should be implemented.

4. Responsibilities and Training Requirements--

This section lists the responsibilities and training requirements of each individual involved in a confined space entry.

Part 1: Identifying Confined Spaces

Recognition is an important aspect of making a safe entry into a confined space. All confined spaces located within a facility or under the facility's control should be identified. Once the space has been identified as Confined, the LU Environmental Health and Safety Department shall determine if a permit is required.

All employees shall be made aware of these confined spaces through training or instruction provided by their supervisor or designated representative. Assistance in this training shall be provided by EHS.

All employees shall be instructed by their supervisor or designated representative that entry into a confined space is prohibited without an authorized permit.

To clarify what constitutes a Confined Space, the following definition will be used. A confined space is any space that has the following characteristics:

1. **It is large enough or so configured that an employee can bodily enter and perform assigned work.**
2. **It has limited or restricted means for entry or exit.**

Confined space openings are limited primarily by size and location. Openings may be small in size and may be difficult to move through easily. However, in some cases openings may be very large; for example, open-topped spaces such as pits or excavations. Entrance and exit may be required from top, bottom, or side. In some cases, having to access the work area by a fixed ladder may constitute limited or restricted entry or exit. Size or location will generally make rescue efforts difficult.

3. **It is not designed for continuous employee occupancy.**

Most confined spaces are not designed for employees to enter and work on a routine basis. They may be designed to store a product, enclose materials and processes, or transport products or substances. Because they are not designed for continuous occupancy, frequently they will not have good ventilation or lighting. Therefore, occasional employee entry for inspection, maintenance, repair, cleanup, or similar tasks, can be difficult and dangerous. The danger associated with entry may come from chemical or physical hazards within the space.

Not all confined spaces will be considered permit-required confined spaces and being able to identify the difference between the two is important.

A Non-Permit Confined Space: is a confined space that does not contain, nor has the potential to contain, any hazard capable of causing death or serious physical harm. Examples of non-permit required confined spaces might include the interiors of HVAC units, certain air plenums and pipe chases, attics, walk-in freezers or refrigerators, and some building crawl spaces.

A **Permit-Required Confined Space** is a confined space that *is* potentially hazardous. A permit-required confined space has one or more of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere.
2. Contains a material that has the potential for engulfing an entrant.
3. 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; or
4. Contains any other recognized serious safety or health hazard. Examples (non-exhaustive) of serious safety or health hazards might include the following:
 - Fall hazards
 - Unguarded machinery
 - Extreme heat or cold
 - Steam pipes or chemical lines
 - Hazardous noise levels
 - Electrical hazards
 - Presence of asbestos
 - Potentially hazardous levels of dust

Because of the lack of ventilation in most confined spaces, they will have the potential to contain a hazardous atmosphere. Therefore, they must be designated "permit-required," and the procedures for making entry into a permit-required space must be followed. Examples of permit-required confined spaces at LU include sewers, electrical vaults, IT vaults, water storage tanks (any storage tank), sump pits, certain mechanical rooms, some excavations, and other types of enclosures.

Additionally, some roofs or equipment access areas may be designated permit-required confined spaces even though they don't technically meet the definition (i.e., they may not really have limited or restricted means of entry or exit). These areas shall be clearly marked as permit-required spaces.

Supervisors are directly responsible for ensuring the safety of their employees in regard to confined spaces. It is their responsibility to evaluate potentially hazardous spaces within their facilities and areas to ensure that the proper precautions are taken for safety. This includes clearly marking permit-required confined spaces, training employees, and ensuring proper entry procedures are followed. These responsibilities may be delegated to another competent person provided he/she is qualified.

Supervisors are responsible for ensuring their employees are properly trained to do the jobs they are sent to do. This includes recognition of confined spaces and proper procedures for making entry into permit-required confined spaces whenever necessary. ***No employee shall be sent on a job that potentially involves work in a confined space unless they have been properly trained in confined space entry procedures.***

It may be determined through evaluation and testing that a confined space presents no real danger for employees. However, it is recommended that all spaces be considered potentially dangerous until they have been evaluated and tested. Once a space has been evaluated, the Environmental Health and Safety Department shall determine if the confined space requires a permit and will apply appropriate labeling.

Part 2: Identifying Confined Space Hazards

Once a space has been identified as confined, the hazards that may be present within the confined space must be identified. Confined space hazards can be grouped into the following categories:

- Oxygen-deficient atmospheres
- Flammable atmospheres
- Toxic atmospheres
- Mechanical and physical hazards

Every confined space must be evaluated for these four types of hazards. The three types of atmospheric hazards are often the most difficult to identify since they might not be detected without the assistance of a gas monitor.

Oxygen-Deficient Atmospheres

The normal atmosphere is composed of approximately 21% oxygen and 79% nitrogen. An atmosphere containing less than 19.5% oxygen shall be considered oxygen deficient. The oxygen level inside a confined space may be decreased as the result of either consumption or displacement.

