

Topic: Confined Space Entry

Nova Scotia

Occupational Safety General Regulations

APPLICATION AND INTERPRETATION

129 (1) In this Part, "confined space" means an enclosed or partially enclosed space:

- (a) not designed or intended for regular human occupancy;
- (b) with restricted access or exit; and
- (c) that is or may become hazardous to a person entering it because of its design, construction, location, atmosphere or the materials or substances in it or other conditions.

(1A) When assessing whether a space is or may become hazardous to a person entering it because of its atmosphere under clause (1)(c), a person must not take into account the protection afforded to a person through the use of personal protective equipment or ventilation.

(2) Sections 130 to 137 do not apply to:

- (a) a development heading in an underground mine; and
- (b) a firefighter engaged in structural fire-fighting or rescue, if the firefighter has received adequate training for confined space entry and rescue.

[N.S. Reg. 52/2000, s. 66; 53/2013, s. 53]

ASSESSMENT AND WRITTEN PROCEDURES

130 (1) An employer shall ensure that no person enters a confined space until the employer has fulfilled the requirements of this Section and a competent person has provided a written certificate, in accordance with Section 131.

(2) Where a workplace includes a confined space, the employer shall ensure that a person who may be required to enter the confined space has the information necessary to identify it as such.

(3) Where at least one confined space has been identified, an employer shall establish a written confined space entry procedure that includes provision:

- (a) that prior to the entry of a person into the confined space, an assessment of the confined space is;
 - (i) done in accordance with subsection (8), and

- (ii) recorded by the person conducting the assessment in accordance with Section 131,
- (b) for the training required by a person who may enter a confined space in the course of the person's work, and for the training required by a person who may undertake rescue operations with regard to a confined space, including training on;
 - (i) proper use of personal protective equipment,
 - (ii) written rescue procedures,
 - (iii) maintaining contact between a person in the confined space and an attendant required under clause 134(2)(a) and the means by which the written rescue procedure is initiated in the event of an emergency in the confined space,
 - (iv) the limitations on the type of work that can be performed in the confined space, and
 - (v) the means of identifying a hazard while in a confined space,
- (c) for the process for notifying a person entering a confined space of the specific type of work that may be performed in the confined space;
- (d) for the method to be followed by a person entering into, exiting from or occupying the confined space;
- (e) for the protective equipment that is to be used by every person entering the confined space;
- (f) for the written emergency procedures to be followed in the event of an accident or other emergency in or near the confined space, including;
 - (i) immediate evacuation of the confined space when an alarm is activated or there is any significant, unexpected and potentially hazardous change in the concentration, level or percentage referred to in subsection (8),
 - (ii) a determination of whether more than one person is required to be present outside a confined space during the occupancy of any person, and
 - (iii) a written rescue procedure,
- (g) for the protective equipment and emergency equipment to be used by a person who undertakes rescue operations in the event of an accident or other emergency;
- (h) for a written procedure for testing the confined space in an adequate manner, at regular intervals and on a continuous basis, if necessary, to ensure the concentration or level of a hazardous substance or physical agent complies with the limits in subsection (8); and
- (i) for a means of ventilating the confined space to ensure the removal or dilution of all airborne hazardous substances from the confined space.

(4) An employer shall provide to each person entering the confined space and a person who may undertake rescue operations the protective equipment and emergency equipment referred to in this Section.

(5) An employer shall ensure that:

- (a) a person who enters a confined space is trained at least once every 2 years in

- accordance with the procedures set out in clause (3)(b); and
- (b) a person who undertakes rescue operations is trained at least once every year in accordance with the procedures set out in clause (3)(b).

(6) Every person who enters into, exits from or occupies the confined space shall follow the written procedures and use the protective equipment and emergency equipment as required.

(7) An employer shall review the confined space entry procedure at least once a year and amend it, if necessary.

(8) An employer shall designate a competent person who shall perform the assessment required in clause (3)(a), which shall include:

- (a) where the level of a chemical substance or a mixture of chemical substances may constitute a hazard, tests to ensure that the concentration of a chemical substance or a mixture of chemical substances in the confined space does not exceed its occupational exposure limit under Part 2: Occupational Health, of the Workplace Health and Safety Regulations made under the Act or 50% of its lower explosive limit;
- (b) where the level of a physical agent may constitute a hazard, tests to ensure that the level of the physical agent in the confined space is not hazardous;
- (c) tests to ensure that the level of oxygen in the atmosphere in the confined space is not less than 19.5 % and not more than 22.5 %, unless the employer can demonstrate that an unsafe oxygen level is not a possibility in the circumstance;
- (d) a determination of whether the concentrations, levels or percentages referred to in clauses (a), (b) and (c) can be maintained during the period of proposed occupancy of the confined space;
- (e) a confirmation that any liquid in which the person may drown or any free flowing solid in which a person may become entrapped has been removed from the confined space or that work practices have been established that specifically address the presence of the liquid or solid;
- (f) a confirmation that entry of any liquid, free flowing solid or hazardous substance into the confined space that could endanger the health or safety of a person has been prevented by a secure means of disconnection, the fitting of blank flanges or the implementation of a double block and bleed written procedure established by the employer or similar positive actions;
- (g) confirmation that a machine, equipment, tool or electrical installation that presents a hazard to a person entering into, exiting from or occupying the confined space has been locked out; and
- (h) confirmation that the opening for entry into and exit from the confined space is sufficient to allow safe passage of a person who is using personal protective equipment or emergency equipment.

(9) Where there is no possibility that a hazard identified in clauses (8)(a), (b) and (c) may occur, the requirements of clause (3)(h) do not apply.

(10) The competent person referred to in subsection (8) shall, when performing the tests required under clauses (8)(a), (b) and (c), use appropriate and properly calibrated instruments that have been functionally tested and maintain a written record of the functional and calibration tests.

(11) An employer shall keep the assessment and the confined space entry procedure required under subsection (3) at the place of business of the employer nearest to the workplace at which the confined space is located.

(12) An employer shall make available a copy of the confined space entry procedure to all persons involved in the entry of a confined space.

[N.S. Reg. 52/2000, s. 67; 53/2013, s. 54]

CERTIFICATION OF CONFINED SPACE CONDITIONS

131 (1) Subsequent to performing the tests required in clauses 130(8)(a), (b) and (c), a competent person shall certify, in writing, that the conditions tested in the confined space are likely to be maintained within a predicted and recorded range for the entire time the certification is valid, and the certification shall include:

- (a) the signature of the competent person;
- (b) the date and time of when the tests were performed;
- (c) the type of work that;
 - (i) can be performed in the confined space, and
 - (ii) is explicitly banned in the confined space,
- (d) the means by which the work is to be performed;
- (e) the expiry date and time of the certification; and
- (f) a record of the tests performed and of the test results.

(2) No certification issued under subsection. (1) shall be valid for longer than 24 hours after the time the tests required by clauses 130(8)(a), (b) and (c) were performed.

(3) An employer shall post a copy of the currently valid certification required in subsection. (1) at the entrance to the confined space for the duration of the confined space occupancy.

(4) An employer shall maintain a copy of the certification required in subsection. (1) for 12 months.

[N.S. Reg. 53/2013, ss. 55, 93]

PURGING AND FURTHER TESTING

132 Where the tests required in clauses 130(8) (a), (b) and (c) indicate that the concentration level or percentage referred to in those clauses cannot be complied with, an employer shall:

- (a) ensure that, where reasonably practicable, the confined space is purged until concentrations are below the hazards referred to in clauses 130(8)(a) to (d); and
- (b) after the purging, ensure that the tests required under subsection 130(8) are conducted again.

[N.S. Reg. 53/2013, s. 56]

RESPONSE TO HAZARDOUS CONDITION

133 (1) An employer shall ensure that no person enters or remains in a confined space where the tests conducted under clause 130(8)(a) indicate that a concentration of a chemical substance or mixture of chemical substances in the confined space equals or exceeds 50% of the lower explosive limit of the chemical substance or mixture of chemical substances.

(2) Where the concentration of a chemical substance or mixture of chemical substances may cause a flammable or explosive hazard, and where the tests conducted under clause 130(8)(a) indicate that the concentration of the substance or substances in a confined space is between 10% and 50% of the lower explosive limit, an employer shall:

- (a) provide explosion-proof lighting and ensure that it is used where necessary; and
- (b) ensure that the only work performed in the confined space is cleaning or inspecting and is of such a nature that it does not create any source of ignition.

(3) Where the level of oxygen in a confined space is more than 22.5% and a person is to work in the confined space, an employer shall ensure that the confined space does not contain any substance which would be classified as flammable and combustible material or as dangerously reactive material under the Controlled Products Regulations made under the Hazardous Products Act (Canada).

(4) Despite subsection. (1), where the tests conducted under clause 130(8)(a) indicate that the concentration of a chemical substance or mixture of chemical substances in the confined space exceeds, or is likely to exceed, 50% of the lower explosive limit, measured at atmospheric conditions containing 20.9% oxygen, of the chemical substance or mixture of chemical substances and cannot be lowered below that prescribed threshold level, a person may enter the confined space if the employer ensures that:

- (a) the atmosphere is confirmed inert by a competent person after the performance of appropriate tests; and
- (b) the person is using appropriate protective equipment when working in the confined space.

[N.S. Reg. 52/2000, s. 68]

PROTECTIVE EQUIPMENT AND SECURITY MEASURES

134 (1) An employer must ensure that all of the following is provided as close as reasonably practicable to the entrance to the confined space before a person enters the confined space:

- (a) all protective equipment and emergency equipment identified under subsection 130(3); and
- (b) adequate rescue equipment including a yoke and adequate means to lift an unconscious person.

(2) Where a person enters a confined space, an employer shall ensure that a competent person:

- (a) is in attendance in the immediate vicinity of the confined space;
- (b) has a means of adequate communication with a person inside the confined space;
- (c) is provided with a means of activating the rescue procedure in an emergency;
- (d) is adequately trained in the emergency response procedure; and
- (e) maintains a record of who is in the confined space.

(3) An employer shall:

- (a) where reasonably practicable, provide a person entering into and occupying a confined space with a full body harness;
- (b) ensure that a full body harness provided under clause (a) is worn; and
- (c) where it does not present a hazard, ensure that an attached life line is;
 - (i) securely fastened to an anchor point, and
 - (ii) controlled by the competent person referred to in subsection (2).

(4) An employer shall ensure that the full body harness referred to in subsection (3) complies with the requirements for Group E harnesses in the latest version of CSA standard CSA 259.10, "Full Body Harnesses".

[N.S. Reg. 52/2000, s. 69;
53/2013, ss. 57, 93]

RESPIRATORY PROTECTIVE EQUIPMENT

135 (1) An employer shall provide:

- (a) appropriate respiratory protective equipment to a person who enters a confined space where the concentration of a chemical substance or a mixture of chemical substances in a confined space is hazardous to the health or safety of a person; and
- (b) positive pressure respiratory protective equipment to a person who enters a confined space where the concentration of oxygen is less than 19.5 %.

(2) An employer shall ensure that the respiratory protective equipment referred to in clause (1)(b):

- (a) has an air line and an independent 5-minute supply of air; or
- (b) is self-contained and equipped with an audible alarm that sounds when the air supply has diminished to;

- (i) 20% of the capacity of the unit, or
- (ii) a 5-minute reserve.

[N.S. Reg. 52/2000, s. 70]

HAZARD OF ELECTRIC SHOCK

136 Where there is a hazard of electrical shock in a confined space, an employer shall ensure that electrical equipment taken into the confined space is:

- (a) battery operated;
- (b) double insulated;
- (c) bonded to ground and not exceeding 30 v and 100 volt-amperes; or
- (d) equipped with a ground fault circuit interrupter of the Class A type that complies with the latest version of CSA standard CSA C22.1, "Canadian Electrical Code Part 1, Safety Standard for Electrical Installations" and that is tested before each use.

[N.S. Reg. 53/2013, s. 58]

137 An employer shall ensure that adequate warning signs and barricades are installed or erected to protect a person working as part of a confined space entry, if a hazard from any form of traffic exists.

General Blasting Regulations (N.S. 77/90), Section 15 and Section 19
Nova Scotia has also written a "Guidelines for Entry into Confined Spaces" document.

BODY HARNESSSES AND SAFETY ROPES

197 (1) In this Section and Sections 198 and 199:

- (a) "body harness" means a harness consisting of leg and shoulder straps and an upper back suspension unit that will distribute and reduce the impact force of any fall; and
- (b) "confined space" means a confined space as defined in subsection 129(1).

(2) A firefighter entering a confined space for the purposes of rescue shall wear a body harness that complies with or exceeds the latest version of NFPA standard NFPA 1983, "Standard on Fire Service Life Safety Rope and System Components", and self-contained respiratory protective equipment that complies with or exceeds the latest version of NFPA standard NFPA 1981, "Standard on Open-Circuit Self-Contained Breathing Apparatus for the Fire Service".

[N.S. Reg. 53/2013, s. 87]

Newfoundland

Occupational Health and Safety Regulations

CONFINED SPACE ENTRY

511 (1) An employer shall perform an assessment of the work area to determine whether it contains a confined space.

(2) For the purpose of this Part, "confined space" means an enclosed or partially enclosed space that:

- (a) is not designed or intended for human occupancy except for the purpose of performing work;
- (b) has restricted means of access and egress; and
- (c) may become hazardous to a person entering it as a result of:
 - (i) its design, construction, location or atmosphere,
 - (ii) the materials or substances in it, or
 - (iii) any other conditions relating to it.

(3) A worker shall not work in a confined space after January 1, 2013 unless he or she has completed a confined space entry program prescribed by the commission.

(4) An employer shall inform a worker who may have to work in a confined space of a hazard by posting signs or other equally effective means of advising of the existence of and dangers posed by confined spaces.

CORRECTIVE PRECAUTIONS

512 (1) Upon first entering a confined space, a worker shall assume the space is hazardous until the contrary is demonstrated.

(2) An employer shall ensure that a worker does not enter a confined space until:

- (a) an adequate assessment of the hazards related to the confined space has been carried out;
- (b) a source containing a hazardous substance leading to the confined space is safely and completely blocked off or disconnected;
- (c) a test required under subsection (11) has been completed;
- (d) the worker is qualified to safely enter and perform duties within the confined space;
- (e) a written work permit documenting the tests and safety precautions has been completed; and
- (f) a set of written safe work procedures has been developed and a worker has been instructed in these procedures.

(3) The assessment referred to in paragraph (2)(a) shall be recorded in writing and shall

consider, with respect to each confined space:

- (a) the hazards that may exist due to the design, construction, location, use or contents of the confined space; and
- (b) the hazards that may develop while work is done inside the confined space.

(4) The record of the assessment may be incorporated into an entry permit.

(5) Where 2 or more confined spaces are of similar construction and present the same hazards, their assessments may be recorded in a single document, but each confined space shall be clearly identified in the assessment.

(6) The employer shall appoint a person with adequate knowledge, training and experience to carry out the assessment and shall maintain a record containing details of the person's knowledge, training and experience.

(7) The assessment shall contain the name of the person who carries out the assessment.

(8) The person shall sign and date the assessment and provide it to the employer.

(9) On request, the employer shall provide copies of the assessment and of the record to:

- (a) the joint health and safety committee or the health and safety representative; or
- (b) every worker who performs work to which the assessment relates, where the workplace has no joint health and safety committee or health and safety representative.

(10) The employer shall ensure that the assessment is reviewed as often as necessary to ensure that the assessment referred to in paragraph (2)(a) remains current.

(11) Appropriate tests for harmful vapours, gasses, fumes, mists, dusts or explosive substances and oxygen deficiency shall be made and recorded:

- (a) before entry into the confined space;
- (b) after an interruption in the work procedures; and
- (c) at appropriate intervals.

(12) Where a test made under subsection (11) indicates an unsafe condition, the confined space shall be ventilated or cleaned or both and periodically retested to ensure that:

- (a) the oxygen content is between 20% and 22%;
- (b) the concentration of flammable substances is maintained below 10% of the lower explosive limit (LEL) of that substance or substances; and

(c) a worker's exposure to harmful substances is maintained at acceptable levels in accordance the TLVs established by ACGIH.

(13) Where a test under subsection (11) indicates the presence of a harmful or explosive substance and it is not feasible to provide a safe respirable atmosphere, an employer shall ensure that:

- (a) a worker entering the confined space is provided with and wears respiratory and personal protective equipment appropriate to the hazards likely to be encountered; and
- (b) where a flammable or explosive gas or liquid is present all sources of ignition are controlled or eliminated.

(14) Where control measures referred to in subsection (13) cannot be implemented, a worker shall leave the confined space.

(15) Tests made under in subsection (11) shall be performed by a person who has been adequately trained in the proper use of testing and monitoring equipment.

(16) Equipment used in testing and monitoring shall be calibrated and monitored according to the manufacturer's instructions.

(17) The completed permit referred to in paragraph (2)(e) shall be made available at the time of entry to all authorized personnel by posting it at the entry portal or by another effective means.

