Confined Space Entry Program

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Contents

1.0 Introduction

1.1 Purpose/ Scope

HSPP is committed to ensuring standardized acceptable practices are utilized to maintain the highest level of worker safety while performing tasks in a potentially hazardous environment.

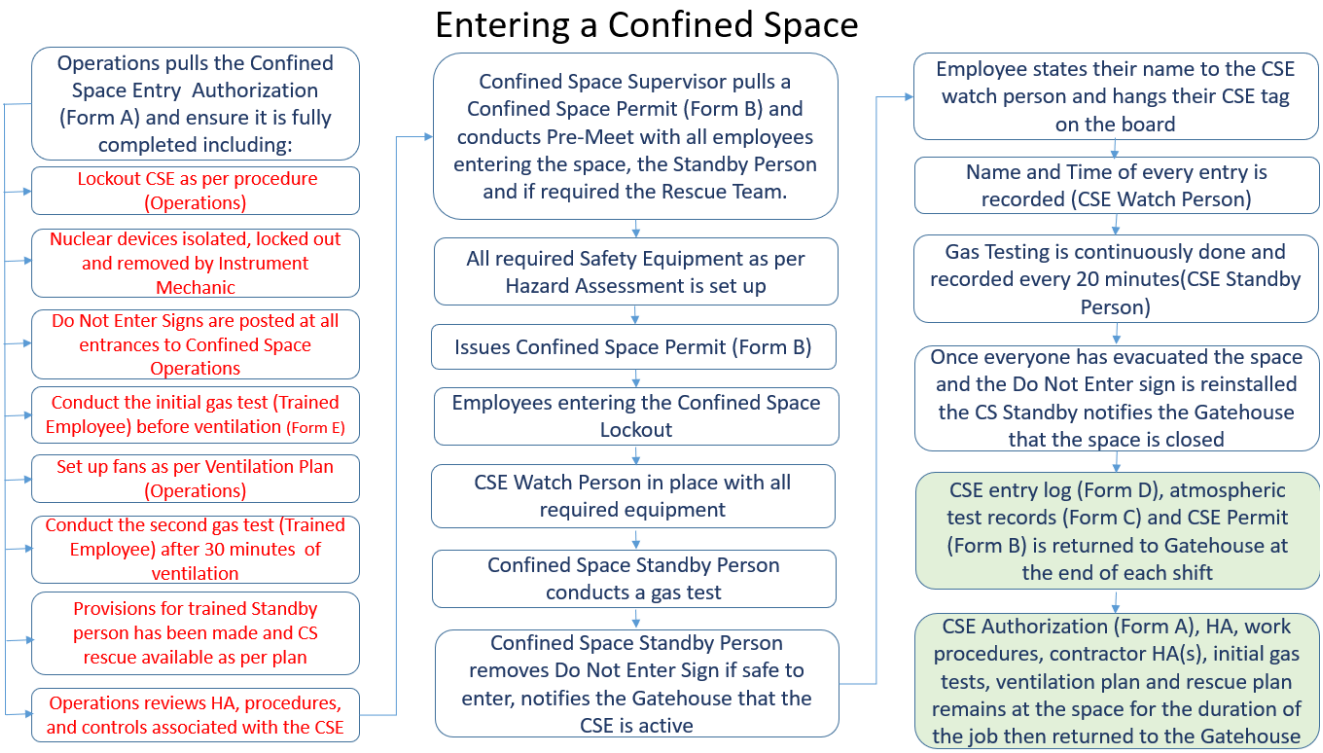
This specification outlines requirements that must be in place for any HSPP employee, contractor, or consultant to enter a confined space.

1.2 Relevant OHS Legislation

For more information on Confined Spaces, please refer to the following on the WorkSafeBC web site: WorkSafeBC

- *WorkSafeBC Occupational Health and Safety Regulation,* Part 4.13, Emergency Preparedness and Response
- *WorkSafeBC Occupational Health and Safety Regulation*, Part 9, Confined Spaces
- *WorkSafeBC Occupational Health and Safety Regulation,* Part 10, De-Energization and Lockout
- *WorkSafeBC Part 5 Chemical and Biological Substances*
- *WorkSafeBC Table of Exposure Limits*
- *WorkSafeBC Part 11 Fall Protection*
- *WorkSafeBC Minimum Requirements by Hazard Rating*
- *W*orkers Compensation Act
  - Section 115 - General Duties of an Employer
  - Section 116 - General Duties of Workers
  - Section 117 - General Duties of Supervisors
  - Section 118 - Coordination at Multiple-Employer Workplaces
  - Section 120 - General Duties of Suppliers

1.3 Process Overview Flow Chart



2.0 Responsibilities

2.1 Employer – HSPP

- Responsible for overall development, implementation and management of the Confined Space Program.
- Ensure the development, implementation and practice of an appropriate emergency response capability for any type of emergency that could occur in a confined space.
- Assign a knowledgeable Confined Space Program Administrator (CSPA) for implementing the confined space program.
- Ensure all confined spaces are identified by a competent person and a complete site wide inventory is created.
- Ensure all necessary equipment, training, supervision and qualified personnel have been provided for any confined space that requires entry.
- Ensure hazard assessments are completed by a qualified person or group of persons.
- Ensure a system is in place and effective to:
    - Have qualified person(s) assess every confined space that requires entry based on hazards of the space and task(s)
    - Provide contractors with any known confined space hazards and required entry procedures.
    - Ensure contractors have competent supervisors and only allow trained personnel to enter confined spaces at HSPP sites.
    - Ensure Standby persons are trained and competent in all duties required by this role.

2.2 Confined Space Program Administrators (CSPA) – Safety Manager

- Administers the confined space program.
- Trained in confined space entry and rescue requirements.
- Develops and implements this program in conjunction with the Joint Occupational Health and Safety Committee.
- Ensures the following confined space documentation is up-to-date and available to all interested parties:
    1. Confined Space Inventory;
    2. Hazard assessments based on space and task.
    3. Safe entry procedures based on space and task.
    4. Permits – retained for at least one year.
    5. Training records;
        a. Qualified persons
        b. Supervisors
        c. Entrants
        d. Rescue personnel
        e. Standby
- Ensures a consistent delivery of confined space training through the training department.
- Reviews and coordinates ongoing need for confined space training with supervisors.
- Answers questions on mill wide basis regarding confined space (i.e. systems questions) and ensures a consistent approach to confined space entry.
- Maintains a system to ensure all mill wide entry equipment is maintained and /or calibrated according to the manufacturers specifications.
- Ensures a training program for Standby Persons is provided through the training department.
- Conduct periodic spot checks or inspections of confined space entries to ensure:
    - Confined space system is working.
    - Permits are completed and effective.
    - Hazard assessments are completed by a qualified person or group of persons and comprehensive of all hazards for that entry.
    - The intent of the regulations is being upheld.
- Ensures this program is reviewed at a minimum every 3 years or if changes are made to the WorkSafe BC Confined Space Legislation.

2.3 Operations (Supervisors / Superintendents)

- Operations is responsible for the development of all documents and overall implementation of this Confined Space Program, along with all required WSBC Regulations pertaining a confined space, or group of similar spaces, to be entered under their control.
- Must be trained in all requirements of confined space entry.
- Responsible for safe opening (see Confined Space Entry AUTHORIZATION form) and the safe closing of confined space assigned to them.
- Answers questions on specific confined spaces, under their control, to be entered.
- Ensures coordination with emergency responders, as needed, for the space to be entered.
- Authorizes entry in coordination with the Confined Space Supervisor (CSS).
- The role of Operations is to coordinate all work within a confined space from HSPPs perspective.

