CONFINED SPACE ENTRY

PROCEDURE NUMBER: CPL HES-201
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Appendix

A    Glossary
B    Permit CPL 684, Emergency Action Plan CPL 683
C    Confined Space Workplace Evaluation
1.0 Purpose

The purpose of this procedure is to:

- define the minimum conditions that must be met to assure employee and contractor safety during entry and work in confined spaces;
- serve as the written permit-required confined space program;
- comply with Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.146, Permit Required Confined Spaces, as well as various state occupational safety and health regulations regarding confined spaces; and
- comply with Department of Transportation (DOT) requirements to review American Petroleum Institute (API) Publication 2026, Safe Access/Egress Involving Floating Roofs.

2.0 Scope

2.1 Definition of a Confined Space

A confined space is a space that is large enough and so configured that a member of the workforce can partially or completely enter, travel through to an assigned work area and perform assigned work; has limited or restricted means for entry and exit; and, is not designed for continuous employee occupancy.

2.2 Personnel and Activities Covered by this Procedure

This procedure applies to all CPL Workforce in or on Chevron Pipe Line Co. owned, operated, or maintained pipelines or facilities that enter a confined space.

2.3 Areas or Equipment Covered by this Procedure

Examples of equipment that may be confined space are, but not limited to:

- external floating roof tanks
- buried valve boxes, sumps or working platforms
- vessels, separators and tanks (entered by a man-way)
- pig/swab or scraper traps
- pits
- tank cars/trucks
- internal floating roof tanks
o pontoons of floating roofs

o footing excavations and bell bottom pier holes

This is a list of examples within CPL. Additional areas or equipment may also be considered confined spaces. If you have any questions, contact your Safety Specialist.

2.4 Exemptions from this Procedure

The following are exempt from this procedure:

- Hyperbaric chambers and dry habitats that are regulated by the United States Coast Guard;

- Tank berms (if dirt is sloped properly or stairways with handrails or ramps are provided); and

- Tank berms with concrete walls and stairways with handrails.

3.0 Prerequisites

- Only employees trained on this procedure are allowed to perform work involving Confined Space Entry.

- Confined Space Permit will be issued only after Safe Work Permit is completed.

- Persons conducting entry rescue must be trained to OSHA 1910.146 requirements.

- Attendants must be trained in cardiopulmonary resuscitation, blood-borne pathogens and first aid.

- At all times efforts must be made to assure that ONLY critical personnel are allowed to enter a Confined Space.

- As entrants are finished with assigned task they must exit the Confined Space to minimize the number of personnel within the Confined Space at all times.
4.0 Process Overview

Has a Safe Work Permit (SWP) been completed?

Yes

PIC ensures that Confined Space Hazard Analysis is complete

No

Stop complete the SWP

Is this a permit required confined space?

Yes

Can the hazards be removed or mitigated with controls or Forced Air?

Yes

The PIC completes the Non-permitted or Forced Air CSE permit

Work may safely begin

Work completed

Return permit to the PIC

PIC files in the appropriate office

No

The PIC completes the hazard control section

PIC assures that the Emergency Action Plan is completed

PIC completes the Permit Required CSE permit and all signatures are in place
5.0 Instructions

5.1 Pre-Entry

5.1.1 The Person-in-Charge determines if the space to be entered meets the criteria set by OSHA for a confined space. **The Person-in-Charge must make this evaluation each time prior to issuing a confined space entry permit.**

A confined space exists and this procedure applies if the space meets all of the following:

- Is large enough so a person can enter and work in the space; and
- Entry or exit into the space is restricted or limited (restricted includes ladders, man-ways, crawl spaces, etc.); and
- Is not designed for continuous employee occupancy.

**If the space does not meet ALL of the above, this procedure does not apply, however, other procedures may apply (i.e., benzene and respiratory protection).**

5.1.2 If the space meets all of the above, The Person-in-Charge determines the type of confined space and which sections in this procedure to follow. Contact your Safety Specialist if you have any questions about the type of confined space.

There are three types of confined space stated below:

- Non-Permit Confined Space (follow sections 5.1 Pre-Entry and 5.2 Working in as Non-Permit Confined Space)
- Confined Space Requiring Ventilation for control of unacceptable atmospheric hazards (follow sections 5.1 Pre-Entry and 5.3 Confined Space Entry Using Forced-Air Ventilation).
- Permit-Required Confined Space (follow sections 5.1 Pre-Entry, 5.4 Permit-Required Confined Space Program, and 5.5 Emergency Action Plan).

**CPL requires the use of a Confined Space Permit to document decisions made regarding entry into all confined spaces that fall into the three respective categories. A permit is required for entry into all confined space even though the terminology may suggest otherwise. The amount of information required on the permit will be different.**
The following depicts an example scenario for each of the three respective confined space designations:

- A tank has been thoroughly cleaned and gas freed following permit required confined space entry procedures. Gas testing has shown neither detectable toxic atmospheres nor physical hazards, and a door sheet has been cut into the tank. The space is now a Non-Permit Confined Space. However, you will need to complete the Confined Space Permit to document your hazard analysis process.

- A work crew enters the tank to perform repairs using a flammable epoxy. Gas testing shows that toxic vapors are now present in concentrations above acceptable levels. However, gas testing has also shown that these levels can be reduced to less than hazardous levels by using forced-air ventilation from outside the tank. The space is now a confined space requiring ventilation. (The use of ventilation does not make a space a non-permit confined space because the ventilation does not eliminate the hazard.)

- A tank has been thoroughly cleaned and gas freed. Gas testing has shown neither detectable toxic atmospheres nor physical hazards exist. Minor repair work is needed and it is determined that no door sheet cutout is needed, the crew will access through a 16” man way; this is still a permit required confined space.

5.1.3 The Person-in-Charge specifies the hazards and conditions of the area or equipment which existed prior to entry by completing the Confined Space Hazards section of the Confined Space Entry Permit. The Person-in-Charge also documents the hazard controls to be used to assure isolation and the initial cleaning or purging of the equipment and confined space.