WORK PROCEDURES

513 (1) An employer shall ensure that a worker who is required or permitted to enter a confined space in which a harmful atmosphere exists or may develop or where he or she may become entrapped by material:

- (a) wears appropriate retrieval equipment which would keep the worker in a position to be rescued; and
- (b) has a life-line attached to the retrieval equipment which is tended at all times by a person, stationed outside the entrance to the confined space who shall be equipped for and capable of effecting rescue and the employer shall prevent entanglement of life-lines and other equipment where one or more workers enter the confined space.

(2) Notwithstanding subsection (1), the use of a lifeline is not required where an obstruction or other condition makes its use impractical or unsafe but, in that case, an employer shall implement procedures to ensure the safety of the worker.

(3) Where a worker is required to enter a confined space his or her employer shall ensure that an attendant:

- (a) is assigned the worker;
- (b) is stationed outside and near;
 - (i) the entrance to the confined space, or
 - (ii) where there is more than one entrance to the confined space, the one that best allows the attendant to perform his or her duties under subsection (4),
- (c) is in continuous communication with the worker using the means of communication described in the relevant safe work procedure; and
- (d) is provided with a device for summoning an adequate rescue response.

(4) An attendant shall not enter a confined space and shall, in accordance with the required safe work procedure:

- (a) monitor the safety of the worker in the confined space;
- (b) provide assistance to him or her; and
- (c) summon an adequate rescue response where one is required.

ENTRY INTO CONFINED SPACE

514 A confined space shall be entered only where:

- (a) the opening for entry and exit is sufficient to allow safe passage of a person wearing personal protective equipment;
- (b) mechanical equipment in the confined space is;
 - (i) disconnected from its power source, and
 - (ii) locked out and tagged,
- (c) pipes and other supply lines whose contents are likely to create a hazard are blanked off;
- (d) measures have been taken to ensure that, where appropriate, the confined space is continuously ventilated;
- (e) liquid in which a person may drown or a free-flowing solid in which a person may become entrapped has been removed from the confined space;
- (f) adequate explosion-proof illumination is provided where appropriate; and
- (g) adequate barriers are erected to prohibit unauthorized entry.

EXPLOSIVES OR FLAMMABLE ATMOSPHERE

515 An employer shall ensure that a worker does not enter or remain in a confined space that contains or is likely to contain an explosive or flammable gas or vapour, unless:

- (a) the worker is performing only inspection, work that does not produce a source of ignition and, in the case of an explosive or flammable gas or vapour, the atmospheric concentration is less than 25% of its lower explosive limit, as determined by a combustible gas measuring instrument;
- (b) the worker is performing only cold work and, in the case of an explosive or

- flammable gas or vapour, the atmospheric concentration is less than 10% of its lower explosive limit as determined by combustible gas instruments; or
- (c) the worker is performing hot work and all of the following conditions are satisfied;
- (i) in the case of an explosive or flammable gas or vapour, the atmospheric concentration is less than 5% of its lower explosive limit, as determined by a combustible gas instrument,
 - (ii) the atmosphere in the confined space does not contain, and is not likely to contain while a worker is inside, an oxygen content greater than 23%,
 - (iii) the atmosphere in the confined space is monitored continuously,
 - (iv) the entry permit includes adequate provisions for hot work and corresponding control measures, and
 - (v) an adequate alarm system and exit procedures are provided to ensure that workers have adequate warning and are able to exit the confined space safely where either or both of the following occur, in the case of an explosive or flammable gas or vapour,
 - (A) the atmospheric concentration exceeds 5% of its lower explosive limit; or
 - (B) the oxygen content of the atmosphere exceeds 23% by volume.

RESCUE FROM CONFINED SPACE

516 An employer shall ensure that emergency rescue procedures are established and followed where workers are trained in the event of an accident or other emergency in or near the confined space, including immediate evacuation of the confined space.

New Brunswick

General Regulation - Occupational Health and Safety Act

262 In this Part:

"confined space" means an enclosed or partially enclosed space not designed or intended for continuous human occupancy with restricted access or egress and which is or may become hazardous to a person entering it because of its design, construction, location, atmosphere or the materials or substances in it or other conditions, but does not include a development heading in an underground mine;

"physical agent" means an energy or influence, such as noise, heat, cold or radiation that may affect the body or a part of the body or a function of the body.

262.1 This Part does not apply to a firefighter engaged in structural fire-fighting or rescue.

[N.B. Reg. 97-121, s. 40]

263 (1) Where an employee is about to enter into a confined space, an employer shall appoint a competent person to verify by tests that:

- (a) the concentration of airborne chemical agents or airborne dust in the confined space is not hazardous to the health or safety of the employee;
- (b) the concentration of an airborne chemical agent or mixture of chemical agents or airborne dust in the confined space does not exceed 50% of its lower explosive limit;
- (c) the level of physical agents in the confined space is not hazardous to the health or safety of the employee;
- (d) the percentage of oxygen in the atmosphere in the confined space is not less than 19.5% by volume and not more than 23% by volume;
- (e) the concentration, level or percentage referred to in paragraphs (a) to (d) is able to be maintained during the period of proposed occupancy of the confined space by the employee;
- (f) any liquid in which the employee may drown or any free flowing solid in which the employee may become entrapped has been removed from the confined space;
- (g) the entry of any liquid, free flowing solid or any hazardous substance into the confined space in a quantity that could endanger the health or safety of the employee has been prevented by a secure means of disconnection or the fitting of blank flanges;
- (h) all electrical equipment and machines that present a hazard to an employee entering into, exiting from or occupying the confined space have been locked out, with the machines being put in a zero energy state and locked out in accordance with sections 239 and 240; and
- (i) the opening for entry into and exit from the confined space is sufficient to allow safe passage of an employee who is using protective equipment or emergency equipment.

(2) The competent person referred to in subsection (1) shall, when performing the tests required under paragraphs (1)(a) to (d), use appropriate and properly calibrated instruments that have been functionally tested.

(3) The competent person referred to in subsection (1) shall in a written report:

- (a) set out;
 - (i) the results of the tests made under subsection (1), and
 - (ii) an evaluation of the hazards of the confined space,
- (b) set out the procedures to be followed by an employee entering into, exiting from or occupying the confined space;
- (c) identify the protective equipment that is to be used by every employee entering the confined space;
- (d) set out the emergency procedures to be followed in the event of an accident or other emergency in or near the confined space, including immediate evacuation of the confined space when an alarm is activated or there is any significant change in the concentration, level or percentage referred to in subsection (1);

and

- (e) identify the protective equipment and emergency equipment to be used by an employee who undertakes rescue operations in the event of an accident or other emergency.

(4) An employer shall provide to each employee entering the confined space the protective equipment referred to in paragraph (3)(c) and to each employee who may undertake rescue operations the protective equipment and emergency equipment referred to in paragraph (3)(e).

(5) An employer shall ensure that the written report referred to in subsection (3) and any procedures set out in the report are explained to an employee who is about to enter into the confined space or who may undertake a rescue operation in the confined space and the employee shall read the report and acknowledge that the report and the procedures were explained to the employee by signing a dated copy of the report.

(6) An employer shall ensure that an employee who is about to enter into the confined space is instructed and trained in the procedures referred to in subsection (3) and in the use of the protective equipment referred to in paragraph (3)(c) and that an employee who may undertake rescue operations is instructed and trained in the procedures referred to in subsection (3) and in the use of the protective equipment and emergency equipment referred to in paragraph (3)(e).

(7) Every employee who enters into, exits from or occupies the confined space shall follow the procedures referred to in subsection (3) and use the protective equipment and emergency equipment referred to in subsection (3) as required.

264 (1) Where the tests referred to in subsection 263(1) indicate that paragraphs 263(1)(a) to (d) cannot be complied with, an employer shall, where practicable, purge the confined space to eliminate the hazards referred to in paragraphs 263(1)(a) to (d) and have the competent person re-conduct the tests required under subsection 263(1).

(2) An employer is not required to purge a confined space more than once.

265 Where the competent person referred to in subsection 263(1) is unable to ensure that the concentration, level or percentage referred to in paragraphs 263(1)(a) to (d) is able to be maintained or where there is a possibility that a hazard referred to in paragraphs 263(1)(a) to (d) may occur while an employee is in the confined space, the competent person shall ensure that the confined space is continuously monitored for the hazard while the employee is in the confined space.

266 (1) An employer shall ensure that:

- (a) all protective equipment and emergency equipment identified under subsection 263(3);

- (i) have been inspected by a competent person,
 - (ii) are in good working order, and
 - (iii) are at the entrance to the confined space before an employee enters the confined space,
- (b) a competent employee trained in the procedures referred to in subsection 263(3) is;
- (i) in attendance outside the confined space,
 - (ii) in constant communication with the employee inside the confined space, and
 - (iii) provided with a suitable alarm for summoning assistance,
- (c) the competent employee referred to in paragraph (b);
- (i) holds a valid standard-level first aid certificate issued by the Canadian Red Cross Society or St. John Ambulance, and
 - (ii) is trained in artificial respiration and cardiopulmonary resuscitation,
- (d) where required under subsection 263(3), every employee entering into, exiting from and occupying the confined space wears a full body harness attached to a life line that is attached to a secure anchor outside the confined space and is controlled by the competent employee referred to in paragraph (b);
- (e) where there is more than one employee in the confined space, steps are taken to ensure that any life lines attached to body harnesses worn by the employees do not become entangled; and
- (f) an employee who is trained in the emergency procedures referred to in subsection 263(3) and who is fully informed of the hazards in the confined space is in the immediate vicinity of the confined space to assist in the event of an accident or other emergency.

(2) An employer shall ensure that the full body harness referred to in paragraph (1)(d) meets the requirements for Group E harnesses in CSA standard CAN/CSA-Z259.10-M90, "Full Body Harness".

[N.B. Reg. 2001-33, s. 90]

267 (1) An employer shall not permit an employee to enter or remain in a confined space where the concentration of an airborne chemical agent or mixture of chemical agents or airborne dust in the confined space exceeds 50% of the lower explosive limit of the chemical agent or mixture of chemical agents or dust.

(2) Where the concentration of an airborne chemical agent or mixture of chemical agents or airborne dust in a confined space does not exceed 50% of its lower explosive limit, an employer shall ensure that:

- (a) explosion proof lighting is used; and
- (b) the only work performed by the employee in the confined space is that of cleaning or inspecting and is of such a nature that it does not create any source of ignition.

(3) Where the concentration of an airborne chemical agent or mixture of chemical agents or airborne dust in a confined space does not exceed 10% of its lower explosive

limit, an employer shall ensure that:

- (a) explosion proof lighting is used; and
- (b) the only work performed in the confined space is cold work using non-sparking equipment.

268 Where the concentration of airborne chemical agents or mixture of chemical agents or airborne dust in a confined space is hazardous to the health or safety of an employee or where the percentage of oxygen in the confined space is less than 19.5% by volume, an employer shall ensure that an employee who enters the confined space uses appropriate respiratory protective equipment capable of providing at least five minutes reserve of unaided life support beyond the time the employee is expected to be in the confined space.

269 Where the percentage of oxygen in a confined space is more than 23% by volume and an employee is to enter or work in the confined space, an employer shall ensure that the confined space does not contain any substance specified as flammable and combustible material or as dangerously reactive material in the Controlled Products Regulations under the Hazardous Products Act (Canada).

270 An employer shall ensure that electrical equipment taken into a wet or solidly grounded confined space is:

- (a) battery operated;
- (b) double insulated;
- (c) bonded to ground, extra low voltage and not exceeding 30 volts and 100 volt-amps; or
- (d) bonded to ground and equipped with a ground fault circuit interrupter of the Class A type, which is tested before each use.

271 (1) An employer shall ensure that the written report of a competent person required under subsection 263(3) is kept at the place of business of the employer nearest to the place of employment at which the confined space is located for a period of two years from the date on which the competent employee signed the report.

(2) An employer shall make the written report referred to in subsection (1) available to an officer on request.

272 An employer shall ensure that adequate warning signs and barricades are installed to protect an employee in a confined space if a hazard from any form of traffic exists.

Prince Edward Island

Occupational Health and Safety Act General Regulations

PORTABLE HEATERS

7.3 The employer shall ensure that portable heaters are not:

- (a) used in a confined space;
- (b) located in or adjacent to a means of egress.

DEFINED, "CONFINED SPACE"

13.1 In this Part, "confined space" means an enclosed or partially enclosed space:

- (a) not designed or intended for human occupancy;
- (b) with restricted access or exit; and
- (c) that is or may become hazardous to a person entering it because of its design, construction, location, atmosphere or the materials or substances in it or other conditions, and includes any bin, tank, tanker, tunnel, silo, sewer, vault, chamber, pipeline, pit, vessel, vat and flue.

[EC2007-652, s. 2]

CONDITIONS FOR ENTRY OF CONFINED SPACE

13.2 The employer shall ensure that an employee enters a confined space only where:

- (a) there is a safe method of access and egress from all parts of the confined space;
- (b) mechanical equipment in the confined space is;
 - (i) disconnected from its power source, and
 - (ii) locked out,
- (c) prior to entry;
 - (i) piping containing hazardous substances or substances under pressure or so located as to allow hazardous substances to enter such space is disconnected, blanked or blinded off, or
 - (ii) where it is impossible to employ blanks or blinds, as in welded piping systems, written work procedures are developed in consultation with (the Division, committee, or representative) and implemented to ensure equivalent protection to all employees exposed to the hazard but the closing of a valve on any line is not an acceptable substitute for blanking or blinding,
- (d) the confined space is tested and evaluated by a competent person, properly equipped with personal protective equipment, who;
 - (i) used an approved calibrated instrument that has been functionally tested,
 - (ii) records the results of each test in a permanent record which is available to an officer,
 - (iii) certifies in writing in a permanent record that the confined space is free from hazard, and
 - (iv) specifies the procedures to be followed to ensure that the space remains

free of hazard,

- (e) ground fault circuit interrupters are used for electrical equipment taken into wet or solidly grounded confined spaces unless battery operated or safety low voltage equipment is used; and
- (f) training in emergency procedures is provided for employees assigned to a confined space entry job including the employee stationed outside the confined space.

HAZARDOUS CONFINED SPACE, CONDITIONS FOR ENTRY

13.3 The employer shall ensure that a confined space in which there exists or is likely to exist:

- (a) a hazardous accumulation of gas, vapour, dust, mist, smoke or fumes; or
- (b) an oxygen content of less than 19.5% or more than 23% at atmospheric pressure is entered only when;
- (c) the requirements of sections 13.2 and 13.5(a) are complied with;
- (d) the space is purged and ventilated to provide a safe atmosphere; and
- (e) provisions for continuous or periodic monitoring have been established to ensure that the hazardous condition does not recur;
- (f) another employee is stationed outside the confined space;
- (g) the employee entering the space is using such other equipment as is necessary to ensure his safety;
- (h) suitable arrangements have been made to remove the employee from the confined space should it be required;
- (i) a person adequately trained in cardiopulmonary resuscitation is conveniently available;
- (j) the employee entering is using a CSA approved breathing apparatus;
- (k) the employee entering the space is wearing an approved safety harness with attached life line that will permit that employee to be removed from the space; if more than one employee is working in the space, steps have been taken to ensure that the life lines do not become entangled;
- (l) another employee is stationed outside the confined space and in addition, equipment and persons are available to ensure immediate removal of employees within the space;
- (m) all safety equipment to be used in the confined space has been inspected by a competent person and is in good working order.

CONFINED SPACE CONTAINING FLAMMABLE VAPOURS

13.4 (1) Subject to subsection (2), where the gas or vapour in a confined space is or is likely to be explosive or flammable, the employer shall ensure that a confined space is entered only where:

- (a) the concentration of the gas or vapour in a confined space does not or is not likely to exceed 50% of the lower explosive limit of the gas or vapour; and

(b) the only work to be performed is that of cleaning or inspecting and of such a nature that it does not create any sources of ignition.

(2) Cold work may be performed in a confined space which contains or is likely to contain an explosive or flammable gas or vapour where the concentration does not and is not likely to exceed 10% of the lower explosive limit of the gas or vapour.

SENTINELS

13.5 The employer shall ensure that when an employee enters a confined space, another employee:

- (a) remains in attendance outside the space at all times whenever the space is occupied and visually checks or is in constant voice communication with the employee in the confined space;
- (b) is capable of raising an alarm in order to summon additional assistance;
- (c) does not enter the space unless relieved by another employee;
- (d) ensures that appropriate equipment is stationed outside the space to enable quick and safe entry to the space, should such an entry be required; and
- (e) is knowledgeable in the correct use of the emergency retrieval system procedures.

SIGNS

13.6 The employer shall ensure that warning signs and barricades are installed to protect employees in a confined space where a hazard from any form of traffic exists.

