	CONFINED SPACE ENTRY ALL-HSE-PRC-165	Retention Code: CG01 - CA
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Bullet points with a '!' indicate a critical step. Critical steps with respect to HRO is something that could have severe consequences if missed.

1.0 Purpose

The purpose of this Procedure is to meet regulatory Code of Practice (COP) requirements; it applies to all ConocoPhillips Canada (CPC) operations. Every worker involved in any aspect of a restricted or confined space entry must comply with the requirements and procedures of this Confined Space Entry COP.

See Appendices A and B for clarification on how to properly identify restricted and confined spaces.

This Confined Space Entry (CSE) COP is to provide guidance in:

- Recognizing, evaluating and preventing entrapment, engulfment and/or cave-ins and controlling potentially dangerous atmospheres in restricted/confined spaces that could result in injury.

Examples of restricted and confined spaces normally include, but are not limited to, the following:

- areas where access or egress is limited by piping, valves, surface substructures, ladders, etc.
- atmospheric storage tanks, ballast fuel
- excavations in excess of 1.5 m deep (1.2 m in BC/SK), sumps
- vessels, drums, towers
- boilers, reboilers, or exchangers
- tank cars or tank trucks
- fin fan/aerial coolers
- utilidors

NOTE: In British Columbia, a list of each confined space or group of similar spaces along with a hazard assessment of those spaces must be documented for each work site.

2.0 Hazards to Mitigate

Hazards that exist in the space, or that may be introduced, or could potentially arise, and any hazards adjacent to the space must be identified, evaluated and either eliminated or adequately controlled during the permit/hazard assessment process.

Hazards include, but are not limited to, the following:

- hazardous energy
- harmful substances
- hazardous location
- human factors
- hazardous atmosphere

3.0 Procedure-Specific Roles and Responsibilities

3.1. Permit Issuer

- Determine if the space is a restricted space or a confined space (by visual review of space, records or by using the flowchart in Appendix B).
- Ensure that applicable site-specific entry procedures are included with the permit.
- Identify and communicate concurrent and simultaneous work activities to all effected permit receivers and workers.
- Ensure all required information on the permit is complete and legible.
- Any other required permits, including, but not limited to, hot work are issued.

3.2. Permit Receiver

- A permit receiver must be assigned to supervise the work.

- Accept the permit and work assignment from the Permit Issuer and confirm the hazard assessment is completed.
- Understand the testing, preparation and precautions of the proposed work.
- Ensure workers have appropriate training by reviewing certificates and asking questions of the workers about the type of training completed and knowledge applicable to their role.
- Ensure that the Confined Space Entry Checklist has been completed for confined space entries and the Confined/Restricted Space Rescue Planning form completed for all confined and restricted space entries.
- Ensure all safety equipment and PPE is in good working condition.
- For the duration of the work in a restricted or confined space, remain on site with a copy of the hazard assessment and supervise the work.
- Ensure controls are in place to prevent unauthorized access at all times.

3.3. CPC Representative

- Provide oversight for the entry.
- Ensure planning requirements are complete and in place (refer to section 4.3).
- Ensure all aspects of the entry are covered by the permit and reviewed with all personnel involved.
- Ensure the space has been properly prepared for entry and required isolations are in place as listed.
- Ensure workers understand the hazards associated with the work area, how to eliminate/control them, and that workers entering spaces or designated as rescue personnel have valid training tickets.
- Ensure the work area is returned to a safe condition prior to closure of the permit.

3.4. Persons Entering Restricted/Confined Spaces

- Only authorized trained entrants are allowed to enter the space.
- Sign the permit/hazard assessment after reading and understanding its requirements.
- ! Comply with the conditions detailed in the permit and applicable site-specific entry procedures.
- Report any conditions or procedures that will impede implementation of the permit/hazard assessment requirements.
- Review the Confined Space Entry Checklist and/or Confined/Restricted Space Rescue Planning Form, as appropriate.
- Verify all required isolation is in place as determined by the hazard assessment and, if required, apply personal lock on to the lock box.