5.1.4 The Person Conducting the Work prepares the job site by:

a) Assuring all equipment listed below is in proper operating order at the work site and set up in such a way as to not pose an egress problem or a safety hazard:
   - Gas detection equipment (all spaces);
   - Barriers to prevent unauthorized or accidental entry;
   - Communications equipment (intrinsically safe and properly rated for area classification);
   - Personal protective equipment;
   - Lighting equipment (classed for location) needed to enable Authorized Entrants to see well enough to work safely and to exit the space quickly in an emergency; and
   - Equipment, such as ladders, if needed for safe entry and exit by authorized entrants.
b) Determining if an authorized entrant could be exposed to any harmful substances. If yes, a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the work site. If an entrant is injured, that MSDS or written information must be made available to the medical facility treating the exposed person.

c) Determine if welding is to be done in the space. If yes, a local exhaust ventilation (movable) hood, meeting all electrical classification requirements, must be located as near as practical to the welding operation to remove fumes, gases, and smoke. As an alternative, an eductor or blower may be positioned to move contaminants away from the welder and out of the space (see section 5.3 Confined Space Entry Using Forced-Air Ventilation).

d) Assuring that only critical personnel are permitted within a Confined Space and that they exit when they have completed their assigned task.

e) Defining additional personnel requirements and equipment based on the type of space, the type of hazard and the work to be conducted.

f) Identifying and evaluating any physical hazards associated with the space (i.e., moving equipment) and eliminating these hazards. Exposed energized electrical parts must be covered by protective shields or other barrier or insulated material. If these hazards cannot be eliminated, complete section 5.1 Pre-Entry, and proceed to section 5.4. Permit-Required Confined Space Program."

g) Eliminating any condition (atmospheric or physical) making it unsafe to remove the entrance cover before the cover is removed (e.g., high temperature, high pressure, etc.).

h) Removing the cover and promptly guarding the opening to the space by placing a railing, temporary cover, or other temporary barrier that will:
   - Prevent an accidental fall through the opening;
   - Provide pedestrian, vehicle, or other barriers necessary to protect entrants from external hazards; and
   - Prevent unauthorized entry.

h) Requesting the Qualified Gas Tester to conduct gas testing from outside the space and record the results on the permit in the Initial Test Results section. If gas testing cannot be done from outside the space, proceed to section 5.4, Permit-Required Confined Space Program.
5.1.5 The Qualified Gas Tester tests for the following atmospheric hazards in the following order:

- First - Oxygen
- Second - Flammable vapor
- Third - Toxic vapors (as outlined by the Person-in-Charge).

**WARNING:** If oxygen levels are outside acceptable limits, flammability and toxic levels may not be accurate. Use extreme caution. Acceptable levels are listed in Appendix A, Hazardous Atmosphere, as well as on the CPL Confined Space Entry Permit.

**NOTE:** Mechanical ventilation must be shut down for at least 15 min prior to initial gas testing.

The Qualified Gas Tester completes the "Date/Time and Test Results" section of the permit including adding his/her initials.

5.1.6 If the gas levels are outside the acceptable levels listed on the permit, the Person-in-Charge completes the Initial Test Results section of the Gas Testing Plan and Results by checking the Permit Required Confined Space or Confined Space Entry Using Forced Air Ventilation, then proceeds to sections 5.3 Confined Space Entry Using Forced-Air Ventilation, 5.4 Permit-Required Confined Space Program, and 5.5 Emergency Action Plan as appropriate.

5.1.7 If gas levels meet acceptable entry conditions, the Person-in-Charge completes the Initial Test Results section by checking the Non-Permit Confined Space box and approves the permit and the work to be conducted in a non-permit confined space as outlined in section 5.3 Confined Space Entry Using Forced-Air Ventilation.

5.2 Working in a Non-Permit Confined Space

This terminology is consistent with that used in corresponding OSHA regulations. CPL requires the use of a permit to document decisions made regarding entry into all confined spaces that fall into the three respective categories described in section 5.1.2. A permit is required for entry into all confined spaces even though the terminology may suggest otherwise. The amount of information required on the permit will be different.

5.2.1 The Person-in-Charge posts the approved permit at the entrance to the space before work may begin in the space.

The permit may be placed on a clipboard at the entrance of the space, but must be visible and accessible to all entrants.
5.2.2 Gas testing must be conducted as necessary to assure there is no accumulation of hazardous vapors. The atmosphere within the space must be tested either continuously or at a maximum interval of every two (2) hours as specified on the permit. Results must be recorded on the permit every two (2) hours.

*When the space has been vacated for more than 30 minutes, gas testing must be conducted again before re-entry.*

5.2.3 If a hazardous atmosphere is detected while working in a space, or if an authorized entrant becomes ill, all of the following must occur.

Use **Stop Work Authority** and:

1. Each worker must leave the space immediately.
2. The Person-in-Charge must terminate the entry and cancel the permit if a condition that is not allowed under the entry permit arises in or near the permit required confined space.
3. The space must be re-evaluated to determine how the hazardous atmosphere developed.
4. All equipment must be thoroughly inspected.
5. Measures must be taken to protect workers from the hazardous atmosphere before the next entry takes place.
6. The space must be retested as outlined in section 5.1.6 to determine whether it must be reclassified as a permit required confined space.

5.2.4 Once the job has been completed and after workers have exited the space, the Person-in-Charge concludes the entry by closing off a confined space. The Person-in-Charge cancels the permit by removing it from the site.