PROHIBITION

13.7 An employee shall not enter a confined space unless the requirements of this Part have been complied with.

Quebec

Safety Code for the Construction Industry

3.21.1. Before work begins in a confined space, the principal contractor, together with the employer, specifies in writing:

- (a) the tools required for the work;
- (b) the equipment installed or to be installed in the confined space and the measures to be taken for its installation, use, maintenance and protection or to move it;
- (c) the pipe and conduits entering the confined space;
- (d) the hazards, and corresponding safety measures to be taken according to the

- work;
- (e) contaminants which may be found in or around the confined space;
- (f) the life saving devices and equipment needed and the corresponding emergency measures.

That information must be available on the job-site.

[O.C. 1959-86, s. 28]

Ontario

Occupational Health and Safety Act – Confined Spaces

DEFINITIONS

1 In this Regulation:

"acceptable atmospheric levels" means that:

- (a) the atmospheric concentration of any explosive or flammable gas or vapour is less than;
 - (i) 25 per cent of its lower explosive limit, if paragraph 1 of subsection 19(4) applies,
 - (ii) 10 per cent of its lower explosive limit, if paragraph 2 of subsection 19(4) applies,
 - (iii) 5 per cent of its lower explosive limit, if paragraph 3 of subsection 19(4) applies,
- (b) the oxygen content of the atmosphere is at least 19.5 per cent but not more than 23 per cent by volume;
- (c) in the case of a workplace that is not a project, the exposure to atmospheric contaminants does not exceed any applicable limit set out in Regulation 833 of the Revised Regulations of Ontario, 1990 (Control of Exposure to Biological or Chemical Agents) made under the Act or Ontario Regulation 490/09 (Designated Substances) made under the Act; and
- (d) in the case of a workplace that is a project, if atmospheric contaminants, including gases, vapours, fumes, dusts or mists are present, their concentrations do not exceed what is reasonable in the circumstances for the protection of the health and safety of workers;

"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;

"adequately" has a meaning that corresponds to the meaning of "adequate";

"assessment" means an assessment of hazards with respect to one or more confined spaces in a workplace, as described in section 6;

"atmospheric hazards" means:

- (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,

"cold work" means work that is not capable of producing a source of ignition;

"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;

"emergency work" means work performed in connection with an unforeseen event that involves an imminent danger to the life, health or safety of any person;

"hot work" means work that is capable of producing a source of ignition;

"lead employer" means 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;

"plan" means a plan for one or more confined spaces in a workplace, as described in section 7;

"program" means a program for one or more confined spaces in a workplace, as described in section 5;

"purging" means displacing contaminants from a confined space;

"related work" means work that is performed near a confined space in direct support of work inside the confined space.

[O. Reg. 492/09, s. 1; 95/11, s. 1]

APPLICATION

2 Subject to section 3, this Regulation applies to all workplaces to which the Occupational Health and Safety Act applies.

EXCEPTIONS

3 (1) This Regulation does not apply to work performed underwater by a diver during a diving operation as defined in Ontario Regulation 629/94 (Diving Operations) made under the Act.

(2) Sections 4 to 7 and 9 to 21 of this Regulation do not apply to emergency work performed by:

- (a) a firefighter as defined in subsection 1(1) of the Fire Protection and Prevention Act, 1997; or
- (b) a person who;
 - (i) holds a certificate under the Technical Standards and Safety Act, 2000 designating him or her as a gas technician, and
 - (ii) is working under the direction of a fire department, as defined in the Fire Protection and Prevention Act, 1997.

(3) A worker described in subsection (2) who performs emergency work shall be adequately protected by:

- (a) personal protective equipment, clothing and devices provided by the worker's employer;
- (b) training under section 8 provided by that employer; and
- (c) written procedures and other measures developed by that employer.

[O. Reg. 23/09, s. 1; 95/11, s. 2]

CONFINED SPACES WITH MULTI-EMPLOYER INVOLVEMENT

4 (1) This section applies if the workers of more than one employer perform work in the same confined space or related work with respect to the same confined space.

(2) Before any worker enters the confined space or begins related work with respect to the confined space, the lead employer or, in the case of a project, the constructor, shall prepare a co-ordination document to ensure that the duties imposed on employers by sections 5 to 7, 9 to 12 and 14 to 20 are performed in a way that protects the health and safety of all workers who perform work in the confined space or related work with respect to the confined space.

(3) Without restricting the generality of subsection (2), in the case of a workplace that is not a project, the co-ordination document may provide for the performance of a duty or duties referred to in that subsection by one or more employers on behalf of one or more other employers with respect to some or all of the workers.

(4) A copy of the co-ordination document shall be provided to:

- (a) each employer of workers who perform work in the same confined space or related work with respect to the same confined space;
- (b) in the case of a workplace that is not a project, the joint health and safety committee or health and safety representative, if any, for each employer of workers who perform work in the same confined space or related work with respect to the same confined space; and
- (c) in the case of a workplace that is a project, the joint health and safety committee or health and safety representative, if any, for the project.

[O. Reg. 95/11, s. 3]

PROGRAM

5 (1) If a workplace includes a confined space that workers may enter to perform work, the employer shall ensure that a written program for the confined space is developed and maintained in accordance with this Regulation before a worker enters the confined space.

(2) A program described in subsection (1) may apply to one or more confined spaces.

(3) In the case of a workplace that is not a project, the program described in subsection (1) shall be developed and maintained in consultation with the joint health and safety committee or the health and safety representative, if any.

(4) A program described in subsection (1) shall be adequate and shall provide for:

- (a) a method for recognizing each confined space to which the program applies;
- (b) a method for assessing the hazards to which workers may be exposed, in accordance with section 6;
- (c) a method for the development of one or more plans, in accordance with section 7;
- (d) a method for the training of workers, in accordance with section 8 or section 9.1, as the case may be; and
- (e) an entry permit system that sets out the measures and procedures to be followed when work is to be performed in a confined space to which the program applies.

(5) In the case of a workplace that is not a project, the employer shall provide a copy of the program to the joint health and safety committee or the health and safety representative, if any.

(6) In the case of a workplace that is a project, the employer shall provide a copy of the program to the constructor, who shall provide a copy of it to the project's joint health and safety committee or the health and safety representative, if any.

(7) The employer or constructor, as the case may be, shall ensure that a copy of the

program is available to:

- (a) any other employer of workers who perform work to which the program relates; and
- (b) every worker who performs work to which the program relates, if the workplace has no joint health and safety committee or health and safety representative.

[O. Reg. 95/11, s. 4]

ASSESSMENT

6 (1) Before any worker enters a confined space, the employer shall ensure that an adequate assessment of the hazards related to the confined space has been carried out.

(2) The assessment shall be recorded in writing and shall consider, with respect to each confined space:

- (a) the hazards that may exist due to the design, construction, location, use or contents of the confined space; and
- (b) the hazards that may develop while work is done inside the confined space.

(3) The record of the assessment may be incorporated into an entry permit under section 10.

(4) If two or more confined spaces are of similar construction and present the same hazards, their assessments may be recorded in a single document, but each confined space shall be clearly identified in the assessment.

(5) The employer shall appoint a person with adequate knowledge, training and experience to carry out the assessment and shall maintain a record containing details of the person's knowledge, training and experience.

(6) The assessment shall contain the name of the person who carries out the assessment.

(7) The person shall sign and date the assessment and provide it to the employer.

(8) On request, the employer shall provide copies of the assessment and of the record mentioned in subsection (5) to:

- (a) the joint health and safety committee or the project's joint health and safety committee, as the case may be, or the health and safety representative, if any; or
- (b) every worker who performs work to which the assessment relates, if the workplace has no joint health and safety committee or health and safety representative.

(9) The employer shall ensure that the assessment is reviewed as often as is necessary

to ensure that the relevant plan remains adequate.

[O. Reg. 95/11, s. 5]

PLAN

7 (1) Before any worker enters a confined space, the employer shall ensure that an adequate written plan, including procedures for the control of hazards identified in the assessment, has been developed and implemented by a competent person for the confined space.

(2) The plan may be incorporated into an entry permit under section 10.

(3) The plan shall contain provisions for:

- (a) the duties of workers;
- (b) co-ordination in accordance with section 4, if applicable;
- (c) on-site rescue procedures, in accordance with section 11;
- (d) rescue equipment and methods of communication, in accordance with section 12;
- (e) personal protective equipment, clothing and devices, in accordance with section 13;
- (f) isolation of energy and control of materials movement, in accordance with section 14;
- (g) attendants, in accordance with section 15;
- (h) adequate means for entering and exiting, in accordance with section 16;
- (i) atmospheric testing, in accordance with section 18;
- (j) adequate procedures for working in the presence of explosive or flammable substances, in accordance with section 19; and
- (k) ventilation and purging, in accordance with section 20.

(4) One plan may deal with two or more confined spaces that are of similar construction and present the same hazards as identified by the assessment.

(5) The employer shall ensure that the plan is reviewed as often as is necessary to ensure that it remains adequate.

HAZARD RECOGNITION AND OTHER GENERAL TRAINING - WORKPLACES OTHER THAN PROJECTS

8 (0.1) This section does not apply to workplaces that are projects.

(1) Every worker who enters a confined space or who performs related work shall be given adequate training for safe work practices for working in confined spaces and for performing related work, including training in the recognition of hazards associated with confined spaces.

(2) The employer shall appoint a person with adequate knowledge, training and

experience to conduct the training.

(3) The employer shall ensure that training under this section is developed in consultation with the joint health and safety committee or the health and safety representative, if any.

(4) The employer shall ensure that training under this section is reviewed, in consultation with the joint health and safety committee or the health and safety representative, if any, whenever there is a change in circumstances that may affect the safety of a worker who enters a confined space in the workplace, and in any case at least once annually.

(5) The employer shall maintain up-to-date written records showing who provided and who received training under this section, the nature of the training and the date when it was provided.

(6) The records may be incorporated into an entry permit under section 10.

(7) Training under this section may be combined with training under section 9.

[O. Reg. 95/11, s. 6]

PLAN-SPECIFIC TRAINING - WORKPLACES OTHER THAN PROJECTS

9 (0.1) This section does not apply to workplaces that are projects.

(1) The employer shall ensure that every worker who enters a confined space or who performs related work:

- (a) receives adequate training, in accordance with the relevant plan, to work safely and properly; and
- (b) follows the plan.

(2) The employer shall maintain up-to-date written records showing who provided and who received training under this section, and the date when it was provided.

(3) The records may be incorporated into an entry permit under section 10.

(4) Training under this section may be combined with training under section 8.

[O. Reg. 95/11, s. 7]

TRAINING - PROJECTS

9.1 (1) This section applies only to workplaces that are projects.

(2) The employer shall ensure that every worker who enters a confined space or who performs related work receives adequate training to perform the work safely, in

accordance with the relevant plan.

(3) Training under subsection (2) shall include training in:

- (a) the recognition of hazards associated with confined spaces; and
- (b) safe work practices for working in confined spaces and for performing related work.

(4) The employer shall maintain up-to-date written records showing who provided and who received training under this section and the date when it was provided.

(5) The employer shall provide the training records under subsection (4) to the project's joint health and safety committee or health and safety representative, if any, on request.

(6) The records may be incorporated into an entry permit under section 10.

[O. Reg. 95/11, s. 8]

ENTRY PERMITS

10 (1) The employer shall ensure that a separate entry permit is issued each time work is to be performed in a confined space, before any worker enters the confined space.

(2) An entry permit shall be adequate and shall include at least the following:

1. The location of the confined space;
2. A description of the work to be performed there;
3. A description of the hazards and the corresponding control measures;
4. The time period for which the entry permit applies;
5. The name of the attendant described in section 15;
6. A record of each worker's entries and exits;
7. A list of the equipment required for entry and rescue, and verification that the equipment is in good working order;
8. Results obtained in atmospheric testing under section 18;
9. If the work to be performed in the confined space includes hot work, adequate provisions for the hot work and corresponding control measures.

(3) Before each shift, a competent person shall verify that the entry permit complies with the relevant plan.

(4) The employer shall ensure that the entry permit, during the time period for which it applies, is readily available to every person who enters the confined space and to every person who performs related work with respect to the confined space.

ON-SITE RESCUE PROCEDURES

11 (1) The employer shall ensure that no worker enters or remains in a confined space unless, in accordance with the relevant plan, adequate written on-site rescue

procedures that apply to the confined space have been developed and are ready for immediate implementation.

(2) Before a worker enters a confined space, the employer shall ensure that an adequate number of persons trained in the matters listed in subsection (3) are available for immediate implementation of the on-site rescue procedures mentioned in subsection (1).

(3) The persons shall be trained in:

- (a) the on-site rescue procedures mentioned in subsection (1);
- (b) first aid and cardio-pulmonary resuscitation; and
- (c) the use of the rescue equipment required in accordance with the relevant plan.

RESCUE EQUIPMENT AND METHODS OF COMMUNICATION

12 (1) The employer shall ensure that the rescue equipment identified in the relevant plan is:

- (a) readily available to effect a rescue in the confined space;
- (b) appropriate for entry into the confined space; and
- (c) inspected as often as is necessary to ensure it is in good working order, by a person with adequate knowledge, training and experience who is appointed by the employer.

(2) The inspection under clause (1) (c) shall be recorded in writing by the person, and the record of the inspection may be incorporated into the entry permit under section 10.

(3) The employer shall establish methods of communication that are appropriate for the hazards identified in the relevant assessment, and shall make them readily available for workers to communicate with the attendant described in section 15.

PERSONAL PROTECTIVE EQUIPMENT, CLOTHING AND DEVICES

13 The employer shall ensure that each worker who enters a confined space is provided with adequate personal protective equipment, clothing and devices, in accordance with the relevant plan.

ISOLATION OF ENERGY AND CONTROL OF MATERIALS MOVEMENT

14 The employer shall, in accordance with the relevant plan, ensure that each worker entering a confined space is adequately protected:

- (a) against the release of hazardous substances into the confined space;
 - (i) by blanking or disconnecting piping, or
 - (ii) if compliance with subclause (i) is not practical in the circumstances for

- technical reasons, by other adequate means,
- (b) against contact with electrical energy inside the confined space that could endanger the worker;
 - (i) by disconnecting, de-energizing, locking out and tagging the source of electrical energy, or
 - (ii) if compliance with subclause (i) is not practical in the circumstances for technical reasons, by other adequate means,
- (c) against contact with moving parts of equipment inside the confined space that could endanger the worker;
 - (i) by disconnecting the equipment from its power source, de-energizing the equipment, locking it out and tagging it, or
 - (ii) if compliance with subclause (i) is not practical in the circumstances for technical reasons, by immobilizing the equipment by blocking or other adequate means, and
- (d) against drowning, engulfment, entrapment, suffocation and other hazards from free-flowing material, by adequate means.

[O. Reg. 23/09, s. 2]

ATTENDANT

15 (1) Whenever a worker is to enter a confined space, the employer shall ensure that an attendant:

- (a) is assigned;
- (b) is stationed outside and near;
 - (i) the entrance to the confined space, or
 - (ii) if there are two or more entrances, the one that will best allow the attendant to perform his or her duties under subsection (2),
- (c) is in constant communication with all workers inside the confined space, using the means of communication described in the relevant plan; and
- (d) is provided with a device for summoning an adequate rescue response.

(2) The attendant shall not enter the confined space at any time and shall, in accordance with the relevant plan:

- (a) monitor the safety of the worker inside;
- (b) provide assistance to him or her; and
- (c) summon an adequate rescue response if required.

MEANS FOR ENTERING AND EXITING

16 An adequate means for entering and exiting shall be provided for all workers who enter a confined space, in accordance with the relevant plan.

PREVENTING UNAUTHORIZED ENTRY

17 If there is a possibility of unauthorized entry into a confined space, the employer, or in the case of a project, the constructor, shall ensure that each entrance to the confined space:

- (a) is adequately secured against unauthorized entry; or
- (b) has been provided with adequate barricades, adequate warning signs regarding unauthorized entry, or both.

[O. Reg. 95/11, s. 9]

ATMOSPHERIC TESTING

18 (1) The employer shall appoint a person with adequate knowledge, training and experience to perform adequate tests as often as necessary before and while a worker is in a confined space to ensure that acceptable atmospheric levels are maintained in the confined space in accordance with the relevant plan.

(2) If the confined space has been both unoccupied and unattended, tests shall be performed before a worker enters or reenters.

(3) The person performing the tests shall use calibrated instruments that are in good working order and are appropriate for the hazards identified in the relevant assessment.

(4) The employer shall ensure that the results of every sample of a test are recorded, subject to subsection (5).

(5) If the tests are performed using continuous monitoring, the employer shall ensure that test results are recorded at adequate intervals.

(6) The tests shall be performed in a manner that does not endanger the health or safety of the person performing them.

(7) In this section:

"sample" means an individual reading of the composition of the atmosphere in the confined space;

"test" means a collection of samples.

EXPLOSIVE AND FLAMMABLE SUBSTANCES

19 (1) This section applies only in respect of atmospheric hazards described in clause (a) of the definition of "atmospheric hazards" in section 1.

(2) The employer shall ensure that this section is complied with, by ventilation, purging, rendering the atmosphere inert or other adequate means, in accordance with the relevant plan.