There are a number of processes that consume oxygen in a confined space. Oxygen is consumed during combustion of flammable materials, as in welding, cutting, or brazing. A more subtle consumption of oxygen occurs during bacterial action, as in the fermentation process. Oxygen can also be consumed during chemical reactions such as in the formation of rust on the exposed surfaces of a confined space. The number of people working in a confined space and the amount of physical activity can also influence oxygen consumption. Oxygen levels can also be reduced as the result of oxygen displacement by other gases.

Flammable Atmospheres

Flammable atmospheres are generally the result of flammable gases, vapors, dust mixed in certain concentrations with air, or an oxygen-enriched atmosphere.

Oxygen-enriched atmospheres are those atmospheres that contain an oxygen concentration greater than 22%. An oxygen-enriched atmosphere will cause flammable materials such as clothing and hair to burn violently when ignited.

Combustible gases or vapors can accumulate within a confined space when there is inadequate ventilation. Gases that are heavier than air will accumulate in the lower levels of a confined space. Therefore, it is especially important that atmospheric tests be conducted near the bottom of all confined spaces.

The work being conducted in a confined space can generate a flammable atmosphere. Work such as spray painting, coating, or the use of flammable solvents for cleaning can result in the formation of an explosive atmosphere. Welding or cutting with oxyacetylene equipment can also be the cause of an explosion in a confined space and shall not be allowed without a hot work permit. Hot work permits can be obtained through the [EHS website](#) under Environmental Health & Safety Forms. Oxygen and acetylene hoses may have small leaks in them that could generate an explosive atmosphere and, therefore, should be removed when not in use. The atmosphere shall be tested continuously while *any* hot work is being conducted within the confined space.

Toxic atmospheres may be present within a confined space as the result of one or more of the following:

- The Product Stored in the Confined Space

When a product is stored in a confined space, the product can be absorbed by the walls and give off toxic vapors when removed or when cleaning the residual material. The product can also produce toxic vapors that will remain in the atmosphere due to poor ventilation.

- The Work Being Conducted in the Confined Space

Toxic atmospheres can be generated as the result of work being conducted inside the confined space. Examples of such work include welding or brazing with metals capable of producing toxic vapors, painting, scraping, sanding, etc. Many of the solvents used for cleaning and/or degreasing produce highly toxic vapors.

- Areas Adjacent to the Confined Space

Toxic fumes produced by processes near the confined space may enter and accumulate in the confined space. For example, if the confined space is lower than the adjacent area and the toxic fumes are heavier than air, the toxic fumes may "settle" into the confined space.

Mechanical and Physical Hazards

Problems such as rotating or moving mechanical parts or energy sources can create hazards within a confined space. All rotating or moving equipment such as pumps, process lines, electrical sources, etc., within a confined space must be identified.

Physical factors such as heat, cold, noise, vibration, and fatigue can contribute to accidents. These factors must be evaluated for all confined spaces.

Excavations could present the possibility of engulfment. Employees shall be protected from cave-ins by sloping, benching, or shoring systems when the depth of the excavation is more than four feet, in accordance with 29 CFR 1926.652. In some circumstances, air-monitoring may also be required. If an LU employee will be trenching or excavating, they must take the Trenching & Excavation Safety Course through LU EHS.

Part 3: Conducting a Confined Space Entry

When a confined space must be entered, a permit shall be completed and authorized by department heads, supervisors, or their designated representatives prior to entry of the confined space. This permit shall serve as certification that the space is safe for entry. The permit shall contain the date, the location of the space, and the signature of the person providing the certification.

A permit shall not be authorized until all conditions of the permit have been met. Supervisors or their designated representatives shall instruct all employees to list their names on the authorized permit before they will be allowed to enter a confined space. The permit to be used by Liberty University personnel can be found on the EHS website <https://www.liberty.edu/security-public-safety/environmental-health-safety/> under Environmental Safety & Health Forms.

A. Plan the Entry

The first step towards conducting a safe confined space entry is to plan the entry. This will allow for the identification of all hazards and for the determination of all equipment necessary to complete the project.

1. Gather general data:
 - Identify the confined space. Give the name or location of the confined space.
 - Give the reason for entering the confined space. Be specific. Also, identify if hot work will be done.
 - Identify the contents of the confined space. This refers to any chemicals or other materials and energy that are usually present in the confined space.
2. Identify the Hazards

NOTE: Atmospheric testing shall be conducted prior to entering permit-required confined spaces. It is recommended that the entry supervisor conduct these tests; however, any competent person certified in confined space entry may do so.