5.2.5 The permit must be filed as outlined in section 8.0 Documentation and Records Retention of this procedure.

5.3 **Confined Space Entry Using Forced-Air Ventilation**

**WARNING:** *Do not start here without determining the type of confined space and preparing the site. See sections 4.0 Confined Space Entry Process Overview, 5.1 Pre-Entry, and 5.2 Working in as Non-Permit Confined Space, to determine type of confined space and pre-entry.*

5.3.1 The Person-in-Charge completes all the requirements listed in sections 5.1 Pre-Entry and 5.2 Working in as Non-Permit Confined Space.
5.3.2 A confined space may be entered with use of ventilation equipment only if all of the following are met:

- All physical hazards are eliminated (no engulfment, internal safety or health hazards, slanted floors, etc.). See also section 4.0 Confined Space Entry Process Overview.
- Atmospheric hazards are controlled to acceptable entry levels with the use of ventilation equipment (documentation of determination and supporting data must be available to each person entering the space by use of a permit).
- Ventilation equipment is set up without entry into the space (if entry into the space is necessary to set up equipment, proceed to section 5.4 Permit-Required Confined Space Program).

**WARNING:** A space cannot be reclassified to a Non-Permit Confined Space by using forced air ventilation because forced air ventilation does not eliminate the hazards.

5.3.3 The Person-in-Charge assures that ventilating equipment needed to obtain acceptable entry conditions is available at the work site and that all such equipment is:

- in good working order;
- classified for use in hazardous locations;
- properly located so that no additional contaminants are brought into the space; and
- fitted with spark arrestors and filters as necessary.

Contact your Safety Specialist for additional information on ventilation rates, etc.

5.3.4 After initial testing has been conducted, the Person-in-Charge will determine which type of ventilation is best to control the hazards present and for the work to be performed.

**Forced Air Dilution Ventilation**

Forced air dilution ventilation is used to provide oxygen and to control low concentrations of materials that are not highly toxic. It uses air movers such as copus blowers or venturi blowers to either draw contaminated air out of an area or supply fresh air. The air supply for the forced air ventilation must be from a clean source and must not increase the hazards in the space. Drawing air out is usually better when low concentrations of contaminants are produced at a fairly uniform rate and the workers are not close to the source since blowing air in can spread contaminants.
Local Exhaust Ventilation

Local exhaust ventilation is used to capture contaminants at the point of origin and remove them from the space. This type of ventilation is best for control of flammable and toxic materials produced at a single point and during hot work.

5.3.5 The Person-in-Charge begins ventilating the space. Ventilation must meet the following conditions:

a) Ventilation should begin far enough in advance of re-testing to assure displacement of hazardous vapors or gases.

b) Authorized entrants may not enter the space until the forced air ventilation has controlled any hazardous atmosphere to the acceptable conditions listed on the permit. The forced air ventilation must continue until all authorized entrants have left the space.

c) The air eductor or blower should be located as near the top of the space as possible to maximize ventilation. Measures should be taken to reduce vibration noise caused by the eductor sitting on a metal surface (i.e., bolting it to flange.) For floating roof tanks, the eductor should be mounted on the shell.

d) Ventilation equipment and non-conductive hose nozzles must be grounded and electrically bonded to the confined space.

e) The ventilation equipment must have enough capacity to ventilate the entire space. A series of fans may be necessary to move air in long or large spaces.

f) Exhaust outlets must be located so that contaminants won't be drawn back into the space and will not be dispersed in such a way as to endanger nearby workers. If exhaust could be flammable, assure all ignition sources are removed from the area.

5.3.6 The Qualified Gas Tester repeats testing per section 5.1.6 to determine that ventilation alone will reduce the atmospheric hazards to acceptable entry levels and records the levels in the next available column on the permit. If gas testing shows that ventilation alone will not control atmospheric hazards to acceptable entry levels, proceed to section 5.4 Permit-Required Confined Space Program. If gas testing shows that all atmospheric hazards have been controlled to acceptable entry levels as outlined on the permit, continue.

5.3.7 The Person-in-Charge posts the approved permit at the entrance to the space before work may begin in the space.

The permit may be placed on a clipboard at the entrance of the space, but must be visible and accessible to all entrants.
5.3.8 The atmosphere within the space must be tested continuously or at the minimum interval of every two (2) hours if authorized on the permit by the Person-in-Charge. Gas testing must be conducted as necessary to assure there is no accumulation of hazardous vapors. Results must be recorded on the permit every two (2) hours.

When the space has been vacated for more than 30 minutes, gas testing must be conducted again before re-entry.

5.3.9 If a hazardous atmosphere is detected while working in a space, ventilation equipment fails, or a worker becomes ill, all of the following must occur.

Use Stop Work Authority and:

1. Each worker must leave the space immediately.

2. The Person-in-Charge must terminate the entry and cancel the permit if a condition that is not allowed under the entry permit arises in or near the Permit Required Confined Space.

3. The space must be re-evaluated to determine how the hazardous atmosphere developed.

4. All equipment must be thoroughly inspected.

5. Measures must be taken to protect workers from the hazardous atmosphere before the next entry takes place.

6. Space must be retested as outlined in section 5.1.6, and determine whether it must be reclassified.

5.3.10 Once the job has been completed and after workers have exited the space, the Person-in-Charge completes the entry by closing off a confined space. The Person-in-Charge cancels the permit by removing it from the site.

5.3.11 The Person-in-Charge must review all confined space entries using ventilation. The review must identify any problems and document that all actions protected entrants from hazards during the entry. The Person-in-Charge will correct task-level problems locally prior to authorizing additional entries. The Person-in-Charge must notify the editor of the Health Environment and Safety (HES) Procedures Manual to revise procedural problems. Deficiencies which could result in injury must be corrected before the next entries are authorized. A review of the problems should be conducted with the HES Group to assure that these conditions are communicated and, therefore, do not occur elsewhere. (Examples of circumstances requiring review include unauthorized entry, detection of a hazard not covered by the permit, injury or near miss, and employee complaint).

5.3.12 The permit must be filed as outlined in section 8.0 Documentation and Records Retention.
5.4 Permit Required Confined Space Program

WARNING: Do not start here without determining type of confined space and preparing the site. See sections 4.0 Confined Space Entry Process Overview and 5.1.2 (Determining Type of Confined Space and Pre-entry).

