



Confined Space Entry CoW Technical Standard

Version	Date	Approver	
1.0	March 31, 2024	JO EHS	

Introduction

The Confined Space Entry standard is designed to help prevent illness and injuries to personnel, damage to property or adverse environmental impact when personnel are performing work in confined spaces.

Confined Spaces are defined as spaces large enough and so configured that personnel can bodily enter and perform assigned work, have limited or restricted means for entry or exit and are not designed for continuous occupancy.

This standard defines the requirements for Confined Space Entry.

Requirements

The following sections provide minimum requirements for Confined Space Entry as well as supporting guidance to clarify the intent of those requirements.

- Requirements of this Standard shall be met.
- Guidance in this Standard may be used as an aid to develop local documents that meet or
 exceed Control of Work (CoW) requirements. If examples are provided within guidance sections,
 they are not meant to represent the only acceptable means for meeting a requirement. WJO may
 develop or utilize other suitable methods not discussed in this document as long as the
 requirements are met. Implementation of guidance is not auditable.

1.

Requirement: Controls shall be in place to prevent unauthorized entry into confined spaces.

> a. Openings large enough to allow a person to enter a permit-required confined space and is readily accessible under normal conditions, shall be visibly identified as a confided space when the attendant is not present. (e.g., signage or other effective means of communication)

Guidance:

- a. When feasible, the entry opening should be closed, covered, and secured.
- b. When entrance openings cannot be closed and secured, openings should be guarded by a railing, temporary cover, or other temporary barrier that will prevent entry or an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.
- c. Signage should be affixed at the location, warning of the confined space. The following or similar text should be displayed on the sign:
 - "DANGER CONFINED SPACE, DO NOT ENTER".
- d. In facilities with similar, recognizable, or multiple confined spaces (such as storage tank facilities or workplaces with multiple manholes), WJO divisions may identify such spaces with facility signage.
- e. If a confined space has a locked entry cover or panel, or an access door that can only be opened with tools, the use of signs may not be required.

2. Requirement:

WJO shall identify and evaluate their confined spaces to determine those that are permit-required confined spaces.

> **Entries into Confined Spaces with Hazardous Characteristics shall require a Confined Space Entry Permit**

Guidance:

a. All confined spaces shall be considered permit-required confined spaces unless they have been evaluated as non-permit required, documented, risk assessed, and approved by the division.

3. Requirement:

A Hazard Analysis shall be conducted in accordance with the Hazard Analysis CoW Standard when planning work involving Confined Space Entry.

Guidance:

a. The Hard Analysis should include consideration of all viable alternatives to performing an entry, such as the use of mechanical tools to perform tank cleaning from outside the confined space in lieu of or before confined space entry.

4. Requirement:

The Hazard Analysis and/or CoW documentation shall address the following elements:

- a. Identification of significant potential hazards from task, space, and simultaneous operations (SIMOPS) in area.
- b. Internal configuration, obstructions, or unique hazards associated with the space (e.g., fall hazards, residues, and contaminants, etc.).
- c. Acceptable entry conditions (e.g., oxygen concentration, %LEL, toxics).
- d. Appropriate air ventilation (e.g., continuous forced, local exhaust, etc.).
- e. Verification of acceptable entry conditions for duration of entry (e.g., acceptable gas testing frequency).
- f. Positive Physical Isolation of hazardous energy in accordance with Isolation of Hazardous Energy CoW Standard.
- g. Equipment appropriately rated for the space to be used (e.g., electrical equipment rated for the area classification) and mitigating controls for such equipment as necessary (e.g., Hot Work permit).
- h. Specialized equipment (e.g., respiratory equipment, rescue equipment, ingress and egress equipment, etc.).
- i. Personal protective equipment (PPE) requirements.
- j. Heat stress safeguards (e.g., work/rest breaks, specialty PPE) as necessary.