3.5. Confined Space Monitor

- Be competent to perform the Confined Space Monitor task and knows not to enter the confined space for any reason.
- A qualified monitor must be assigned for all entries.
- Must understand the emergency response process outlined in the Confined/Restricted Space Rescue Planning Form.
- Verify all required forms have been completed and reviewed with worker(s) entering the confined space.
- Must have a predetermined and effective means of communication with the rescue team and workers at all times.
- Must notify the rescue team when a confined space entry has been initiated and completed.

- Must not leave the area until all workers have left the confined space or another Confined Space Monitor is in place (i.e. cannot retrieve tools).
- Must keep track, at all times, of the names and number of workers inside the confined space.
- Must continually monitor workers in the confined space and have no other assigned duties that could interfere with their duties as monitor.

3.6. Restricted Space Monitor

- A qualified monitor must be assigned for all entries.
- Must understand the emergency response process outlined in the Confined/Restricted Space Rescue Planning Form.
- Must have a predetermined and effective means of communication with the rescue team and workers at all times.
 - For restricted spaces, the frequency of communication with workers inside space must not exceed 20 minutes.
- Must notify the rescue team when a restricted space entry has been initiated and completed.

3.7. Rescue Personnel

- Understand the hazards associated with the work area.
- Be on site and readily available to execute effective rescue of workers from restricted or confined spaces.
- Must be properly equipped.
- Must be competent to carry out rescue duties.

NOTE: In British Columbia, members of the rescue team must conduct a practice drill annually.

3.8. HSE Performance Assurance

- Administer the confined space entry program which will include:
 - Ensuring that a training and competency program is in place for confined space entries.
 - Within British Columbia, ensuring that a hazard assessment has been developed by a qualified person assigned by the area supervisor for:
 - Each confined space, or group of confined spaces which share similar characteristics, and
 - Work activity, or group of work activities which present similar hazards to be performed inside a confined space.

4.0 Procedure

4.1. Additional PPE Requirements

- Refer to the permit or hazard assessment for appropriate task PPE.

4.2. Additional Equipment

- Determine additional equipment requirements based upon the permit/hazard assessment and rescue plans.

4.3. Planning

- Complete a permit/hazard assessment (i.e. CSE permit) to eliminate hazards or take safety precautions to protect workers from the hazards.

- Prepare a Restricted/Confined Space Rescue Planning Form for all restricted and confined space entries.
- Ensure appropriate rescue equipment is readily available.
- Identify emergency response personnel responsible to carry out an effective rescue.

NOTE: In British Columbia, two people are required to be part of a rescue team.

- Ensure emergency response (including evacuation) process is communicated to workers.
- Identify appropriately trained personnel based upon the complexity of the rescue (e.g. high angle rescue, etc.).
- ! Isolate equipment, ventilate or inert space if required according to the Lockout/Tagout Procedure, the Positive Isolation Procedure, and the Purging Procedure.
- Communicate permit conditions and hazards to all affected personnel and have all workers trained to recognize changing hazards.
- Identify methods of communication and frequency of communication with workers in the space.
 - Workers within a confined space must be continually monitored.
 - For restricted spaces, the frequency of communication with workers inside space must not exceed 20 minutes.
- A pre-entry meeting should be held with all personnel entering or working in or adjacent to the space to discuss the work to be performed, job requirements and assignments, actual and potential hazards, and methods of eliminating or controlling the hazards as listed in the conditions on the permit.

4.4. Conduct Work

- In British Columbia an entry permit must be posted at each designated point of entry to the confined or restricted space entrance, or at least one designated point of entry, if the identification at other designated points of entry includes up-to-date information on whether it is safe to enter, and all workers authorized to enter are informed of the location of posted entry permit.
- In Alberta a copy of the entry permit must be kept readily available.
- Post the permit at the restricted or confined space entrance.
- Permit entry should not occur until all conditions for entry established on the permit have been met. If conditions change the permit should be cancelled, operations ceased, and the entrant should immediately exit the space.
- Use lifelines if required and if they do not create an additional hazard.
- In the event of an evacuation, the permit/hazard assessment must be re-issued and reviewed with all workers involved in the confined/restricted space.
- Restrict the number of workers in the space to the minimum required to do the job safely.

