



CONFINED SPACE

SWS #19000-001

Effective Date: June 30, 2015

Next Review Date: June 2020

Area: SCEP

Document Owner: EH&S Group

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SCOPE AND PURPOSE

The purpose of this Standard is to identify and communicate Suncor St. Clair Ethanol procedures, processes and work practices which are implemented to mitigate potential hazards associated with confined spaces. Standards pertaining to the management of other potential hazards associated with the confined space may also apply. The purpose of this standard is also to ensure compliance with regulatory requirements applicable to confined space entry.

This standard applies to all St. Clair Ethanol Plant (SCEP) directors, officers, employees, contractors, subcontractors, consultants and agents of SCEP and any deviation to this standard requires approval through the SCEP Management of Change (MOC) process.

1.0 Roles and Responsibilities

The following are positions with assigned responsibilities for work involving identification, assessment and control of risks associated with confined space entries

Environment, Health & Safety Team Lead is responsible for:

- the development and maintenance of the Standard in compliance with regulatory requirements
- supporting implementation of the Standard
- Assisting in identifying confined space equipment and devices required to support safe execution of the entry
- Oversee coordination of training of employees
- Assisting in the maintenance of records and documents pertaining to this Standard
- Ensuring that non-conformances with the Standard and/or the law are subject to appropriate corrective action
- Monitoring the effective implementation of this Standard through the OBS program and procedural audits

Discipline Managers (Operations, Maintenance, Technical) are responsible for:

- ensuring that confined spaces have been identified (in their area of responsibility as part of the work planning process), adequately assessed and all reasonable precautions taken to test, verify conditions and control access through procedures and plans developed for safe entry and rescue
- ensuring that hazard identification and associated controls have been evaluated through the planning process, that permit issuers are aware of the confined spaces in their area and that controls have been established and implemented through the safe work permit, confined space assessment and other applicable standards
- Providing technical assistance to support the consistent implementation of this Standard as it relates to work in their area of responsibility
- Assisting the Planner in identifying and scoping the work.
- Developing adequate control measures and procedures to mitigate hazards associated with confined spaces
- Accurate completion of [the Isolation and/or Blind Blank Installation List](#) to ensure the safe isolation of the space
- Ensuring that employees, contractors, and subcontractors adhere to requirements
- Ensuring that employees under his/her supervision are adequately trained and competent to perform the work
- Ensuring that non-conformances with the Standard are subject to appropriate corrective action
- Monitoring the effective implementation of this Standard through the OBS program and procedural audits

Shift Supervisor & Area Operators (Permit Issuer) are responsible for:

- Providing operations technical oversight and work authorization when implementing the Standard and other associated Standard(s) (i.e. safe work permit, hazardous energy isolation) to support confined space entries,
- Assisting the Planner, where appropriate, in completion of the [Confined Space Assessment and Planning Form](#)
- Completing the [Confined Space Assessment and Planning Form](#) where appropriate
- Review the contents of all confined space documentation ([Confined Space Assessment and Planning Form](#), [Rescue Plan](#), [Isolation and/or Blind Blank Installation List](#), [Atmospheric Monitoring Log](#), [Confined Space Entry Daily/Shift Plan Form](#)) for accuracy versus field conditions
- Completion and communication of the Confined Space Entry Daily/Shift Plan and associated activities
- Developing adequate control measures and procedures to mitigate hazards associated with confined spaces
- Accurate completion of [the Isolation and/or Blind Blank Installation List](#) to ensure the safe isolation of the space
- Conducting (and/or overseeing) the scope and execution of the opening of the confined space and initial gas testing, including assessment of additional hazards and implementation of controls associated with the opening and initial gas test (first break) to verify the atmospheric conditions of the entire confined space(s) before authorizing entry if the opening and initial gas test does not require breaking the plane (Section 2.1)
- Leading Pre-entry meeting and conducting with all workers affected by the entry utilizing the [Confined Space Entry Daily/Shift Plan Form](#) to guide discussion and ensure requirements outlined in the [Confined Space Assessment and Planning Form](#), [Confined Space Rescue Plan](#), [Confined Space Contractor Addendum](#), the Safe Work Permit and all associated documentation are communicated and implemented. For confined spaces where initial gas testing activities require entry into the confined space (Section 2.1) – the scope of the initial gas test will be included in all confined space documentation and pre-entry meeting discussions and subject to all permitting. The initial gas test will be executed before any other work associated with the confined space is permitted via the safe work permit
- Ensuring that employees, contractors, and subcontractors adhere to requirements
- Ensuring that employees under his/her supervision are adequately trained and competent to perform the work
- Ensuring that non-conformances with the Standard are subject to appropriate corrective action
- Monitoring the effective implementation of this Standard through the OBS program and procedural audits

