

Confined Space Entry

Purpose and Scope

The purpose of the Confined Space Program is to ensure West Chester University employees and contractors are protected from hazards associated with entering confined spaces. This program establishes the responsibilities and procedures for the identification and classification of all confined spaces on campus, safe entry into permit-required and non-permit required confined spaces, rescue operations, and training. This program applies to all confined spaces on the West Chester University campus.

Responsibilities

Environmental Health and Safety

- Establishing and maintaining the Confined Space Entry Program.
- Evaluating and classifying confined spaces on campus.
- Monitoring the implementation of the Confined Space Entry Program.
- Arranging for and/or conducting employee training.
- Maintaining records required by the program.
- Reviewing the program annually and updating as needed.

Supervisors/Managers

Supervisors and managers must be knowledgeable of work areas, operations, or tasks within their unit that involve confined space entry, and they are responsible for ensuring the Confined Space Entry Program is implemented where required. In addition, supervisors and managers are responsible for:

- Monitoring work areas and notifying EHS of potential confined space hazards.
- Coordinating with EHS to evaluate potential confined spaces and determine appropriate entry requirements.
- Ensuring employees under their supervision (including new hires) have received appropriate training and medical evaluations, if needed.
- Ensuring confined space entry equipment is properly used, stored, and maintained.

Employees

- Not entering any confined space unless it is an NPRCS and performed under the procedures outlined in this program.
- Notifying their manager or supervisor immediately of any adverse or unanticipated reactions/incidents occurring during or after entering an NPRCS.
- Notifying his/her supervisor if he/she has any safety concerns or notice any unsecured confined space.
- Completing all training as required.

Confined Space Entry Roles

Entry Supervisor: The person 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 needed. The entry supervisor:

- Knows the hazards/potential hazards in the confined space.
- Issues and signs confined space permits.
- Verifies that atmospheric testing has been conducted, procedures are in place, and rescue services and means for summoning them are in place.
- Terminates entry if necessary.
- Cancels permits.

Attendant: The Attendant is an employee who is trained in non-entry emergency rescue and stationed outside one or more permit required confined space to communicate, observe, and assist those inside. The Attendant:

- Knows the hazards/potential hazards in the confined space.
- Is able to recognize signs and symptoms of exposure to hazards, including behavioral effects.
- Understands the consequences of exposure to hazards.
- Knows the number and identity of entrants in the space at all times.
- Remains outside the space until relieved by another attendant.
- Maintains communication with entrants throughout the entry.
- Monitors activities inside and outside space to determine whether it is safe for entrants to remain in the space.
- Performs air monitoring and surveillance of the confined space prior to and during entry into a confined space.
- Evacuates the space when:
 - A prohibited condition is detected.
 - Behavioral effects indicating exposure are detected.
 - Warning signs or symptoms of exposure are detected.
 - A situation outside the space arises which could endanger entrants.
 - An automatic alarm is activated.
 - The attendant cannot adequately perform these duties.

Authorized Entrant: The Authorized Entrant is an employee authorized by the employer to enter a permit required confined space to perform specific duties. The Authorized Entrant:

- Knows the hazards and/or potential hazards in the confined space.
- Is able to recognize signs and symptoms of exposure to hazards.
- Understands the consequences of exposure to hazards.
- Properly uses required personal protective equipment (PPE).
- Communicates with the Attendant as necessary.
- Alerts the Attendant to warning signs or existence of a hazardous or prohibited condition.
- Exits from confined space when ordered by an Attendant or Entry Supervisor, when the Authorized Entrant recognizes the warning signs or symptoms of exposure exists, when an automatic alarm is activated, or when a prohibited condition exists.