2.4 Confined Space Supervisor (CSS)

- Must be trained in all requirements of confined space entry.
- Review emergency and rescue procedures prior to entrants entering.
- Confirms de-energization and isolation of confined space has been completed as per lockout procedure.
- Confirms a hazard assessment has been completed for the space and task(s) to be done in the space.
- Confirms that a Confined Space Entry Procedure has been completed for the space and task(s) to be completed.
- Reviews hazard assessments and safe entry procedures.
  - Asks questions to Operations as needed for clarification.
- Completes a pre-meet with all entrants prior to entry. This should include:
  - Hazards of space
  - Specific controls to mitigate hazards noted in hazard assessment for space and specific work activities.
  - Lock-out or isolation procedures required for space
  - Personal Protective Equipment required in space
  - Rescue plan and means of rescue that will be used, if needed
  - Introduction to Standby person
  - Method for two-way communication with Standby person
  - How to initiate rescue plan
- Ensure Entrants and Hatch Watch (Standby/Outside Person) are competent, knowledgeable, and understand their duties and requirements in this program, including atmospheric testing as required.
- Ensures Hatch Watch Person has effective two-way communication with the entrants and knows how to initiate rescue and obtain emergency assistance.
- Ensure Hatch Watch person knows what gas monitoring is required for the space.
- Ensures permit and confined space entry procedure(s) are present at the entrance to the space.

- Ensures only trained and authorized workers enter the confined space,
- That all entrants are trained and knowledgeable in the hazards of confined space.
- Authorizes entry in coordination with Operations.
- Has ongoing communication with Operations.
- Ensures that completed permits are closed and filed with the Gatehouse.

2.5 Members of the Joint Occupational Health and Safety Committee (JOHSC)

- The Confined Space Sub-Committee on an annual basis will review the Confined Space program and bring any recommended changes to the JOHS Committee. The JOHSC will recommend the changes, and if all JOHSC members agree, a recommendation will be made to both Union Executive and Management.

2.6 Contractors-includes Subcontractors

- Contractors may include but are not limited to workers that are hired to do any or all work required to construct, maintain, or demolish company equipment or assets.

- Contractors may perform work in confined spaces. Contractors must be advised of the conditions and provided with hazard details of the confined space that they are required to enter. Contractors shall be responsible to:

  - Ensure all workers are adequately trained prior to entry.

  - Complete the HSPP contractor orientation including the Confined Space and Lockout sections, as required.

  - Assign a trained and competent Confined Space Supervisor (CSS) for the space.

  - Inform their employees of the hazards associated with the confined spaces and other hazards in the vicinity of their workspace that may pose a risk.

  - Follow HSPP confined Space Entry procedures or submit written site specific or confined space site-specific work procedures to HSPP Confined Space Entry Program Administrator, Project Coordinator and/or Health and Safety Manager or Superintendent.

  - Ensure that hazard assessments have been completed for all confined spaces being entered and that they are included with the CSE package located at the entrance to the confined space.

  - Ensure all workers have in their possession all required PPE to enter the confined space.

  - Submit to HSPP Confined Space Entry Program Administrator and/or the contractor' contact person a list of chemicals or products (under the Hazardous Substance Act) to be used in the confined space.

  - Conduct a pre-meet with entry supervisor, entrants, hatch watch personnel and rescue personnel (if required to remain at the space), as required and document using the Confined Space Pre-entry Meeting Permit.

- Upon request, provide a copy of their confined space entry program to HSPP Confined Space Entry Program Administrator, Project Coordinator and/or Health and Safety Manager or Superintendent for review before performing any confined space activities.
- Ensure supervisors have adequate training to supervise workers entering confined spaces.
- Ensure that the necessary equipment and resources are provided for confined space work.

2.7 Entrants

- Must be trained in Confined Space Entry.
- Must review lockout procedure and hang personal lock(s) on Lockout Board or other Isolation points (when applicable).
- Must attend the Pre-Meet for space prior to entry to understand:
  - Hazards of the space
  - Controls required to ensure safe entry
  - Lock-out or isolation procedures required
  - Personal Protective Equipment required
  - Rescue plan and means of rescue that will be used
  - Introduction to Standby person
  - Method for two-way communication with Standby person
  - How to initiate rescue plan
- If entrant is not at the original pre-meet, they must meet with the Qualified Entry Supervisor to review the Pre-Meeting Checklist
- Must check in with the Standby Person and must have placed/removed your Confined Space Entry Tag on the board, EVERY time you enter and exit the Confined Space.
- Persons must only enter confined spaces when all safety measures or hazard controls and documentation have been completed to protect the safety of all workers involved. Entry must only be made at the designated point and under the control of the Hatch Watch (Outside Person).
- Exit from the confined space shall be at the same point/location as entry unless it is unsafe or pre-authorized at the pre-meet. If a person exits the confined space from a different point than that designated, he or she **must** advise the Hatch Watch, (if being utilized), stationed at the entry point of where and why exit was made at a different location. The Hatch Watch (Outside Person) will note this in the permit so further consideration can be made in future entries.
- Must stay alert and communicate with Standby Person any hazard or changing condition noticed in the space.
- Must immediately exit the confined space when:
  1. Monitor alarm(s) sounds;
  2. Ordered by Standby person;
  3. They perceive they are in danger;
  4. They notice behavioral or physiological changes in themselves or coworkers (e.g., dizziness, blurred vision, shortness of breath, headaches, giddiness).
  5. Communication is lost with Standby Person.
  6. Controls stop working (i.e. ventilation stops when it is needed to control for safe entry).

2.8 Hatch Watch (Stand-by) Person Responsibilities

UNDER NO CIRCUMSTANCES SHALL THE STANDBY PERSON ENTER THE SPACE EVEN FOR EMERGENCY RESCUES.

- Must be trained in confined space entry and CSE Standby Person training.
- Reviews the rescue plan in place and understands how to initiate emergency response.
- Has complete authority of the space to do any of the following the Standby Person feels necessary:
  - Shut down a space
  - Deny entry
  - Evacuate the space
- Remains alert to changing conditions, inside and outside the space, that might affect the conditions inside the space.
- Must understand the calibration process in order to understand instrument setup and performance and be trained to perform field calibration or calibration check.
- Ensures that the entrant(s) doing the work and all support personnel adhere to the Confined space entry procedures and permit requirements.
- Ensures that measures are in place to keep unauthorized personnel and equipment clear of the area.
- Ensures the confined space is secured during temporary absences (i.e. lunch breaks).
- Maintains an entry log with a count of all persons in the confined space and ensures that all entrants sign in / sign out.
- Maintains continuous 2-way communication with confined space entrants.
- Notifies the Gatehouse or the CSE Standby Supervisor during major shutdowns (Kraft and Power Boiler)
  - Prior to entry that the entry will begin.
  - After work is completed.
- Must maintain effective communication with the Gatehouse.
- Orders entrant(s) to evacuate the confined space if he/ she:
  - Observes a condition which is not allowed on the entry permit;
  - Notices the entrants acting strangely, possibly as a result of exposure to a hazardous substance or oxygen deficiency;
  - Notices a hazard which had not been previously identified;
  - Must leave his/ her workstation;
  - Loses communication with confined space entrants.
- Keeps unauthorized persons out of the confined space.

UNDER NO CIRCUMSTANCES SHALL THE STANDBY PERSON LEAVE THE AREA WITH THE CONFINED SPACE OPEN FOR ENTRY.

2.8.1 Hatch Watch (Stand-by) Person Duties

The location and function of the Standby person(s) differs depending on whether the confined space has a moderate, or high hazard atmosphere.

In all cases, regardless of hazard level, the Standby person must:

- NEVER enter the confined space;
- Read and understand the written procedures for the space;
- Have a means (normally a radio, phone or air horn) to immediately summon help in the event of an emergency;
- Ensure 2-way communication with persons entering the space are functioning properly before anyone is permitted to enter the space;
- Keep track of everyone entering or exiting the space;
- Direct everyone to leave the space when she/he believes there is a threat to safety;
- Continue his/her function until relieved by another qualified and authorized person;
- Complete atmospheric testing and record on the entry permit.
- Ensure the “Do Not Enter” sign or Red barricade tape is posted/ reposted whenever the confined space is vacated and remains accessible (i.e. hatch open).
- Ask the last person to leave the space to visually or verbally check that no one else is in the space.