Planner(s) are responsible for:

- Stewarding the review and completion of the [Confined Space Assessment and Planning Form](#) and development of safe entry and rescue procedures based on assessment of the hazards in consultation with operations, maintenance, contractors and rescue personnel.
- Completion and submission to affected personnel of the [Contractor CSE Addendum Form](#) to support entries involving more than one work group
- Accurate review of [the Isolation and/or Blind Blank Installation List](#) to ensure the safe isolation of the space when responsibility is delegated by the Discipline Manager
- Providing technical assistance to support the consistent implementation of this Standard
- Consulting with other SCEP staff, contractors, and subcontractors in meeting the requirements of this Standard and the law
- Assisting in identifying confined space equipment and devices required to support safe execution of the entry
- Ensuring that non-conformances with the Standard and/or the law are subject to appropriate corrective action and support investigation activities
- Monitoring the effective implementation of this Standard through the OBS program and procedural audits

Instrument Department are responsible for:

- Issuing bump tested gas monitors within calibration date to Shift Supervisors and Area Operators and maintain a record of gas tester maintenance

Contractors & Subcontractors are responsible for:

- Training and verification of competence of all contract personnel affected by confined space work at the site
- Oversee work activities to ensure that all hazards associated with the work are properly identified, communicated and mitigated
- Ensure Safe Work Permits generated for confined space(s) have a clear reference to, are retained with, and workers comply with requirements outlined in all relevant confined space documentation ([Confined Space Assessment and Planning Form](#), [Rescue Plan](#), [Isolation and/or Blind Blank Installation List](#), [Atmospheric Monitoring Log](#), [Confined Space Entry Daily/Shift Plan Form](#))
- Provide adequate supervision to ensure hazards at the job site are properly identified, communicated and controlled in compliance with requirements and the law
- Provide and properly use/maintain equipment and devices required to support safe execution of the work
- Adhering to, and effectively carrying out the requirements of this Standard and the law
- Promptly reporting issues, hazards, and non-conformance relating to this Standard to the Supervisor
- Ensuring that non-conformances with the Standard and/or the law are subject to appropriate corrective action and support investigation activities

Permit Receivers are responsible for:

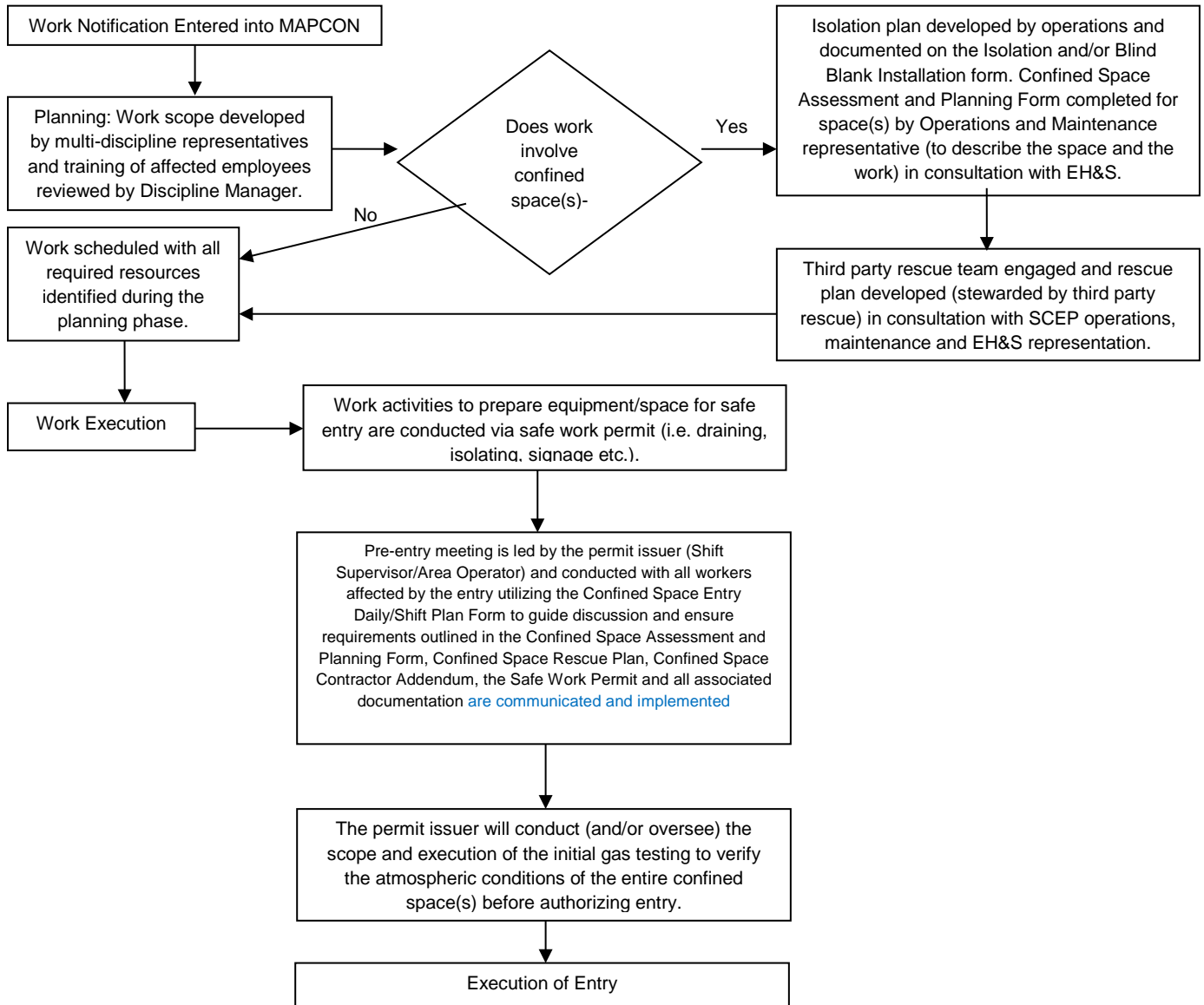
- Assuming the duties and responsibilities of a supervisor as defined under the Ontario Occupational Health and Safety Act.
- Ensuring competency, understanding and communication with all hazard mitigation controls and equipment associated with the work to affected personnel
- Review the scope of work with the permit issuer and ensure both parties fully understand the scope of and agree to the work to be performed (including area preparation etc), as well as the potential hazards and associated control measures required to mitigate.
- Fully document, communicate and implement potential hazards and associated controls utilizing the appropriate medium (i.e. [Safe Work Permit](#), [confined space assessment and planning form](#), [task analysis safe card \(TASC\)](#))
- Have knowledge of, understand and comply with all requirements of the Safe Work Permit and associated documentation. Apply signature to the permit and associated documentation to formally acknowledge this understanding
- Prior to conducting entries, ensure rescue personnel are deployed at the site as agreed to and communicated via review of the rescue plan
- Post the Safe Work Permit and all associated documentation ([Confined Space Assessment and Planning Form](#), [Rescue Plan](#), [Confined Space Entry Daily/Shift Plan Form](#) etc.) in a practical location at the work site. Please note that the [Isolation and/or Blind Blank Installation List](#) must remain with the permit issuer following review
- Provide adequate supervision to ensure hazards at the job site are properly identified, communicated and controlled in compliance with requirements and the law
- Ensure Shift Supervisors/Area Operators are immediately notified of a change in conditions and/or scope of work to allow for evaluation of permit validity.
- Upon completion of work return all documentation to the Shift Supervisor/Area Operator (permit issuer)

Attendants are responsible for:

- Remaining at the entrance of the confined space and maintaining communication (via medium agreed to on the [Confined Space Assessment and Planning Form](#)) with the entrant at all times
- Maintain communications with SCEP operations personnel via radio
- Don a reflective vest
- Conduct and record continuous gas monitoring results on the atmospheric monitoring log
- Record the each entrants entry and exit on the [Confined Space Attendant Log](#)
- Immediately notify operations via radio in the event of an emergency
- Following the completion of the entry apply the “Danger: confined space entry by permit only” sign and/or red danger tape before leaving the entry point