5.4.1 The Person-in-Charge and the Authorized Entrant must first assure all the applicable requirements in sections 5.1 Pre-Entry, 5.2 Working in a Non-Permit Confined Space, and 5.3 Confined Space Entry Using Forced-Air Ventilation (if using ventilation) are completed.

5.4.2 To reclassify a Permit-Required Confined Space to a Non-Permit Confined Space, the following must be considered:

- Evaluate the space to determine what hazards are expected to be associated with entry. If there are no atmospheric hazards and if all non-atmospheric hazards within the space are eliminated without entry into the space, a Permit Required Confined Space may be reclassified as a Non-Permit Confined Space for as long as those hazards remain eliminated.
- If it is necessary to enter the Permit Required Confined Space to eliminate hazards, use section 5.4 Permit-Required Confined Space Program for entry requirements.
- If during entry, monitoring demonstrates that all the hazards within the space have been eliminated, the Permit Required Confined Space may be reclassified to a Non-Permit Confined Space for as long as the hazards remain eliminated. Work may then continue as outlined in section 5.2 Working in a Non-Permit Confined Space.

NOTE: A space cannot be reclassified to a Non-Permit Confined Space by using forced-air ventilation, because forced-air ventilation does not eliminate the hazards. Use section 5.3 Confined Space Entry Using Forced-Air Ventilation.

5.4.3 In conjunction with planning the work, the Person-in-Charge completes a written Emergency Action Plan as outlined in section 5.5 Emergency Action Plan. The Emergency Action Plan must be posted at the worksite along with the confined space entry permit.

5.4.4 The Person-in-Charge assures that the following additional equipment is at the work site and is in proper operating order:

- Ventilating equipment needed to obtain acceptable entry conditions must meet all the requirements in section 5.3 Confined Space Entry Using Forced-Air Ventilation.
• Rescue and emergency equipment needed as specified in the Emergency Action Plan, except for equipment that is provided by rescue services.
• Any other equipment necessary as specified by the Person-in-Charge for safe entry into and rescue from Permit Required Confined Spaces.

5.4.5 If ventilation is needed, the Person-in-Charge completes the appropriate section of the permit and begins ventilating the confined space.

5.4.6 The Person-in-Charge reviews the permit conditions and gas test results, approves the permit by signing on the appropriate line in the Approval Signatures section of the Safe Work Permit. The approved permit must be posted at the entrance to the space before work may begin.

5.4.7 The Attendant must remain at the entrance to the space, monitor activities and evacuate and/or summon help in the event of an emergency. The Attendant must also:
• Continuously maintain an accurate count of authorized entrants in the Permit Required Confined Space and assure that the permit accurately identifies who is in the Permit Required Confined Space;
• Communicate with entrants as necessary to monitor status and to alert entrants of the need to evacuate the space;
• Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and evacuate the Permit Required Confined Space immediately if the Attendant detects a prohibited condition; and
• Summon rescue and other emergency services as soon as it is determined that entrants may need assistance to escape from Permit Required Confined Space hazards.

Unless specifically relieved of their duties as The Attendant and replaced by another trained and qualified Attendant, No Attendants may enter a Permit Required Confined Space to attempt a rescue even if they have been trained and equipped for rescue operations if they are still filling the role as Attendant.

5.4.8 A Qualified Gas Tester must continuously monitor the atmosphere within the space. Results must be recorded on the permit every two (2) hours.

When the space has been vacated for more than 30 minutes, gas testing must be conducted again before re-entry.

5.4.9 If a hazardous atmosphere is detected while working in a space, ventilation equipment fails, or a worker becomes ill, all of the following must occur.

Use Stop Work Authority and:

a) Each worker must leave the space immediately.
b) The Person-in-Charge must terminate the entry and cancel the permit if a
condition that is not allowed under the entry permit arises in or near the
Permit Required Confined Space.

c) The space must be re-evaluated to determine how the hazardous atmosphere
developed.

d) All equipment must be thoroughly inspected.

e) Measures must be taken to protect workers from the hazardous atmosphere
before the next entry takes place.

f) The space must be retested as outlined in section 5.1.6.

5.4.10 Once the job has been completed and after the authorized entrants have exited the
space, the Person-in-Charge will conclude the entry by closing off a Permit
Required Confined Space. The Person-in-Charge will cancel the permit by
removing it from the site.

5.4.11 The Person-in-Charge must review all permit-required entry operations. The
review must identify any problems and document that all entrants were protected
from hazards during the entry. The Person-in-Charge will correct task-level
problems locally prior to authorizing additional entries. The Person-in-Charge
must notify the editor of the HES Procedures Manual to revise procedural
problems. Deficiencies which could result in injury must be corrected before the
next entries are authorized.

A review of the problems should be conducted with HES to assure that these
conditions are communicated and, therefore, do not occur elsewhere. (Examples
of circumstances requiring review include unauthorized entry, detection of hazard
not covered by the permit, injury or near miss, and employee complaint).

5.4.12 The permit must be filed as outlined in section 8.0 Documentation and Records
Retention.

5.4.13 An existing Confined Space Permit can be extended for four consecutive shifts,
not to exceed 12 hours per shift if, at the beginning of each shift, both the Person-
in-Charge and the Person Conducting the Work confirm that conditions remain
unchanged, permit restrictions are met, and it is safe to do the work. They both
must date and initial the permit in the appropriate box.

5.5 **Emergency Action Plan**

5.5.1 An Emergency Action Plan is required to be completed for Permit Required
Confined Space Entries. The Person-in-Charge completes the Emergency Action
Plan by conducting the tasks in the Emergency Action Plan section of the permit.