2.8.2 Moderate Hazard Atmosphere for Two Spaces

The Standby person must be located at or near the entrance. When a confined space with a moderate hazard atmosphere is entered:

- A Standby person can watch two spaces at once **providing** an assessment has been conducted and approved by two members of the Confined Space subcommittee, one from Unifor and one from Management, and the following conditions are met and maintained.
  - Standby person must stay within 20 feet of the entry
  - Confined Space Entrances must be on the same floor
  - Must be able to monitor both spaces from one location
  - Can not have more than 6 people combined in both spaces
  - Entrants must only be able to enter and exit each space from one location
  - Cannot be a high hazard Confined Space
- A qualified person must be assigned to be the Standby person;
- A Standby person must be stationed at or near the entrance to the space;
- The Standby person must visually observe or otherwise check on the well-being of the people inside the space, as often as may be required by the nature of the work to be performed, but at least every 20 minutes;

- There must be a continuous means of summoning the Standby person from inside the space; and
- The Standby person must have a means to immediately summon rescue personnel (if required).

2.8.3 High Hazard Atmosphere

The Standby person must be located at or near the entrance. They can have no duties other than checking the well-being of entrants inside the space. When a confined space with a high hazard atmosphere, a risk of engulfment or entrapment or with any other recognized serious health or safety hazard is entered:

- A trained and knowledgeable person or persons must be assigned to be the Standby person.
- A Standby person must visually observe or otherwise continuously monitor the well-being of the entrants inside the space;
- There must be a continuous means of summoning the Standby person from inside the space;

Additional rescue people must be stationed at the entrance to the confined space and these people must be fully equipped and capable of entering the space and performing rescue immediately.

2.9 Rescue Team Members

PRIOR TO WORKER ENTRY

a) Rescue services must have:
   - A minimum required rescue personnel on site that is identified on the rescue plan.
   - Adequately trained, qualified and equipped rescue personnel
   - Capability of rescue

b) Ensure effective 2-way communication with Standby person

c) Must have a rescue plan for the confined space.

d) Provide qualified and equipped emergency rescue personnel for high hazard entries to immediately effect rescue as per the rescue plan.

ENTRY

a) Follow isolation procedures and lock onto isolation, as needed, prior to rescue.

b) Ask the Standby person for number of people in confined space.

c) Record all information pertaining to rescue e.g. closest point of access, directions, muster point.

d) Record number of continuous monitors if applicable.

e) Determine and communicate requirement to evacuate entry(s) if necessary.

f) Initiate rescue plan when necessary.

g) Be responsible for the rescue of workers from within a confined space.

2.10 Gatehouse Staff

- Are responsible for the calibration and bump tests of the portable gas monitors.
- Will remove any defective portable gas monitor from service until repairs can be made
- Download the information from the portable gas monitors and make available any reports required.
- Notifies the Rescue Team prior to the start and upon completion of any confined space. (During a shutdown, it will be assumed that confined spaces are open at all times).

3.0 Confined Space Training Requirements

Refresher training required annually for all persons involved in confined spaces.

3.1 Persons Assigned Confined Spaces Duties

All persons who are assigned duties or responsibilities related to entry into a confined space must be adequately instructed and trained in:

- Review of Confined Space Policy and Program
- The hazards of confined space;
- Entry procedure requirements (general);
- The precautions identified in written procedures to properly perform their duties.

All Standby persons in this category will have confined space training provided. This training will include:

1. Review of Confined Space Policy and Program;
2. Hazards of confined space;
3. Gas monitoring;
4. Entry procedure requirements (general);
5. Standby person duties.
6. Initial training will also include one-on-one shadowing to demonstrate practical knowledge.

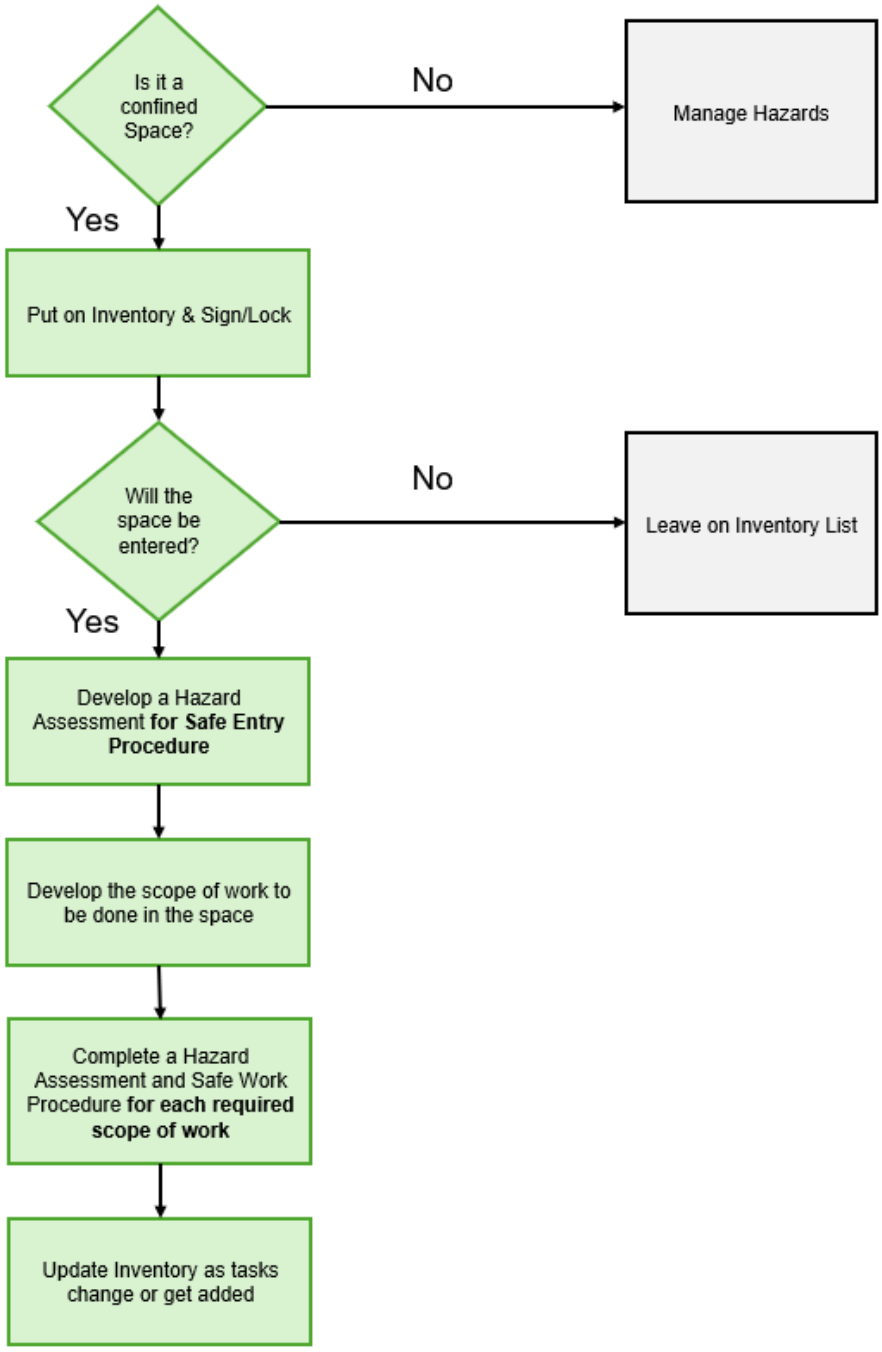
3.2 Rescue Persons

Every person assigned rescue duties must be properly equipped and adequately trained to carry out such duties. Duties include:

- All training as outlined above in 3.1 “Persons Assigned Confined Space Duties”
- Specific rescue training as required including:
  - Equipment;
  - Limitations;
  - Rescue plans.