(3) The employer shall ensure that no worker enters or remains in a confined space that contains or is likely to contain an airborne combustible dust or mist whose atmospheric concentration may create a hazard of explosion.

(4) The employer shall ensure that no worker enters or remains in a confined space that contains or is likely to contain an explosive or flammable gas or vapour, unless one of the following applies:

1. The worker is performing only inspection work that does not produce a source of ignition. In the case of an explosive or flammable gas or vapour, the atmospheric concentration is less than 25 per cent of its lower explosive limit, as determined by a combustible gas instrument;
2. The worker is performing only cold work. In the case of an explosive or flammable gas or vapour, the atmospheric concentration is less than 10 per cent of its lower explosive limit, as determined by a combustible gas instrument;
3. The worker is performing hot work. All the following conditions are satisfied;
 - i. In the case of an explosive or flammable gas or vapour, the atmospheric concentration is less than 5 per cent of its lower explosive limit, as determined by a combustible gas instrument,
 - ii. The atmosphere in the confined space does not contain, and is not likely to contain while a worker is inside, an oxygen content greater than 23 per cent by volume,
 - iii. The atmosphere in the confined space is monitored continuously,
 - iv. The entry permit includes adequate provisions for hot work and corresponding control measures,
 - v. An adequate warning system and exit procedure are provided to ensure that workers have adequate warning and are able to exit the confined space safely if either or both of the following occur;
 - A. In the case of an explosive or flammable gas or vapour, the atmospheric concentration exceeds 5 per cent of its lower explosive limit;
 - B. The oxygen content of the atmosphere exceeds 23 per cent by volume.

(5) Subsections (3) and (4) do not apply if:

- (a) the atmosphere in the confined space;
 - (i) has been rendered inert by adding an inert gas, and
 - (ii) is monitored continuously to ensure that it remains inert, and
- (b) a worker entering the confined space uses;
 - (i) adequate respiratory protective equipment,
 - (ii) adequate equipment to allow persons outside the confined space to locate and rescue the worker if necessary, and
 - (iii) such other equipment as is necessary to ensure the worker's safety.

(6) The equipment mentioned in subclauses (5)(b)(i), (ii) and (iii) shall be inspected by a person with adequate knowledge, training and experience, appointed by the employer, and shall be in good working order before the worker enters the confined space.

VENTILATION AND PURGING

20 (1) This section applies only in respect of atmospheric hazards described in clause (b) or (c) of the definition of "atmospheric hazards" in section 1.

(2) If atmospheric hazards exist or are likely to exist in a confined space, the confined space shall be purged, ventilated or both, before any worker enters it, to ensure that acceptable atmospheric levels are maintained in the confined space while any worker is inside.

(3) If mechanical ventilation is required to maintain acceptable atmospheric levels, an adequate warning system and exit procedure shall also be provided to ensure that workers have adequate warning of ventilation failure and are able to exit the confined space safely.

(4) If compliance with subsection (2) is not practical in the circumstances for technical reasons:

- (a) compliance with subsection (3) is not required; and
- (b) a worker entering the confined space shall use:
 - (i) adequate respiratory protective equipment,
 - (ii) adequate equipment to allow persons outside the confined space to locate and rescue the worker if necessary, and
 - (iii) such other equipment as is necessary to ensure the worker's safety.

(5) The equipment mentioned in subclauses (4) (b) (i), (ii) and (iii) shall be inspected by a person with adequate knowledge, training and experience, appointed by the employer, and shall be in good working order before the worker enters the confined space.

RECORDS

21 (1) In the case of a workplace that is not a project, the employer shall retain every assessment, plan, co-ordination document under section 4, record of training under subsection 8 (5) or 9 (2), entry permit under section 10, record of an inspection under subsection 12 (2) and record of a test under section 18, including records of each sample, for the longer of the following periods:

1. One year after the document is created;
2. The period that is necessary to ensure that at least the two most recent records of each kind that relate to a particular confined space are retained.

(2) In the case of a workplace that is a project, the constructor or employer, as the case may be:

- (a) shall keep available for inspection at the project every assessment, plan, co-ordination document under section 4, record of training under subsection 9.1 (4), entry permit under section 10, record of an inspection under subsection 12 (2) and record of a test under section 18, including records of each sample; and
- (b) shall retain the documents described in clause (a) for one year after the project is finished.

(3) If section 4 applies:

- (a) the documents described in subsection (1) shall be retained by the employer responsible for creating them; and
- (b) the documents described in clause (2) (a) shall be retained by the constructor or employer, as the case may be, responsible for creating them.

[O. Reg. 95/11, s. 10]

COMMENCEMENT

22 This Regulation comes into force on September 30, 2006.

Table 1 Repealed. [O. Reg. 492/09, s. 2]

See also : Confined Spaces Guideline (September 2006)

Manitoba

Operation of Mines Regulation (Man. Reg. 228/94)

This document has been repealed and replaced by Operation of Mines Regulation Man. Reg. 212/2011.

Workplace Safety and Health Regulation (Man. Reg. 217/2006)

APPLICATION

15.1 This Part applies to every workplace where a worker works in a confined space.

SAFE WORK PROCEDURES

15.2 (1) An employer must:

- (a) develop and implement safe work procedures for working in a confined space;
- (b) train workers in the safe work procedures; and
- (c) ensure that workers comply with the safe work procedures.

(2) The safe work procedures must include:

- (a) procedures for recognizing the risks associated with working in the confined space;
- (b) procedures for isolating - including blanking, disconnecting, interrupting and locking out - pipes, lines and sources of energy from a confined space;
- (c) safety and personal protective equipment to be used;
- (d) procedures for communicating with a standby worker;
- (e) an emergency response plan and rescue procedures to be implemented in the event of an accident or other emergency in a confined space; and
- (f) information about the entry permit system under section 15.4.

GENERAL REQUIREMENTS

15.3 Before requiring a worker to enter or work in a confined space, an employer must:

- (a) identify and assess the risks to safety or health a worker is likely to be exposed to while in the confined space;
- (b) identify and take measures to reduce, control or eliminate the risks to safety or health associated with the confined space, including:
 - (i) using alternative means of performing the work to be done that will not require the worker to enter the space, and
 - (ii) making alterations to the physical characteristics of the space that may be necessary to ensure safe access to and egress from all accessible parts of the space,
- (c) identify the appropriate type and frequency of tests and inspections necessary to determine the likelihood of a worker being exposed to any of the identified risks, and ensure those tests and inspections are completed by a competent person;
- (d) identify the safety and personal protective equipment required to be used or worn in the confined space by a worker while he or she performs work;
- (e) identify emergency and personal protective equipment required by a worker who undertakes rescue operations in the event of an accident or other emergency within the confined space; and
- (f) establish and implement an entry permit system for a confined space, in accordance with section 15.4.

ENTRY PERMIT

15.4 (1) An entry permit system established by an employer under clause 15.3(f) must:

- (a) ensure that an entry permit containing the following information is completed and signed by a competent person before a worker enters a confined space;
 - (i) the location of the confined space,
 - (ii) the name of each worker who will enter the confined space and the reason for their entry,
 - (iii) the date and time during which the permit is valid, and
- (b) specify;

- (i) the work being done in the confined space,
- (ii) the safe work procedures for entering, being in and leaving a confined space, and
- (iii) all hazards to the safety and health of a worker identified by the risk assessment carried out under clause 15.3(a).

(2) An employer must ensure that a copy of the completed and signed entry permit is readily available at the site of the confined space.

REVIEW OF ENTRY PERMIT

15.5 (1) An employer must review and revise an entry permit when:

- (a) a work activity in a confined space changes;
- (b) circumstances at the workplace or in a confined space change in a way that poses a risk to the safety or health of a worker; or
- (c) any of the workers or information listed in the permit changes.

(2) An employer must ensure that a worker who may be affected by a change to an entry permit or a work activity in a confined space is informed of the change.

NO UNAUTHORIZED ENTRY

15.6 An employer and an owner must take all steps reasonably practicable to prevent any person, other than a worker who is required or permitted to do so, from entering a confined space.

REQUIREMENTS BEFORE CONFINED SPACE IS ENTERED

15.7 (1) An employer must, before requiring or permitting a worker to enter or work in a confined space:

- (a) ensure that the worker entering the space wears a full-body harness attached to a lifeline that is attached to a personal hoisting device, unless an alternate safe method of access and egress is provided from all accessible parts of the confined space;
- (b) identify and take measures to ensure that a worker will not be exposed to the risk of drowning or becoming engulfed or entrapped in any liquid or free-flowing solid that may be present in the confined space; and
- (c) identify and take measures to ensure that all energy sources that present a hazard to a worker entering, occupying or leaving the confined space have been locked out, and the energy sources have been put in a zero energy state.

(2) An employer must ensure that the structural integrity of a confined space is maintained when its physical characteristics are altered in order to ensure safe access and egress by a worker.

STANDBY WORKER

15.8 (1) An employer must ensure that:

- (a) a standby worker is designated for every confined space; and
- (b) the standby worker remains present at the entrance to a confined space at all times while a worker is in the space if the risk assessment done under clause 15.3(a) has identified that the space is or may become hazardous to a worker entering it for any reason, including:
 - (i) the design or construction of the confined space,
 - (ii) the materials or substances in the confined space, including the materials or substances in its atmosphere, or
 - (iii) the work activities performed or the processes used in the confined space.

(2) An employer must ensure that:

- (a) a worker designated as a standby worker is:
 - (i) qualified as a first aider 1, 2 or 3, as set out in Part 5 (First Aid), and
 - (ii) trained in confined space work and emergency and rescue procedures,
- (b) the designated standby worker:
 - (i) is in direct communication with the worker in the confined space, and
 - (ii) has a suitable system to summon assistance if necessary, and
- (c) the worker in the confined space is able to directly communicate with the standby worker.

TRAFFIC HAZARDS

15.9 An employer must ensure that appropriate barricades and warning signs are provided to keep vehicle and pedestrian traffic away from a confined space in which work is, or is about to be, carried out.

PURGING AND VENTILATING UNSAFE ATMOSPHERE

15.10 (1) In the following circumstances, an employer must ensure that a confined space is purged, ventilated or both before a worker is required or permitted to enter it:

- (a) where there is or may be a concentration of a flammable or explosive substance present at more than 10% of its lower explosive limit, the space must be purged, ventilated or both so that the concentration is reduced to less than 10%;
- (b) where there is or may be an oxygen deficiency - oxygen content less than 19.5% by volume - or oxygen enrichment - oxygen content greater than 23% by volume - the space must be purged, ventilated or both so that the oxygen content is at least 19.5% but not more than 23%;
- (c) subject to subsection (2), where there is or may be a chemical or biological substance that creates a risk to the safety or health of the worker, the space

must be purged, ventilated or both to the extent possible to eliminate or reduce the risk associated with the substance.

(2) When a worker occupies a confined space that has an atmosphere that may create a risk to the safety or health of a worker, the employer must ensure that:

- (a) the space is continuously ventilated to maintain a safe atmosphere; and
- (b) the atmosphere is continuously monitored by a competent person.

PERSONAL PROTECTIVE EQUIPMENT AND OTHER CONTROL MEASURES

15.11 When purging, ventilating or both cannot bring the atmosphere within a confined space into compliance with clauses 15.10(1)(a) to (c), an employer must ensure that additional control measures are undertaken to protect the safety and health of the worker entering the space, including providing to a worker personal protective equipment appropriate for the conditions in the confined space.

ENTRY PROHIBITED

15.12 Despite any other provision of this Part, an employer must not require or permit:

- (a) a worker to enter a confined space if the oxygen content level in the space is above 23%; or
- (b) a worker, other than a firefighter responding to an emergency, to enter a confined space if a concentration of a flammable or explosive substance in the confined space cannot be reduced to less than 10% of its lower explosive limit.

EMERGENCY RESPONSE - GENERAL

15.13 An employer must ensure that:

- (a) the personal protective and emergency equipment identified under clauses 15.3(d) and (e) - equipment required to undertake rescue operations in the event of an accident or other emergency within a confined space - is readily available at the site of a confined space; and
- (b) that, in the event of an accident or other emergency, the emergency response plan and rescue procedures developed under clause 15.2(2)(e) are implemented.

EMERGENCY RESPONSE - TOP ENTRY INTO CONFINED SPACE

15.14 (1) When entry into a confined space is from the top, an employer must ensure that, in the event of an accident or other emergency within the space:

- (a) the worker entering the confined space and workers carrying out a rescue use a full-body harness and are attached to a lifeline unless another appropriate personal protective equipment system is provided;

- (b) where a lifeline is used, the lifeline is attended by a worker who is trained in the emergency response plan and rescue procedures; and
- (c) where reasonably practicable, a personal hoisting device is;
 - (i) available to assist with a rescue, and
 - (ii) located at the entrance to the confined space when a worker is in the confined space.

(2) Despite clause (1)(a), when the use of a full-body harness attached to a lifeline would create an additional risk to the worker in the confined space or would not be reasonably practicable, an employer must ensure that an alternate method of rescue is available to immediately remove a worker from a confined space into which entry is from the top.

See also : Code of Practice for Confined Space Entry Work (November, 2006)

Saskatchewan

Occupational Health and Safety Regulations, 1996 (R.R.S., c. O-1.1, r. 1)

INTERPRETATION

266 In this Part:

- (a) "confined space" means an enclosed or partially enclosed space that;
 - (i) is not primarily designed or intended for human occupancy, except for the purpose of performing work, and
 - (ii) has restricted means of entrance and exit,
- (b) "hazardous confined space" means a confined space that is or may become hazardous to a worker entering the confined space due to;
 - (i) the design, construction or atmosphere of the confined space,
 - (ii) the materials or substances in the confined space,
 - (iii) the work activities or processes used in the confined space, or
 - (iv) any other conditions relating to the confined space,
- (c) "isolate" means to physically interrupt or disconnect pipes, lines and sources of energy from a confined space.

IDENTIFICATION OF CONFINED SPACES, HAZARDS, ETC.

267 Where a worker may be required or permitted to work in a confined space, an employer, in consultation with the committee, shall identify:

- (a) types of confined spaces at the place of employment that a worker may be required or permitted to enter;
- (b) types of hazards that are or may be present at each confined space;
- (c) alternative means to perform the work to be performed in a confined space that

- will not require the worker to enter the confined space; and
- (d) alterations to the physical characteristics of the confined spaces that may be necessary to ensure safe entrance to and exit from all accessible parts of each confined space.

AVOIDANCE OF ENTRY INTO HAZARDOUS CONFINED SPACE

268 (1) Where reasonably practicable, an employer shall use an alternative means to perform work that will not require a worker to enter a hazardous confined space.

(2) An employer shall take all reasonably practicable steps to prevent any unauthorized entry into the confined space.

REQUIREMENTS BEFORE CONFINED SPACE IS ENTERED

269 (1) Where a worker will be required or permitted to work in a confined space, an employer, contractor or owner shall, before requiring or permitting the worker to enter the confined space:

- (a) ensure that there is a safe entrance to and exit from all accessible parts of the confined space; and
- (b) make all practicable alterations to the physical characteristics of the confined space necessary to ensure a safe entrance to and exit from all accessible parts of the confined space.

(2) In making alterations pursuant to clause (1)(b), an employer shall ensure that the structural integrity of the confined space is maintained.

REQUIREMENTS BEFORE HAZARDOUS CONFINED SPACE IS ENTERED

270 (1) Before a worker is required or permitted to enter a confined space, an employer shall appoint a competent person:

- (a) to assess the hazards;
- (b) where a hazardous atmosphere has been identified, to test the atmosphere of the confined space for;
 - (i) oxygen enrichment or deficiency,
 - (ii) the presence of flammable or explosive substances, and
 - (iii) the presence and hazardous concentration of airborne chemical substances, and
- (c) to determine whether;
 - (i) work activities or processes will result in the release of toxic, flammable or explosive concentrations of any substances during the worker's occupation of the confined space,
 - (ii) measures have been taken to ensure that a worker will not drown or become entrapped in any liquid or free-flowing solid present in the confined space,

- (iii) the entry of any liquid, free-flowing solid or hazardous substance into the confined space in a quantity that could endanger the health or safety of the worker has been prevented,
- (iv) all energy sources that present a hazard to a worker entering into, exiting from or occupying the confined space have been locked out, with the energy sources being put in a zero energy state,
- (v) any hazards from biological substances are present in the confined space, and
- (vi) the opening for entry into and exit from the confined space is sufficient to allow safe passage of a worker who is using personal protective equipment required by these regulations.

(2) When testing the atmosphere of a confined space pursuant to clause (1)(b), a competent person shall use appropriate and properly calibrated instruments that have been tested to ensure that the instruments are capable of operating safely and effectively.

(3) A competent person who carries out the activities described in clauses (1)(a) to (c) shall prepare a report in writing that sets out:

- (a) the results of the assessment, tests and determinations;
- (b) recommended special precautions and procedures to reduce the risk to a worker that are to be followed by a worker entering into, exiting from or occupying the confined space; and
- (c) recommended personal protective equipment to be used by a worker entering the confined space.