- The entry supervisor will determine the oxygen content and record this on the entry permit.
 - The entry supervisor will determine flammable gas content and record this on the entry permit.
 - The entry supervisor will determine levels of H₂S and Carbon Monoxide and record this on the entry permit.
 - If a toxic substance is determined to be in the confined space during testing by the entry supervisor, Environmental Health & Safety shall be contacted to assist in obtaining a Safety Data Sheet or other chemical information to determine what type of personal protective equipment is required, the potential health effects, the Permissible Exposure Limits, and any other information needed to safely conduct the work.
 - Entry supervisors will determine mechanical and physical hazards. They should list all items and energy that will require lockout/tagout, blanking and bleeding, disconnecting, or securing. Physical hazards should also be listed.
3. Ventilate the Confined Space
Indicate whether mechanical or natural ventilation will be used. Describe the procedures to be used.

NOTE: If mechanical ventilation is to be used, the exhaust must be pointed away from personnel or ignition sources. Also, mechanical ventilators should be bonded to the confined space.

4. Isolate the Confined Space
Describe the procedures for disconnecting equipment or lockout and tagout. All mechanical, electrical, or heat-producing equipment should be disconnected or locked and tagged out. This would also include any pumps that pull fluid from, or pump fluid into, the confined space.
5. Purge/Clean the Confined Space
Indicate if the confined space will be purged. Purging with inert gas is not recommended. If the space must be purged, describe the procedures.
Indicate the type of cleaning methods to be used. If chemical cleaners are to be used, name the type, and describe the procedures. The SDS for the chemical should be consulted prior to use.

NOTE: When introducing a chemical into a confined space, the compatibility of that chemical with the contents of the confined space must be checked. If in doubt, consult LU Environmental Health & Safety.
NOTE: If steam is to be used, the hose should be bonded to the confined space.

6. Place Warning Signs

Indicate if warning signs or barriers will be needed to prevent unauthorized entry or to protect workers from external hazards. If the confined space will be left open and unattended for any length of time, warning signs, and barriers such as barricades and/or caution tape will be required.

7. Identify All Personnel

List all employees that will be required to prepare the confined space and complete the work inside the space.

8. Identify Necessary Equipment

List all equipment that will be necessary to complete the project.

Where practical, all personnel entering a confined space should be equipped with a retrieval line secured at one end to the entrant by a full-body harness with its other end secured to a tripod lifting hoist. **Where not practical**, a safe alternative means of rescue shall be identified and utilized.

B. Conduct Pre-Entry Training

Once the entry has been planned, supervisors or their designated representatives must train all employees who will be involved in the entry. The training should be conducted no earlier than one day before entry is to be made following the procedure outlined below.

1. Identify the confined space, the reason(s) for entry, and the work detail.

- Assign each employee the job(s) he/she is to perform in the entry project (entrant, standby person, etc.).
- If an employee is required to use a piece of equipment, be sure that he/she is trained and capable of using the equipment properly.
- Inform all personnel that no one is to enter the confined space unless the attendant is present at the work site.

2. Inform entrants of all known and/or suspected hazards

- Inform personnel of any access or exit problems.
- Inform personnel of all equipment that must be locked out and tagged out.
- Inform personnel of the contents of the confined space.
- Inform personnel of all atmospheric levels that must be maintained before entering and while working in the confined space.

If a toxic atmosphere or substance is present or could become present, the following additional training must be completed:

- If respiratory protection is not going to be used, inform personnel of the maximum permissible exposure level (PEL) that can exist within the confined space, and the method used to monitor PEL.
- Inform personnel of the potential health effects of exposure to the toxic atmosphere or substance.
- Inform personnel of the signs and symptoms of exposure to the toxic fumes.
- Inform personnel of the personal protective equipment (PPE) that they will be required to wear.
- If entrants are unaware of the proper use of the PPE, they must be trained in the proper use of this equipment.

NOTE: Supervisors may request assistance from LU Environmental Health & Safety in providing the above-mentioned training.

- Persons should not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. A local physician shall determine what health and physical conditions are pertinent. The respirator user's medical status should be reviewed periodically (annually).
3. Identify Isolation Procedures
 - Inform the personnel responsible for the lockout/tagout of all equipment that must be isolated.
 - Inform the personnel responsible for performing this function of the methods to be used.
 4. Identify Purging and/or Ventilation Procedures
 - Inform all personnel responsible for performing this function of the methods to be used.
 5. Identify All Equipment Needed
 - Inform personnel involved in the project of all equipment that will be necessary to complete the project.
 - Make sure that all employees are capable of using their assigned equipment properly.
 6. Determine Necessary Personal Protective Equipment
 - Inform personnel of all PPE that must be used to ensure their safety.
 - Make sure that all personnel required to use PPE are trained in the proper use of the equipment.
 7. Establish Communication
 - Inform all entrants that they are required to maintain communication with the attendant.
 - Inform attendant that he/she must maintain constant contact with all entrants.
 - Inform personnel of the type of communication they are to use.
 8. Protect from External Hazards

Inform personnel where signs and barriers will be placed to prevent unauthorized entry and protect entrants from external hazards.
 9. Pre-Plan Rescue Procedures
 - The designated attendant(s) should be informed of the rescue procedures to be followed.
 - The attendant should be informed that he/she can have no other duty but to maintain contact with personnel inside the confined space.
 - **Inform the attendant(s) that they must not enter the confined space under any circumstances.**
 10. Placing the Confined Space Back into Service

Inform personnel of the steps to be taken to place the confined space back into service.

