



Brock University

Facilities Management Operating Procedures

Subject: **CONFINED SPACE PROGRAM** Number: FMOP 2-2

Approval: Executive Director Issue Date: April 1, 2008

Responsibility: Manager-Maintenance and Operations

Review Period: 2 Years

CONFINED SPACE PROGRAM

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1.0 **Background.** The purpose of this procedure is to identify confined spaces, prohibit unauthorized entry, and to establish procedures for authorized entry and related work within confined spaces in accordance with the *Occupational Health and Safety Act and Regulations for Industrial Establishments*.

This procedure applies to all Brock University personnel, contractors or any other persons required to enter a confined space for maintenance or other activities. The Brock employee (Maintenance Manager, Project Manager Etc) responsible for the confined space entry must ensure that these policies as well as all applicable regulations are followed.

2.0 **Compliance with Policy – Brock University Employees.** In consideration of the personal safety of others and because of the potential for serious injury or loss of life, failure to adhere to this policy may result in discipline up to and including discharge.

3.0 **Compliance with Policy – Brock University Contractors.** All Contractors working at Brock University, undertaking work subject to the Occupational Health and Safety Act and Regulations regarding Confined Space Entry will provide the following to the Project Manager representing Brock University;



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- 3.0.1 A copy of their company's Confined Space Program.
 - 3.0.2 Evidence that the Contractor's staff has been trained with respect to Confined Space identification, entry and rescue.
 - 3.0.3 The Contractor will follow Brock University's Confined Space Entry Program with respect to entry plans, Confined Space Entry Permit *ANNEX B*, and Coordinating Document – Confined Space Entry Document *ANNEX C*.
- 4.0 **Confined Space Program.** In accordance with O.Reg. 632/05, Regulation for Confined Spaces, Brock University must develop and maintain a Confined Space Program which provides for the following;
- 4.0.1 A method of recognizing confined spaces.
 - 4.0.2 A method for recognizing hazards to which workers may be exposed.
 - 4.0.3 A method for developing confined space entry plans.
 - 4.0.4 A method for general training of workers.
 - 4.0.5 An entry permit system.
- 5.0 **Confined Space Identification and Evaluation.** It is important that each space be evaluated and a hazard assessment be performed to determine whether a space meets the criteria to be deemed a confined space (see definition Section 8). An inventory of confined spaces located within all of the Brock Campuses can be found in *ANNEX A*. The inventory is current as of March 2008. As new buildings are added the same identification of confined space methodologies must be used and any new spaces added to the inventory. All of the confined spaces identified have been divided into four Confined Space Entry Plans;
- 5.0.1 Manholes, Sump Pits, Grease Traps, Valve Chambers and Pond Pump Room *ANNEX D*
 - 5.0.2 Pipe Chase, and Crawlspace *ANNEX E*
 - 5.0.3 Filter Tanks *ANNEX F*
 - 5.0.4 Tanks and Boilers *ANNEX G*
- 6.0 **Confined Space Entry Procedure.** Prior to entry into a confined space the following must be completed;
- 6.0.1 The relevant entry plan must be prepared by the supervisor in charge of the work to be done and reviewed by all affected workers.
 - 6.0.2 Entry personnel, attendants and rescue team members must have received confined space training and be totally familiar with the relevant entry plan for the work to be performed.



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- 6.0.3 All hazards associated with the confined space must be identified (including hazards that may be generated by work to be performed in the confined space) and recorded on the entry permit.
- 6.0.4 Rescue equipment must be on site, tested and capable of use as per design.
- 6.0.5 All Rescue Team members must be trained in Confined Space Rescue and in the use of the relevant rescue equipment.
- 6.0.6 The atmosphere inside the confined space must be tested for hazardous conditions by properly calibrated instruments and entered on the entry permit.

Each confined space is considered separately with a specific confined space entry plan applicable to the space where work is to be undertaken. It is the responsibility of the supervisor of the specific work to prepare the Brock University Confined Space Entry Plan *ANNEX J*, which should include the following elements;

- a. Work to be performed
- b. Hazard assessment
- c. Written plan
- d. Plan-specific training (if applicable)
- e. Entry permits
- f. Written on-site rescue procedures and equipment
- g. Isolation of energy and control of materials movement
- h. Attendants
- i. Entering and exiting
- j. Unauthorized entry
- k. Atmospheric testing
- l. Explosive and flammable substances
- m. Ventilation and purging of atmospheric hazards.