NOTICE WHERE NO HAZARD FOUND

271 Where a confined space is not identified as a hazardous confined space, an employer shall:

- (a) notify a worker who is required to enter the confined space verifying that the confined space is not hazardous;
- (b) arrange for a method of communication with a worker on entry to and exit from the confined space and at appropriate intervals while a worker is in the confined space;
- (c) prepare a procedure for the removal of a worker who has become injured or incapacitated while in the confined space; and
- (d) ensure that the ventilation in the confined space is adequate to maintain safe atmospheric conditions.

ENTRY PLAN

272 (1) Where a worker will be required or permitted to enter a hazardous confined space, an employer, in consultation with the committee, shall develop a hazardous

confined space entry plan to ensure the health and safety of workers who enter or work in the hazardous confined space.

(2) A hazardous confined space entry plan must be in writing and must include:

- (a) the tests or measurements necessary to monitor any oxygen deficiency or enrichment or the presence and hazardous concentration of flammable or explosive substances;
- (b) the identification of any other hazards that may be present in the hazardous confined space and may put the health or safety of workers at risk;
- (c) the means, if any, of isolating the hazardous confined space;
- (d) the means, if any, of ventilating the hazardous confined space;
- (e) the procedures to enter, work in and exit from the hazardous confined space safely;
- (f) the availability, location and proper use of personal protective equipment;
- (g) the rescue procedures to be followed, including the number and duties of personnel and the availability, location and proper use of equipment;
- (h) the means to maintain effective communication with a worker who has entered the hazardous confined space; and
- (i) the availability, location and proper use of any other equipment that a worker may need to work safely in the hazardous confined space.

(3) An employer shall ensure that the following workers are trained in and implement a hazardous confined space entry plan:

- (a) a worker who is required or permitted to enter the hazardous confined space;
- (b) a worker who attends a worker in the hazardous confined space pursuant to subsection 274(4) or (5);
- (c) a worker who may be required or permitted to implement the rescue procedures mentioned in clause (2)(g).

(4) An employer shall make a copy of a hazardous confined space entry plan readily available at the entrance to the hazardous confined space.

PURGING AND VENTILATING OF UNSAFE ATMOSPHERE

273 (1) In addition to the requirements of section 369, where a concentration of a toxic, flammable or explosive substance is present or an oxygen enrichment or deficiency exists in a hazardous confined space, an employer shall ensure that the hazardous confined space is:

- (a) purged and ventilated before a worker is allowed to enter the space, so that;
 - (i) any hazard associated with a toxic, flammable or explosive substance is reduced to the extent that is possible or eliminated, and
 - (ii) an oxygen content of not less than 19.5% and not more than 23% is ensured, and

(b) continuously ventilated at all times during which the worker occupies the hazardous confined space, to maintain a safe atmosphere.

(2) Where ventilation is used to reduce or eliminate a hazard pursuant to subsection (1), an employer shall ensure that a competent person tests the atmosphere to determine that the confined space is safe for entry by a worker:

- (a) before a worker enters the confined space;
- (b) where all workers have vacated the confined space, before any worker re-enters the confined space;
- (c) on the request of a worker who is required or permitted to enter the confined space; and
- (d) continuously where any condition in the confined space may change and put the worker's health or safety at risk.

PRECAUTIONS WHERE SAFE ATMOSPHERE NOT POSSIBLE

274 (1) Where a hazardous confined space cannot be purged and ventilated to provide a safe atmosphere or a safe atmosphere cannot be maintained pursuant to section 273, an employer shall ensure that no work is carried on in the confined space except in accordance with the requirements of this section and section 369.

(2) An employer shall ensure that a competent person continuously monitors the atmosphere in a hazardous confined space.

(3) An employer shall ensure that a worker is provided with and required to use a respiratory protective device that meets the requirements of Part VII if:

- (a) the airborne concentration for any substance meets or exceeds the permissible contamination limit mentioned in clause 307(1)(a);
- (b) oxygen deficiency or enrichment is detected; or
- (c) the airborne concentration of any other substance may be harmful to the worker.

(4) An employer shall ensure that a worker in a hazardous confined space is attended by and in communication with another worker who:

- (a) has been adequately trained in the rescue procedures mentioned in clause 272(2)(g);
- (b) is stationed and remains at the entrance to the confined space unless replaced by another adequately trained worker; and
- (c) is equipped with a suitable alarm to summon assistance.

(5) If entrance to a hazardous confined space is from the top:

- (a) an employer shall ensure that;
 - (i) a worker uses a full-body harness and, where appropriate, is attached to a

- lifeline,
 - (ii) if a lifeline is used, the lifeline is attended by another worker who is adequately trained in the rescue procedures mentioned in clause 272(2)(g), and
 - (iii) where reasonably practicable, a mechanical lifting device is available to assist with a rescue and is located at the entry to the confined space while a worker is in the confined space, or
- (b) an employer shall ensure that an alternate method of rescue is developed and implemented where the use of a full-body harness or lifeline would create an additional hazard.

(6) If any flammable or explosive dusts, gases, vapours or liquids are or may be present in a hazardous confined space, an employer shall ensure that all sources of ignition are eliminated or controlled.

(7) An employer shall ensure that:

- (a) equipment necessary to rescue workers is readily available at the entrance to the hazardous confined space and used in accordance with the rescue procedures developed pursuant to clause 272(2)(g);
- (b) the holder of a class A qualification in first aid is available to provide immediate first aid; and
- (c) personnel who are trained in the rescue procedures developed pursuant to clause 272(2)(g) and who are fully informed of the hazards in the confined space are readily available to assist in a rescue procedure.

PIPING DISCHARGING HAZARDOUS SUBSTANCES

275 (1) Where a worker may be required or permitted to work in a confined space into which piping may discharge a hazardous substance, an employer shall ensure that the piping:

- (a) has a blank installed that is sized for the proper pressure in the piping before the piping enters the confined space;
- (b) is equipped with two blocking valves and a bleed-off valve installed between the blocking valves located so that any bleed off does not contaminate the confined space; or
- (c) is equipped with an approved safety device.

(2) Where piping is equipped with two blocking valves and a bleed-off valve pursuant to clause (1)(b) or an approved safety device pursuant to clause (1)(c), an employer shall ensure that:

- (a) the valves in the flow lines are locked out in the "closed" position and the bleed-off valve is locked out in the "open" position;
- (b) the valves are tagged to indicate that the valves must not be activated until the

tags have been removed by a worker designated by the employer for that purpose; and

(c) the worker designated pursuant to clause (b);

(i) monitors the valves to ensure that they are not activated while a worker is in the confined space, and

(ii) records on the tag mentioned in clause (b) the date and time of each monitoring and signs the tag each time the worker monitors the valves.

Alberta

Occupational Health and Safety Code, 2009

CODE OF PRACTICE

44 (1) An employer must have a written code of practice governing the practices and procedures to be followed when workers enter and work in a confined space.

(2) The code of practice must:

(a) take into account and apply the requirements of this Part and of section 169;

(b) be maintained and periodically reviewed; and

(c) identify all existing and potential confined space work locations at a work site.

(3) A worker involved in any aspect of a confined space entry must comply with the requirements and procedures in the code of practice.

HAZARD ASSESSMENT

45 If a worker will enter a confined space or a restricted space to work, an employer must appoint a competent person to:

(a) identify and assess the hazards the worker is likely to be exposed to while in the confined space or restricted space;

(b) specify the type and frequency of inspections and tests necessary to determine the likelihood of worker exposure to any of the identified hazards;

(c) perform the inspections and tests specified;

(d) specify the safety and personal protective equipment required to perform the work; and

(e) identify the personal protective equipment and emergency equipment to be used by a worker who undertakes rescue operations in the event of an accident or other emergency.

TRAINING

46 (1) An employer must ensure that a worker assigned duties related to confined space or restricted space entry is trained by a competent person in:

- (a) recognizing hazards associated with working in confined spaces or restricted spaces; and
- (b) performing the worker's duties in a safe and healthy manner.

(2) An employer must keep records of the training given under subsection (1).

(3) An employer must ensure that competence in the following is represented in the workers responding to a confined space or restricted space emergency:

- (a) first aid;
- (b) the use of appropriate emergency response equipment;
- (c) procedures appropriate to the confined space or restricted space.

ENTRY PERMIT SYSTEM

47 (1) A person must not enter a confined space at a work site without a valid entry permit.

(2) An employer must establish an entry permit system for a confined space that:

- (a) lists the name of each worker who enters the confined space and the reason for their entry;
- (b) gives the location of the confined space;
- (c) specifies the time during which an entry permit is valid;
- (d) takes into account the work being done in the confined space; and
- (e) takes into account the code of practice requirements for entering, being in and leaving a confined space.

(3) An employer must ensure that, before a worker enters a confined space, an entry permit is properly completed, signed by a competent person and a copy kept readily available.

(4) Based on a review of similar confined spaces, an employer may issue an entry permit that can be used for a number of similar confined spaces.

SAFETY AND PROTECTION - GENERALLY

48 (1) An employer must ensure that:

- (a) if a lifeline is required in a confined space or a restricted space, it is used in a manner that does not create an additional hazard;
- (b) the safety and personal protective equipment required under this Code is available to workers entering a confined space or a restricted space;
- (c) a worker who enters, occupies or leaves a confined space or restricted space uses the safety and personal protective equipment;

- (d) the personal protective equipment and emergency equipment required under this Code is available to workers undertaking rescue operations in a confined space or restricted space;
- (e) equipment appropriate to the confined space or restricted space, including personal protective equipment, is available to perform a timely rescue; and
- (f) a communication system is established that is readily available to workers in a confined space or a restricted space and is appropriate to the hazards.

(2) An employer must ensure that all personal protective equipment and emergency equipment required for use in a confined space or a restricted space is inspected by a competent person to ensure the equipment is in good working order before workers enter the confined space or the restricted space.

(3) An employer must ensure that written records of the inspections required by subsection (2) are retained as required by section 58.

PROTECTION - HAZARDOUS SUBSTANCES AND ENERGY

49 (1) An employer must ensure that workers within a confined space are protected against the release of hazardous substances or energy that could harm them.

(2) An employer must ensure that a worker does not enter a confined space unless adequate precautions are in place to protect a worker from drowning, engulfment or entrapment.

(3) An employer must ensure that any hazardous energy in a restricted space is controlled in accordance with Part 15.

UNAUTHORIZED ENTRY

50 An employer must ensure that persons who are not authorized by the employer to enter a confined space or a restricted space are prevented from entering.

TRAFFIC HAZARDS

51 An employer must ensure that workers in a confined space or a restricted space are protected from hazards created by traffic in the vicinity of the confined space or restricted space.

TESTING THE ATMOSPHERE

52 (1) If the hazard assessment identifies a potential atmospheric hazard and a worker is required or authorized by an employer to enter the confined space, the employer must ensure that a competent worker performs a pre entry atmospheric test of the confined space to:

- (a) verify that the oxygen content is between 19.5 percent and 23.0 percent by volume; and
- (b) identify the amount of toxic, flammable or explosive substance that may be present.

(2) The employer must ensure that the testing required by subsection (1) is performed using calibrated test instruments appropriate for the atmosphere being tested and the instruments are used in accordance with the manufacturer's specifications.

(3) The employer must ensure that as often as necessary after the first time a worker enters the confined space, a competent worker:

- (a) performs the tests specified in subsection (1); and
- (b) identifies and records any additional hazards.

(3.1) The employer must ensure that if there is a potential for the atmosphere to change unpredictably after a worker enters the confined space, the atmosphere is continuously monitored in accordance with subsection (2).

(4) If tests identify additional hazards, the employer must deal with the identified hazards in accordance with this Code.

(5) The employer must ensure that the procedures and practices put in place under subsection (4) are included in the code of practice.

(6) The employer must ensure that the results of tests required by this section are recorded.

VENTILATION AND PURGING

53 (1) If the atmospheric testing under section 52 identifies that a hazardous atmosphere exists or is likely to exist in a confined space, an employer must ensure that the confined space is ventilated, purged or both before a worker enters the confined space.

(2) If ventilating or purging a confined space is impractical or ineffective in eliminating a hazardous atmosphere, the employer must ensure that a worker who enters the confined space uses personal protective equipment appropriate for the conditions within the confined space.

(3) If mechanical ventilation is needed to maintain a safe atmosphere in a confined space during the work process, an employer must ensure it is provided and operated as needed.

(4) If mechanical ventilation is required to maintain a safe atmosphere in the confined space, the employer must ensure that:

- (a) the ventilation system incorporates a method of alerting workers to a failure of the system so that workers have sufficient time to safely leave the confined space; and
- (b) all workers within the confined space have received training in the evacuation procedures to be used in the event of a ventilation system failure.

(5) All workers must evacuate a confined space or use an alternative means of protection if a ventilation system fails.

INERTING

54 (1) An employer must ensure that a confined space is inerted if it is not reasonably practicable to eliminate an explosive or flammable atmosphere within the confined space through another means.

(2) If a confined space is inerted, an employer must ensure that:

- (a) every worker entering the confined space is equipped with supplied air respiratory protection equipment that complies with Part 18;
- (b) all ignition sources are controlled; and
- (c) the atmosphere within the confined space stays inerted while workers are inside.

EMERGENCY RESPONSE

55 (1) An employer must ensure that a worker does not enter or remain in a confined space or a restricted space unless an effective rescue can be carried out.

(2) A worker must not enter or stay in a confined space or restricted space unless an effective rescue can be carried out.

(3) An employer must ensure that the emergency response plan includes the emergency procedures to be followed if there is an accident or other emergency, including procedures in place to evacuate the confined space or restricted space immediately:

- (a) when an alarm is activated;
- (b) if the concentration of oxygen inside the confined space drops below 19.5 percent by volume or exceeds 23.0 percent by volume; or
- (c) if there is a significant change in the amount of hazardous substances inside the confined space.

TENDING WORKER

56 (1) For every confined space or restricted space entry, an employer must designate a competent worker to be in communication with a worker in the confined space or

restricted space.

(2) An employer must ensure that the designated worker under subsection (1) has a suitable system for summoning assistance.

(3) An employer must ensure that a competent worker trained in the evacuation procedures in the emergency response plan is present outside a confined space, at or near the entrance, if:

- (a) the oxygen content of the atmosphere inside the confined space is less than 19.5 percent by volume;
- (b) the oxygen content of the atmosphere inside the confined space is greater than 23.0 percent by volume;
- (c) the concentration of a substance listed in Schedule 1, Table 2 inside the confined space is greater than 50 percent of its occupational exposure limit; or
- (d) a hazard other than one listed in clauses (a), (b) or (c) is identified by the hazard assessment and the hazard cannot be eliminated or effectively controlled.

(4) An employer must ensure that the tending worker under subsection (3):

- (a) keeps track at all times of the number of workers inside the confined space;
- (b) is in constant communication with the workers inside the confined space; and
- (c) has a suitable system for summoning assistance.

(5) A tending worker must not leave the area until all workers have left the confined space or another tending worker is in place.

ENTRY AND EXIT

57 An employer must ensure that a safe means of entry and exit is available to all workers required to work in a confined space or a restricted space and to all rescue personnel attending to the workers.

RETAINING RECORDS

58 An employer must ensure that all records respecting entry and work in a confined space, including entry permits and testing under this Part, are retained for not less than:

- (a) one year if no incident or unplanned event occurred during the entry; or
- (b) two years if an incident or unplanned event occurred during the entry.

See also: Occupational Health and Safety (OHS) Code - Comparison of Requirements between the OHS Code 2006 and OHS Code 2009

British Columbia

Occupational Health and Safety Regulation (B.C. Reg. 296/97)

DEFINITIONS

9.1 In this Part:

"adjacent piping" means 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;

"blank" means a solid plate installed through the cross-section of a pipe, usually at a flanged connection;

"blanking or blinding" means the absolute closure of adjacent piping, by fastening across its bore a solid plate or cap that completely covers the bore and that is capable of withstanding the maximum pressure of the adjacent piping;

"blind" means a solid plate installed at the end of a pipe which has at that point been physically disconnected from a piping system;

"clean respirable air" when used to describe the atmosphere inside a confined space, means an atmosphere which is equivalent to clean, outdoor air and which contains:

- (a) about 20.9% oxygen by volume;
- (b) no measurable flammable gas or vapour 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 and Biological Substances) or an acceptable ambient air quality standard established by an authority having jurisdiction over environmental air standards, whichever is greater;

"confined space", except as otherwise determined by the Board, means an area, other than an underground working, that:

- (a) is enclosed or partially enclosed;
- (b) is not designed or intended for continuous human occupancy;
- (c) has limited or restricted means for entry or exit that may complicate the provision of first aid, evacuation, rescue or other emergency response service; and
- (d) is large enough and so configured that a worker could enter to perform assigned work;

"disconnecting" means physically disconnecting adjacent piping from a confined space to prevent its contents from entering the space in the event of discharge;

"double block and bleed" means the closure of adjacent piping by locking out a drain or

vent in the open position in the line between 2 locked out valves in the closed position;

"harmful substance" means a WHMIS controlled product, a substance referred to under section 5.48, or a substance which may have a harmful effect on a worker in a confined space;

"high hazard atmosphere" means 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;

"inerting" means intentionally flooding the atmosphere inside a confined space with an inert gas such as nitrogen to eliminate the hazard of ignition of flammable vapours inside the confined space but thereby creating an oxygen deficient atmosphere;

"low hazard atmosphere" means 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, as determined by a qualified person after consideration of the design, construction and use of the confined space, the work activities to be performed, and all engineering controls required by this Regulation;

"moderate hazard atmosphere" means 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.