5.5.2 List the hazards that could be encountered within the confined space.
5.5.3 Specify a procedure for the emergency notification of the Attendant by authorized entrants, including the following provisions:

a) A means for the entrants to communicate with the Attendant as necessary to enable the Attendant to monitor their status and to order evacuation as necessary. Devices such as alarms, horns, radios, or hand signals may be used.

b) A means for entrants to alert the Attendant whenever the entrant recognizes any warning sign, symptom of exposure, or other dangerous situation.

c) A means for all entrants to exit from the Permit Required Confined Space as quickly as possible whenever:
   - an order to evacuate is given by the Attendant or the Person-in-Charge;
   - 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.

5.5.4 The Emergency Action Plan must provide for at least one Attendant who will remain outside the Permit Required Confined Space for the duration of entry operations. **This Attendant cannot perform any other duties other than to be an Attendant.** A Secondary Attendant must be designated on the Emergency Action Plan and be available to relieve the Attendant if the Attendant needs to enter the Permit Required Confined Space to execute rescue. The Secondary Attendant must either be available by radio or telephone and must be present at the site of entry prior to the Primary Attendant leaving.

5.5.5 Select the rescue procedures to be used based on the following and define the responsibilities of each worker. Document on the Emergency Action Plan that all workers understand these procedures and their responsibilities.

The plan should use non-entry rescue techniques if possible. Non-entry rescue does not require the Attendant to enter the confined space, nor does it require the presence of a fully trained rescue team. Non-entry rescue requires the use of equipment such as that outlined in **section 5.5.6.** The Person-in-Charge may authorize the use of equipment other than that outlined if that equipment can be shown to provide adequate protection of all authorized entrants.

Entry should be made through a side opening whenever possible. If entry cannot be made through a side opening, 3½ feet or less from the work level, top entry may be allowed by the Person-in-Charge.

Based on the direction of entry, determine the retrieval systems or methods to be used for non-entry rescue whenever an authorized entrant enters a Permit Required Confined Space. If the retrieval equipment would increase the overall risk to the entrant or would not contribute to the rescue of the entrant, the
Emergency Action Plan must reflect an alternate method of rescue without equipment. Such cases could include obstructions or turns that prevent pull on the retrieval line or where a person being rescued with the retrieval system would be injured because of forceful contact with projections in the space - also, if a supplied air line could not be controlled to prevent entanglement with the life line.

a) Entry Rescue by Independent Outside Service

- Where non-entry rescue plans are not practical, a rescue team must be available. Time should be the main consideration in deciding if an independent outside service is appropriate. Treatment for cardiopulmonary arrest should begin within four minutes to be effective. Atmospheric hazards which deprive a person of oxygen are life threatening after five minutes. Some hazards may kill faster than five minutes. Realistic response times must be considered when depending on entry rescue.

- The rescue team should be an independent outside rescue team where available. This could be the local fire department, specialized rescue service, or mutual aid rescue team of non-CPL members.

- The Person-in-Charge must inform the rescue service in advance of the hazards they may confront if called on to perform entry rescue at the facility prior to approving the Emergency Action Plan and the Confined Space Entry Permit.

- CPL must provide the rescue service with access as requested, to all Permit Required Confined Spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.

b) Entry Rescue by Other Personnel

If a rescue service is not available, a trained CPL or contract rescue team must provide rescue services. The following requirements apply to persons who enter Permit Required Confined Spaces to perform rescue services:

- Each member of the rescue team has the personal protective and rescue equipment necessary for making rescues from Permit Required Confined Spaces and is trained to use them properly.

- Each member of the rescue service is trained to perform the assigned rescue duties.

- Each member of the rescue service practices making Permit Required Confined Space rescues at least once every 12 months. Simulated rescue operations in which they remove dummies, mannequins, or actual persons from the actual Permit Required Confined Spaces or from representative Permit Required Confined Spaces fulfill this requirement. Representative Permit Required Confined Spaces must, with respect to opening size, configuration and accessibility, simulate the types of Permit Required Confined Spaces from which rescue is to be performed.
Each member of the rescue service is trained in basic first-aid, cardiopulmonary resuscitation (CPR) and blood-borne pathogens (BBP). At least one member of the rescue service holds a current certification in first aid and CPR.

5.5.6 Specify the type and amount of rescue equipment to be used. Rescue equipment must meet the following specifications unless otherwise noted on the permit:

- Each authorized entrant must wear a life line or a chest or full body harness (for top entry) with a retrieval line attached at the center of the entrant's back near shoulder level or above the entrant's head.
  
  o **Working without a life line must be approved on the permit by the Person-in-Charge and the alternate method of rescue outlined on the Emergency Action Plan. Wristlets may only be used in lieu of the chest or full body harness if it can be demonstrated that the use of a chest or full body harness is unfeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.**

- The life line must be at least one half (½) inch diameter high-tensile strength nylon rope of 5400 lb. test or equivalent strength cable.

- The other end of the retrieval line must be attached to a mechanical device or fixed point outside the Permit Required Confined Space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from all vertical-type Permit Required Confined Spaces more than five feet deep (four feet for Washington State).

- If appropriate, a portable or fixed emergency hoist must be mounted and ready for use. An air hoist is preferred; however, an electric hoist may be used. Electric motors must be suitable for the classification of the area. The hoist should be mounted in such a manner that a disabled authorized entrant will be visible at all times while being rescued. The hoist must lift the authorized entrant clear of the opening. Physical strength should not be depended upon for removing a disabled entrant.

- When entry into a confined space is made through the top or an opening that is more than 3½ feet above the work level, a three-point suspension harness which maintains a disabled authorized entrant in an upright position must be used.

5.5.7 Specify a procedure for emergency notification of the rescue team, e.g., telephone; radio, etc. (include all emergency numbers).