NOTE: A restricted space can become a confined space if conditions or work practices change.

NOTE: Each point of access into a confined space which is not secured must be identified by a sign or other effective means that indicates the hazard and prohibits entry by unauthorized workers.

NOTE: In British Columbia, if the restricted space requires lockout/tagout procedures to be followed for entry, the space must be managed as a confined space.

NOTE: In the event of weather related stand-downs (e.g. lightning) or a site emergency/muster, all confined space activities must cease.

4.5. Additional Requirements Specific to Confined Spaces

The following steps must be followed in addition to the requirements above for all confined space entry work on CPC worksites:

- Complete the Confined Space Entry Checklist.
- Post the permit/hazard assessment, Confined Space Entry Checklist and Rescue Planning Form at the confined space entrance.
- Assign responsibilities and duties to workers including a Confined Space Monitor. Check that workers have valid training for the roles they are assigned.
- Confined Space Monitor must check with workers in the space at the frequency defined in the site-specific plan.
- Pre-entry atmospheric testing of the entire space should occur no more than 20 minutes before a worker enters a confined space
 - A qualified gas tester must be assigned to do the atmospheric monitoring and clearance for entry.
 - Where 20 minutes is not practical due to vessel complexity or hazard assessment results, the required testing time must be indicated on the Confined Space Entry Checklist.
 - Record the testing results and any additional hazards noted on the permit/hazard assessment.
 - Testing must be done by a competent worker wearing appropriate PPE based on the hazard.
 - Testing should monitor the hazards based on the hazard assessment using the appropriate calibrated test instruments.
- ! Monitor the atmosphere to ensure the confined space does not become contaminated while the workers are in the space.

NOTE: In British Columbia, the atmosphere within a confined space must be checked not more than 20 minutes before a worker entering the space.

Re-test the space prior to re-entry:

- Once per work shift unless conditions change, or
 - Re-testing frequency must be identified on the permit and readings documented on the Confined Space Entry Checklist.
- If a worker entering the confined space requests an additional test.

NOTE: In British Columbia, a space must be rechecked when workers have vacated the space for more than 20 minutes.

- Personnel working in a confined space must wear a 4-head gas monitor, whenever practical.
- If a confined space cannot be freed of a hazardous atmosphere or any other serious health or safety hazard is identified and cannot be mitigated:
 - A harness with an attached lifeline must be worn by workers while in the confined space unless a risk assessment identifies that the use of a lifeline is impractical or unsafe.
 - Lifelines must be attended by another worker stationed outside the entrance to the confined space, who is equipped (with a tripod where a vertical lift may be required) and capable of rescue without entering the space.

NOTE: In British Columbia, for the cleaning and repairing of tanks, the following apply:

- If it is not practicable for a worker entering a confined space to use a lifeline due to internal piping or other obstructions, the worker must wear a full body harness.

- If a lifeline is not used, two workers must be equipped with respirators and capable of affecting a rescue if required, and stationed immediately outside the entrance to the confined space.

NOTE: If there is potential for the atmosphere to change unpredictably after a worker enters the confined space, the atmosphere must be continuously monitored.

4.5.1. Confined Space Entry with a Nuclear Gauge

The confined space entry is to be performed in accordance with written procedures acceptable to the Canadian Nuclear Safety Commission (CNSC) or a person authorized by the CNSC. In addition to the requirements above, the following control measures must be taken for all confined spaces fitted with radiation devices.