Procedures

Confined Space Hazard

- All confined spaces on the West Chester University campus must be identified and classified.
- Use Figure 1 to determine whether a confined space exists and whether it is a Permit Required Confined Space (PRCS) or a Non-Permit Required Confined Space (NPRCS):
 - Step 1: Identify whether the space is a confined space. A confined space has all of the following characteristics:
 - Is large enough and so configured that an employee can bodily enter and perform assigned work.
 - Has limited or restricted means for entry or exit. (If access is more difficult than walking through an ordinary door or walking up an ordinary flight of stairs, it is to be considered limited.)
 - Is not designed for continuous employee occupancy.
 - Step 2: Classify identified confined space as PRCS or NPRCS. A PRCS is hazardous to enter unless special precautions are taken. To be a PRCS, the space must possess any one or more of the following characteristics:
 - Actually, or potentially, contains a hazardous atmosphere such as oxygen deficiency or enrichment, flammable gases or vapors, or toxic air contaminants at levels exceeding established permissible exposure limits (i.e., sewers).
 - Poses a potential for engulfment by liquids or finely divided solids that can surround an entrant or be aspirated into the lungs.
 - Has inwardly converging walls that taper to a smaller cross-sectional area that could trap an entrant (i.e., bins or tanks).
 - Presents any other serious health or safety hazard such as unguarded mechanical equipment, energized conductors, temperature extremes, or hazardous radiation.
 - NPRCS are those that don't present any of the above-mentioned hazards (i.e., drop ceilings, mechanical cabinets, telephone equipment closets, and some building crawl spaces).

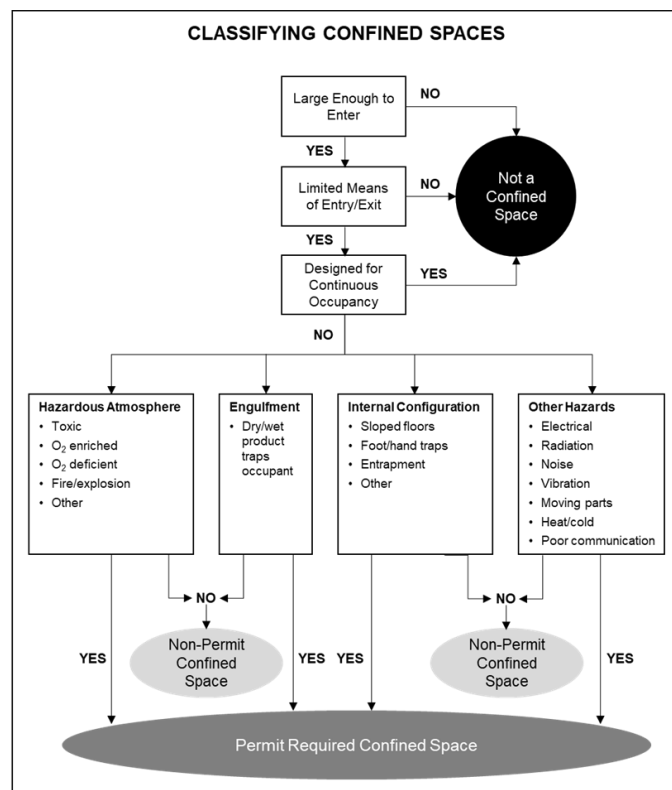


Figure 1: Classifying Confined Spaces

Confined Space Labeling and Security

- Affix a sign or label containing the words "Danger - Permit Required Confined Space, DO Not Enter" to the outside of each opening leading to a Permit Required Confined Space.
- Secure each entry port or access to a confined space to prevent unauthorized access.