[B.C. Reg. 315/2003, App. A, s. 13; 381/2004, s. 4]

INITIAL DETERMINATION

9.2 The employer must:

- (a) ensure that each confined space in the workplace is identified; and
- (b) determine whether any such space will require entry by a worker, either in scheduled work activities or as a result of foreseeable system failures or other emergencies.

PROHIBITED ENTRY

9.3 If a confined space exists at a workplace but no worker entry is required, the employer must ensure that each point of access to the confined space is secured against entry or identified by a sign or other effective means which indicates the nature of the hazard and the prohibition of entry, and that workers are instructed not to enter.

CONTROL OF HAZARDS

9.4 The employer must ensure that all confined space hazards are eliminated or minimized and that work is performed in a safe manner.

CONFINED SPACE ENTRY PROGRAM

9.5 Before a worker is required or permitted to enter a confined space, the employer must prepare and implement a written confined space entry program which includes:

- (a) an assignment of responsibilities;
- (b) a list of each confined space or group of similar spaces and a hazard assessment of those spaces; and
- (c) written safe work procedures for entry into and work in the confined space, that address, where applicable;
 - (i) identification and entry permits,
 - (ii) lockout and isolation,
 - (iii) verification and testing,
 - (iv) cleaning, purging, venting or inerting,
 - (v) ventilation,
 - (vi) standby persons,
 - (vii) rescue,
 - (viii) lifelines, harnesses and lifting equipment,
 - (ix) personal protective equipment and other precautions, and
 - (x) coordination of work activities.

ADMINISTRATION

9.6 The employer must assign overall responsibility for administration of the confined space entry program to a person or persons adequately trained to do so.

SUPERVISION

9.7 (1) The employer must assign responsibility for supervision to a person who is adequately trained to supervise the job before any worker enters a confined space.

(2) The responsible supervisor must ensure that:

- (a) pre-entry testing and inspection is conducted based on the written procedures;
- (b) the precautions identified in the written procedures and the precautions required by this Regulation or which are otherwise necessary for the health and safety of workers are followed; and
- (c) only authorized workers enter a confined space.

INSTRUCTION

9.8 Each person who is assigned duties or responsibilities related to entry into a confined space must be adequately instructed and trained in:

- (a) the hazards of the space; and
- (b) the precautions identified in written procedures to properly perform their duties.

HAZARD

9.9 (1) A hazard assessment must be conducted for each:

- (a) confined space, or each group of confined spaces which share similar characteristics; and
- (b) work activity, or group of work activities which present similar hazards, to be performed inside a confined space.

(2) The hazard assessment required by subsection (1) must consider:

- (a) the conditions which may exist prior to entry due to the confined space's design, location or use, or which may develop during work activity inside the space; and
- (b) the potential for oxygen enrichment and deficiency, flammable gas, vapour or mist, combustible dust, other hazardous atmospheres, harmful substances requiring lockout and isolation, engulfment and entrapment, and other hazardous conditions.

PROCEDURES

9.10 Written procedures specifying the means to eliminate or minimize all hazards likely to prevail must be developed, based on the hazard assessment required by section 9.9.

QUALIFICATIONS

9.11 (1) The hazard assessment and written confined space entry procedures must be prepared:

- (a) by a qualified person who has adequate training and experience in the recognition, evaluation and control of confined space hazards; and
- (b) in consultation with the person assigned overall responsibility for administration of the confined space entry program and with the joint committee or the worker health and safety representative, as applicable.

(2) For the purposes of subsection (1)(a) 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.), provided that 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, s. 3]
- (c) other combination of education, training and experience acceptable to the board.

[B.C. Reg. 185/99, s. 52]

IDENTIFICATION

9.12 When a confined space requires entry by a worker, each point of access which is not secured against entry must be identified by a sign or other effective means which indicates the hazard and prohibits entry by unauthorized workers.

WHEN PERMITS REQUIRED

9.13 (1) An entry permit must be completed and signed by the responsible supervisor before a worker enters a confined space:

- (a) with a high hazard atmosphere;
- (b) that requires lockout or isolation procedures to be followed; or
- (c) in which there is a hazard of entrapment or engulfment.

(2) An entry permit must be posted at each designated point of entry to a confined space.

(3) Subsection (2) does not apply if:

- (a) the entry permit is posted at a minimum of one designated point of entry;
- (b) the identification at other designated points of entry includes up-to-date information on whether it is safe to enter; and
- (c) all workers authorized to enter are informed of the location of posted entry permits.

CONTENTS OF PERMIT

9.14 An entry permit must identify the:

- (a) confined space 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.

UPDATING THE INFORMATION

9.15 (1) Once issued, the information on an entry permit may only be altered by:

- (a) the responsible supervisor who signed the permit to update it in accordance with subsection (2) or (3);
- (b) the standby worker to update the list of workers inside the confined space; or
- (c) the tester to record test results.

(2) An entry permit must be reviewed and updated as necessary to ensure the ongoing safety of the workers inside the space.

(3) The permit must be re-authorized and signed by the responsible supervisor:

- (a) if there is a change in the work crew;
- (b) after each shift change; or
- (c) after a change of the responsible supervisor.

(4) Every worker affected must be informed of an alteration of an entry permit regarding a change in the required precautions or work activity.

RECORD OF PERMIT

9.16 A copy of the signed entry permit must be kept for at least one year.

LOCKOUT

9.17 Before a worker enters a confined space, any material conveyance equipment that transports material to or from the space must be free of material if the material could present a hazard.

[B.C. Reg. 312/2003, App. D, s. 5]

CONTROL OF HARMFUL SUBSTANCE IN ADJACENT PIPING

9.18 (1) Before a worker enters a confined space where adjacent piping contains a harmful substance that is:

- (a) a liquid with sufficient volatility to produce a hazardous concentration of an air contaminant; or
- (b) a gas or vapour, the harmful substance in the adjacent piping must be controlled by either disconnecting the adjacent piping or isolating it using blanks or blinds that meet the requirements of section 9.20.

(2) Subject to subsection (3), before a worker enters a confined space where adjacent piping contains a harmful substance that is neither:

- (a) a liquid with sufficient volatility to produce a hazardous concentration of an air contaminant; nor
- (b) a gas or vapour, the harmful substance in the adjacent piping must be controlled by either disconnecting the adjacent piping or isolating it using blanks or blinds that meet the requirements of section 9.20 or using a double block and bleed system that meets the requirements of section 9.21.

(3) Before a worker enters a confined space where adjacent piping contains a substance that is harmful only because of the temperature, pressure or quantity of the substance, the harmful substance must be controlled:

- (a) by either disconnecting the adjacent piping or isolating it using blanks or blinds that meet the requirements of section 9.20 or using a double block and bleed

- system that meets the requirements of section 9.21;
- (b) by isolating the adjacent piping in a manner that a professional engineer has certified will make the confined space safe for a worker to carry out the intended work; or
 - (c) if there is no head pressure in the adjacent piping, by de-energizing and locking out each pressure source for the adjacent piping and depressurizing the adjacent piping.

(4) Where a confined space is:

- (a) subject to the ingress of gases from a gravity-flow municipal or domestic sanitary sewer system or storm sewer system; and
- (b) protected from the ingress of gases by a p-trap, a worker may enter the confined space only if the atmosphere of the confined space has been tested immediately before entry and the test results confirm that the confined space contains clean respirable air.

(5) If a worker enters a confined space of the type referred to in subsection (4), the following must be undertaken:

- (a) the operational integrity of the p-trap must be confirmed immediately on the entry of the worker;
- (b) while the worker is inside the confined space, the atmosphere of the confined space must be continuously monitored and confirmed to contain clean respirable air.

[B.C. 243/2006, s. 4; 312/2010, App. H, s. 1]

9.18.1 repealed. [B.C. 312/2010, App. H, s. 1]

ISOLATION POINTS

9.19 (1) The employer must keep a record which identifies the location of every isolation point.

(2) Every isolation point must be visually checked or otherwise verified to ensure that the confined space is effectively isolated before a worker enters the space.

BLANKS AND BLINDS

9.20 (1) Unless certified by a professional engineer to provide adequate safety for the particular conditions of anticipated pressure, temperature and service, a blank or blind must be manufactured in accordance with the specifications of one of the following standards:

- (a) ANSI Standard API 590-1985, Steel Line Blanks;
- (b) ANSI Standard ASME/ANSI B16.5-1988, Pipe Flanges and Flanged Fittings;

- (c) ANSI Standard ASME B31.1-1992, Power Piping;
- (d) ANSI Standard ASME B31.3-1993, Chemical Plant and Petroleum Refinery Piping.

(2) If a blank or blind is certified by a professional engineer, the employer must keep a record of its certification, location and conditions of service.

(3) If required, an allowance for corrosion must be made in the design of a blank or a blind.

(4) A blank or blind must be stamped with or otherwise indicate its pressure rating.

(5) If a line is to be opened for disconnection or to insert a blank or a blind, written safe work procedures must be prepared and followed to prevent hazardous exposure of workers to its contents.

(6) Visual indication that a blank or blind has been installed must be provided at the point of installation.

(7) If required to prevent leakage, gaskets must be installed on the pressure side of blanks or blinds and flanges must be tightened to make the blanks or blinds effective.

(8) If threaded lines are used, threaded plugs or caps must be used to blind the lines.

[B.C. Reg. 312/2003, App. A, s. 5]

DOUBLE BLOCK AND BLEED

9.21 If a double block and bleed isolation system is used:

- (a) the diameter of the bleed line must be no less than the diameter of the line being isolated, unless certified by a professional engineer;
- (b) the bleed for a liquid system must be at a lower elevation than the block valves;
- (c) all valves must be locked out in their proper open or closed position;
- (d) the downstream block valve must be checked to ensure that it is capable of safely withstanding the line pressure;
- (e) the bleed must be checked to ensure that it remains clear of obstructions while the confined space is occupied, either by continuous automatic monitoring or by manually checking within 20 minutes before worker entry, or before re-entry after the confined space has been vacated for more than 20 minutes; and
- (f) in the event of discharge from the bleed line resulting from failure of the upstream block valve, all workers must immediately exit the confined space and the space must be effectively re-isolated before a worker enters the space.

ALTERNATE PROCEDURES

9.22 (1) Section 9.18 does not apply if:

- (a) a measure specified in section 9.18 to control or isolate harmful substances contained in adjacent piping from a confined space is not practicable; and
- (b) the employer implements alternative measures of control or isolation that are acceptable to the Board.

(2) All workers affected by measures implemented under subsection (1) must be informed of the measures taken and instructed in any applicable work procedures.

[B.C. Reg. 243/2006, s. 5;
312/2010, App. H, s. 2]

DISCHARGE AREA

9.23 The area of potential discharge from a disconnected line or from the bleed of a double block and bleed isolation system must be controlled to ensure that any accidental discharge will not present a hazard to workers.

VERIFYING ALL PRECAUTIONS

9.24 Before a worker enters a confined space, pre-entry testing and inspection must be conducted to verify that the required precautions have been effective at controlling the identified hazards and that it is safe for a worker to enter.

TESTING THE ATMOSPHERE

9.25 (1) Except as stated in subsection (7), before a worker enters a confined space, the employer must ensure that the atmosphere in the confined space is tested in accordance with this section and section 9.26.

(2) The pre-entry testing must be:

- (a) conducted as specified in the written work procedures; and
- (b) completed not more than 20 minutes before a worker enters a confined space.

(3) When all workers have vacated the confined space for more than 20 minutes, pre-entry testing, as required by subsection (1), must be repeated.

(4) While a worker is inside a confined space with a moderate or high hazard atmosphere, additional testing must be conducted as necessary to ensure the worker's continuing safety.

(5) Whenever practicable, continuous monitoring of the atmosphere must be done.

(6) If a worker enters a confined space with a moderate or high hazard atmosphere, the employer must continuously monitor the atmosphere if a flammable or explosive atmosphere in excess of 20 % of the lower explosive limit could develop.

(7) Pre-entry atmospheric testing is not required in a confined space with a low hazard

atmosphere if:

- (a) the location and control of the space ensures that a more hazardous atmosphere could not inadvertently develop;
- (b) such testing is not required to verify the effectiveness of an isolation or other pre-entry control;
- (c) prior representative sampling has demonstrated that the atmosphere within the space or group of similar spaces meets the low hazard atmosphere definition; and
- (d) the written entry procedures do not require such testing.

[B.C. Reg. 188/2011, App. D, s. 1]

PROCEDURES AND EQUIPMENT

9.26 (1) Repealed. [B.C. Reg. 312/2003, App. B, s. 12]

(2) Each confined space test must be carried out by a qualified person who has training and experience to calibrate, operate and monitor testing equipment and interpret readings from the testing equipment.

(3) The test record must show the date and time of the test, the initials of the tester and the levels or condition found.

(4) Test results, other than continuous monitoring results, must be posted without delay at all points of entry to the confined space.

[B.C. Reg. 312/2003, App. B, s. 12;
188/2011, App. D, s. 2]

CLEANING, PURGING AND VENTING

9.27 (1) When practicable, the employer must ensure that a confined space to be entered contains clean respirable air.

(2) 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 a worker enters the space.

(3) The dead-ends of a line that has been isolated must be cleaned, purged or vented to remove any harmful substance which could present a hazard to a worker entering the confined space.

RISK CONTROL

9.28 If clean respirable air cannot be assured in a confined space before worker entry, the employer must ensure that:

- (a) all workers entering the space wear appropriate personal protective equipment including respirators when necessary;
- (b) the concentrations of flammable gases and vapours are maintained below 20%

- of the lower explosive limit; and
- (c) if flammable or explosive gases, vapours or liquids are present, all sources of ignition are eliminated or adequately controlled.

INERTING

9.29 (1) The employer must notify the board in writing, and submit a copy of the proposed work procedures, at least 7 days before a worker enters a confined space which has been inerted.

(2) The employer must follow any additional precautions that are prescribed by the board after review of the notification.

(3) If a confined space has been inerted:

- (a) all entry precautions for high hazard atmospheres must be followed, except the requirement for continuous ventilation;
- (b) every worker entering the confined space must be equipped with a supplied-air respirator meeting the requirements of Part 8 (Personal Protective Clothing and Equipment);
- (c) all ignition sources must be controlled; and
- (d) the atmosphere inside the confined space must remain inerted while workers are inside.

(4) Subsection (1) does not apply to entry for the purpose of performing emergency rescue duties.

[B.C. Reg. 312/2010, App. G, s. 12]

CONTINUOUS VENTILATION

9.30 Every confined space must be ventilated continuously while a worker is inside the space, except in:

- (a) an atmosphere intentionally inerted in accordance with section 9.29;
- (b) a low hazard atmosphere controlled in accordance with section 9.31(2); or
- (c) an emergency rescue, if ventilation is not practicable.

LOW HAZARD ATMOSPHERES

9.31 (1) The employer must ensure that a minimum of 85 m³/hr (50 cfm) of clean respirable air is supplied for each worker inside a confined space with a low hazard atmosphere, except as permitted in subsection (2).

(2) Continuous ventilation is not required in a confined space which has a low hazard atmosphere, if:

- (a) the atmosphere is continuously monitored and shown to contain clean respirable

air; and

- (b) the space has an internal volume greater than 1.8 m³ (64 cu ft) per occupant, is occupied for less than 15 minutes, and the work inside the space generates no contaminants other than exhaled air.

MECHANICAL VENTILATION

9.32 (1) A ventilation system for the control of airborne contaminants in a confined space must be designed, installed and maintained in accordance with established engineering principles and must be specified in the written procedures.

(2) Ventilation equipment must be located and arranged so as to adequately ventilate every occupied area inside the confined space.

(3) If a contaminant is produced in a confined space, it must be controlled at the source by a local exhaust ventilation system if practicable, by general (dilution) ventilation, or by a combination of both.

(4) If practicable, a mechanical ventilation system for a confined space must be sufficient to maintain concentrations of airborne contaminants below the applicable exposure limits.

NATURAL VENTILATION

9.33 (1) If natural ventilation is relied upon for the control of airborne contaminants in a confined space, the rate of airflow through the space must be monitored and must be sufficient to maintain concentrations of airborne contaminants below the applicable exposure limits.

(2) Natural ventilation must not be used:

- (a) to ventilate a confined space that has a high hazard atmosphere; or
- (b) if such ventilation could draw air other than clean respirable air into the confined space.