- Prior to entry, nuclear gauges must be identified, properly retracted into their respective shield, and locked out.
- The dose rate in the vessel must be measured near the vicinity of the nuclear gauge and recorded on the permit by a qualified person.
- If the dose rate within the vessel is greater than 2.5 $\mu\text{Sv/hr}$, do not enter the vessel and contact the Radiation Safety Officer (RSO) for further instructions.
- Workers entering the confined space must be aware of the nuclear devices and the dose rate.
- The worker's time in the confined space must be recorded on the permit.
- RSO must obtain a copy of the permit.

4.6. Positive Isolation

- Refer to the Positive Isolation Procedure and Lockout/Tagout Procedure, when isolating equipment is required. Record all isolation points related to the confined space entry.

NOTE: In British Columbia, a double block and bleed is not permitted if the adjacent piping contains a harmful substance that is a gas, vapor or liquid of sufficient volatility to produce a hazardous concentration of an air contaminant in the discharge of the piping.

4.7. Cleaning

- Follow the Purging Procedure, when required.
- When cleaning confined spaces, consider the nature of the product and residue; use the best and most practical method known.
- Take special precautions with sludge, hydrocarbons or pyrophoric deposits. They may cling to surfaces or hang up in internal components of vessel.

4.8. Ventilation

- ! Ensure the ventilation of the space remains adequate for the duration of the work.
- Mechanical ventilation must be used to manage a hazardous atmosphere where safe to do so.
- In British Columbia, where ventilation is used, it must be continuous.
- Methods other than ventilation must be used when ventilation is deemed unsafe during the permit/hazard assessment creation.
- In the event of mechanical ventilation failure, a method of alerting workers must be incorporated into the work plan and permit.

4.9. Inerting

- Inerting may only be used where it is not reasonably practicable to eliminate an explosive or flammable atmosphere within a confined space, through means other than inerting.
- Every worker entering a confined space that has been inerted must use supplied air or SCBA according to the requirements of the Respiratory Protection Code of Practice.

NOTE: In British Columbia, the Worker's Compensation Board must be notified in writing, and a copy of the proposed work procedures submitted at least 7 days before a worker enters a confined space which has been inerted. No entry is allowed until the Board's response has been received as per B.C. OHS regulation 9.29.

4.10. Communication

- Where normal voice contact is not possible, establish an alternative system of communication between the Confined/Restricted Monitor and the workers in the confined and restricted space before entry, and maintain this contact at all times.
- Communication between the entrant and the monitor and the monitor and rescuer, if required, must be established and checked ahead of time.

4.11. Emergency Response and Rescue

- A Confined/Restricted Space Rescue Planning Form must be completed and include procedures to take in case of an accident or other emergency.

NOTE: Contractor rescue planning forms may be used if bridged against the CPC form content and requirements.

- The space must be evacuated when an alarm is activated, the oxygen content is not between 19.5%–23.0% or there is a significant change in the amount of hazardous substances in the space.
- ! Suitably equipped and trained rescue personnel must be informed of their role in the confined space entry and must be on site, readily available to carry out effective rescue from the confined space. Rescue personnel must be notified when the entry is complete.
- Rescue personnel must not enter a confined space unless there is at least one additional worker outside of the space to provide assistance.

4.12. Hot Work

- For all hot work activities, follow the Hot Work Procedure.
- Continuous atmospheric monitoring is required for all hot work in confined spaces.

4.13. Electrical Equipment

- When work is being performed in a vessel that has a damp or wet environment, all electrical equipment used in the vessel must be protected by ground-fault circuit interrupters (GFCI).
- Where GFCI circuits are not easily installed, allowances may be made for approved portable in-line GFCI devices.
- In confined spaces where there is a possibility of flammable vapors, gases or dust, ensure all electrical equipment, lights and plug-in receptacles used are explosion proof and that plugs and receptacles are located in a non-hazardous location. Follow the Hot Work Procedure.

4.14. Temporary Heating

- Place heaters outside the confined space and run the hot air into the space through ducts. To prevent redirecting any harmful or noxious exhaust gases into the confined space, vent heaters in accordance with the manufacturer’s instructions. Do not use direct-fired heaters that discharge exhaust gases with the heated air. Follow the Hot Work Procedure if heaters are to be used in a classified area.