Guidance:

a. Acceptable atmospheric entry conditions for entry without a breathing apparatus shall be as follows: LEL 0%, H2S
 5 ppm, O2 >19.5% & <23.0%

5. Requirement:

Permit Required Work Authorization shall be required for entry into Permit-Required Confined Spaces.

 Each WJO division shall determine the level of Work Authorization required for entry into Non-Permit Required Confined Spaces and/or Reclassified Confined Spaces.

Guidance:

- a. Refer to requirement 2 of this standard.
- b. Rescue Team, entry watch/attendant, rescue equipment, entry supervisor, and entry log requirements may be waived for non-permit required confined spaces if approved and documented by the division.

6. Requirement:

Gas testing shall be required prior to Confined Space Entry in accordance with the Portable Gas Detection CoW Standard.

- Authorized entrants and/or their representatives shall have the right to observe any gas monitoring/testing of Confined Spaces.
- If gas testing indicates changed conditions, work must stop, employees must evacuate the space and the space must be re-evaluated to address the changed conditions before work may resume.

Guidance:

Continuous Gas Testing is required during the entirety of the confined space entry activity as per Portable gas detection technical standard.

7. Requirement:

Additional controls shall be in place when work is performed in Permit-Required Confined Spaces including:

- a. A rescue team and appropriate rescue equipment
- b. Attendant
- c. Entry Supervisor
- d. Appropriate air ventilation
- e. Isolation of hazardous energy in accordance with the **Isolation of Hazardous Energy OE Standard**
- f. Entry log maintained

Guidance: A third party may be utilized to fulfill these roles.

Ventilation could potentially include natural ventilation, or forced air ventilation (power fans, eductors, air conditioning, portable air blowers, weld fume extractors, etc.).

8. Requirement:

Rescue plans shall be developed for Permit-Required Confined Space Entry. At a minimum, the rescue plans shall include the following:

- a. Rescue methods to be used in the following order of preference:
 - Self-rescue
 - Non-entry rescue using retrieval device.
 - **Entry rescue**
- b. Non-entry retrieval systems shall be utilized by authorized entrants (e.g., chest or full body harness with a retrieval line or wristlets).
 - If the system increases the overall risk of the entry, or does not increase the safety of the task, it is acceptable to waive the requirement.
- c. Means of communicating the need for rescue.
- d. Requirements that rescue personnel are trained, properly equipped, and follow established procedures specific to the potential hazards of the **Confined Space.**

- e. Availability of at least one member of the rescue team or service who is trained and competent in basic first aid and CPR.
- f. Ability of rescuer to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified.
- g. Provide the rescue personnel access to the space from which rescue may be necessary.
- h. Availability of mechanical devices to retrieve personnel from vertical spaces more than 5 feet (1.52 m) deep.
- Method to verify the competency of rescue personnel.

Guidance:

WJO should verify training and competency of rescuers prior to Confined Space Entry. Methods to verify competency could include training documents, drill records (training drill performed at a minimum annually), etc.

Rescue teams should be provided the opportunity to assess the physical confined space as necessary (potentially including entry) prior to the Confined Space entry work to be performed, as well as any other available information that may assist in developing the rescue plan (e.g., P&IDs, drawings, etc.).

WJO may have some of the above requirements listed in their Emergency Action Plan, training and competency process, COEM, or part of their permitting process. If the information is documented in another document, the information does not need to be listed on the Rescue Plan itself.

9. Requirement:

The following shall be met to reclassify a Permit-Required Confined Space.

- a. The characteristics that made the space a permit required confined space shall be eliminated.
- b. Work conducted within the confined space shall not create a hazardous atmosphere or condition.
- c. Affected personnel shall be notified that the space has been reclassified.
- d. Documentation, including updated hazard analysis, authorizing the space to be reclassified shall be approved.

If special hazardous characteristics arise in a reclassified confined space, all authorized entrants shall exit the confined space, and the space shall be reevaluated to determine how it will be classified.