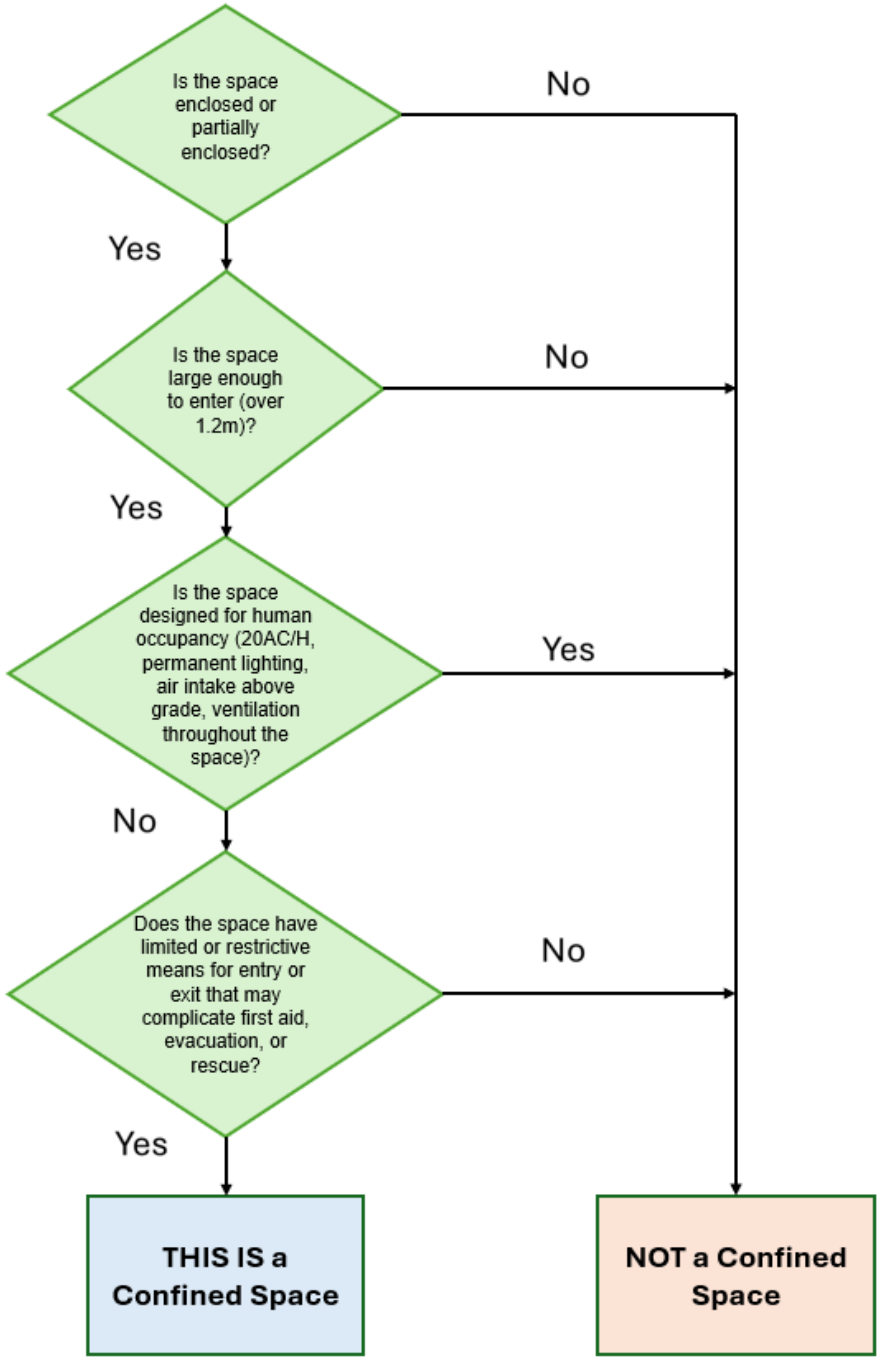
4.0 Confined Space Process

The confined space process is outlined in the flow chart below:



4.1 Identification of a Confined Space

Someone with confined space knowledge, training and the expertise to identify confined spaces must complete an audit of the site to identify all confined spaces. An inventory of spaces, locations and isolation points will be located on site intranet.



NOTE: All entrances to a confined space must be identified by a sign or other means which indicates a confined space and prohibits unauthorized entry.

4.2 Hazard Assessment

Confined Space Hazard Assessments (CSHA) must be completed for all confined spaces and all work activities (tasks) or group of work activities which present similar hazards. The assessment must be completed by a qualified person (or team of qualified persons) and will be reviewed by at least one of the following:

1) Confined Space Program Administrator (CSPA);
2) Confined Space Supervisor (CSS)
3) Operations Supervisor
4) Area Manager
5) Knowledgeable Alternate Person
6) Worker Rep (i.e. JOHSC, knowledgeable person).

The objective of hazard assessments is to document and evaluate hazardous conditions (such as those described below) that could be present and/or could develop during work in a confined space. Hazard assessments consider the design, location, present and previous uses, processes, risk of atmospheric hazard, entrapment, engulfment, the requirements for lockout and isolation, and work performed in the space.

Confined spaces, by their nature, possess many hazardous conditions that threaten the health and safety of individuals entering in these spaces for any duration and reasons. These hazardous conditions of confined spaces include:

- Hazardous atmospheres that contain irritants, flammables, asphyxiants, toxins, etc.
- Communication problems,
- Mechanical hazards,
- General safety hazards,
- Entry and exit restrictions,
- Physical hazards (e.g., thermal, noise, vibration, radiation, etc.).

The Hazard Assessment must also identify the specific hazards created by the work being undertaken in the Confined Space and the control measures required to reduce the risk of injury to acceptable levels.

A review of the hazards must be conducted each time an entry is planned to confirm that details on the design, location, present and previous uses, processes, risk of atmospheric hazard, entrapment, engulfment, the requirements for lockout and isolation, and conditions of the space are current. The “Confined Space Hazard Assessment” and “Pre-Job Hazard Assessment” forms can be found on the mill intranet under “Safety”; “Forms & Templates”.

Completed written hazard assessments are linked and attached to the equipment Lockout procedures.

4.3 Safe Entry Procedures

Confined Space Safe Entry Procedures must be developed by a qualified person (or team of qualified persons) based on Confined Space Hazard Assessments. The procedures must address, where applicable:

- Identification and entry permits;
- Lockout and isolation;
- Lockout and removal of radiation sources
- Verification and testing;
- Cleaning, purging, venting or inerting;
- Ventilation requirements;
- Standby persons;
- Rescue and provision for providing rescue;
- Personal protective equipment and any other precautions;
- Coordination of work activities.

Each space and group of spaces to be entered will have site specific entry procedures written for the tasks and work activities to be completed within that space. A reference copy of the Safe Entry Procedures for a confined space must be used by the Confined Space Supervisor (CSS) when completing the confined space entry permit. The specific written entry procedure(s) must be posted with the confined space entry permit at the designated access point to the space.

4.4 Controls

The Confined Space Hazard Assessment (CHSA) will identify specific hazards and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. Hazard controls include changes in the equipment design and operating and maintenance procedures with the objective of:

- Controlling the health hazards by eliminating the responsible agents.
- Reducing health hazards below harmful levels.
- Preventing contaminants from coming into contact with the workers.

The **Hierarchy of Controls** below will be followed in descending order, by all HSPP employees and Contractors when elimination of hazards is not possible:

1. **Engineering controls** take place at the design or redesign stage to eliminate hazards.
2. **Operating and maintenance controls** are used, such as:
   - Wetting of hazardous agents;
   - Frequent cleaning;
   - Contaminant removal or purging;
   - Modification of operating and maintenance procedures.
3. **Mechanical controls** are used, such as:
   - Ventilation limit exposure to hazards;
   - Lockout of energy sources.
4. **Personal protective equipment** is used, such as:
   - Air purifying respirators;
   - Supplied-air respirators;
   - Contaminant suits (i.e. Tyvek Suits for easy decontamination).

5.0 Entry Permits

The Confined Space Entry Permit is the tool used to ensure safe entry into ALL confined spaces. The entry permit ensures that confined space entries are well thought out, controlled by a responsible supervisor, and entrants are competent.

5.1 Completing PERMITS

The Confined Space Supervisor (CSS) must complete and sign the Entry Permit after carefully reviewing the following:

1) Confined Space Hazard Assessment (entry specific and task specific);
2) Confined Space Entry Procedures (entry specific and task specific);
3) Rescue Plan;
4) Isolation and Lock Out Procedures.