C. Preparing the Confined Space for Entry

Once the entry has been planned and personnel have been trained, the next step is to prepare the confined space for entry.

The following steps are to be followed when preparing the confined space for entry:

1. Place warning signs or barriers around the confined space to prevent unauthorized entry as necessary.
2. Place all tools, safety equipment, monitoring equipment, etc., near the confined space.
3. Isolate all mechanical and/or electrical hazards as necessary.
4. Purge/ventilate the confined space as necessary.
5. Test the atmosphere using an appropriate gas monitor.
 - If oxygen content is less than 19.5% or greater than 21.5%, perform additional ventilation, and then shut off ventilation equipment and re-test the oxygen content.
 - If oxygen content is between 19.5% and 21.5%, continue entry preparation.
6. Test for flammable gases.
 - If the meter reading is less than 10% of the lower explosive limit (LEL), continue entry preparations.
 - If the meter reading is above 10% of the LEL, continue ventilation of the confined space. Then shut off the ventilation and have the atmosphere re- tested.
 - If the meter reading is still above 10% of the LEL, the confined space must be cleaned before entry is permitted. If the confined space must be entered for cleaning purposes, the procedures outlined in Item 9 of this section must be followed.
7. Test for toxics (If a toxic atmosphere is present, no person should be permitted to enter the confined space at a level exceeding the Permissible Exposure Limit without proper Personal Protective Equipment. LU Environmental Health & Safety should be called to assist in identifying proper precautions and the protective measures to be taken.
8. Assemble all personnel involved and review rescue procedures. The entry supervisor will then add any needed information, and then complete and sign the permit.
9. Notify Department Head or supervisor that entry is commencing. If Department Head or supervisor is unavailable, notify LU EHS Department.

Part 4 Personnel Responsibilities and Training

Everyone involved in a confined space entry project has certain responsibilities and requires a certain amount of training. It is very important that every individual is familiar with his/her responsibilities. This section outlines the responsibilities and training requirements of each individual involved in a project.

The Director of Environmental Health & Safety or his/her designated representative shall be responsible for the following:

1. Reviewing and updating the Liberty University Confined Space Entry Program to conform to current CFR standards.
2. Ensuring compliance with standards set forth in the program by periodic inspection of entry sites and canceling permits where unsafe conditions are present.
3. Assisting Supervisors with:
 - providing training as set forth in the program,
 - identification of confined spaces,
 - identifying spaces that require a permit for entry,
 - Labeling Permit-Required Confined Spaces.
4. Performing a single annual review covering all entries performed during a 12-month period to ensure employees participating in entry operations are protected from permit space hazards.

Supervisors or Their Designated Representatives are Responsible for:

1. Identifying confined spaces within facilities or areas under their control.
2. Identifying hazards within a confined space under their control.
3. Documenting that all training requirements for a specific confined space entry have been met by signing the pre-entry authorization space on the entry permit.

Entry Supervisors shall be responsible for the following:

1. Ensuring that the required atmospheric tests are performed at the confined space and results recorded on the permit prior to entry authorization.
2. Obtaining and maintaining all equipment necessary to complete the confined space entry project.
3. Authorizing entry by signing the Entry Authorization space on the entry permit after all conditions for a safe entry have been met.
4. Terminating the entry and canceling the permit when:
 - Entry operations covered by the entry permit have been completed.
 - A condition that is not allowed under the entry permit arises in or near the permit space.
5. Determining, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

Authorized Entrants are Responsible for and shall receive training in the Following:

1. The knowledge of hazards that may be faced during entry, including the mode, signs or symptoms, and consequences of the exposure.
2. Proper use of equipment, which includes:
 - Atmospheric testing and monitoring equipment.
 - Ventilating equipment needed to obtain acceptable entry conditions.
 - Communication equipment necessary to maintain contact with the attendant.
 - Personal protective equipment as needed.
 - Lighting equipment as needed.
 - Barriers and shields as needed.
 - Equipment, such as ladders, needed for safe ingress and egress.
 - Rescue and emergency equipment as needed.
 - Any other equipment necessary for safe entry into and rescue from permit spaces.
3. Communication with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space if required.
4. Alert the attendant (standby person) whenever:
 - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or
 - The entrant detects a prohibited condition.
5. Exiting the permit space as quickly as possible whenever:
 - An order to evacuate has been given by the attendant or the entry supervisor.
 - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - The entrant detects a prohibited condition; or
 - An evacuation alarm is activated.

Persons authorized to perform duties as attendant shall be responsible for and receive training in the following:

1. Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure.
2. Awareness of possible behavioral effects of hazard exposure in authorized entrants.
3. Continuously maintaining an accurate count of authorized entrants in the permit space and ensuring that the means used to identify authorized entrants accurately identifies who is in the permit space.
4. Remains outside the permit space during entry operations until relieved by another attendant.
5. Attempting non-entry rescue if proper equipment is in place and the rescue attempt will not present further hazards to the entrant or attendant.