Non-Permit Required Confined Space (NPRCS) Entry Procedures

- Employee notifies supervisor/manager that they will enter a NPRCS. Employee can provide advanced notice if entry into such spaces will occur periodically.
- Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.
- Once an entrance cover is removed, the opening shall be promptly guarded, as necessary, by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect employees working in the space from foreign objects entering the space.
- Prior to each entry into a confined space, the internal atmosphere shall be tested and documented using the reclassification permit in Appendix B. Testing shall be performed using calibrated, direct-read instruments for the following conditions and in the following order: (NOTE: If initial entry into the space is necessary to conduct the sampling required, the entry must be accomplished utilizing the "Permit Required Confined Space (PRCS) Entry Procedure.)
 - Oxygen content.
 - Flammable gases and vapors
 - Potential toxic air contaminants
- Prior to each entry into an NPRCS where the only identified hazard is mechanical energy that can and will be locked out/tagged out, the reclassification permit in Appendix C shall be utilized.
- The determinations and data required above are made available to each employee who enters the confined space.
- There may be no actual or potential Hazardous Atmosphere in the confined space whenever any employee is inside a NPRCS.
- Any personal protective equipment deemed necessary for entry shall be available and utilized by entrant(s)
- During Alternate Entry Confined Space entries, continuous forced air ventilation shall be so directed as to ventilate the immediate areas where an employee is or will be present within the confined space and shall continue until all employees have left the confined space.
 - The air supply for the forced air ventilation shall be from a clean source and shall not increase the hazards.
 - While working in an Alternate Entry Confined Space, the atmosphere shall be monitored continuously to ensure that the forced air ventilation is preventing the accumulation of a Hazardous Atmosphere; these readings shall be documented periodically on the reclassification/AECS Permit (Appendix B).
- If a Hazardous Atmosphere is detected during entry into an NPRCS or an AECS:
 - Each employee shall leave the confined space immediately.
 - The confined space shall be evaluated to determine how the Hazardous Atmosphere developed; and
 - Measures shall be taken to eliminate the Hazardous Atmosphere before any subsequent entry takes place.

- A reclassification permit verifying that the confined space is safe for entry and that all required measures have been taken will be completed prior to each entry and shall be available to each employee required to enter the confined space. The authorized attendant or designee shall retain a copy of the reclassification permit (see Recordkeeping).
- An entry supervisor and provision for rescue does not have to be used during entry into NPRCS and AECS.
- Training shall be provided as outlined in Section VI- Training of this program.
- All documentation shall be maintained as outlined in the section “Recordkeeping/ Documentation” of this program.

Permit Required Confined Space (PRCS) Pre-Entry Procedures

The following procedures shall be performed to verify that acceptable entry conditions exist before a Confined Space Entry Permit will be completed and entry into a PRCS will be permitted:

- Conduct a safety meeting with all employees involved in the entry to review:
 - Elements of the permit.
 - Job specific information regarding the nature of the work to be performed.
 - Potential hazards associated with the confined space.
 - Correct use of required PPE and monitoring equipment
 - Emergency procedures.
- Confirm that all individuals who will enter the confined space are currently qualified for confined space entry and respiratory protection.
- Conduct air monitoring prior to and continuously throughout the entry in an area that would represent the breathing zones of the employees while performing work inside confined space. Measurements shall be taken and recorded for the following:
 - Oxygen content. (Note: no entry shall be made if the oxygen concentration is less than 19.5% without approved supplied air respirators and no entry shall be made if the oxygen content is greater than 23.5% by volume.)
 - Flammability level. (Note: no entry shall be made if the level is greater than 10% of the LEL.)
 - Other air contaminants as needed. (Note: no entry shall be made if levels are above the IDLH. Air contaminants above the PELs but below IDLH will require use of respiratory protection for entry or further mitigation measures if respiratory protection is not available.)
- Notify the Entry Supervisor before entry into Hazardous Atmospheres to review confined space procedures.
- The entrance to the confined space shall be maintained free of obstructions, debris and/or other conditions that prevent ready entry into and exit from the confined space.
- Confined spaces with both side and top openings shall be entered from side openings when practical.
- At least one Attendant shall be stationed at the entrance to the confined space. (Note: the Attendant(s) shall have means to summon medical or other emergency assistance without leaving the confined space entrance.)
- A minimum of one additional employee, who may have other assigned duties, must be immediately available within sight or call of the Attendant to help in case of an emergency. This additional employee must also be trained as an authorized Attendant.
- Communication shall be maintained between the Attendant and Authorized Entrants in the confined space. Radio or retrieval line signals must be used when Authorized Entrants are out