The permit must identify:

a) Specific confined space to be entered and the work activities to which it applies;
b) Workers who are inside the space;
c) Required precautions for the space; and
d) Time of expiration of the permit.

5.2 New Permit Required

A new permit must be prepared or re-authorized and signed by the responsible supervisor (CSS):

- If there is a change in the work crew; or
- After each shift change; or
- After a change of the responsible supervisor.

5.3 Posting Permits

The permit must be posted at the designated entry point to the confined space.

5.4 Updating Permits

Once an entry permit is issued, the information on it may only be altered by:

1. The responsible supervisor who signed it;
2. The Standby person to update the list of workers inside the confined space; or
3. The gas tester/Standby Person to record the atmospheric test results.

Every worker affected by an alteration of an entry permit must be informed of changes in required precautions or work activities.

5.5 Cancelling Permits

Permits will be cancelled by the Confined Space Supervisor when:

1. Entry conditions or tasks change within the confined space that are not reflected on the Confined Space Hazard Assessment/ Confined Space Entry Procedure;
2. Space is evacuated by the CSS or Standby Person and conditions inside cannot be rectified;
3. Rescue team not available. For example, the rescue team is called to another emergency.

5.6 Filing Permits

- Upon completion of the shift, the original confined space entry permit documents including the permit, gas testing results sheets, entry log sheets, and pre-meet checklist must be returned to the gatehouse, or with the CSE Standby Supervisor during major Shutdowns Kraft/Power Boiler).

- Copies of the written safe work procedures, hazard assessments, emergency response plan, initial gas test results prior to ventilation, lockout procedures/forms and contractors hazard assessments must be sent to the gatehouse at the completion of the job. These documents will be filed with the related Permit documents and maintained for a minimum of two years

6.0 Atmospheric Testing

6.1 Calibration & Bump Testing

All atmospheric monitoring will be completed with monitors that have been calibrated as per manufacturers specifications and bump tested within the last 24 hours. All atmospheric testing will be done by trained and competent workers who have been trained to operate and interpret the information on the monitor.

6.2 Pre-Entry Testing

- The initial pre-entry testing must be completed prior to any ventilation and recorded by the tester on the first line of the gas testing results. A second pre-entry test will be completed after 30 minutes of ventilation.
- The intent of initial pre-entry testing is to find the worst-case scenario that the space can revert back to in the event ventilation or other controls fail. For example, in a vertical entry, pre-entry testing must look for different levels of gases based on gas densities.
- Pre-entry testing is to be completed by a competent Standby person prior to every confined space entry.
- Pre-entry testing must not be completed more than 20 minutes prior to a worker entering the space.

Pre-entry testing must be re-done if:

1. The space has been vacated for more than 20 minutes.
2. Ventilation has failed or been interrupted.
3. Any time the hatch watch leaves the area, it must be retested before anyone re-enters.

6.3 Continuous Gas Monitoring

At all times inside a space, regardless of hazard rating, continuous monitoring will occur whenever practicable or at a minimum every 20 minutes.

6.4 Lower Explosive Limit (LEL)

The lower explosive limit is the lowest percentage of a flammable vapor in air that will explode. It is expressed as a percentage on a gas monitor. Workers are not allowed into a space until the LEL is controlled to 0% LEL (when ventilation is on). 0% LEL is considered part of the definition of "Clean Respirable Air" and a requirement for entry.

If any amount of explosive gas is in the space was first detected in the space before ventilation, then intrinsically safe lighting, fans and tools must be used. Grounding and bonding must also be present.

Hot work in a confined space must follow the HSPP Hot Work Program and must never be completed in a confined space with atmospheric LEL levels above 0%.

7.0 Atmospheric Control

It is the goal of this program to always have clean respirable air prior to and during entry in all confined spaces.

Clean Respirable Air (CRA): used to describe the atmosphere inside a confined space. Defined to be an atmosphere which is equivalent to clean, outdoor air and which contains:

(a) About 20.9% oxygen by volume,
(b) No measurable (zero) flammable gas or vapor as determined using a combustible gas measuring instrument, and
(c) No air contaminant in concentrations exceeding either 10% of the applicable exposure limit (based on shift length), as outlined in WSBC Regulation.

7.1 Lockout and Isolation

The following hierarchy must be used at all times when controlling harmful substances in adjacent piping. If isolation of substances cannot be completed in this manner, see Section 7.1.1 for more detail.

Step 1 **– Find what substance you're dealing with** ↓	***Step 2*** **– Find an Acceptable Control** (**Note** – you can always go up the list for a control, you can NEVER go down the list)
Gas/ Vapor or Volatile Liquid	→ Blank, Blind or Disconnect
Liquid chemical that is not volatile and will not form a gas or vapor	→ +-Double block and bleed (or above)
Hazardous only because of temperature, pressure or quantity	→ Procedure Certified by P. Eng. (i.e. single isolation point) (or any above)
Hazardous only because of temperature, pressure or quantity with no head pressure	→ Lockout and depressurize (or any above)
Gravity flow, municipal or domestic sanitary storm or sewer system	→ P-Trap (checked that is working and full) and Hazard Assessment and Safe work procedure developed (or any above)

7.1.1 Alternate Measures for Controlling or Isolating Adjacent Piping

If isolation cannot occur as per requirements above, an Application to the local WorkSafeBC officer must be filed for alternate measures to be used as per Regulation 9.22.

7.2 Cleaning, Purging, and Ventilating

If a confined space is known or shown by pre-entry testing to contain other than clean respirable air, the hazard must be controlled by cleaning, purging, or venting the space and the atmosphere must be retested before anyone enters the space.

7.2.1 Cleaning

Cleaning and Purging are preparation procedures carried out prior to worker *entry*. Ventilation will be required either during or following these procedures.

- Cleaning procedures may include steam or water cleaning, neutralization, descaling and special solvent application. Precautions required during these procedures include:
  a) Site specific written work procedures for cleaning of storage tanks and/or vessels.
  b) Whenever possible, clean the *Confined Space* and remove the waste *without entry*.
  c) When flammable residues are present, ignition sources *must* be controlled. For example, use only explosion proof equipment and locate ignition sources such as internal combustion engine powered equipment at a safe distance outside the *Confined Space*.
  d) Provide ventilation as necessary to control *air contaminants*. For example, vapors produced by grinding, fibreglassing, high temperature steam cleaning or gassing-off of disturbed sludge.
  e) Whenever possible, choose solvents which are least toxic, least flammable and least likely to produce hazardous by-products on contact with residues.
  f) Remove any hazardous cleaning agent and/or residues prior to *entry*.
  g) Keep spontaneously combustible substances such as finely divided carbon or iron sulfide wet until removal is complete.

- When steam cleaning:

  a) DO NOT use steam on substances with *Auto ignition Temperatures* less than 20 degrees above the steam temperature.
  b) Provide adequate outlets to relieve pressure during steaming, and to prevent vacuuming afterwards. This will also prevent vacuum collapse while draining liquids.
  c) When steam cleaning metal tanks in which flammable materials are present, bond the nozzle of the steam hose to the tank and ensure that the system is grounded.
  d) Following steam cleaning, it is preferable to allow the *Confined Space* to cool completely before *entry*. If *entry* is necessary before the space has cooled, measurements *must* be taken using the *WBGT* method and proper protective measures instituted as per the HSPP 'Heat & Cold Stress Protection Program'.
  e) Dispose of wastewater in a safe manner.

7.2.2 Purging

Purging is displacing contaminants inside a confined space by replacing them with fresh air. Purging results in atmospheric conditions acceptable for worker entry.