5.5.8 Specify a procedure for handling a medical emergency. For example, heart attack, burn, or other medical emergency.

5.5.9 Specify two emergency escape routes and assembly areas.
5.5.10 Specify a procedure for preventing unauthorized personnel from attempting a rescue.
  
a) When unauthorized persons approach or enter a Permit Required Confined Space while entry is underway, the Attendant must:
   - Warn the unauthorized persons that they must stay away from the Permit Required Confined Space (signs may be used);
   - Advise the unauthorized persons that they must exit the Permit Required Confined Space immediately; and
   - Inform the authorized entrants and the Person-in-Charge.

b) The Person-in-Charge must remove unauthorized entrants immediately.

5.5.11 A review of the plan with all entrants. Each person who is assigned rescue responsibilities must initial that they understand. Post the completed Emergency Action Plan and the completed permit at the entrance to the space.

   The Emergency Action Plan and permit may be placed on a clipboard at the entrance of the space, but must be visible and accessible to all entrants.

6.0 Roles and Responsibilities

6.1 Authorized Entrant(s)

The Authorized Entrants are responsible for:

- knowing the hazards that may be faced during entry, including information on the route of entry, signs or symptoms of overexposure such as behavioral effects, and consequences of the exposure;
- complying with all conditions and requirements of the Confined Space Entry Permit and in this procedure;
- assuring proper use of equipment; and
- alerting the attendant of changing conditions or other safety concerns.

6.2 Attendant

The Attendant is responsible for:

- knowing the hazards that may be faced during entry, including information on the route of entry, signs or symptoms of overexposure such as behavioral effects and consequences of the exposure;
- observing the area inside and outside the space to assure all the duties can be conducted safely;
• maintaining an accurate count and the names of the person(s) conducting the work in the confined space;

• communicating with authorized entrants to monitor entrant status and alert entrants of the need to evacuate if necessary;

• performing rescue (although not recommended and only permissible if relieved of primary duty as attendant) and emergency first aid as specified by the Emergency Action Plan (Emergency Action Plan section of the CPL Confined Space Entry Permit); and

• performing no duties that might interfere with the primary duty to monitor and protect the entrants.

6.3  Person-in-Charge

The Person-in-Charge is responsible for:

• knowing the hazards that may be faced during entry, including information on the route of entry, signs or symptoms of overexposure such as behavioral effects, and consequences of the exposure;

• defining personnel, equipment requirements and assigning duties for everyone involved in the entry operation. The Person-in-Charge may delegate these duties. The Person-in-Charge is required to be available on site (readily accessible - not necessarily at the space) at all times during the confined space entry;

• verifying that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit and the Emergency Action Plan are in place before approving the entry;

• assuring that operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained;

• terminating the entry and cancel permit if conditions warrant; and

• verify that rescue services are available.

7.0  Reporting Requirements

None
8.0 Documentation and Records Retention

8.1 Required Documentation

- A “Confined Space Workplace Evaluation Worksheet” will be used to document the confined spaces at our facilities.
- A "Confined Space Entry Permit" (CPL-684) is the means by which the Person-in-Charge specifies conditions and approves entry into confined spaces.

8.2 Workplace Evaluation

8.2.1 An evaluation of each facility must be conducted in order to identify all confined spaces. This evaluation should be an initial survey of the entire facility rather than one conducted at the time of confined space entry. See Appendix C, Confined Space Workplace Evaluation Worksheet.

8.2.2 Hazards (physical and chemical) must be identified and described for each confined space prior to entry, including any past and/or current uses of the space that could adversely affect its atmosphere, physical characteristics, configuration, location, and testing of the internal atmosphere.

8.2.3 The Confined Space Workplace Evaluation Worksheet will be used to document this required workplace evaluation and identification of all permit-required confined spaces.

8.2.4 A sign reading “DANGER – PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER” must be posted at each permit-required confined space. Signs are not required to be posted near unopened permit spaces which are bolted shut, (for example, tank man ways). However, permit spaces with easy access (for example, stairways to floating roof tanks; open man ways; opened valve box lids) must have signs posted at or nearby the entrance.

8.2.5 The workplace evaluation can be conducted with the assistance of the Regional Safety Specialist.

8.2.6 The Confined Space Workplace Evaluation Worksheet must be reviewed and updated on an annual basis.

8.3 Document Storage and Retention Time

The Confined Space Workplace Evaluation Worksheet must be kept for five (5) years at the appropriate office. This evaluation worksheet must be made available to all employees upon request. A copy of the evaluation must be posted on the appropriate office’s bulletin board.

The Confined Space Entry Permit must be kept for at least two years from issue at the appropriate office.
Appendix A – Glossary

Attendant

An individual stationed outside one or more Permit-Required Confined Spaces who monitors the authorized entrants and who performs all attendant's duties assigned in this procedure.

Authorized Entrant

Anyone, CPL employee or a contract personnel, who is authorized by CPL to enter a confined space. The Authorized Entrant is responsible to comply with all conditions and requirements on the permit. An Authorized Entrant may also be the Person-in-Charge.

Confined-Space

A space or area that meets all the following:

- Is large enough and so configured that an entrant could partially or completely enter, travel through to an assigned work area, and/or perform assigned work
- Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may limit means of entry)
- Is not designed for continuous occupancy

A confined space may lack adequate ventilation and may contain or produce dangerous air contaminants. It is not necessarily completely enclosed. It may be an area where air does not readily circulate to ventilate trapped contaminated air containing lighter than air gases, or where heavier than air gases may accumulate. Heavier than air gases may flow into low points and remain in ground depressions, open pits, and open holes. These gases can be dangerous if they are oxygen deficient, flammable, poisonous, toxic, or a combination of these conditions.

Examples of confined spaces include, but are not limited to:

- Closed or open tanks (including entry onto tank roofs);
- Vessels;
- Pits;
- Tank cars/trucks;
- Deep holes; and
- Compressor sub-flooring.

Contractor

A person who agrees to furnish materials or perform services at a specified price for construction. The person performing the work.
Emergency

Any occurrence (including any failure of hazard control or monitoring equipment) or event, internal or external, to the Permit Required Confined Space that could endanger the entrants (i.e. Persons Conducting the Work).