- of sight of the Attendant. Affected employees shall be trained in the use of the communication system, which shall be tested before each use.
- When entering confined spaces which previously contained flammable or combustible materials, the following additional requirements shall apply:
 - No hot work or ignition sources shall be allowed in or adjacent to the confined space.
 - All electrical equipment, including lighting, shall be explosion proof and safe for use in Class I atmospheres.
 - All monitoring equipment shall be intrinsically safe for use in Class I atmospheres.
 - Ground fault circuit interrupters shall be used as appropriate.
 - Only non-sparking tools shall be used.
 - The availability of a rescue team shall be verified as able to respond within a five-minute response time or must be stationed on site.
 - Isolation of a confined space shall be performed to prevent the release of hazardous substances or energy into the space and prevent unauthorized entry:
 - Spaces containing flammable, toxic, corrosive, irritating or engulfing liquids or solids must be emptied, flushed, or otherwise purged whenever possible.
 - Pipes or hoses conveying flammable, toxic, incapacitating, or engulfing substances must be disconnected, blanked, or double blocked and bled.
 - Mechanical or electrical equipment that could force substances into a confined space or injure workers in the space if energized must be disconnected or de-energized and locked/tagged out.
 - Appropriate warning signs and barriers shall be posted at the entrances to confined spaces to protect employees. Signs and barriers shall be removed only after the operation is completed and the confined space is secured.
 - If ventilation is required during confined space work in order to minimize concentrations of air contaminants and to maintain the oxygen content at safe levels in the confined space, the following additional considerations shall be made:
 - Confined spaces shall be ventilated prior to entry and during occupancy.
 - Whenever a ventilation system is employed, the system shall be evaluated before and during each work shift to ensure that it is functioning properly, and that acceptable atmospheres are maintained.
 - The physical properties of the contaminants within the confined space and the configuration of the confined space shall be considered in determining the ventilation technique to be employed.
 - Only explosion proof air movers shall be used to ventilate confined spaces.
 - Whenever possible, air movers shall be used with ducting to increase the efficiency of the ventilation system in the confined space and to prevent recirculation of contaminated air due to ventilation "short circuiting."
 - When ventilating confined spaces previously containing flammable or combustible products, ventilation equipment shall be bonded or grounded to prevent the build-up and release of static electricity.
 - Monitoring for oxygen content, flammable gases or vapors and potential toxic contaminants shall be performed continuously and documented periodically on the entry permit to ensure that changes in atmospheric conditions are identified and workers are adequately protected.
 - When preparing to enter a permit-required confined space, the following air testing requirements shall apply:

- A person with adequate knowledge and training shall perform appropriate confined space testing
- Instruments shall be calibrated and maintained according to manufacturer requirements.
- Initial air testing of the confined space shall be made from outside of the confined space. Initial testing of the confined space shall be completed with mechanical ventilation equipment off so that "worst case" conditions can be assessed.
- All air testing results shall be recorded on the entry permit.
- If the configuration of the confined space prevents initial testing from outside, entry shall not be made until authorization is obtained from the entry supervisor.
- In addition to atmospheric testing, steps shall be taken to ensure that employees are protected from physical hazards in the PRCS, including:
 - Discharge of steam, high-pressure air, water or oil into the confined space, or failure of confined space structural support members.
 - Falling objects.
 - Openings and elevated work areas from which persons may fall.
 - Hoses, pipes, tools, or equipment posing trip and fall hazards.
 - Wet or oily surfaces posing slip hazards.
 - Inadequate lighting.
 - Insufficient or faulty personal protective equipment.
 - Insufficient or faulty equipment or tools.
 - Noise in excess of permissible levels.
 - Temperature extremes that could cause heat or cold stress.
 - Electrical shock due to faulty wiring or improper grounding procedures (GFCI protected circuits must be used when electrical equipment is used in a potentially wet environment or outside).
- Selection and use of personal protective and safety equipment shall be determined by the Entry Supervisor; selection of such equipment is based on the following conditions:
 - Specific work activities of personnel inside the confined space.
 - Type of chemical residues inside the confined space.
 - Actual or potential for development of dangerous air contamination and/or oxygen deficiency.
 - Potential physical hazards associated with the confined space.
- The personal protective and safety equipment that may be required include:
 - Eye and face protection (safety glasses, chemical goggles, face shields, full-face respirators).
 - Head protection (hard hats).
 - Body/skin protection (chemical resistant coveralls, suits, aprons).
 - Foot protection (steel-toe boots, boot covers).
 - Respiratory protection (air-purifying respirators, supplied air-line respirators, escape packs, self-contained breathing apparatus).
 - Hearing protection (ear plugs, earmuffs).
 - Retrieval devices (Class II chest harness or Class III full body harness, wristlets, retrieval line, hoisting device).
 - Fall protection (chest harness, full-body harness, lanyard).
 - Warning devices (barricades, signs, caution tape, cones).