NOTE: Brock University personnel will not be employed to perform work in a confined space that cannot be rendered safe to enter without wearing proper respiratory protection. All work in these areas will be contracted out to qualified contractors who can demonstrate a confined space entry plan acceptable to the University.

Hazard assessments are required to ensure all potential hazards are identified and means of dealing with the hazard are determined and communicated to all parties. The hazard assessment should review the following *ANNEX I*:



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- a. Oxygen deficiency/oxygen enrichment
- b. Flammable, combustible or explosive agents
- c. Toxic air contaminants, smoke, fumes, and dusts and corresponding OELs
- d. Residual chemicals/materials
- e. Ignition hazards, including hot work, tools and other potential sources of ignition
- f. Chemical contact hazards, including acids, alkalis
- g. Physical hazards, including mechanical hazards, thermal stress, humidity, radiation, noise and vibration, working/walking surfaces, engulfing materials, physical obstacles, poor visibility
- h. Electrical hazards, including lines and cables, exposed terminals
- i. Traffic hazards, including pedestrian, mobile equipment
- j. Biological hazards, including animals and biological agents
- k. Other hazards related to the confined space, including piping/distribution systems, pressurizing fluids, any type of uncontrolled energy (water, liquid, vapour, electric, magnetic, gaseous, etc.), limited access and egress.

Entry permits must be completed for every confined space entry. The entry permit must be available to all parties involved in the confined space entry and be posted conspicuously at the site.

7.0 Training. All tradesmen are required to annually complete general confined space awareness training. Plan specific training will be provided to supervisors, those employees who may be required to work in a confined space or as an attendant and rescue personnel. Annual training as it applies to isolation of energy sources as per FMOP 2-1 Lockout / Tagout Procedures is also required. Records of attendance shall be kept.

8.0 Definitions and Relevant Legislation.

"Atmospheric contaminants" is meant to have a similar meaning to "airborne contaminants" with IDLH (immediately dangerous to life or health) levels when referring to airborne contaminants with acute toxicity. Both relate to overexposure that could interfere with a person's ability to escape unaided from a confined space.

"Atmospheric hazards" means,

- (a) 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.



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"Cold work" is work that cannot produce a source of ignition. Examples of cold work include valve adjustment and brush painting

"Confined space" means 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."

"Competent person" means 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;

"Competent worker", in relation to specific work, means a worker who,

(a) is qualified because of knowledge, training and experience to perform the work,

(b) is familiar with the [Occupational Health and Safety Act](#) and with the provisions of the regulations that apply to the work, and

(c) has knowledge of all potential or actual danger to health or safety in the work

"Flammable gas" is a gas that is capable of being ignited and burned when mixed with the proper proportions of air, oxygen or other oxidizer.

"Flammable liquid" means a liquid with a flash point below 37.8 degrees Celsius and a vapour pressure not exceeding 275 kilopascals absolute at 37.8 degrees Celsius.

"Hot work" is work that could produce a source of ignition, such as a spark or open flame. Examples of hot work include welding, cutting, grinding and the use of non-explosion proof electrical equipment.

"Purging" involves removing contaminants inside the confined space by displacement with air to achieve acceptable atmospheric levels. For example, if a confined space originally contained a toxic gas, air would be blown into the space to reduce the concentration of the toxic gas to below the appropriate atmospheric exposure level.

"Ventilation" means the continuous provision of fresh air into the confined space by mechanical means to maintain acceptable atmospheric levels. It must be continued while work is being carried out within the space, to maintain an acceptable oxygen concentration, to provide protection in case of accidental release of chemicals, to remove contaminants generated by the work performed, or to cool the enclosure.



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Legislation:

Confined Space requirements for the protection of workers at Brock University are found in the following regulations:

1. Reg.851 Regulations for Industrial Establishments as amended by O. Reg. 629/05.
2. O. Reg. 213/91 Regulations for Construction Projects, as amended by O. Reg. 628/05
3. O.Reg. 632/05, Regulation for Confined Spaces

Annexes

Annex A	Summary of Confined Space Identification
Annex B	Confined Space Entry Permit
Annex C	Confined Space Entry - Coordinating Document
Annex D	Confined Space Entry – Manholes, Sump Pits, Grease Traps, Valve Chambers and Pond Pump Room
Annex E	Confined Space Entry – Pipe Chase and Crawlspace
Annex F	Confined Space Entry – Filter Tanks
Annex G	Confined Space Entry – Tanks and Boilers
Annex H	Mechanical Ventilation
Annex I	Hazard Assessment Form
Annex J	Confined Space Entry Plan Form