Engulfment

The surrounding and entrapment of a person by a liquid or fine substance that can be inhaled to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Entry

The action by which a person's head and/or whole body passes through an opening into a Permit-Required Confined Space. Entry includes work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry Rescue

The action by which a person passes through the opening into a permit-required confined space in which to rescue an injured or trapped entrant.

Hazardous Atmosphere

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

- Flammable gas, vapor, or mist in excess of 10% of the lower flammable limit (LFL);
- Airborne combustible dust at concentrations that meet or exceeds the LFL;
- Atmospheric oxygen concentration below 19.5 or above 23.5%;
- Atmospheric concentration of any substance for which a dose or permissible exposure limit (PEL) is published in OSHA and which could result in employees exposure in excess of its dose or PEL;
  - An atmospheric concentration of any substance that is not capable of causing death (i.e., incapacitation, impairment of ability to self-rescue, injury, or acute illness) due to its health effects is not covered by this provision.
- Any other atmospheric condition that is immediately dangerous to life or health
  - For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets (MSDS), published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.
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 by themselves from a confined space.

Isolation

The process by which a confined space is removed from service and completely protected against the release of energy and material into the space by such means as: Blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

Non-Permit Confined Space

A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. The Confined Space Entry Permit must be completed to document decisions made in determining classification.

Originator

The originator of the Confined Space Entry Permit is the person requesting permission to enter a confined space. This person is responsible for assuring necessary steps have been taken to eliminate the possibility of confined space injuries.

Oxygen Deficient Atmosphere

An atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen Enriched Atmosphere

An atmosphere containing more than 23.5 percent oxygen by volume.

Permit Required Confined Space

A confined space that has any of the following characteristics:

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

Person-in-Charge

The Team Leader responsible for the assets, or their designated CPL employee representative, or Qualified Person In Charge, that has overall responsibility for determining acceptable conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.
The Person-in-Charge cannot be a contractor; however, the Person-in-Charge can be a third party inspector who is acting as the Company representative.

- A Person-in-Charge also may serve as an Attendant or as an authorized entrant, as long as that person is trained and equipped as required by this procedure for each role he/she fills.
- The duties of the Person-in-Charge may be passed from one individual to another during the course of entry operations if recorded on the Entry Permit.

**Potential**

The possibility of a space containing or developing a hazardous atmosphere or other safety hazard. The history of the equipment or the activity to be performed in the space should be taken into consideration when determining if a potential exists.

**Qualified Third Party PIC Contractors**

A Contractor separate and distinct from the contractor performing the work, (or a third party who does not work for the contractor, but works directly on behalf of CPL) who has been trained in CPL applicable procedures, and understands the hazards, risks, exposures, and associated impact to operations from the activities in the facility.

**Requestor/Work Owner**

The person who selects, hires, or oversees the work of a contractor.

**Rescue Service**

Usually an outside company or agency (such as an ambulance, helicopter medivac, or contractor) that will be available (on-call or in attendance) to respond to a notification that assistance is required for performing rescue.

**Retrieval System**

The equipment (including a retrieval line, chest or full-body harness, and a lifting device or anchor) used for non-entry rescue of persons from a permit-required confined space.

**Safe for Entry with Ventilation**

The atmosphere in the space after ventilation is not expected to approach a hazardous atmosphere. This is necessary so that if the ventilation shuts down for any reason, the workers will have enough time to recognize the hazard and either exit the space or restore the ventilation. A guideline of 50 percent of the level of flammable or toxic substances that would constitute a hazardous atmosphere may be used to make the determination that atmospheric conditions are safe (i.e., 50% of 10% LFL is 5% LFL, 50% of 25 ppm PEL for carbon monoxide is 12.5 ppm, 50% of 5 ppm PEL for hydrogen sulfide is 2.5 ppm, etc.).

**Side Entry**

Entryways not more than 3½ feet above the level at which work is to be performed.
Testing
The process to identify and evaluate hazards in a confined space. Testing includes specifying the tests that are to be performed in the confined space. Testing enables the Person-in-Charge to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during entry.

Top Entry
Vertical Entry. Entryways more than 3½ feet above the level at which work is to be performed.

Ventilation
The process of removing or displacing contaminants from a space or, of supplying oxygen to an oxygen deficient atmosphere. There are two types of ventilation: Forced air dilution ventilation and local exhaust ventilation.
Appendix B – Confined Space Permit Form (CPL-684)

Use link (CPL-684) to get full document example shown below:

CPL - CONFINED SPACE ENTRY

<table>
<thead>
<tr>
<th>Conditions of the area or equipment existing prior to entry</th>
<th>Yes</th>
<th>No</th>
<th>Has the Hazard Identification Tool been used?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen deficiency</td>
<td></td>
<td></td>
<td>□</td>
<td>Engulfment</td>
<td>□</td>
</tr>
<tr>
<td>Combustible gas or vapors</td>
<td></td>
<td></td>
<td>□</td>
<td>Entrapment</td>
<td>□</td>
</tr>
<tr>
<td>Toxic gas or vapors</td>
<td></td>
<td></td>
<td>□</td>
<td>Chemical contact</td>
<td>□</td>
</tr>
<tr>
<td>Hazardous liquid residue present</td>
<td></td>
<td></td>
<td>□</td>
<td>Other Electrical/Mechanical/Physical</td>
<td>□</td>
</tr>
<tr>
<td>Material the Equipment Last Contained:</td>
<td></td>
<td></td>
<td></td>
<td>Other:</td>
<td>□</td>
</tr>
<tr>
<td>Atmospheric Monitoring is being recorded (Max: every 2 hours in HES 209 App B)</td>
<td>□</td>
<td>□</td>
<td></td>
<td>General Ventilation Equipment Operating</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Local exhaust ventilation located as near as practical</td>
<td>□</td>
</tr>
<tr>
<td>Equipment Out of Service</td>
<td>□</td>
<td>□</td>
<td></td>
<td>Ventilation equipment and non-conductive hose nozzle must be grounded and electrically bonded to the confined space.</td>
<td>□</td>
</tr>
<tr>
<td>Confined space purged/drain/ vacuumed</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
<td>□</td>
</tr>
<tr>
<td>Ignition sources eliminated</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
<td>□</td>
</tr>
<tr>
<td>Lock-Out / Tag-Out confirmed</td>
<td>□</td>
<td>□</td>
<td></td>
<td>Initial cleaning done from outside</td>
<td>□</td>
</tr>
<tr>
<td>Exposed energized electrical parts covered</td>
<td>□</td>
<td>□</td>
<td></td>
<td>Other:</td>
<td>□</td>
</tr>
</tbody>
</table>