2.0 Confined Space Identification and Assessment

Figure 1: Confined Space Workflow



2.1 Identification of a Confined Space

Confined Space — a fully or partially enclosed space:

- a. That is not both designed and constructed for continuous human occupancy, and;
- b. In which atmospheric hazards may occur because of its construction, location or contents or because of the work that is done in it

Atmospheric Hazard:

- a. The accumulation of flammable, combustible or explosive agents
- b. An oxygen content in the atmosphere that is less than 19.5 per cent or more than 23 per cent by volume; or
- c. The accumulation of atmospheric contaminants, including gases, vapours, fumes, dusts or mists, that could:
 - i. Result in acute health effects that pose an immediate threat to life; or
 - ii. Interfere with a person’s ability to escape unaided from a confined space

During work scope development the definition of a confined space and associated requirement for entry are to be evaluated by the multi-discipline planning team.

Table 1: Confined Space Evaluation – please note that activities to prepare a vessel for work (isolated, drained, blanked etc.) must not be included in the evaluation activities. The space must be evaluated as it is normally operated

It is fully or Partially Enclosed	It is designed and constructed for continuous human occupancy	An atmospheric hazard might occur (because of construction, location, contents or work done in it)	Confined Space
Yes	Yes	Yes	No
Yes	No	No	No
Yes	Yes	No	No
Yes	No	Yes	Yes
No	No	No	No
No	Yes	No	No
No	No	Yes	No
No	Yes	Yes	No

A confined space entry and associated work planning documentation is required if at any time, any part of a workers head, neck or shoulder are required to break the plane of the confined space entry, which has not been subjected to inert purging, to complete any portion the work scope.

For spaces subject to inert purging, a confined space entry and associated work planning documentation is required if at any time, the workers is required to be within one meter of the confined space entry point. Additionally, confined spaces subject to inert purging may require a Management of Change to be led by the Discipline Manager overseeing the work as inert purging is not a common practice at the site. The Discipline Manager will determine if existing work place planning activities adequately address the risk.

For work associated with confined spaces that do not require “breaking the plane”, hazard evaluation and controls for the work must be reviewed, defined and implemented as part of the work planning and safe work permitting process.

2.2 Confined Space Assessment and Planning

Once a confined space entry is identified during the work planning process, the Discipline Manager overseeing the work is responsible to ensure that a competent confined space Planner is identified and engaged, along with a representative from each discipline (EH&S, maintenance) to support the development of a comprehensive confined space entry plan utilizing the [Confined Space Planning and Assessment Form located at P:\Operations\Confined Space Entry](#).

The minimum personnel engagement required to support confined space entry and rescue plan(s) development are outlined below.

- Confined Space Planner (Operations representative with current confined space training and experience)
- Maintenance representative (identified by discipline manager)
- Third Party Contractor representative (if applicable)
- Safety and Hygiene Advisor
- Third Party Rescue

Each representative may be consulted separately, or as part of a collaborative meeting.