10. Requirement:

Confined Space Entry work shall be stopped/suspended, and all authorized entrants shall exit the space in the following circumstances:

a. The attendant leaves the Confined Space Entry area without a qualified replacement.

- b. Entry conditions exceed acceptable limits or limits stated on the permit.
- c. There is a change in isolation points.
- d. There is an equipment failure.
- e. An order to evacuate is given by the attendant or entry supervisor.
- f. An authorized entrant recognizes any warning signs or symptoms of exposure.
- g. A facility emergency evacuation alarm is sounded.
- h. An incident and/or near miss occurs.
- i. Unexpected change of conditions or job scope
- j. Loss of communication between the entrant and attendant

Guidance:

The types of equipment that may fail include gas testing equipment, ventilation system, etc.

A remote attendant (attendant using camera-based technology) may still be considered an attendant.

11. Requirement:

Entry into inert atmosphere confined spaces shall only be allowed after alterative options have been evaluated and entry has documented approval by a WJO Area Manager.

- WJO Division shall develop specific inert entry procedures and controls that shall be implemented and followed.
- Specialized rescue plans shall be developed and followed.

Inert atmospheres require specialty sensors, especially lower explosive limit (LEL) including infrared sensors or dilution tubes shall be used.

• The qualified gas tester (QGT) shall ensure that inert testing is performed in a manner that properly characterizes the flammability of a confined space.

Guidance:

Documents such as *Chevron's Inert Entry Process, Inert Entry Safeguard Verification Checklist, and Inert Enty Plan Approval* sheet should be referenced when developing procedures and executing inert entry work.

During the planning phase and throughout the task, consider utilization of subject matter experts for inert entry including specialty contract companies.

12. Requirement:

Gas cylinders (with the exception of breathing air cylinders) shall:

- a. Not be taken into confined spaces.
- b. Gas cylinder valves shall be closed when not in use.
- c. Gas supply lines shall be removed from confined space or disconnected when not in use unless space

	Guidance:	is being continuously monitored for hazardous atmospheres. Small handheld cans such as dye penetrant, handheld propane torch, compressed air, etc. can be used with approval of permit issuer.
13.	Requirement:	Personnel conducting activities associated with Confined Space Entry shall meet the training and competency requirements that apply to their roles, in accordance with the Training and Competency CoW Standard.
14.	Requirement:	Documentation associated with Confined Space Entry shall adhere to the record retention requirements detailed in the Control of Work Process.
15.	Requirement: Guidance:	An annual documented review of the Confined Space Program shall be conducted to assess the need for program revision and/or Confined Space Entry execution improvement. This review should include permits from Permit-Required Confined Space Entries, interviews with personnel performing Confined Space Entries, verification and validation data, and representative samples of rescue plans. An annual documented review may be done in conjunction with an annual audit.

Appendix A: Terms and Definitions

Term	Definition	
Acceptable Entry Conditions	The conditions that must exist in a space to facilitate a worker's safe entry into and work within a confined space.	
Confined Space	A space that is:	
	 large enough and configured such that an employee can bodily enter and perform assigned work; and 	
	2) has limited or restricted means for entry or exit; and	
	is not designed for continuous occupancy.	
Confined Space Entry	The act of passing any part of a person's body through the opening into a confined space where the point of entry is large enough to allow full bodily entry. Entry is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into that space.	
CoW Documentation	Documents that are needed for work to proceed and that are accessible to all the affected personnel. Examples would include but are not limited to: work permits, hazard analysis, rescue plans, PPE matrix, etc.	
Reclassified Confined Space	A Confined Space that was previously classified as a Permit- Required Confined Space, that no longer contains special hazardous characteristics.	
Entry Log	A log that includes the name of the entrants and times they entered and exited the confined space.	
Hazardous Atmosphere	An atmosphere that may expose workers to the risk of death, incapacitation, impairment of ability to self-rescue, injury or acute illness.	
High-Level Approver	Person with the competency and authority to make a risk-based evaluation and determine whether proposed deviations from a CoW requirement and alternate controls adequately reduce risk and allow safe execution of work.	
	WJO will typically consider this to be the Division Team Leader or Superintendent, but this can be escalated up based upon the risk of the task, requirement, and/or deviation.	
Inert Atmosphere	An atmosphere consisting primarily of an inert gas such as nitrogen or carbon dioxide that is effectively oxygen-free.	
Non-Permit Required Confined Space	A Confined Space which does not contain special hazardous characteristics.	
Permit-Required Confined Space / Hazardous Characteristics	A space that meets all the criteria of a Confined Space and has one or more of the following characteristics (equivalent to the OSHA definition of a permit-required confined space):	
Onal acteristics	Contains or has the potential to contain potentially hazardous atmosphere.	