6. Communicating with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space when conditions warrant.
7. Monitoring activities inside and outside the space to determine if it is safe for entrants to remain in the space and ordering the authorized entrants to evacuate the permit space immediately under any of the following conditions:
 - o If the attendant detects a prohibited condition.
 - o If the attendant detects the behavioral effects of hazard exposure in an authorized entrant.
 - o If the attendant detects a situation outside the space that could endanger the authorized entrants.
 - o If the attendant cannot effectively and safely perform all the duties required by this program.
8. Summoning rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
9. Taking the following actions when unauthorized persons approach or enter a permit space while entry is underway:
 - o Warning the unauthorized persons that they must stay away from the permit space.
 - o Advising the unauthorized persons that they must exit immediately if they have entered the permit space.
 - o Informing the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
10. Performing no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

ENFORCEMENT

Failure to follow the Liberty University Confined Space Entry Policy and Standard Operating Procedures can result in life threatening or serious injury situations to staff, faculty, students, and visitors. Failure to follow the Liberty University Confined Space Entry Policy and Standard Operating Procedures can result in disciplinary action up to and including discharge.

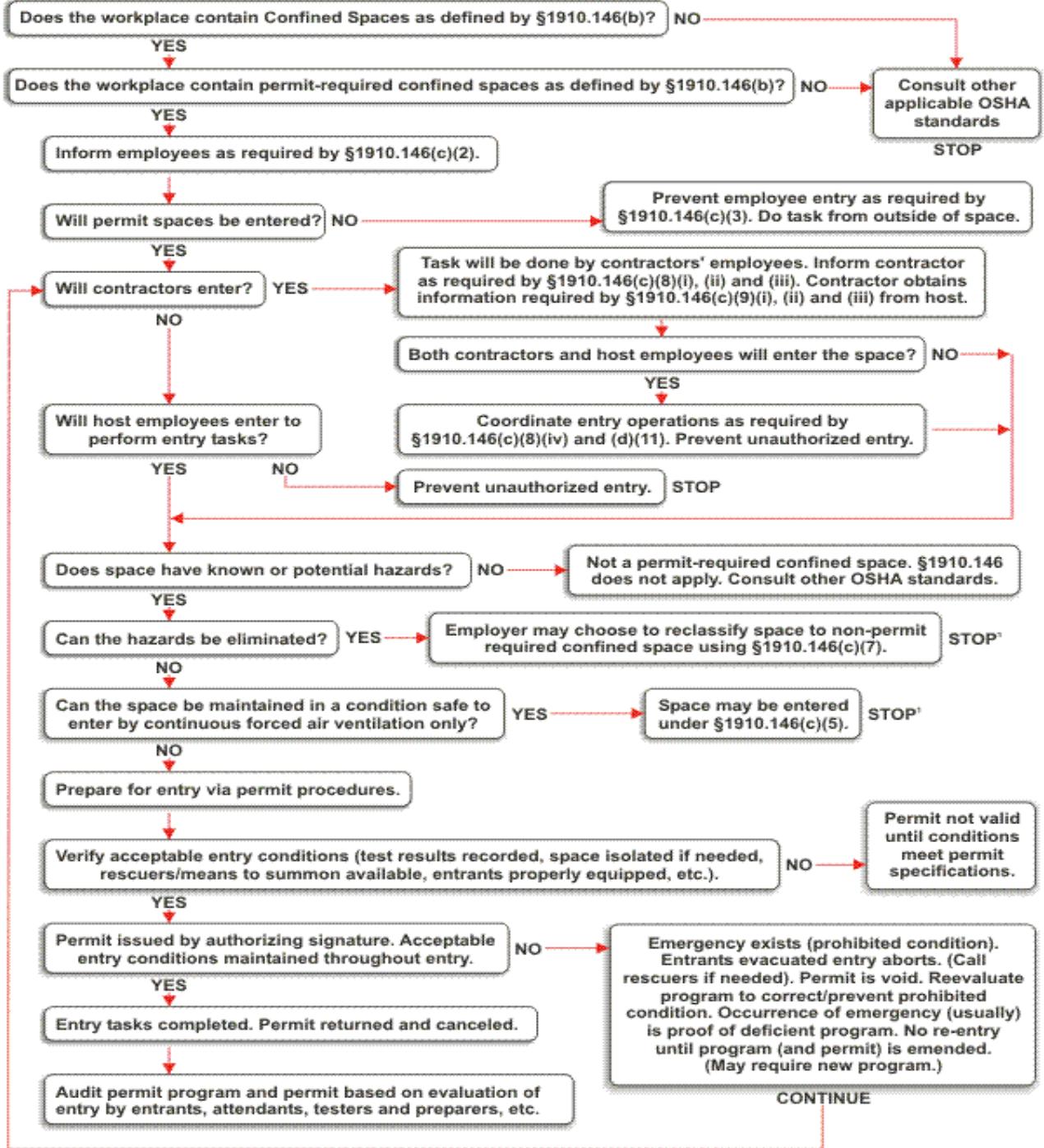
APPLICABLE REGULATIONS, STANDARDS AND REFERENCES