- Other safety equipment (first aid kit, eye wash, emergency shower, fire extinguisher, lighting equipment, ladders).

PRCS Entry Permit System

- The PRCS entry permit authorizes the entry into a confined space with a hazardous atmosphere and documents compliance with applicable regulations. A PRCS permit consistent with Appendix D must be completed prior to entry into any identified PRCS. (Note: for Non-PRCS entry, a reclassification permit is required.) The PRCS permit shall identify the following items:
 - Tester's initials or signature.
 - Confined space to be entered.
 - Purpose of the entry.
 - Date and authorized duration of the entry permit.
 - Authorized Entrants within the confined space by name, roster, or other such tracking system, so the Attendant(s) knows exactly who is in the confined space for the entire duration of the permit.
 - Name(s) of Attendant(s).
 - Name(s) of Entry Supervisor(s), with a space for the signature or initials of the Entry Supervisor who originally authorized the entry.
 - Hazards of the confined space to be entered.
 - Measures used to isolate the confined space and eliminate or control permit space hazards before entry (e.g. lockout/tagging of equipment, procedures for purging, inserting, ventilating, flushing, etc.).
 - Acceptable entry conditions.
 - Results of initial and periodic testing accompanied by the names or initials of the testers, and time that tests were performed.
 - Rescue and emergency services that can be summoned and the equipment to use and numbers to call.
 - Communication system used to maintain contact between Authorized Entrants and Attendants during an entry operation.
 - Equipment, including personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment to be provided and used during entry operation.
 - Any other information necessary to ensure the safety of employees.
 - Any additional permits which have been issued for the confined space, such as hot work permits.
- The permit shall be posted at the entry portal, or otherwise available for inspection by all Authorized Entrants, so that they may confirm all pre-entry preparations have been made.
- The Entry Supervisor shall sign the permit thus allowing the entry operation to begin.
- The duration of the permit shall not exceed the time required to complete the job or task specified on the permit.
- The Entry Supervisor shall terminate the entry and cancel the entry permit if the operations covered by the entry permit have been completed or a condition not allowed under the entry permit arises in or near the confined space.
- The Entry Supervisor shall sign-off to cancel an entry permit only after it is confirmed that the space has been properly secured and covered so as to prevent unauthorized access.

Training

Initial Training: Internal initial training is dependent upon the type(s) of confined space entries permitted.

- Confined space non-entrant training is required for employees who are not authorized to enter any PRCS but may enter NPRCS. Initial training shall include the following elements:
 - Clarification of Permit Required Confined Space procedures.
 - Hazards associated with permit required confined spaces.
 - Characteristics of PRCS and NPRCS.
 - Identification and classification of confined spaces.
 - Labeling requirements.
 - Methods for reclassifying PRCS to NPRCS.
 - Responsibilities and duties of personnel.
 - Air monitoring/testing equipment use.
 - PPE selection, use and requirements.
 - Ventilation.
 - Review of the confined space written program.
- Full confined space entrant, attendant, and supervisor program training is required for employees authorized to perform PRCS, NPRCS, and AECS entries. Initial training shall include the following elements:
 - All training topics required in 4.7.1.1. PLUS:
 - Respiratory protection (if applicable).
 - PRCS entry procedures.
 - Designation and certifications of entrants, attendants, entry supervisor, and rescue team.
 - Emergency egress and rescue procedures (including annual simulated non-entry rescue operations).