LOW HAZARD ATMOSPHERE

9.34 If a worker enters a confined space which contains a low hazard atmosphere:

- (a) another worker must be assigned as a standby person;
- (b) there must be a continuous means of summoning the standby person;
- (c) the standby person must check on the well-being of workers inside the space at least every 20 minutes; and
- (d) the standby person must have a means to immediately summon rescue personnel.

MODERATE HAZARD ATMOSPHERE

9.35 If a worker enters a confined space which contains a moderate hazard atmosphere:

- (a) another worker or workers must be assigned as the standby person(s);
- (b) a standby person must be stationed at or near the entrance to the space;
- (c) the standby person must visually observe or otherwise check the well-being of the worker(s) inside the space, as often as may be required by the nature of the work to be performed, but at least every 20 minutes;
- (d) there must be a continuous means of summoning the standby person from inside the space; and
- (e) the standby person must have a means to immediately summon rescue personnel.

HIGH HAZARD ATMOSPHERE, ENGULFMENT OR ENTRAPMENT

9.36 If a worker enters a confined space which contains a high hazard atmosphere, a risk of engulfment or entrapment or with any other recognized serious health or safety hazard:

- (a) another worker or workers must be assigned as the standby person(s);
- (b) the standby person(s) must be stationed at the entrance to the space and must continuously attend to the standby duties;
- (c) the standby person(s) must visually observe or otherwise continuously monitor the well-being of the worker(s) inside the space;
- (d) there must be a continuous means of summoning the standby person(s) from inside the space;
- (e) the standby person(s) must be equipped and capable of immediately effecting rescue using lifting equipment if required, or otherwise performing the duties of rescue persons; and
- (f) the standby person(s) must prevent the entanglement of lifelines and other equipment.

PROVISION OF RESCUE SERVICES

9.37 (1) The employer must provide for the services of rescue persons when a worker enters a confined space.

(2) If the rescue persons are employees of another firm, or an agency such as a fire department, there must be a written agreement detailing the services that are to be provided.

EQUIPMENT AND TRAINING

9.38 (1) Every person assigned rescue duties must be properly equipped and

adequately trained to carry out such duties.

(2) A practice drill must be conducted at least annually.

(3) Records of training and practice drills must be maintained by the employer of the rescue persons.

NOTIFICATION

9.39 (1) Before a worker enters a confined space, the responsible supervisor or the standby person must notify rescue personnel of work in the space.

(2) The responsible supervisor or the standby person must notify rescue personnel when all workers have completed their work and exited from the space.

(3) If more than one confined space is to be entered at the same time, notification of rescue personnel to be on alert status at the commencement of work is adequate.

(4) Notification requirements in this section do not apply if the written agreement indicates that rescue personnel are available 24 hours each day.

SUMMONING RESCUE

9.40 The employer must ensure that rescue personnel monitor any signalling system that will be used to summon the rescue persons in the event of an emergency whenever they have been informed by the responsible supervisor or the standby person that a confined space entry is in progress.

RESCUE PROCEDURES

9.41 (1) Rescue or evacuation from a confined space must be directed by a supervisor who is adequately trained in such procedures or a qualified rescue person.

(2) Effective voice communication must be maintained at all times between workers engaged in the rescue or evacuation and the person directing the rescue.

(3) A rescue worker must not enter a confined space unless there is at least one additional worker located outside to render assistance.

(4) A self-contained breathing apparatus, or air supplied respirator with escape bottle, must be used during rescue operations in an unknown or IDLH atmosphere.

WHEN REQUIRED

9.42 (1) When entering a confined space which contains a high hazard atmosphere, a

risk of entrapment or engulfment or with any other recognized serious health or safety hazard, the worker must wear a harness of a type which will keep the worker in a position to permit rescue.

(2) A lifeline must be attached to the harness and be tended at all times by a standby person stationed outside the entrance to the space.

(3) The standby person must be equipped with suitable lifting equipment if necessary to permit rescue.

(4) The use of a lifeline is not required if the risk assessment identifies obstructions or other conditions that make its use impractical or unsafe.

STANDARDS

9.43 Harnesses, lifelines and lifting equipment must meet the requirements of standards acceptable under this Regulation.

LINE ENTANGLEMENT

9.44 If one or more workers enter a confined space, provision must be made to prevent the entanglement of lifelines and other equipment.

ADDITIONAL WORKERS

9.45 If rescue cannot be effected by the standby person(s) using harnesses, lifelines and lifting equipment, then one or more additional workers must be stationed at the entrance to the confined space and these workers must be equipped and capable of entering the space and effecting rescue.

Personal Protective Equipment and other Precautions

9.46 Repealed. [B.C. Reg. 312/2003, App. D, s. 6]

EMERGENCY ESCAPE RESPIRATOR

9.47 Workers entering a confined space which contains a high hazard atmosphere must carry on their person or have within arm's reach an emergency escape respirator sufficient to permit them to leave the confined space without assistance.

COMPRESSED GAS CYLINDERS

9.48 A cylinder of compressed gas is not permitted inside a confined space, except for a cylinder of compressed air supplied to a respirator, medical resuscitation equipment, handheld aerosol spray containers, fire extinguishers, or other equipment permitted by the board.

[B.C. Reg. 253/2001, s. 5]

TORCHES AND HOSES

9.49 When practicable, torches and hoses used for welding, brazing or cutting must be removed from a confined space when not in use and when the confined space is vacated.

[B.C. Reg. 253/2001, s. 6]

ELECTRICAL EQUIPMENT

9.50 (1) Electrical tools and equipment used in a confined space must be grounded or double-insulated and so marked, and if wet or damp conditions exist inside the space, must be protected by an approved ground fault circuit interrupter as required by Part 19 (Electrical Safety).

(2) Electrical tools and equipment used in a confined space where flammable vapours 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.

NON-SPARKING TOOLS

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

INERTING

23.82 The requirement to control ignition sources during inerting operations in Part 9 (Confined Spaces) does not apply to the workplaces covered by this Part.

SAFETY HARNESES

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

(2) If a lifeline is not used, 2 workers must be equipped with respirators and capable of effecting a rescue if required, and stationed immediately outside the entrance to the confined space.

[B.C. Reg. 312/2010, App. G, s. 16]

WELDING PRECAUTIONS

23.84 1) After a vessel or tank has been cleaned, and before further work is performed:

- (a) the vessel or tank must be ventilated and tested for toxic and flammable substances and oxygen deficiency; and
- (b) repeat tests must be made while work is in progress, as required by Part 9 (Confined Spaces).

(2) If necessary to ensure the safety of workers, steam or an inert gas must be used to purge flammable substances from tankers, tanks, vessels or piping prior to any cutting or welding operations.

(3) Services must be provided through the top accessway of a tank or vessel or, if this is not practicable, the services must be protected.

(4) Equipment or fire extinguishers must not cause a hazard to workers in the tank or vessel.

OPENINGS

23.85 Primary entry ways and ventilation openings must be effectively secured in the open position before entry into a confined space is allowed.

ELECTRICAL EQUIPMENT

23.86 Electrical equipment used in confined spaces must be supplied with power through an approved ground fault circuit interrupter.

23.87 Repealed. [B.C. Reg. 348/2003, s. 7]

For Guidelines and links, see "Confined Space" page on Worksafe BC website
Railway Act.

Occupational Safety and Health Regulations for Railways (B.C. Reg. 74/93)

DEFINITIONS

100.01 In these regulations, unless the content otherwise requires:

"Act" means the Railway Act;

"accident" means an unplanned interruption of an orderly process involving the motion of people, objects or substances;

"adequate" means sufficient, satisfactory or proportionate;

"appropriate" means suitable and proper;

"atmospheric contaminant" means a harmful, irritating or nuisance material in the air, usually occurring in the form of dust, fume, gas, vapour or mist;

"board" means the Workers' Compensation Board of British Columbia (WCB);

"camp accommodation" means living, eating or sleeping quarters provided with or without charge in cabins, tents, dwellings, bunkhouses or other structures, fixed or mobile, including those mounted on rolling stock not in operation, that are established, operated or maintained for or by a railway as living quarters for the railway's agents, employees or other persons subject to the Act;

"certificate" means a certificate of inspection made by an inspector;

"combustible", in relation to a material, means capable of burning with an open flame;

"committee" means an occupational safety and health committee established by a railway;

"confined space", in relation to a tank, silo, storage bin, process vessel or other enclosure not designated or intended for human occupancy, means a space in respect of which, when a person is required to enter therein, special precautions are necessary to:

- (a) protect the person from a harmful atmosphere therein;
- (b) prevent the person from becoming entrapped in a material stored therein; or
- (c) otherwise ensure the person's safety therein;

"contaminant" means a harmful, irritating or nuisance material that is foreign to the normal composition of the substance used;

"corrosive" means capable of causing physical change, usually deterioration or destruction, by chemical or electrochemical action as contrasted to erosion caused by mechanical action;

"CSA" means the Canadian Standards Association;

"dust" means finely divided solid particles dispersed in air which have been formed by mechanical means such as grinding, crushing, blasting or drilling;

"employee" means a railway employee or other person subject to the Act;

"feasible" means possible or practicable;

"flammable" refers to a liquid which, at normal room temperature or under conditions of use, generates sufficient vapour to propagate a flame through its vapour phase on contact with a source of ignition (normally this would apply to liquids having a flash point of 100 F (38 C) or less);

"fume" means solid particles dispersed in air resulting from some chemical or physical process that involves a change of state;

"gas" means an aeriform or completely elastic fluid which does not become liquid or solid at ordinary temperature and pressure;

"hazardous substance" includes a controlled product and any chemical, biological or physical agent that, by reason of a property that the agent possesses, is hazardous to the safety or health of a person exposed to it;

"Industrial First Aid Regulations" means B.C. Reg. 343/79, the Industrial First Aid Regulations;

"inspector" means the chief inspecting engineer, assistant chief inspecting engineer or an inspecting engineer or other inspector of the ministry appointed under the Act or the Public Service Act;

"maintenance-of-way equipment" means track motor cars or other rolling stock used for maintaining rails, tracks and roadbed infrastructure;

"medical treatment" means treatment administered by a medical practitioner or by a registered professional under the direction of a medical practitioner, but does not include the routine administration of first aid;

"on-board accommodation" means living, eating or sleeping quarters provided on rolling stock that is operated by a railway for the accommodation of employees;

"person" means any person, including a railway employee, that is subject to the Act;

"place of employment" means any workplace where an employee is engaged in work for a railway;

"qualified person" means, in relation to a specified duty, a person who, because of his or her knowledge, training and experience, is qualified to perform that duty safely and properly;

"rolling stock" means a locomotive, caboose, self-propelled car, box car, tank car, maintenance-of-way equipment, snow plow, flanger or any other mobile equipment on wheels designed to move on rails or tracks;

"shop", in relation to a railway, means an establishment where motive power, rolling stock or other equipment is built or maintained and includes all buildings, structures, tracks and yards and all machinery and apparatus installed or used for that purpose;

"washroom" means a room that contains a toilet.

Using the Occupational Health and Safety Regulation in Agriculture (2005)

CONFINED SPACES

Confined spaces are deadly spaces unless the hazards within them are eliminated or controlled. This is true in any industry, but of particular importance in agriculture. Of continuing concern are silos and liquid manure pits or tanks. Other confined spaces found in agriculture include underground pumping stations, feed bins, and water or fuel tanks.

The dangers in silos include exposure to nitrogen dioxide or lack of oxygen, and entrapment in material. Manure pits present dangers of exposure to hydrogen sulfide and flammable gases. Feed bins often present hazards of entrapment. Tanks can often present dangers of lack of oxygen or exposure to toxic or flammable material that had previously been stored in the tank. Underground facilities may often be oxygen deficient. In short, confined spaces are dangerous.

Confined spaces are not always easily identified. There may be other confined spaces in your workplace of which you are not aware. In order to determine if there are, look at various work areas where work does not normally take place and where it might be difficult to get an injured person out of the space.

The requirements for confined spaces are found in Part 9 of the OHS Regulation. A confined space is typically one that:

- is enclosed or partially enclosed;
- is not designed or intended for continuous human occupancy;
- has limited or restricted means for entry or exit that may complicate the provision of first aid, evacuation, rescue, or other emergency response service; and
- is large enough and configured in a way that a worker could enter to perform work.

It may be necessary to consult a qualified person to identify the confined spaces in your workplace.

The previous Regulations for Agricultural Operations contained some requirements for confined spaces. A key difference between those requirements and the requirements in the OHS Regulation is that the previous regulations treated all confined spaces as if they presented a similar level of hazard, whereas the OHS Regulation recognizes three levels of hazard: low, moderate or high. In addition, the OHS Regulation provides an improved standard of safety.

Some of the key features of Part 9 of the OHS Regulation are:

- Confined space entry program: An employer must ensure the responsibilities, a list of spaces, a hazard assessment for each space, and written safe work procedures are documented in a written confined space entry program.

- Hazard assessment and work procedures: The employer must ensure that each confined space is assessed by a qualified person who is competent to identify all the hazards of the space, and develop the written safe work procedures to properly control those hazards. FARSHA is working with the WCB to develop model programs for different types of confined spaces to illustrate the steps involved in hazard assessments and work procedures.
- Identification and warning signs: The employer must ensure that all confined spaces in the workplace are identified. Each and every point of access to a confined space must either be secured against entry or be provided with a sign or other means of identification at the entrance that indicates the nature of the hazard and either full prohibition of worker entry or prohibition of entry to unauthorized workers.
- Permits: A written permit is required for any high hazard atmosphere space, one that requires lockout or isolation procedures, or one in which there is a hazard of entrapment or engulfment.
- Lockout and isolation: Before a worker enters a confined space, all potentially hazardous energy sources must be de-energized and locked out, and the space must be isolated from gases, fluids, or substances which could enter the space.
- Testing the atmosphere: Except for certain low hazard confined spaces, pre-entry testing must be conducted before a worker enters a space, and after work breaks. Additional testing must be done for moderate or high hazard atmospheres as necessary to ensure worker safety. In moderate or high hazard spaces where there may be flammables or explosives above 20% of the lower explosive limit, continuous testing must be done. The air in a confined space is oxygen deficient if oxygen levels are less than 19.5%. Only adequately trained workers are permitted to test the air. All test results must be recorded and posted. FARSHA is working with the WCB to increase the capability of the agriculture industry to carry out testing in confined spaces.
- Ventilation: An employer must ensure clean respirable air is provided to the space during work activity, except in certain circumstances such as inerted spaces, some low hazard spaces, and in an emergency rescue where ventilation is not practicable. Typically ventilation is provided by portable mechanical ventilation units. Natural ventilation may be permitted in some cases. If a contaminant is produced by work done in the confined space (for example during welding) then the space must be ventilated using a local exhaust ventilation system, if practicable.
- Standby persons: The duties of standby persons depend on whether the space has been classified as a low, moderate, or high hazard space. Standby persons are responsible for contacting rescue services in the event of an emergency.

- Rescue: Before entry into a confined space, there must be provision for rescue. If rescue is to be provided by an outside source, such as another firm or fire department, there must be an agreement in writing. Rescue equipment typically includes lifelines, harnesses, and lifting equipment.

Northwest Territories

General Safety Regulations (R.R.N.W.T. 1990, c. S-1)

CONFINED SPACES

36 (1) Subject to the other provisions of this section, before a worker enters a confined space, the employer shall ensure that:

- (a) the confined space is ventilated sufficiently to maintain an oxygen content of at least 18% by volume under normal atmospheric pressure and to prevent the accumulation of contaminants;
- (b) pipes and other supply lines in or leading to the confined space, whose contents are likely to create a hazard, are blanked or blinded off; and
- (c) mechanical equipment installed in the confined space is disconnected from its power source and locked out.

(2) Subject to subsection (6), where it is not reasonably practicable for an employer to ventilate in accordance with paragraph (1)(a), the employer shall ensure that air quality tests are carried out by a competent person:

- (a) before a worker enters a confined space; and
- (b) while a worker is in the confined space, to ensure that the confined space is ventilated sufficiently to maintain an oxygen content of at least 18% by volume under normal atmospheric pressure and to prevent the accumulation of contaminants.

(3) Equipment used to conduct air quality tests under subsection (2) must be stored and maintained according to the instructions of the manufacturer.

(4) Where it is not reasonably practicable for an employer to meet the conditions specified in paragraph (1)(b), the employer shall develop and implement alternate procedures that will provide equal or greater protection to workers.

(5) An employer shall ensure that no worker enters or remains in a confined space unless:

- (a) the worker is using a body harness, lanyard and lifeline; and
- (b) electrical equipment that the worker uses or plans to use in the confined space is of a type designed for use in a confined space.

