



Brock University Facilities Management Operating Procedures

Annex D

Confined Space Entry Plan – Manholes, Sump Pits, Grease Traps, Valve Chambers, and Pond Pump Room

Purpose

This procedure is designed to ensure the safe entry of personnel into confined spaces in accordance with the *Occupational Health and Safety Act* and *Industrial Establishments Regulation*.

Application

This procedure applies to all personnel, contractors and any other persons required to enter expansion tanks, storage tanks and water tanks for maintenance or other activities. These tanks have been identified as confined spaces through the confined space hazard assessment process. For detailed information on the locations of this type of confined space and the hazards associated with entry, please refer to the "Summary of Confined Space Identification" which is part of the overall written confined space program.

Review of Confined Space Documentation:

To ensure the confined space team is prepared, the following items need to be reviewed with each person involved with the confined space entry:

- Check training records for verification that general and plan-specific training has occurred;
- Review the confined space hazard assessment and procedure with the team;
- Review the roles and responsibilities of each person involved in the confined space entry (entrant, attendant, supervisor, rescue team) related to this procedure.

Pre-Entry Planning:

Prior to entry into the confined space, the following items need to be in place:

▶ **Rescue Procedures:**

On-site rescue procedures specific to the location and type of confined space need to be reviewed with the confined space team. A two-way radio will be used for communication between the entrants, attendant and rescue team to ensure a quick response if an emergency situation occurs. If an entrant is not able to independently leave the confined space the on-site rescue personnel should immediately initiate the rescue procedures.

Rescue equipment and devices should be readily available in the event of an emergency. All rescue operations will be performed from outside the confined space and no attempts will be made to enter into the confined space unless the rescuer is fully trained and wearing the appropriate protective equipment (i.e., supplied air respirator).

▶ **Attendant:**

An attendant must be stationed outside the entrance to the confined space at all times to prevent unauthorized entry into the confined space, maintain constant communication, and monitor the safety of the entrant. On-site rescue personnel will initiate the rescue procedure (if needed).

▶ **Entry and Exit:**

The pit is to be entered from the top access down the fixed ladder. Fall protection is required.



Brock University Facilities Management Operating Procedures

Annex D

► Control Measures:

Ensure all controls and equipment required for the confined space entry are present and in proper working condition. Controls that are needed include:

- Personal protective equipment required for the confined space including safety boots, hard hat, safety glasses, full-body harness and if needed appropriate respiratory and rescue equipment
- Properly calibrated and maintained air monitoring equipment
- Mechanical ventilation/Air blower
- Other such items as barricades, signage, intrinsically safe or GFCI lighting and tools

Confined Space Entry:

Every person involved in the confined space entry must be aware of and follow the steps outlined below:

1. Obtain the entry permit and review the work activities, potential hazards and corresponding control measures to be used.

Note: If hot work will be performed a separate entry permit and confined space entry procedure must be followed.

2. Limit the ingress of water/effluent and if not possible have secondary pumping source available. Lock out and tag all energy sources to prevent the unexpected release of energy while inside the confined space. A lock and tag will need to be placed on the disconnect switch of the electrical panel as well as any valve(s) of any piping if working on water meters or bypasses. Check that piping has been drained and blocked. Refer to the Brock University Facilities Management lockout/tagout policy.
3. Test the air from outside of the chamber using the appropriate length tubing to ensure that all levels of the confined space can be accessed. Record the test results on the permit. Do not enter the confined space at any time to perform the testing. Check to see if the air monitoring results are acceptable using the following table:

Substance	Acceptable Level
Oxygen	>19.5% and <23%
Flammable and Combustible Gases	Lower Explosion Limit (LEL): <ul style="list-style-type: none">– <25% for inspection work– <10% for cold work– <5% for hot work * *Use hot work permit and entry plan for hot work.
<u>Other Toxic Contaminants:</u> Carbon Monoxide Hydrogen Sulphide	<25 ppm <10 ppm



Brock University Facilities Management Operating Procedures

Annex D

4. Use mechanical ventilation to introduce fresh air into the confined space if the air monitoring results are not acceptable. For details on the appropriate mechanical ventilation techniques refer to the "Brock University Mechanical Ventilation" procedure.
5. Repeat air monitoring and record the results on the entry permit.
 - If the atmosphere is **acceptable**, provide continuous ventilation and air monitoring for the entrant and proceed to step 6.
 - If the atmosphere is **still not acceptable**, provide continuous ventilation into the confined space. The entrant will need to wear the following:
 - Appropriate respiratory protection as be determined by the results of the air monitoring;
 - Air-monitoring device to provide adequate warning and an alarm if the conditions inside the confined space suddenly change;
 - Appropriate rescue equipment as determined by the rescue procedure.
6. Address any additional hazards identified on the permit and ensure controls are in place.
7. Complete the entry permit and have all members of the confined space team review the final permit.
8. Verify the permit with the supervisor and post it at the entrance to the tank.
9. Don the personal protective equipment /rescue equipment needed and proceed with the entry.

Once all work is complete, ensure all entrants have safely exited the confined space. The entry permit should be cancelled and retained in the designated file. If a repeat entry into the tank is needed and it has been both unoccupied and unattended, the confined space will need to be re-evaluated using the above procedure.