<u>Item</u>	<u>Document # or Reference Material</u>	<u>Title</u>	<u>Location</u>
1.	29 CFR 1910.146	OSHA General Environmental Controls (Permit-Required Confined Spaces)	https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=9797&p_table=STANDARDS
2.	29 CFR 1910.134	OSHA Personal Protective Equipment (Respiratory Protection)	https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=12716&p_table=standards

§1910.146 Appendix A

Permit-required confined space decision flow chart

APPENDIX A TO §1910.146 - PERMIT-REQUIRED CONFINED SPACE DECISION FLOW CHART



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

APPENDIX A
CONFINED SPACE ENTRY PERMIT
(SEE BELOW OR ON THE
[EHS WEBSITE](#) UNDER FORMS)

Permit Required Confined Space (PRCS) Entry Form

(1) Identify all physical and atmospheric hazards in the PRCS. (2) Determine control of hazards through elimination, control, safe work practices, or use of appropriate PPE until hazards addressed. **This PRCS entry permit is valid for one day only.**

General Information		
Date:	Entry Start Time:	Projected Entry Duration:
Department Responsible for Entry:		Purpose of Entry:
Location and Description of Space:		
Entry Supervisor:	Entry Entrant(s):	Is a contractor entering the space? <input type="checkbox"/> Yes <input type="checkbox"/> No Contractor Name _____ <i>I understand the hazards in this space and have current training on my company's Permit Required Confined Space entry program. Contractor Entrant Signature _____</i>
Phone:		
Communication Procedures (include communication equipment, channels, etc.):		

Part A: Evaluate the hazards present in the permit required confined space

Hazard or Potential Hazard	Hazard Control	Hazard Eliminated?
Physical Hazards		
<input type="checkbox"/> Fall Hazards Related to activities in space: <input type="checkbox"/> 4ft.-10 ft. <input type="checkbox"/> 10 ft.+ <input type="checkbox"/> Hole/Floor Opening <input type="checkbox"/> Elevated Platforms <input type="checkbox"/> Other _____	Activities in space: <input type="checkbox"/> Fall Protection Work Plan (attach to Entry Form) <input type="checkbox"/> Personal Fall Restraint <input type="checkbox"/> Personal Fall Arrest <input type="checkbox"/> Other _____	Access into the space: <input type="checkbox"/> Guardrails outside <input type="checkbox"/> Ladder safety system <input type="checkbox"/> Fall arrest system <input type="checkbox"/> Portable ladder entry <input type="checkbox"/> Other _____
<input type="checkbox"/> Hazardous Energy (List all sources) <input type="checkbox"/> Electrical <input type="checkbox"/> AC _____volts <input type="checkbox"/> DC/stored _____volts <input type="checkbox"/> Chemical <input type="checkbox"/> Pumps <input type="checkbox"/> Hydraulic <input type="checkbox"/> Pumps <input type="checkbox"/> Thermal <input type="checkbox"/> Ambient temperature <input type="checkbox"/> Steam line <input type="checkbox"/> Pressurized piping system <input type="checkbox"/> Mechanical <input type="checkbox"/> Moving parts <input type="checkbox"/> Springs <input type="checkbox"/> Pneumatic <input type="checkbox"/> Compressor <input type="checkbox"/> Cylinder <input type="checkbox"/> Gravity <input type="checkbox"/> Other _____	<input type="checkbox"/> Equipment-Specific Lockout/Tagout Procedure (attach to Entry Form) <input type="checkbox"/> Energized Electrical Work Plan (attach to Entry Form) <input type="checkbox"/> Locks and Tags <input type="checkbox"/> Blocks <input type="checkbox"/> Double Block and Bleed <input type="checkbox"/> Flange <input type="checkbox"/> Disconnect <input type="checkbox"/> Pin <input type="checkbox"/> Engineering control: _____ <input type="checkbox"/> Other _____	<input type="checkbox"/> Yes <input type="checkbox"/> No (Part B required)
<input type="checkbox"/> Inadequate Lighting	<input type="checkbox"/> Portable Lighting <input type="checkbox"/> Personal Lighting <input type="checkbox"/> Explosion-proof <input type="checkbox"/> Other _____	<input type="checkbox"/> Yes