Rescue Plan (Not allowed to use 911 as rescue plan)

- □ Non-Entry Rescue
- □ Entry Rescue by Public Outside Service
- □ Entry Rescue by Private Outside Service

Rescue Equipment Required to be on Site

- □ SCBA
- □ Safety Harness
- □ Lifeline
- □ Tripod
- □ Retrieval System
- □ Other: ___

Emergency Contacts (Not allowed to use 911 as emergency contact number)

- Emergency number: ___
- Ambulance: ___
- Fire Department: ___
- Police Department: ___

Means of Emergency Notification by Attendant: □ Alarm □ Verbal □ Horn □ Visual □ Radio □ Other: ___

Attendant Name and Signature: ___

Date & Time: ___

Date & Time: ___

Date & Time: ___

Date & Time: ___

Names of Authorized Entrants (use the back of sheet if needed)
Emergency Action Plan – Example

NOTE – many emergency rescue teams will use their own plan.
Post this document at the work site

Site/Location: ________________________________________________________________

Type of hazard within the Space. (i.e., fire, toxic gas, chemicals, hydrocarbons)
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Emergency notifications of the Attendant by the Entrants. Back up system for communication is required (Alarm, horn, radios)
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Rescue Procedures (Responsibilities assigned and understood by all workers. Initial after reasonability)
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Rescue Equipment on site – (SCBA, Safety Harness, life line, hoist or retrieval system, stretchers etc.)
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Emergency notification – Emergency Services
Ambulance Fire Police
Phone __________________ Phone __________________ Phone __________________
Radio __________________ Radio __________________ Radio __________________

Medical Emergency – Describe how you are going to handle an emergency such as a heart attack. or burn
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Appendix C – Confined Space Workplace Evaluation

General

An evaluation of each facility must be conducted by a qualified person in order to identify confined spaces. This evaluation should be an initial survey of the entire facility and associated systems and equipment rather than one conducted at the time of space entry.

Hazards must be identified and described for each confined space prior to entry, including any past and/or current uses of the space that could adversely affect its atmosphere, physical characteristics, configuration, location, and testing of the internal atmosphere.

The Confined Space Workplace Evaluation Worksheet is provided and should be used to assist in documenting this required workplace evaluation and identification of all permit-required confined spaces.

1. Does the workplace contain confined spaces?

   The space must meet all three of the following conditions:

   a) The space is large enough so a person can enter and work in the space, and

   b) Entry or exit into the space is restricted or limited (i.e., restricted includes ladders, man ways, crawl spaces, etc.), and

   c) The space is not designed for continuous occupancy.

2. If yes, enter the name/number of the location of the confined space in Column 1 (Tank #123, Valve box at MP 12.3, etc.).

3. Determine the types of hazards (actual and potential) for the confined space and check the appropriate boxes in Column 2.

Hazardous Atmosphere

An atmosphere that may expose employees to a risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following cause:

a. Oxygen Deficient Atmosphere - Any atmosphere containing less than 19.5% oxygen is an oxygen deficient atmosphere and presents a life-safety hazard (health or suffocation).

b. Oxygen Enriched Atmosphere - An oxygen enriched atmosphere is any atmosphere containing more than 23.5% oxygen at normal pressure. However, any concentration above 21% should be investigated, because oxygen enrichment can intensify the combustion process within the confined space.

c. Lower flammable limit (LFL) - An atmosphere that contains more than 10% of the lower explosive limit (LEL)/lower flammable limit (LFL) of a flammable substance must be considered a potential fire/explosion hazard.

d. Toxic gases and vapors - contaminants such as hydrogen sulfide (H₂S), which even in low concentrations can cause serious injury or death. Other types of toxic contaminants that may be encountered include, but are not limited to, carbon monoxide, carbon dioxide, sulfur dioxide, nitrogen, and dust.
e. Immediately Dangerous to Life or Health - Any atmospheric 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 by themselves from a confined space. Under IDLH circumstances special precautions will prevail and reassessment of precautionary measures is necessary.

Engulfment Hazards

The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated and 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.

Internal Configuration Hazards

The space is such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section.

External Hazards

a. Any mechanical or structural hazards;

b. Electrical shock;

c. Hazardous chemicals/residue;

d. Thermal extremes.

e. Other Physical or Health Hazards

4. Add any additional comments about the confined space in column 4. For example, any past used of the space that could adversely affect its atmosphere should be documented in this column.

5. Determine if warning signs are necessary

a. Whenever a permit space entrance is open, exposing workers to the hazards, danger signs must be posted near the entrance. Signs must include, but not be limited to, the following wording:

![DANGER Confined Space Enter by Permit Only](image)

b. Signs are not required to be posted near unopened permit spaces which are bolted or locked shut, (for example, those which can only be accessed through the use of tools or keys). However, permit spaces with easy access (for example, unlocked doorways, unbolted man way covers or easily removed/opened valve box lids) must have signs posted at or nearby the entrance.

c. Where applicable, appropriate exterior barriers should be placed in appropriate places to prevent an accidental fall through the opening and to protect employees working in the confined space from external hazards.