7.2.3 Ventilating

HSPP is committed to ensuring that clean respirable air is provided prior to and during every confined space entry by adhering to the following:

1) For all *Confined Spaces*, maintaining a safe, respirable atmosphere is the foremost concern, and adequate, continuous ventilation and atmospheric testing are the safeguards required to control potential atmospheric hazards.
2) The ventilation system for the control of airborne contaminants must be designed, installed and maintained in accordance with established engineering principles.
3) A continuous, adequate, safe and respirable atmosphere *must* be ensured for all areas of the *Confined Space* potentially occupied unless workers are wearing supplied air respiratory protection.
4) Sources of air for ventilation of a *Confined Space must* be free of contaminants and periodically checked for potential introduction of contamination such as fuel burning systems, gases, vapors, fumes, dust, etc.
5) Ventilation plan has been developed by qualified person. This can be checked with an anemometer to ensure that ventilation requirements are being provided.
6) Ventilation requirements and configuration of ducting depend on the size and design of the space, contaminants in the space (i.e. vapor density) and the hazard rating.
7) Fans must be located and arranged to adequately ventilate every occupied area inside the confined space.
8) When the source of air for ventilation of a *Confined Space* is remote from the *Entry* point, (not in line of sight for the *Outside Person*), a sign *must* identify the intake.
9) Confined Space Supervisor (CSS) is required to ensure all prescribed ventilation is set up and effective prior to allowing entry into a confined space.

NOTE: Ventilation fans must undergo annual flow testing.

7.2.4 Moderate & High Hazard Atmosphere

Whenever practicable, the **minimum** amount of fresh air introduced into the *Confined Space* will be equivalent to:

- 10 complete air changes per hour for a *Confined Space* with a Moderate Atmospheric Hazard rating

- If the initial atmospheric test results (before ventilation) indicate contaminants or lack of oxygen, purging is required. If 10 air changes/hour is provided with good mixing inside the space and no additional contaminants are being generated, then purge time is a minimum of 30 minutes. If the airflow is less than 10 air changes per hour into the space, purge time must be increased accordingly (example - only 10 air changes/hour, then 30 minutes required for purge).

The goal of general ventilation in a confined space is to mix and move air by diluting air contaminants with clean, fresh air. This will keep entrants well below exposure limits and maintain clean, fresh air in the space. The typical means to achieve clean air is by using positive air pressure within a space, pushing air into the space. Negative air pressure (pulling air out of the space) can also achieve the desired results however requires more air exchanges per hour.

Positive Pressure:
Positive pressure ventilation is most effective at 10 air changes per hour. To ensure safe entry procedures are correct, you can calculate this by:

$CFM_{(10)}$ = Confined Space Volume ÷ 6 = cfm required.

Negative Pressure:
Negative pressure ventilation is most effective at 20 air changes per hour. To ensure safe entry procedures are correct, you can calculate this by:

$CFM_{(20)}$ = Confined Space Volume ÷ 3 = cfm required.

Air changes per hour

ACH= Fan Rating CFM x 60/Confined Space Volume

Notes:
1. Due to excessive air turbulence created, it is not recommended to exceed 60 air exchanges per hour where practicable. More is not always better in ventilation!
2. Fans must be intrinsically safe.
3. Continuous monitoring does not replace the need to ventilate.
4. Follow the Confined Space Entry Procedure to ensure that proper ventilation systems are in place.
5. Fans will be flow tested on an annual basis.

7.2.5 Local Exhaust Ventilation (LEV)

If a contaminant is produced in a local area within a confined space (i.e. welding in one location), whenever practicable, it must be controlled at the source by a local exhaust ventilation (LEV) or neg air system. The LEV aims to draw the contaminant away from the breathing zone of the worker.

LEV is a negative pressure ventilation system that can be used in conjunction with general ventilation (positive ventilation). In smaller spaces, LEV can be the sole source of ventilation as long as the surrounding areas are clean and able to provide Clean Respirable Air as make-up air. If LEV is being used as the sole source of ventilation, it must follow the ventilation requirements listed above in Moderate and High Hazard Atmosphere.

Guidelines for using *local exhaust ventilation* are as follows:

a) Position the capture hood as close as possible to the contamination source, ideally within one duct diameter.
b) Keep bends in the exhaust duct to a minimum.
c) Duct exhaust air outside of the *Confined Space* and away from any air intake.
d) Ensure that other workers are not exposed to the exhausted air.
e) Provide adequate fresh make-up air into the *Confined Space* to compensate for air exhausted by the system.
f) Ensure air flow rates are high enough to remove the contaminants.

Refer to Confined Space Entry Procedures for detailed ventilation requirements for your space and task.

7.2.6 Natural Ventilation

Can only be used in Low Hazard confined spaces. There are no low hazard confined spaces currently on site. Always use mechanically ventilation to ventilate a space! Natural ventilation is required to be monitored with an anemometer to ensure adequate flow is occurring. As well, natural ventilation often does not mix air in the lower areas of the space, thus clean air cannot be guaranteed.

7.3 Inerting a Space

The employer must notify WSBC in writing with the safe entry procedures that will be used, at least 7 days prior to entry, of the plan to inert a confined space.

Inerting a space immediately puts the space into a High Hazard atmosphere category and thus, all requirements for high hazard atmosphere must be completed. These include:

a) Supplied air respirator for all entrants
b) Escape respirator for each entrant
c) Means of monitoring air supply
d) Qualified Standby for High Hazard confined space entry
e) Qualified rescue team at the space for the duration of the entry
f) All ignition sources controlled
g) The atmosphere must remain inerted for duration of entry

8.0 Rescue

HSPP will ensure effective rescue services are provided for all confined space entries.

8.1 Rescue Plans

Operations is responsible for making sure that a Confined Space Rescue Plan exists or is developed prior to entry. The Rescue plan must match the scope of work and hazard rating. The rescue plan must be prepared by a qualified member of the Emergency Response Team.

8.2 Rescue Requirements

8.2.1 Moderate Hazard Confined Space Rescue

- Rescue persons are pre-arranged, and the Gatehouse is notified prior to entry.
- Rescue team and equipment must be immediately available, as needed.
- Standby must know how to immediately summon rescue personnel.

8.2.2 High Hazard Confined Space Rescue

- High Hazard Confined Spaces have either High Atmospheric Hazards or are a High Risk Confined Space due to the entrant relying on external equipment and manpower in order to exit the Confined Space in the case of an emergency. Example includes entering into a vertical Confined Space via a harness fixed to a lifting/lowering device operated by external manpower.
- Adequate rescue provisions will be provided at the space access for the duration of entry.
- Rescue workers will be trained in confined space entry as well as rescue procedures as needed for the space.
- Entrant(s) will wear a full body harness and remain attached to the lifting equipment, as much as possible, to allow for external rescue.

9.0 Program Documentation

9.1 Hazard Assessments, Entry Procedures and Rescue Plans

A system to store the confined space inventory and corresponding hazard assessments, entry procedures, isolation/ lockout procedures and rescue plans will be maintained on the HSPP Intranet.

It will be the responsibility of Operations to ensure documents are accurate and kept up to date.

The confined space program, hazard assessments, permits, and the rescue plan will be reviewed at least once every three years or whenever there is a change in the confined space itself, its operating conditions, or the working environment.

9.2 Permit Retention

All completed/ finished permits will be collected by the Confined Space Supervisor (CSS) who will then provide them to Gatehouse to ensure they are filed and stored appropriately.

Permits will be retained for a minimum of two years.

9.3 Training Records

All training records (i.e. entrants, rescue persons, Standby, supervisor) will be retained for the life of an employee's employment with the HSPP. The Confined Space Program Administrator (CSPA) is responsible to ensure documents are filed appropriately.

10.0 Other Tools & Equipment

10.1 Personal Protective Equipment

A person entering a confined space must use personal protective equipment as required by the HSPP Personal Protective Equipment (PPE) Program and Part 8 of the Occupational Health and Safety Regulation (Personal Protective Clothing and Equipment).

10.2 Lifelines, Harnesses & Lifting Equipment

Lifelines and pre-deployment of lifting equipment are required when detailed in the Confined Space Hazard Assessment and Confined Space Entry Procedure. Where deemed appropriate, entrants must wear harnesses of a type that will keep them in a position to permit rescue. In High Risk CSE a lifeline may also be required to be attached to the harnesses and be tended to at all times by the Fire Department. When a lifeline is required, the Fire Department must be equipped with suitable lifting equipment to permit rescue.

10.3 Compressed Gas Cylinders

Except for compressed air supplied to a respirator, medical resuscitation equipment, and handheld aerosol spray containers, a cylinder of compressed gas is not permitted inside a confined space.