<input type="checkbox"/> Engulfment <input type="checkbox"/> Liquid _____ <input type="checkbox"/> Solid _____	<input type="checkbox"/> Platform <input type="checkbox"/> Removal/drain/siphon _____	<input type="checkbox"/> Other _____ <input type="checkbox"/> Yes <input type="checkbox"/> No (Part B required)
<input type="checkbox"/> Configuration <input type="checkbox"/> Entrapment <input type="checkbox"/> Sloping floor	<input type="checkbox"/> Temporary rope/ladder <input type="checkbox"/> Platform _____	<input type="checkbox"/> Other _____ <input type="checkbox"/> Yes <input type="checkbox"/> No (Part B required)
<input type="checkbox"/> Hazards in space <input type="checkbox"/> Falling objects <input type="checkbox"/> Biological agents <input type="checkbox"/> Sharp objects	<input type="checkbox"/> Contaminated surface <input type="checkbox"/> Wet environment <input type="checkbox"/> Loose, unstable materials <input type="checkbox"/> Radioactive material	<input type="checkbox"/> Noise <input type="checkbox"/> Other _____ <input type="checkbox"/> Removal <input type="checkbox"/> See PPE/Tools below <input type="checkbox"/> Isolate/cover <input type="checkbox"/> Shield
<input type="checkbox"/> Hazards in space (continued) <input type="checkbox"/> Contaminated surface <input type="checkbox"/> Wet environment <input type="checkbox"/> Loose, unstable materials <input type="checkbox"/> Radioactive material	<input type="checkbox"/> Clean and disinfect or sterilize <input type="checkbox"/> Other _____	<input type="checkbox"/> Yes <input type="checkbox"/> No (Part B required)
<input type="checkbox"/> Vehicle and pedestrian traffic	<input type="checkbox"/> Barricade/fence <input type="checkbox"/> Cones	<input type="checkbox"/> Flagger <input type="checkbox"/> Other _____ <input type="checkbox"/> Yes
<input type="checkbox"/> Sparks and open flame	Continue to Part B	<input type="checkbox"/> No (Part B required)
<input type="checkbox"/> Other:	<input type="checkbox"/> Controls:	<input type="checkbox"/> Yes <input type="checkbox"/> No (Part B required)

Hazard or Potential Hazard	Hazard Control	Hazard Eliminated?
Atmospheric Hazards		
<input type="checkbox"/> Continuous flow system <input type="checkbox"/> Sanitary sewer or waste system <input type="checkbox"/> Oxygen Deficient <input type="checkbox"/> Rust <input type="checkbox"/> Decomposing organic matter <input type="checkbox"/> Fumes/Vapors/Mists/Gases	<input type="checkbox"/> Flammable/Explosive <input type="checkbox"/> Dust/Particulates <input type="checkbox"/> Oxygen Enriched <input type="checkbox"/> Chemical (s): _____ <input type="checkbox"/> Introduced Hazards (grinding, descaling, painting, welding, etc.) _____ <input type="checkbox"/> Underground vault/manhole <input type="checkbox"/> Other: _____	<input type="checkbox"/> Continuous Ventilation <input type="checkbox"/> Fixed <input type="checkbox"/> Portable <input type="checkbox"/> Purge Ventilation <input type="checkbox"/> Isolate source/system <input type="checkbox"/> Local exhaust <input type="checkbox"/> Yes, can be eliminated <input type="checkbox"/> Yes, can be controlled with continuous ventilation <input type="checkbox"/> No (Part B required)

If atmospheric hazards or potential atmospheric hazards are present, Ventilation and Atmospheric Testing sections are REQUIRED.

Ventilation		
Specify the type of ventilation used: <input type="checkbox"/> Fixed <input type="checkbox"/> Portable	Volume of space (L x W x H in cubic feet) = _____ Air changes = 20 (per hour) Ventilation Rate (CFM) = _____	Amount of time (minutes) need to ventilate prior to Entry = Volume of space (Cubic Feet) x 20 Air Changes ÷ Flow Rate (CFM) <div style="text-align: right;"><input type="checkbox"/> N/A</div>

Atmospheric Testing					
Substance Monitored:	Permissible Levels:	Initial test Time/ Results	Time/Results	Time/Results	Time/Results
Oxygen (O ₂) levels	19.5% - 23.5%				
Lower Explosive Limit (LEL)	<10%				
Carbon Monoxide (CO)	<35 ppm				
Hydrogen Sulfide (H ₂ S)	<10 ppm				
Other:					

List all instrumentation for Atmospheric Testing and/or Monitoring			
Instrument name	Model number:	Last Calibration Date:	Bump test
			<input type="checkbox"/> Pass
			<input type="checkbox"/> Pass
			<input type="checkbox"/> Pass

PPE /Tools Required	Type of PPE/Tools	PPE /Tools Required	Type of PPE/Tools
<input type="checkbox"/> Gloves		<input type="checkbox"/> Tool belt	
<input type="checkbox"/> Personal Fall Protection		<input type="checkbox"/> Voltmeter	
<input type="checkbox"/> Coveralls (Tyvek)		<input type="checkbox"/> Respirator & cartridge	
<input type="checkbox"/> Safety Glasses		<input type="checkbox"/> Hearing Protection	
<input type="checkbox"/> Goggles		<input type="checkbox"/> FPR Clothing (Arc Flash)	
<input type="checkbox"/> Face Shield		<input type="checkbox"/> Non-sparking tools	
<input type="checkbox"/> Bump cap/Hard Hat		<input type="checkbox"/> Other:	
All PPE/Tools inspected before use? <input type="checkbox"/> Yes <input type="checkbox"/> No			