Term	Definition	
	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 that slopes downward and tapers to a smaller cross section; or 	
	Contains any other recognized serious potential safety or health hazard.	
	 A hazard defined as something that could cause harm or would interfere with the entrant's ability to perform self- rescue. 	
SIMOPS	Simultaneous Operations	

Appendix B: Roles and responsibilities

Role	Definition Roles and resp	Responsibilities
Authorized Entrant	Personnel trained and authorized to enter the specific confined space.	 Understands and adheres to permit conditions.
		Understands when to stop work.
		 Understands the work plan and the hazards involved.
		Always maintains communication with the attendant, per the agreed method.
		Logged on the tracking system when entering and exiting the confined space
Attendant	An individual stationed outside one or more permit-required confined space(s) who monitors	Controls access and egress of personnel into and out of confined spaces
	the authorized entrants. Attendants are also commonly referred to as an Entry Watch, Hole Watch, or Entry Attendant.	Maintains a documented log of personnel in the confined space.
		Monitors personnel and conditions inside the confined space
		Maintains communications with personnel inside the confined space.
		 Understands when to stop work and order evacuation of confined space.
		 Maintains awareness of potential hazards in Confined Space and their related effects
		Understands the planned work and emergency notification procedures.
		Remains outside the permitted confined space while personnel remain inside or until relieved by another attendant.
		Performs no duties that might interfere with the primary duty to assess and protect the authorized entrants
Entry Supervisor	The person responsible for determining if acceptable entry conditions are present in a confined space where entry is planned, for authorizing entry and overseeing entry operations and for terminating entry as required.	 Understands the planned work and emergency notification procedures. Supports and assists the Attendant. Monitors work in progress to verify conformance with procedures, permits and hazard analysis documents. Understands when to stop work

Appendix C: References

Internal References

WJO Control of Work CoW Process

WJO Hazard Analysis CoW Standard

WJO Work Authorization CoW Standard

WJO Training and Competency CoW Standard

External References

American National Standards Institute (ANSI) / American Society of Safety Professionals

(ASSP)

Z117.1 Safety Requirements for Confined Spaces

American Petroleum Institute (API)

Standard 2015 Safe Entry and Cleaning of Petroleum Storage Tanks

Australian Standards (AS)

AS 2865 Confined Spaces

International Association of Oil & Gas Producers (IOGP)

Report No. 577 Fabrication site construction safety recommended practices

Report No. 459 Life-Saving Rules

National Fire Protection Association (NFPA)

Guide for Safe Confined Space Entry and Work

Occupational Safety & Health Administration (OSHA)

OSHA 1910.146 Permit-required confined spaces
OSHA 29 CFR Part 1926 Confined Spaces in Construction
OSHA 1216.1208 Duties of Authorized entrants

OSHA 1926.1209 Duties of attendants

United Kingdom (UK) Statutory Instruments

1997 No 1713 Work in Confined Spaces

1997 No 3243 Management of Health and Safety at Work Regulations