Only quantities of aerosol spray containers required for the immediate job will be permitted. There will be no storing of aerosol containers (full or empty) inside a confined space.

10.4 Torches and Hoses

Torches and hoses used for welding, brazing or cutting must have flash back arresters and be removed from a confined space when not in use and when the confined space is vacated.

10.5 Electrical Equipment

Electrical tools and equipment used in a confined space must be grounded or double-insulated and so marked and protected by an approved ground fault circuit interrupter (GFCI) as required by Part 19 of the Occupational Health and Safety Regulation (Electrical Safety).

Electrical tools and equipment used in a confined space where flammable vapors of explosive gases or liquids are present must be CSA approved for hazardous locations classified under CSA Standard C22. 1-94, Canadian Electrical Code Part 1, as Class 1, Division 2, Groups A, B and C.

10.6 Non-Sparking Tools

Only non-sparking tools may be used in a confined space where flammable or explosive gases, vapors or liquids are present.

10.7 Opening a Confined Space

In the event of a fall hazard, and prior to the entrance covers being removed, the opening must be guarded by a railing, temporary cover, or other temporary barrier that will prevent personnel from falling in or out through the opening. This barrier or cover must protect each employee working in the space from foreign objects entering the space (i.e. toe boards or if it is in a traffic area, adequate barriers must be erected).

10.8 Buttoning up a Confined Space

Prior to buttoning up a space it must be determined that no one remains in the space by checking the lockout board to ensure no locks remain and ensuring all the Security badges are removed. A call into the space to be done.

11.0 Review and Reporting of the Program

The Confined Space Program Administrator will be responsible for ensuring the confined space program is reviewed at a minimum every 3 years or if changes are made to the WorkSafe BC Confined Space Legislation. Any required changes will be forwarded to the JOHSC.

12.0 Appendices

12.1 Glossary of Terms (Alphabetical)

Adjacent Piping: a device such as a pipe, line, duct or conduit which is connected to a confined space or is so located as to allow a substance from within the device to enter the confined space; it does not include piping which travels through the space without an opening.

Air-Purifying Respirator: a respirator that removes airborne contaminants from the air inhaled by a worker.

Air-Supply Respirator: a respirator that delivers clean breathing air to a worker from a compressor or a cylinder, an SCBA, whether closed or open circuit, or a combination of SCBA and supplied air.

Atmospheric Hazard Ratings:

A. Low Hazard Atmosphere = Clean Respirable Air
An atmosphere which is shown by pre-entry testing or otherwise known to contain clean respirable air immediately prior to entry to a confined space and which is not likely to change during the work activity.

B. Moderate Hazard Atmosphere
An atmosphere that is not clean respirable air but is not likely to impair the ability of the worker to escape unaided from a confined space, in the event of a failure of the ventilation system or respirator.

C. High Hazard Atmosphere
An atmosphere that may expose a worker to risk of death, incapacitation, injury, acute illness or otherwise impair the ability of the worker to escape unaided from a confined space, in the event of a failure of the ventilation system or respirator.

Authorized Entrant(s): personnel entering a confined space who have been properly trained and tested in confined space entry and are deemed competent by the CSS regarding the nature of hazards involved, precautions to be taken, the use of required protective and emergency equipment, and the emergency rescue procedures.

Blanking or Blinding- means the absolute closure of a pipe, line or duct by the fastening of a solid plate that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line or duct with no leakage beyond the plate.

Clean Respirable Air (CRA): used to describe the atmosphere inside a confined space. Defined to be an atmosphere which is equivalent to clean, outdoor air and which contains:

(a) about 20.9% oxygen by volume,

(b) no measurable (Zero) flammable gas or vapor as determined using a combustible gas measuring instrument, and
(c) no air contaminant in concentrations exceeding either 10% of its applicable exposure limit in Part 5 (Chemical Agents and Biological Agents) or an acceptable ambient air quality standard established by an authority having jurisdiction over environmental air standards, whichever is greater

Combustible Dust: means a dust capable of undergoing combustion or burning when subjected to a source of ignition.

Combustible Gas: means the airborne concentration of gas or vapor, which may present the risk of fire or explosion if an ignition source of sufficient energy, is introduced. This term also applies to all flammable vapor and explosive gases.

Contaminant: Any dust, fume, mist, vapor, gas or other substance in liquid or solid form, the presence of which may be harmful or become harmful to health and safety.

Competent Person: a person, who is adequately qualified, suitably trained, possesses the theoretical knowledge and has demonstrated by means of a practical assessment the ability to safely perform work or task.

Confined Space: The confined space is an area, other than an underground working, that meets all four of the following parts:

1. **L** - Large enough that workers could enter to perform work;
   a. Will the breathing zone of the worker cross the plane of the confined space during the work?
2. **E** – Enclosed or partially enclosed;
   a) Does the space have at least 5 sides or the accumulation of hazardous gases or an oxygen deficient atmosphere could occur.
3. **A** – Access/ egress is limited which would complicate rescue in any of the four types of emergency response:
   a. First aid – i.e. cannot lay a worker down to provide CPR;
   b. Rescue – i.e. two workers would not be able to carry an injured worker out on a stretcher;
   c. Evacuation – i.e. quick exit from space of entire workforce;
   d. Other emergency response – i.e. access for firefighting would be difficult and restricted.
4. **N** - Not designed or intended for continuous human occupancy. Does it have:
   a. Permanent (HVAC) or similar system?
   b. Hard-wired lighting, plumbed water lines?
   c. Entry for purposes other than periodic inspection, maintenance or repair?
   d. Designed access and egress means such as doorways and staircases?

Confined Space Inventory: a database or inventory of all recorded confined spaces at HSPP. The register contains important information such as location, confined space description, equipment number and a unique registry number for each identified confined space.

Confined Space Entry: occurs when a person's breathing zone crosses the plane of the entrance to the confined space. (This is not intended to prevent a person from inserting their hand or arm while holding a test instrument or probe into a confined space as part of the evaluation procedure provided that this is duly authorized, and all other procedures are followed) (i.e. Isolation)

Confined Space Standby (Hatchwatch) Person:
A competent and trained individual whose sole task is to ensure the safety of entrants in the confined space.

- Observe the activity in the confined space.
- Be in constant communication with all workers in the confined space.
- Keep the required documentation associated with the CSEP for the confined space.
- Controls access and egress of the confined space.
- Operates a system for summoning assistance if required.

CSEP (Confined Space Entry Permit): Prior to entering any confined space at HSPP, the CSS will complete a CSEP prior to entry.

CSPA (Confined Space Program Administrator): Competent person assigned to manage and coordinate this Confined Space Standard. See Section 2.1.

CSHA (Confined Space Hazard Assessment): confined space hazard assessments are intended to ensure risks of the space and task being entered are considered and assessed prior to entry by a qualified person or group of people. See Section 4.2.

CSRP (Confined Space Rescue Plan): a set plan, completed ahead of time, on how rescue will be performed for each space or set of similar spaces.

CSS (Confined Space Supervisor): a competent person trained, tested and knowledgeable in the requirements of this standard with the overall responsibility for safe confined space entry. The CSS must ensure that all the requirements of this standard are implemented at the confined space location. See Section 2.3.

CSEP (Confined Space Entry Procedure): safe work procedures written by a competent person ahead of time based on space and tasks to be completed in a confined space. This procedure should be a step-by-step procedure that provides clear direction on how to enter a space safely and mitigate risks as identified in the CSHA.

Contaminant: any dust, fume, mist, vapor, gas or other substance in liquid or solid form, the presence of which may be harmful or become harmful to health and safety.

Double Block and Bleed: Means the closure of a line, duct, or pipe by closing and locking of two in-line valves and by opening and locking a drain or vent valve in the line between the two closed valves. Can only be used if the line does not contain a gas or vapour or a liquid with sufficient volatility to produce a hazardous concentration of an air contaminant

Emergency: Means any occurrence (including a failure of hazard control or monitoring equipment) or event, external or internal to the confined space that could endanger entrants.