Refresher Training: required where identified as appropriate following the annual review of program, after occurrence of non-compliance with any of the listed training elements, or every three (3) years, whichever comes first.

Testing and Monitoring

- Monitoring of a space shall be conducted continuously throughout the entire entry for any PRCS and AECS where a hazardous atmosphere may occur. Monitoring during entry into an NPRCS is discretionary.
- Air testing shall be conducted using a properly maintained confined space monitor capable of monitoring oxygen, LEL, and carbon monoxide (CO) simultaneously plus any additional toxin known to be present in potentially hazardous concentrations. The confined space monitor shall be calibrated according to manufacturer's directions on a monthly basis and prior to each use.
- Testing requirements are as follows (in the order listed):
 - % Oxygen between 19.5% and 23.5%
 - % LEL less than 10% of LEL for flammable present
 - CO less than 35 ppm (unless proper respiratory protection provided)
 - Hydrogen sulfide less than 10 ppm

- Any other potentially hazardous chemical in addition to the above and levels maintained below the established OSHA PEL and STEL through continuous forced ventilation.

Recordkeeping and Documentation

- The following documents shall be maintained:
 - Confined space entry permits, training records, and air monitoring data shall be retained for a minimum of three years.
 - Employee training records and certifications shall be retained in the for the duration of employment.
 - Documentation of confined space monitor, rescue equipment, and PPE inspection, maintenance, and calibration (per manufacturer recommendations) shall be retained for a minimum of three years.

Definitions

Acceptable Atmospheres: Acceptable environmental conditions within confined spaces in which uncontrolled hazardous atmospheres are not present.

Acceptable Entry Conditions: 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.

Alternate Entry Confined Space: A confined space where the only hazard is an actual or potentially hazardous atmosphere and the requirements of 1910.146(c)(5) are met. Continuous air monitoring and forced air ventilation sufficient to maintain safe entry conditions, and documentation of confined space air monitoring data before and during entry are required for entry. An entry permit and rescue services are NOT required; however, the use of an attendant is required upon entry of the employee.

Attendant: An employee assigned as a standby person who is trained in non-entry emergency rescue and stationed outside one or more permit required confined space to communicate, observe and assist those inside.

Authorized Entrant: An employee authorized by the employer to enter a permit required confined space to perform specific types of duties.

Blanking or Blinding: Absolute closure of a pipe, line or duct, by fastening across it's bore a solid plate or cap that completely covers the bore, extends at least to the outer edge of the flange, and can withstand maximum upstream pressure.

Class II Chest Harness: A chest-waist harness used for side entry into confined spaces where only a limited fall hazard exists and where personnel retrieval may be necessary.

Class III Full-Body Harness: A full-body harness used for top entry into confined spaces where a vertical free fall hazard exists and where personnel retrieval may be necessary.

Confined Space: A space has all of the following characteristics:

- Is large enough and so configured that an employee can bodily enter and perform assigned work
- Has limited or restricted means for entry or exit
- Is not designed for continuous employee occupancy

Confined Space Entry Permit: A permit form authorizing entry and work in a permit required confined space, which states the type of work, air test results, entry requirements, and protective measures. This

document is signed by an Entry Supervisor and is required to be posted at the entrance of the space during such work.

Contaminant: Any organic or inorganic substance, dust, fume, mist, vapor, or gas, the presence of which in air can be harmful or hazardous to human beings.

Double Block and Bleed: Closure of a line, duct, or pipe by closing and locking or tagging a drain or vent which is open to the atmosphere in the line between two locked-closed valves.

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, capturing, or both, of a person by a finely divided particulate matter or liquid 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: Ingress by persons into a permit required confined space which occurs upon breaking the plane of the confined space portal with any part of the entrant's body; and all periods of time in which the confined space is occupied.