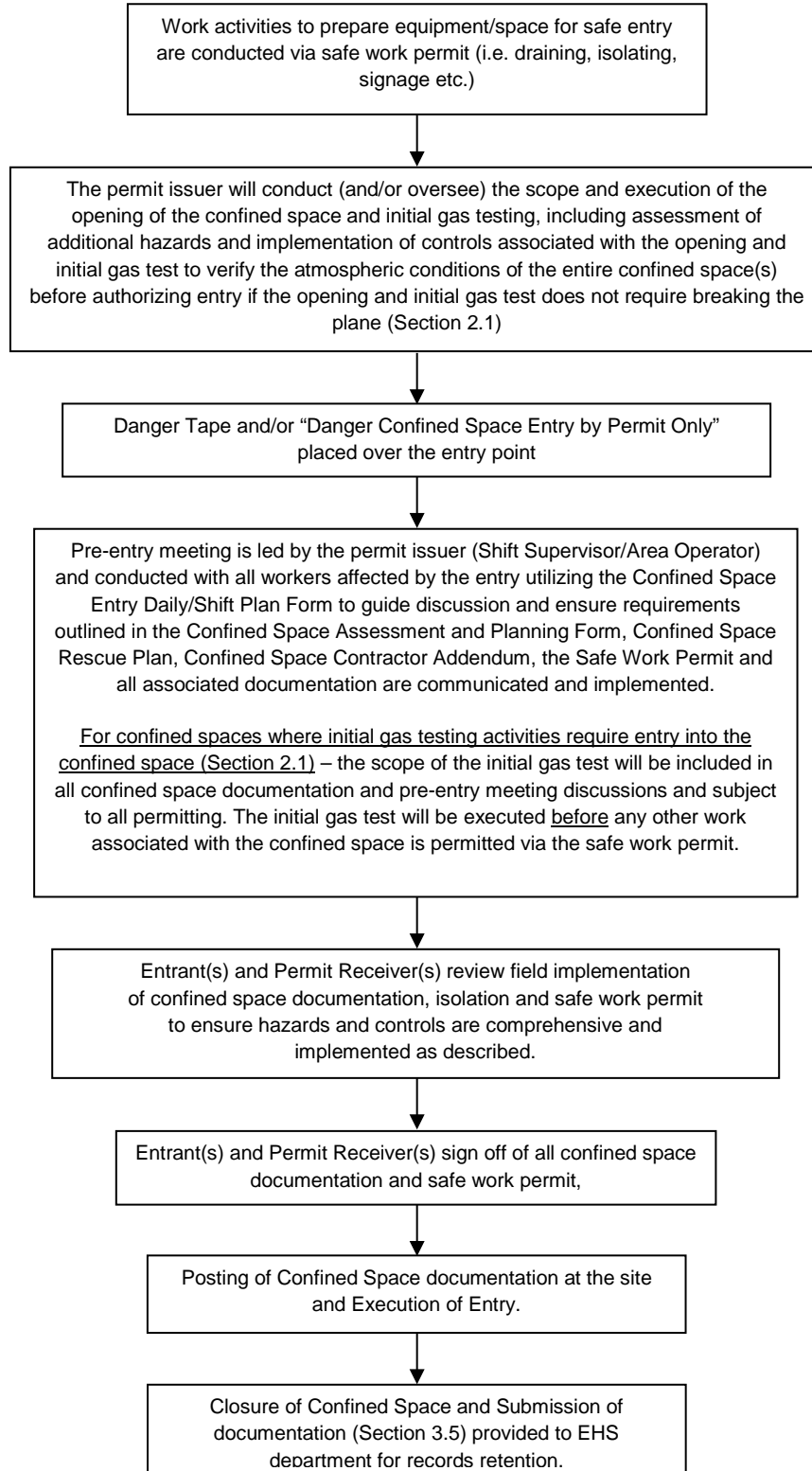
If the entry includes entrants from more than one employer, than the [Contractor CSE Addendum Form](#) must be completed and included in the confined space documentation package. The Confined Space Planning and Assessment Form facilitates the systematic evaluation and documentation of the key areas of assessment by providing key items for consideration for each of the following components associated with the entry;

- Description of the work to be conducted
- Hot/Cold Work
- Initial Area Preparation
- Ventilation
- Isolation – forms [located at P:\Operations\Isolations](#)
- Description of the Space
- Sign Posting
- Initial and Continuous Gas Testing
- Fire Prevention/Protection
- Access/Egress
- PPE requirements
- Tools
- Additional Hazards created by work activity, Other Hazards
- Weather
- Attendant –PPE/Radio
- External Assistance
- Entrant/Attendant – Communication, Attendant/Rescuer – Communication
- Rescuer/Control Room
- Emergency Preparedness
- Entrants Training
- Emergency Response

Existing Confined Space Assessments and Planning Forms completed for spaces shall be reviewed before each entry by the multi-discipline team to ensure accuracy.

2.3 Execution

Following the completion of all steps described in Section 2.2 Confined Space Assessment and Planning, the work flow is described below;



2.4 Training

General Awareness

All employees will be provided a copy of this Standard and all forms referenced within as part of general orientation activities.