5.0 References

- Alberta OH&S Code, Part 5 Confined Spaces
- British Columbia OH&S Code, Part 9 Confined Spaces and Part 23 Oil and Gas
- Saskatchewan OH&S Code, Part XVIII Confined Space Entry
- Confined Space Entry Checklist (ALL-HSE-FRM-2033)
- Confined/Restricted Space Rescue Planning Form (ALL-HSE-FRM-2034)
- Purging Procedure (ALL-HSE-PRC-182)
- Positive Isolation Procedure (ALL-HSE-PRC-181)
- Respiratory Protection Code of Practice (ALL-HSE-PRC-151)
- Radiation Safety Policy and Procedures Manual (SUR2-AOA-00-OPM-OPR-0030)
- Ventilation procedure (ALL-HSE-PRC-152)
- ConocoPhillips Life Saving Rules

6.0 Document Retention

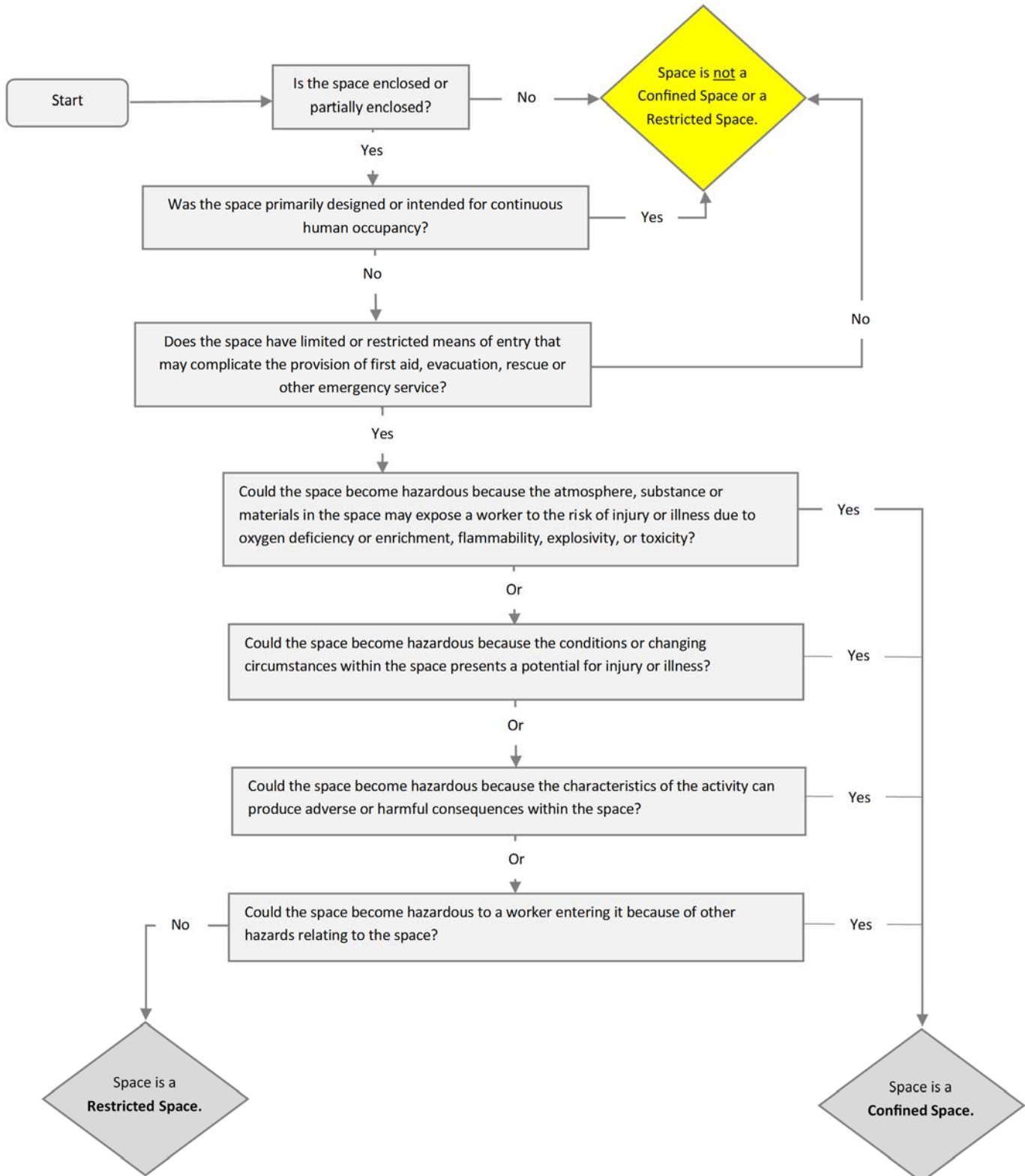
Records must be retained in accordance with ConocoPhillips’ Document Retention Schedule.