List optional controls (e.g. attendant):

*If all physical hazards are eliminated from the space, and all atmospheric hazards are eliminated or controlled with continuous ventilation, Entrant(s) can enter with Alternative Methods. **Are all physical and atmospheric hazards controlled or eliminated?** YES NO*

If YES, Entry Supervisor signs below and Entrant(s) move forward with entry procedure. If NO, complete Part B.

Entry Supervisor Signature:

Post Entry Notes about the space & entry (including whether evacuation was necessary):

Entrant(s) maintain completed Entry Form and any SDSs for chemicals used or present in the space. If hazardous condition or atmosphere is created, the Entrant(s) must exit the space and notify the Entry Supervisor.

Retain completed Entry Form for 1 year after entry.

This is the end of Part A.

Part B: Complete information for all hazards not eliminated/controlled in Part A

Hazards still present (not eliminated in Part A)	Plan to control or mitigate existing hazards during entry
Establish Attendant(s):	Name(s):

Rescue Plan: Select option that applies or describe plan AND complete contact information.

Option #	Hazard Scenario (all must apply)	Rescue Requirements	Contact Information
<input type="checkbox"/> Option 1 (baseline)	<ul style="list-style-type: none"> Non-time sensitive hazard Unrestricted access, no obstacles in space, no hazardous atmosphere 	<ul style="list-style-type: none"> Non-entry rescue Entry rescue service with extraction capability Rescue Evaluation & Agreement in place Confirm available rescue service and, if needed, emergency service 	<input type="checkbox"/> Rescue service contacted Rescue service: Phone number: <input type="checkbox"/> Emergency service Emergency service: Phone number:
<input type="checkbox"/> Option 2	<ul style="list-style-type: none"> Non-time sensitive hazard Non-entry rescue not feasible 	<ul style="list-style-type: none"> Entry rescue service with extraction capability Rescue Evaluation & Agreement in place Confirm available rescue service and, if needed, emergency service 	<input type="checkbox"/> Rescue service contacted Rescue service: Phone number: <input type="checkbox"/> Emergency service Emergency service: Phone number:
<input type="checkbox"/> Option 3	<ul style="list-style-type: none"> Severe hazards Time sensitive rescue response needed (e.g. IDLH atmosphere, fall from great height, etc.) 	<ul style="list-style-type: none"> On-site entry rescue service at PRCS Non-entry rescue, if feasible Rescue Evaluation & Agreement in place If needed, confirm available emergency service 	<input type="checkbox"/> Rescue service on-site at PRCS Rescue service: Phone number: <input type="checkbox"/> Emergency service Emergency service: Phone number:

If atmospheric/potential atmospheric hazards are present, atmospheric monitoring (next page) is required before and during entry.

**Entrant(s) maintain completed Entry Form and any SDSs for chemicals used or present in the space.
Retain completed Entry Form for 1 year after entry.**

<i>Once all controls are in place, obtain Entry Supervisor's signature before entering the confined space. This Entry Form is the "Permit" to enter the PRCS.</i>	
Approval for Entry	Entry Supervisor's Signature:
Entry Completion & Review	Entry End Time: Post Entry Notes , comments, problems during entry (if evacuation was necessary), and contractor touch base:

Ventilation & Atmospheric Monitoring

If LEL is greater than 10% STOP ENTRY & EVACUATE, continue ventilation. If LEL is greater than 50% STOP ENTRY, EVACUTE, STOP VENTILATION, Cancel Entry Form.

Test (Pre-ventilation, upon entry, and at least every 15 minutes during entry)	Time	Initials	Oxygen (O ₂) Range (19.5 – 23.5% range for entry) Normal – 20.8% or 20.9%			Lower Explosive Limit (LEL) (<10% for entry)			Carbon Monoxide (CO) (<35 PPM for entry)			Hydrogen Sulfide (H ₂ S) (<10 PPM for entry)			Other:		
			Top	Middle	Bottom	Top	Middle	Bottom	Top	Middle	Bottom	Top	Middle	Bottom	Top	Middle	Bottom
Pre-Ventilation																	
Entry (0 min)																	
Exit																	

Liberty University Confined Space Entry Program

Revision Tracking

Revision Number	Revision Description	Revision Location	Date Originated/Revised	Policy Author/Reviser:	Policy Approvers
01	Unknown	Unknown	Original 2012	John Peterson	John Peterson
02	Update to Program/Complete Rewrite	Throughout Document	October 2022	Greg Bennett Bob Drane Dana Burgess	Greg Bennett John Peterson Ronald Sloan