All contractors receive the Suncor St. Clair Ethanol “Site Safety Orientation” which defines minimum training requirements for personnel affected by confined space entry at the site

Planners shall have a minimum of three years operations experience at the Suncor St. Clair Ethanol facility which includes the development and implementation of Isolation and/or Blind Blank Installation List, Confined Space Entry, Safe Work Permitting in addition to being trained at the Industrial Education Cooperative (IEC) or other certified training facility and have current certification for the following;

- Confined Space — recertification every 3 years
- Working at Heights (fall arrest) — recertification every 3 years
- Respiratory Fit Test — recertification every 2 years

Discipline Managers and *Supervisors* affected by Confined Space Entries shall be familiar with this standard in addition to being trained at the Industrial Education Cooperative (IEC) or other certified training facility and have current certification for the following;

- Confined Space — recertification every 3 years
- Working at Heights (fall arrest) — recertification every 3 years

Permit Issuers shall be trained and deemed competent as a Shift Supervisor, and/or Area Operator at the Suncor St. Clair Ethanol facility which includes the development and implementation of Isolation and/or Blind Blank Installation List, Confined Space Entry, Safe Work Permitting in addition to being trained at the Industrial Education Cooperative (IEC) or other certified training facility and have current certification for the following;

- Confined Space — recertification every 3 years
- Working at Heights (fall arrest) — recertification every 3 years
- Respiratory Fit Test — recertification every 2 years
- Gas Tester Training – recertification every 5 years

Entrants shall be competent to conduct the work, familiar with the contents of the completed [Confined Space Assessment and Planning Form](#), [Rescue Plan](#), [Isolation and/or Blind Blank Installation List](#) (hazardous energy control competency related to application of locks), [Atmospheric Monitoring Log](#), [Confined Space Entry Daily/Shift Plan Form](#) in addition to being trained at the Industrial Education Cooperative (IEC) or other certified training facility and have current certification for the following;

- Confined Space — recertification every 3 years
- Working at Heights (fall arrest) — recertification every 3 years
- Respiratory Fit Test — recertification every 2 years
- **IEC Basic Safety (BSO +) — required one time for SCEP permanent employees, with an exemption for employees with 3 or more years of experience at the Suncor St. Clair Ethanol facility effective January 1, 2016**

Attendants shall be competent to conduct the work, familiar with the contents of the completed [Confined Space Assessment and Planning Form](#), [Rescue Plan](#), [Isolation and/or Blind Blank Installation List](#) (hazardous energy control competency related to application of locks), [Atmospheric Monitoring Log](#), [Confined Space Entry Daily/Shift Plan Form](#) in addition to being trained at the Industrial Education Cooperative (IEC) or other certified training facility and have current certification for the following;

- Confined Space — recertification every 3 years
- Working at Heights (fall arrest) — recertification every 3 years
- Respiratory Fit Test — recertification every 2 years
- Gas Tester Training — recertification every 3 years

Rescuers shall be competent to conduct the work, familiar with the contents of the completed [Confined Space Assessment and Planning Form](#), [Rescue Plan](#), [Isolation and/or Blind Blank Installation List](#) (hazardous energy control competency related to application of locks, [Atmospheric Monitoring Log](#), [Confined Space Entry Daily/Shift Plan Form](#) in addition to being trained at the Industrial Education Cooperative (IEC) or other certified training facility and have current certification for the following;

- Confined Space — recertification every 3 years
- Working at Heights (fall arrest) — recertification every 3 years
- Respiratory Fit Test — recertification every 2 years

2.5 Documentation

Confined Space documentation [located at P:\Operations\Confined Space Entry](#)

Confined Space Assessment & Planning Form

Rescue Plan

Isolation and/or Blind Blank Installation List located at [located at P:\Operations\Isolations](#)

Atmospheric Monitoring Log

Confined Space Entry Daily/Shift Plan Form

Contractor CSE Addendum

Safe Work Permit

2.6 Records

Completed Confined Space Assessment and Planning Forms and all associated documentation will be retained for a minimum of two years or the most recent entry – whichever is longer.