Record	Owner	Classification	Retention
Confined Space Entry Checklist	Business Units	HE11 - CA	2 Years
Confined/Restricted Space Rescue Planning Form	Business Units	HE11 - CA	2 Years

Appendix A – Definitions

Confined Space	<p>An enclosed or partially enclosed space, not primarily designed or intended for continuous human occupancy, that has a restricted, limited or impeded means of entry or exit which may become hazardous to a worker entering it because:</p> <ul style="list-style-type: none"> • the atmosphere, substance or materials may expose a worker to the risk of injury or illness due to oxygen deficiency or enrichment, flammability, explosivity, or toxicity; • the conditions or changing circumstances within the space presents a potential for injury or illness; or • the characteristics of the activity can produce adverse or harmful consequences within the space. <p>A worker is considered to have “entered” a confined space when the worker’s breathing zone crosses the plane of the confined space.</p>
Harmful Substance:	<p>A substance that, because of its properties, application or presence, creates or could create a danger to the health and safety of a worker exposed to it.</p>
Hazardous Energy:	<p>Includes electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, thermal, gravitational or any other form of energy that could cause injury due to the unintended motion, energizing, start-up or release of such stored or residual energy in machinery, equipment, piping, pipelines or process systems.</p>
Hazardous Location:	<p>A place where fire or explosion hazards may exist due to flammable gases or vapours, flammable or combustible liquids, combustible dust, ignitable fibres or flyings as described in the <i>Canadian Electrical Code</i>.</p>
Human Factors:	<p>A variety of factors may affect a worker’s ability to perform work in confined spaces such as phobias, temperature tolerance, physical fitness, physical ability or fatigue.</p>
Restricted Space	<p>An enclosed or partially enclosed space, not primarily designed or intended for continuous human occupancy, that has a restricted, limited or impeded means of entry or exit which may complicate the provision of first aid, evacuation, rescue or other emergency response service. Restricted spaces are generally work areas in which the only hazard is the difficulty of getting into or out of the space.</p>

Appendix B – Determining Confined and Restricted Spaces



Appendix C – Revision Record

Section	August 30, 2016	Previous Information	Change Assessment
3.3	<ul style="list-style-type: none"> • Removed duplication of having responsibilities mentioned within 2 different sections of the procedure. • The role has been summarized. • All information was already captured in section 4.3. 		Low – no new requirements
3.5 and 3.6	Safety Watch has been renamed to Confined Space Monitor and Restricted Space Monitor <ul style="list-style-type: none"> • Requirements for each role has been identified 	Safety Watch role was the same for both confined space entry and restricted space entry.	Low – terminology is in line with training; clarity provided for each role
4.3	Changed wording to provide clarity: <ul style="list-style-type: none"> • on when to prepare a Confined/Restricted Space Rescue Planning form. • that an emergency response process must be communicated to workers • identify appropriately trained personnel based on the complexity of the rescue 		Low – wording changes only
All	Reviewed for HRO alignment.		Low