Employer (HSPP): HSPP

Energy Source: any electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other source of energy of potential harm to workers. Before a worker enters a confined space, all potentially hazardous energy sources must be de-energized and locked out (as outlined in the CSHA and CSEP).

Engulfment: results when a substance, liquid, or solid flows around a person and encloses them, hindering their ability to escape and often making it impossible for them to breathe because they become immersed in the substance. A sudden release of water into a confined space might cause engulfment. A sudden release of sawdust, sand, or grain may also cause engulfment.

Entrapment - can occur in any space that 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 that the entrant would not be able to self-rescue from.

Entry: Means the action by which a person passes through an opening into a confined space. Entry includes work activities in that space and is considered to have occurred as soon the breathing zone of an entrant's body breaks the plane of an opening into the space.

Flammable or Explosive Limits: means the range of concentrations of a flammable vapor and air mixture over which the mixture can be ignited. The Lower Explosive Limit (LEL) and the Upper Explosive Limit (UEL) designate this range. Flammable limits are expressed as a percent volume of vapor in air.

Full-body Harness: a safety device that is capable of suspending a worker without causing the worker to bend at the waist and consists of straps that pass over the worker's shoulders and around the worker's legs, an upper dorsal suspension assembly and integral hardware.

Lock Out: See Lockout Program for full details.

High Risk Atmosphere: An atmosphere presenting a potential for death, disablement, injury, or acute illness from one or more of the following causes:

- A flammable gas, vapor or mist
- An oxygen deficient atmosphere containing less than 19.5% oxygen by volume or an oxygen enriched atmosphere containing more than 23.5% oxygen by volume,
- Airborne combustible dust
- An atmospheric concentration of any substance for which a dose or a permissible exposure limit is exceeded that could cause death, incapacitation, impairment of ability to self-rescue, injury or acute illness.
- Any other atmospheric condition that is immediately dangerous to life or health (IDLH).

Hazardous Confined Space: a confined space that endangers or could endanger a worker entering into or already in the confined space, due to the design, construction or atmosphere of the space, the materials or substances in the space, the work activities or processes used in the space, or any other conditions relating to the space.

High Risk Confined Space: is when the atmosphere inside the space is a High hazard atmosphere (see definition) or whenever an entrant is relying on external equipment and manpower in order to exit the Confined Space in the case of an emergency. Example includes entering into a vertical Confined Space via a harness fixed to a lifting/lowering device operated by external manpower.

IDLH: an atmosphere containing a substance at a concentration which is immediately dangerous to life or health (IDLH) because the concentration is greater than that from which one could escape without any escape-impairing symptoms or irreversible health effects and includes an atmosphere with an unknown concentration with the potential to be immediately dangerous to life or health.

Inerting: filling a confined space with an inert gas (e.g. nitrogen, carbon dioxide or argon) to reduce oxygen levels and eliminate a fire or explosion hazard.

Initial Pre-Entry Air Testing: Is the initial air test completed before the space is ventilated. This helps identify the worst case scenario.

Isolation – All isolation plans, and procedures must be identified in the Confined Space Entry Procedures. Confined space isolation points must be visually checked or otherwise verified to ensure confined space are effectively isolated before they are entered. Any material conveyance equipment that transports material to or from a space must be rendered free of material if the presence of this material could present a hazard.

LEL (Lower Explosive Limit): lowest concentration (percentage) of a gas or vapor in air capable of igniting or exploding in the presence of an ignition source (i.e. arc, flame, heat).

LEV (Local Exhaust Ventilation): a local exhaust system that draws air contaminants generated in a localized area (i.e. welding fume) away from the breathing zone of entrants and out of the space.

Lifeline: a length of rope or strap that is attached to a safe point of anchorage at one end of the rope or strap or, in the case of a horizontal lifeline, at both ends of the rope or strap, to provide support and a guide for a personal fall arrest system or a lowering device that provides a means of safely lowering a worker from a height.

Negative Air Pressure: Drawing air out of a confined space, typically at a source of contamination.

Non-Contaminant Generating Task: any task or group of tasks that are completed that will not generate air "impurities" (i.e. silica dust) or "toxic" gases or vapors are considered "non-contaminating". Some examples of tasks included in this grouping include:

- Inspection
- Exercising a valve
- Removing parts
- Using hand tools

Non-Hazardous Confined Space: the name provided to a confined space that has no hazards (as defined in Hazardous Confined Space definition) found within the space.

Thus, a non-hazardous confined space will NOT have any risk due to 1) design, 2) construction, 3) atmosphere, 4) materials or substances in the space, 5) work activities (i.e. welding), 6) processes in the space or 7) any other conditions that could endanger a worker.

Oxygen Deficient: means, in relation to air, a condition in which there is less than 19.5% oxygen by volume, or the partial pressure of oxygen is less than 16.3 kPa (122 mm Hg)

Permit Issuer: a competent person designated by HSPP who has the skills required to perform a risk analysis and determine the precautions to be taken before entry. This person must complete the permit and make sure that the employees have the equipment required for the task (as indicated on the permit).

Personal Fall Arrest System: personal protective equipment that provides a means of safely arresting the fall of a worker and that, subsequent to the arrest of the fall, by itself does not permit the further release or lowering of the worker.

Personal Protective Equipment (PPE): any clothing, device or other article that is intended to be worn or used by a worker to prevent injury or to facilitate rescue.

Positive Pressure Ventilation: blowing clean air into a confined space.

Purging: displacing contaminants inside a confined space by replacing them with fresh air. Purging results in atmospheric conditions acceptable for worker entry.

Qualified: means being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof.

Qualified Person - By WorkSafe BC definition (Part 1) "Qualified" means being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof.

For the purposes of Confined Space, qualifications which are acceptable as evidence of adequate training and experience include:

(a) Certified industrial hygienist (CIH), registered occupational hygienist (ROH), certified safety professional (CSP), Canadian registered safety professional (CRSP) or professional engineer (P. Eng.), if the holders of these qualifications have experience in the recognition, evaluation and control of confined space hazards, or
(b) Repealed. [B.C. Reg. 243/2006, effective January 1, 2007.]
(c) Other combination of education, training and experience acceptable to the Board.

Respiratory Device: a device such as an air-supply respirator, an air-purifying respirator or an escape respirator that is designed to protect a wearer from inhaling a hazardous atmosphere.

Tester: a competent person knowledgeable in the requirements of this standard that has been trained and tested in the recognition and evaluation of personnel exposures to potential confined space hazardous conditions, and in the use of monitoring equipment and procedures for atmospheric testing.

Ventilation: the continuous supply of fresh air into a confined space, resulting in atmospheric conditions acceptable for worker entry. Ventilation must continue while a worker is in a confined space, ensuring an acceptable atmosphere even in the case of an accidental release of contaminants.

Workplace: any building, mine, construction site, vehicle, field, road, forest or other space where a worker is working. If a worker is present (completing work at, near or in the space), the location is a workplace, regardless of how frequently work occurs at the location**.**

Work Introduced Hazard: Means the hazard(s) created due to the nature of the work being performed within the space. Examples include welding or painting that could create adverse conditions such as fumes or gas.

References	
• CSE Gas Air sampling log	(CSE Form C)
• CSE Entry Log	(CSE Form D)
• CSE Permit	(CSE Form B)
• CSE Hazard Assessment	
• CSE Rescue Plan	
• CSE Ventilation Plan	

13.0 Revision History

Revision #	Revision Date	Revision Description	Reviewed by:	Effective Date
01		Re-write of program after Confined Space Audit Completed		
02		Insert New Howe Sound Pulp & Paper Corporation Logo		
03		Addition of Isolation of Nuclear Devices to reflect changes to HSPP E/I isolation procedures related to the Canadian Nuclear Safety Commission Regulations		
04	June 23, 2011	Additions / Revisions to Sections 4 & 9 of program document after CS Audit of program completed by JOHSC		June 23, 2011
05	May 3, 2024	Updated Logos.		May 3, 2024
06	Mar. 17, 2026	Reformatted using new template and rewritten for clarity and flow.	Todd Lansi	Mar. 17, 2026

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