SCEP employee training records will be retained by the SCEP Training Coordinator

2.7 Definitions

Adequate — when used in relation to a procedure, plan, material, device, object or thing, means that it is:

- a. sufficient for both its intended and its actual use; and
- b. sufficient to protect a worker from occupational illness or occupational injury

Acceptable atmospheric level

- a. the atmospheric concentration of any explosive or flammable gas or vapour is less than the percentages specified in O. Reg 632/05-Confined Spaces
- b. the oxygen content of the atmosphere is at least 19.5 per cent but not more than 22.5 per cent by volume
- c. the exposure to atmospheric contaminants does not exceed any applicable level set out in the confined space regulations, Table 1 made under Ontario's Occupational Health and Safety Act

Assessment — an assessment of hazards with respect to one or more confined spaces in a workplace

Attendant — a worker outside a confined space who is competent to provide assistance to workers occupying the confined space and who is able to summon assistance in order to initiate a rescue of such workers if required

Competent person — a person who:

- a. is qualified because of knowledge, training and experience to organize the work and its performance;
- b. is familiar with this Act and the regulations that apply to the work; and
- c. has knowledge of any potential or actual danger to health or safety in the workplace

Cold work — work that is not capable of producing a source of ignition

Confined space — a fully or partially enclosed space:

- a. that is not both designed and constructed for continuous human occupancy; and
- b. in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it

Emergency work — work performed in connection with any unforeseen event that involves an imminent danger to the life, health or safety of any person

Entrant — the worker(s) entering the confined space

Hot work — work that is capable of producing a source of ignition (e.g. welding, cutting, brazing, grinding, chipping, etc.). Work involving non-intrinsically safe equipment

Lead employer — an employer who contracts for the services of one or more other employers or independent contractors in relation to one or more confined spaces that are located:

- a. in the lead employer's own workplace, or
- b. in another employer's workplace; ("employeur principal")

Passive ventilation — the movement of fresh air into a space through the use of natural air movement

Permit Issuer — Operations personnel in primary care and control of the affected equipment (i.e. Shift Supervisors and Area Operators) that are competent and responsible to review work scopes, confirm work activities are safe, define controls and, if safe to do so, issue permits

Planner — The competent worker responsible for the planning of work associated with the confined space. The Planner, for the purposes of this Standard, is the person involved in assessing hazards and planning work that is to be done in a confined space.

Plan — an adequate written plan for one or more confined spaces which includes procedures for the control of hazards identified in the confined space Hazard Assessment, and which has been developed and implemented by a competent person

Program — a program for safe entry into one or more confined spaces that includes:

- a. consultation with the Joint Health and Safety Committee;
- b. a method for confined space hazard recognition and assessment;
- c. a method for developing and implementing one or more entry plans;
- d. a method for general training;
- e. an entry permit system;
- f. communication with all affected workers, JHSC's and contractors

Purging — displacing contaminants from a confined space and may include using an inert gas in some situations to reduce the risk of a fire or explosion inside or outside the space.

Related work — work that is performed near a confined space in direct support of work inside the confined space

Safe atmosphere — an atmosphere that has an oxygen content of at least 19.5% but not more than 23% by volume, and an atmosphere where the atmospheric concentration of an explosive or flammable gas does not exceed 5% of the lower explosive limit (LEL) or 10% of the lower flammable limit of the gas or vapour.

Safe Work Permit — A Safe Work Permit is a written record that authorizes specific work, at a specific work location, for a specific time period. Permits are used for controlling and coordinating work to establish and maintain safe working conditions. They ensure that all foreseeable hazards have been considered and that the appropriate precautions are defined and carried out in the correct sequence. The permit is an agreement between the issuer and the receiver that documents the conditions, preparations, precautions, and limitations

that need to be clearly understood before work begins. The permit records the steps to be taken to prepare the equipment, building, or area for the work, and the safety precautions, safety equipment, or specific procedures that must be followed to enable the worker(s) to safely perform the work.

Sample — an individual reading of confined space monitoring that reflects the composition of the atmosphere in the confined space

Test — a collection of samples, and may include a printout of continuous monitoring results of the atmosphere in a confined space

References

- Occupational Health & Safety Act
- O. Reg. 632/05 Confined Spaces
- O. Reg. 833-Biological or Chemical Agents
- O. Reg 490/09 Designated Substances
- Regulations for Industrial Establishments
- Construction Regulations
- CSA Z1006-Management of Work in Confined Spaces

END OF PROCEDURE

REVISIONS			
No.	Date (mm/dd/yyyy)	Author	Description
0	02/03/2016	L. Nauta	Updated for format and numbering
1	08/31/2016	L. Nauta	Removed redundant sections and aligned Roles and Responsibilities to reflect workflow