Entry Supervisor: The person 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: Hazardous atmosphere poses risk of death, incapacitation, impairment of self-rescue ability, injury, or illness from:

- Flammable gas, vapor, or mist >10% LEL
- Combustible dusts exceeding its LEL (obscures vision at distance of 5 feet)
- Oxygen below 19.5% or above 23.5%
- Chemical/physical hazards exceeding Permissible Exposure Limits
- IDLH (Immediately Dangerous to Life or Health) atmospheres

Hoisting Device: A person-rated hoist, winch, or similar mechanical device of specific design to permit an employee to safely enter and/or be removed through a top-opening of a confined space.

Hot Work: Work involving welding, burning, open flame, sparks or temperatures that could ignite combustible materials.

Hot Work Permit: A written authorization issued for hot work operations.

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. Values established by NIOSH.

Isolation: A process of removing a confined space from service and preventing release of engulfing substances, or hazardous substances or energy. Isolation includes:

- Disconnection, removal, or misalignment of lines
- Blanking or blinding at flanges
- Double block and bleed with valves
- Electrical lockout and tagout or disconnection
- Mechanical lockout and tagout or disconnection

Lockout/Tagout: Placement of a lock/tag on the energy-generating device to isolate and prevent operation of the device.

Lower Explosive Limit (LEL): The minimum concentration of gas, vapor, or dust in air that can ignite in the presence of an ignition source.

Non-Permit Required Confined Space (NPRCS): A space initially classified as a PRCS which is reclassified to an NPRCS and where all the following conditions apply:

- It can be demonstrated that the space poses no actual or potential atmospheric hazards, and all the hazards are eliminated without entering the space.
- Air monitoring and inspection data are available and documented which support the items above.
- If hazards arise within an NPRCS each employee in the space must exit the space. The space shall be re-evaluated, and a determination made as to whether the space must be re-classified as a PRCS or alternate entry space.

Exception: A space that has mechanical equipment which can be locked-out to fully eliminate this hazard, may be considered a NPRCS once the lockout has been performed and verified in the reclassification permit.

Oxygen Deficiency: Any atmosphere containing less than 19.5 percent oxygen by volume

Oxygen Enriched Atmosphere: An atmosphere containing more than 23.5 percent oxygen by volume

Permissible Exposure Limit (PEL): OSHA has published permissible exposure limits concerning various toxic and hazardous chemical substances and physical agents to which employees may be exposed during the course of employment without developing any adverse health effects.

Permit-Required Confined Space (PRCS): A space that meets all the requirements of a confined space and that potentially has any one or more of the following characteristics:

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

Permit-Required Confined Space Program: Program for preventing unauthorized employee entry and for ensuring safe entry into and work within confined spaces by Authorized Entrants.

Retrieval Systems: Equipment used for non-entry rescue of persons from confined spaces consisting of the following items:

- A cable, line, or rope of at least ½ inch diameter and capable of withstanding a 2000-pound test. The line shall be equipped with fittings for attachment to a safety harness and shall be of a length that permits attachment to a hoisting device, or to an anchor point located outside the entry portal to the confined space.
- A hoisting device, winch, or similar mechanical device of specific design for use to permit an employee to safely enter and/or be removed through a top opening of a confined space *and*:
- A Class II Chest Harness used for side entry into confined spaces where only a limited fall hazard exists and where personnel retrieval may be necessary *or*
- A Class III Full-Body Harness used for top entry into confined spaces where a vertical free fall hazard exists and where personnel retrieval may be necessary.
- Wristlets & Anklets may be utilized where it is determined by the entry supervisor that the use of a harness would create an additional hazard to the entrant due to space configuration.

Retrieval Line: A cable, line, or a rope of at least ½ inch diameter and capable of withstanding 2000-pounds test. The line shall be equipped with fittings for attachment to a safety harness and shall be of a length that permits attachment to a hoisting device, or to an anchor point located outside the entry portal to the confined space.

Threshold Limit Value (TLV): The American Conference of Governmental Industrial Hygienists has established recommended threshold limit values (TLVs) concerning chemical substances and physical agents to which employees may be exposed during the course of employment. TLVs shall be used as guidelines only and shall be considered as one of many contributing factors in evaluating the overall degree of hazard for confined space work.

Reviewed: August, 2022