(6) Where the atmosphere in a confined space:

- (a) contains contaminants; or
- (b) has an oxygen content of less than 18% by volume under normal atmospheric pressure, an employer shall ensure that no worker enters or remains in the confined space unless;
- (c) the worker wears respiratory protective equipment in accordance with section 55;
- (d) the worker is attended by and in communication with another worker stationed at or near the entrance to the confined space;
- (e) rescue procedures to enable the removal of the worker who has entered the confined space are in place;
- (f) the worker is using a body harness, lanyard and lifeline;
- (g) rescue equipment capable of effecting a rescue is available for immediate use; and
- (h) a person who is the holder of a standard first aid certificate is in attendance.

37 (1) Where a worker works in a confined space, the employer shall develop a written code of practice for entry to and work in confined spaces containing:

- (a) a means of clearly identifying confined spaces at the work site;
- (b) the qualifications and training for workers who may be required to enter or work in a confined space;
- (c) the means, if any, of blanking or blinding pipes and other supply lines in, or leading to, the confined space;
- (d) the means, if any, of ventilating the confined space;
- (e) the tests or measurements that will be taken to determine the presence of contaminants or oxygen deficiencies;
- (f) information on the availability and proper use of respiratory protective equipment;
- (g) rescue procedures and a list of rescue equipment;
- (h) identification of other hazards that may be present in the confined space and may affect the safety of workers; and
- (i) the requirement, if any, for the issuance of a work permit to enter the confined space.

(2) The employer shall submit the code of practice to the Chief Safety Officer before any worker enters a confined space.

Mine Health and Safety Regulations (R-125-95)

DEFINITIONS

8.27 In this Division, "confined space" means a tank, process vessel, underground vault, tunnel or other enclosure that is not designed or intended for human occupancy and that a person would only enter if there were work to be done.

PROCEDURES

8.28 (1) The manager shall ensure that procedures are developed and implemented for work in confined spaces where oxygen deficient, toxic, explosive or flammable atmospheres might be encountered.

(2) The procedures required by subsection (1) shall be:

- (a) submitted to the Committee for review; and
- (b) sent to the chief inspector for his or her approval.

(3) The procedures required by subsection (1) shall provide for:

- (a) the use of lifelines and safety belts and for the stationing of a person outside the confined space to check on the persons in the confined space at suitable intervals;
- (b) where lifelines and safety belts cannot be used, the stationing of two persons, with respiratory protective equipment and capable of performing a rescue, outside the confined space in which persons are working to visually check the persons in the confined space at frequent intervals;
- (c) maintenance of an effective means of communication between persons inside and outside the confined space;
- (d) specified time intervals for making periodic visual contact with persons inside the confined space;
- (e) specific procedures to be followed whenever welding or burning operations are to be conducted in the confined space;
- (f) provision of appropriate breathing apparatus at every confined space in which persons are working and provision for the ready availability of persons trained in its use;
- (g) provision for compressed air used for breathing complying with the requirements of the standard CAN3-Z180.1-M85, Compressed Breathing Air and Systems;
- (h) disconnecting, blanking or sealing pipes carrying substances that could be hazardous to the persons entering the confined space;
- (i) the method of purging and ventilation to provide a safe atmosphere inside the confined space;
- (j) specific time intervals for testing the atmosphere in the confined space during work in progress;
- (k) recording the results of tests taken under paragraph (j) in a log-book; and
- (l) action to be taken in the event of a power failure.

[R-008-2003, s. 79]

TEST OF ATMOSPHERE IN CONFINED SPACE

8.29 A person without self-contained breathing apparatus shall not enter a confined space in which a harmful atmosphere might exist or develop until

- (a) tests have been made to determine the nature and quantity of harmful vapours,

gases, fumes, mists, dusts, and the oxygen content of the atmosphere inside the confined space and the test results have been recorded in a log-book kept for that purpose;

- (b) the procedures required by section 8.28 have been read and understood by the person and the required emergency and rescue procedures are in place; and
- (c) the confined space is being ventilated continuously by a natural or forced ventilation system such that;
 - (i) the atmosphere in the confined space is no longer considered harmful according to the standards specified in these regulations, and
 - (ii) the oxygen content of the atmosphere inside the confined space is not less than 19%.

8.30 (1) Where any test or examination indicates a harmful atmosphere or the presence of a harmful substance in a confined space:

- (a) every person working in the confined space shall be immediately withdrawn; and
- (b) the confined space shall be ventilated or cleaned or both and re-tested or re-examined.

(2) No person shall enter a confined space where tests have indicated the presence of a harmful atmosphere or a harmful substance unless:

- (a) the confined space is being ventilated in accordance with paragraph 8.29(c); or
- (b) the person is wearing protective equipment as required by subsection (3) and the other requirements of that subsection are met.

(3) Where tests made under section 8.29 indicate the presence of harmful or explosive substances in a confined space and it is not practicable to provide a safe, respirable atmosphere:

- (a) the persons entering the confined space shall wear self-contained breathing apparatus and personal protective equipment;
- (b) the concentration of flammable substances shall be maintained below 20% of the lower explosive limit as determined by repeated testing;
- (c) where flammable substances exist every possible source of ignition shall be eliminated by the use of non sparking tools and intrinsically safe electrical equipment; and
- (d) the persons entering shall be attended by two designated persons who;
 - (i) shall be stationed immediately outside the confined space,
 - (ii) shall visually check on those persons in the confined space at frequent intervals, and
 - (iii) shall be equipped for, and be capable of performing, a rescue.

Yukon

Occupational Health and Safety Regulations (O.I.C. 2006/178)

DEFINITIONS

1.02 In these Regulations only new definitions will be explained: for other definitions, see the Occupational Health and Safety Act and the Workers' Compensation Act;

"administrative controls" means the provision, use and scheduling of work activities and resources in the workplace, including planning, organizing, staffing and coordinating, for the purpose of controlling risk;

"director" means the director of Occupational Health and Safety;

"electrical worker" means an electrical journeyman or a person with equivalent training and experience who can perform electrical work under the supervision of an electrical journeyman;

"engineering controls" means the physical arrangement, design or alteration of workstations, equipment, materials, production facilities or other aspects of the physical work environment, for the purpose of controlling risk;

"heavy equipment" means mobile equipment;

"hazard" means a thing or condition that may expose a person to a risk of injury or occupational disease;

"IDLH" means "Immediately Dangerous to Life or Health"; and includes a high hazard atmosphere where the concentration of oxygen or flammable or toxic air contaminants would cause a worker without respiratory protection to be fatally injured or would have irreversible and incapacitating effects on that worker's health;

"manufacturer's specification" means the written instructions or recommendations of a manufacturer of a machine, materials, tools, equipment or mobile equipment that outline the manner in which the machine, materials, tools or equipment is to be erected, installed, assembled, started, operated, used, handled, stored, stopped, adjusted, maintained, repaired or dismantled, and includes an installation, operating or maintenance manual and drawings;

"NFPA" means the National Fire Protection Association;

"professional engineer" means a person who is registered and licensed to practise engineering under the provisions of the Engineering Profession Act;

"public way" means any publicly or privately owned cul-de-sac, boulevard, thoroughfare, street, road, trail, avenue, parkway, viaduct, lane, alley, square, bridge, causeway,

trestleway, sidewalk, highway, ditch along any public way and highway right-of-way within 30 metres of the centerline;

"qualified person" means a person who has education, experience and training in the recognition, evaluation and control of hazards associated with the work;

"SCBA" means self contained breathing apparatus;

"workplace" means a place where a worker is engaged in work.

VARIANCES

1.03 A requirement of these Regulations may be modified by following the procedures outlined in this section.

(1) On written application by an employer, the director may modify the application of a requirement of the Occupational Health and Safety Regulations on the grounds of:

- (a) availability of equipment improvements; or
- (b) availability of alternate processes or procedures.

(2) Any employer proposing a modification of a requirement of the Occupational Health and Safety Regulations must demonstrate, as a minimum requirement, that the modification of a requirement provides an equal or greater level of protection for worker health and safety.

(3) The director may require the employer, at the employer's expense, to provide evidence from a professional engineer or other expert acceptable to the director with respect to the proposed modification of a requirement of the Occupational Health and Safety Regulations.

NOTE Any person aggrieved by a written decision of the director to modify the requirement of the Occupational Health and Safety Regulations may appeal to the Board under the Occupational Health and Safety Act.

ELIMINATE OR CONTROL HAZARDS

1.04 All reasonable precautions shall be taken, and measures implemented, to prevent occupational injuries and diseases to workers by:

- (a) eliminating hazards where possible;
- (b) controlling hazards through engineering and administrative procedures;
- (c) developing safe work procedures; and
- (d) providing the information, training and personal protective equipment where it is not possible to eliminate or control the hazards.

IMPAIRMENT OR PERSONAL LIMITATION

1.05 (1) All workers shall inform the employer of known physical or mental impairments or limitations where their physical or mental impairment or limitation may endanger themselves or others in the workplace.

(2) Workers with a physical or mental impairment or limitation shall not be assigned to a workplace, or engage in work where their physical or mental impairment or limitation may endanger themselves or others.

(3) Workers shall not enter, remain or be permitted to remain in a workplace while their ability to work may be affected by alcohol, drugs or other substances so as to endanger their health or safety or that of any other person.

TRAINING FOR WORKERS

1.06 A worker shall only operate any tool, equipment, machinery or process if he or she is:

- (a) adequately trained in the safe operation of the equipment or process involved, and the related safe work procedure; and
- (b) duly authorized, licensed and certified, where applicable, to do so.

INSPECTION - PRIOR TO OPERATION OR REPAIR

1.07 (1) Before a worker operates any equipment or machinery, all affected areas shall be inspected to ensure that:

- (a) all safeguards and controls are in place and functioning properly; and
- (b) the operation of the equipment or machinery will not cause any undue risk of injury to workers in the area.

(2) Before any part of a machine or equipment is cleaned, oiled, adjusted or repaired

- (a) any motion that may endanger a worker shall be stopped; and
- (b) any part that has been stopped shall be immobilized.

WORKERS' RESPONSIBILITY TO PROVIDE AND WEAR

1.08 All workers shall provide and wear:

- (a) clothing to protect themselves against the natural elements;
- (b) general purpose work gloves where required by the nature of the work or the elements; and
- (c) appropriate footwear including safety footwear as described in subsection 1.13(c) of these Regulations, where there is risk of injury to the feet.

RESPONSIBILITY FOR PPE

1.09 All workers shall be provided, at no cost to the workers, with all personal protective equipment, specialty clothing or equipment required by these Regulations except those listed in section 1.08, and the equipment or clothing shall be:

- (a) selected, used and maintained to provide effective protection in accordance with the manufacturer's instructions and recognized standards and these Regulations;
- (b) compatible with other equipment and will not present a hazard to the user;
- (c) replaced with alternative equipment or other measures if the use of the selected equipment creates hazards equal to or greater than those its use was intended to protect against;
- (d) replaced by alternative equipment or safe procedures or measures if the equipment causes allergenic or other adverse health effects;
- (e) promptly replaced if deteriorated or if it does not meet the requirements of the applicable standard and these Regulations, or if the conditions of use change; and
- (f) selected in consultation with the joint occupational health and safety committee or the health and safety representative, or the worker who will use it.

AVAILABILITY OF PPE

1.10 Appropriate personal protective equipment shall be:

- (a) readily available to workers, with appropriate training provided; and
- (b) properly used, cleaned, inspected, maintained and stored.

INSPECTION AND CARE

1.11 (1) Personal protective equipment required by these Regulations shall be used in accordance with these Regulations.

(2) Personal protective equipment shall be used in accordance with the instruction and training provided to workers, and:

- (a) the equipment shall be inspected before each use;
- (b) any equipment malfunction shall be reported to the supervisor or employer and the equipment shall not be used until it is repaired; and
- (c) the equipment shall be cleaned, maintained and stored in accordance with the instructions and training.

CONDITIONS

1.12 (1) The personal clothing of a worker shall be of a type and in a condition that will not expose the worker to any hazards.

(2) Where there is a danger of contact with the moving parts of machinery, or with

electrically energized equipment, or where the work process presents similar hazards:

- (a) the clothing of the worker shall fit the body closely;
- (b) head and facial hair shall be confined, or worn at a length that will prevent it from being snagged or caught in the work process or equipment; and
- (c) dangling neckwear, bracelets, wristwatches, rings or similar articles shall not be worn, except for non-conductive medical alert bracelets that fit snugly to the skin.

CONDITION

1.13 The worker shall be required to wear effective and appropriate footwear and ensure that:

- (a) it is in good condition and provides the required protection;
- (b) it is of a design, construction and material type appropriate to the protection required;
- (c) footwear selected for toe protection, metatarsal protection, puncture resistant sole, dielectric protection or any combination, meets the requirements of;
 - i. CSA Standard Z195-02, Protective Footwear,
 - ii. ANSI Standard Z41, Footwear, Protective Personal Protection, or
 - iii. other similar standards acceptable to the director,
- (d) non-slip footwear is worn where the walking surface is slippery; and
- (e) caulked or other equally effective footwear is worn when walking on poles, pilings, logs or other round timbers.

PROVISION

1.14 Appropriate skin, hand, foot or body protection shall be provided if a worker may be exposed to a substance or a condition that may puncture, abrade, burn, corrode, electrically shock or otherwise adversely affect the skin or be absorbed through it.

FIRE RESISTANT CLOTHING

1.15 The worker shall ensure that fire resistant clothing appropriate to the risk is worn where there may be exposure to a flash fire, molten metal, welding and burning or similar hot work hazards.

LEG PROTECTION

1.16 Leg protective devices, meeting the requirements of "Protective Devices for Chainsaw Users" of Standard Council of Canada or other similar standard acceptable to the director, shall be provided to a worker operating a chain saw, except where a firefighter is using a chainsaw in a structural fire.

Protective Equipment and Clothing - Headwear

REQUIREMENT TO WEAR

1.17 Workers shall be required to wear appropriate safety headwear where there is or may be a danger of injury to the head from falling, flying or thrown objects or any other contacts, or where the headwear is used to make the worker more visible in the workplace.

PROVISION AND USE

1.18 Safety headwear shall be provided to and worn by workers and shall:

- (a) have a non-conductive rating where workers may be exposed to electrical hazards;
- (b) be blaze orange, red or another high visibility colour or have retro-reflective decaling to make the worker more visible, such as when working around moving equipment, in forestry operations or controlling traffic;
- (c) meet the requirement of:
 - i. CSA Standard Z-94.1-05, Industrial Protective Headwear Performance, Selection, Care and Use,
 - ii. ANSI Standard Z89.1-2003, Industrial Head Protection, or
 - iii. other similar standards acceptable to the director,
- (d) meet previously published CSA or ANSI standards, remain in service only as long as it is in good condition and provide effective head protection;
- (e) have an effective means of headwear retention when the worker is working in conditions that may cause loss of the headwear; and
- (f) be equipped with winter liners in cold weather.

BUMP CAPS

1.19 Workers are only allowed to wear a bump cap when the danger of an injury is limited to bumping the head against a stationary object.

OFF ROAD VEHICLES

1.20 Operators and passengers of all terrain vehicles, snow vehicles, motor cycles or similar vehicles must wear protective headwear that meets:

- (a) CSA Standard D230-M85, Protective Headgear in Motor Vehicle Applications;
- (b) US Federal Standard for Motorcycle Helmets (Title-49-Transportation-Part 571.218); or
- (c) other similar standards acceptable to the director.

OTHER HEAD PROTECTION

1.21 Workers riding bicycles, using in-line skates or similar means of transport, shall wear headwear meeting the requirements of:

- (a) CSA Standard D113.2-M89, Cycling Helmets; or
- (b) other similar standard acceptable to the director.

Protective Equipment and Clothing - Eye and Face

PROVISION AND REQUIREMENTS FOR USE

1.22 A worker shall be required to wear properly fitting safety eyewear, goggles, face shields, side shields, glasses or other such protective items provided by the employer and appropriate to the workplace conditions where the worker:

- (a) handles, uses or is exposed to materials or substances that may injure the eyes;
- (b) is engaged in or is around work or processes where objects or particles may fly, be thrown about or otherwise cause danger of impact with the eyes;
- (c) is exposed to excessive light, heat rays, electric arcs or similar hazards;
- (d) has 20/200 or less vision in either eye or is blind in either eye;
- (e) is working on or testing energized electrical equipment; or
- (f) is working with laser beams.

STANDARDS

1.23 Face protectors, prescription and non-prescription safety eyewear shall meet the requirements of:

- (a) CSA Standard Z94.3-02, Eye and Face Protectors;
- (b) ANSI Standard Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices; or
- (c) other similar standards acceptable to the director.

LIMITED VISION

1.24 The worker as described in 1.22 shall ensure that:

- (a) the employer is notified when the worker wears contact lenses, has 20/200 vision or less in either eye, or is blind in either eye;
- (b) prescription safety eyewear meets the requirements of CSA Standard Z94.3-02, Eye and Face Protectors, or other similar standard acceptable to the director;
- (c) adequate precautions are taken if a hazardous substance or condition may adversely affect the worker when wearing contact lenses;
- (d) bifocal and trifocal glass lenses are not worn if there is a danger of impact, unless they are worn behind impact rated eye protection; and
- (e) where the use of polycarbonate or plastic prescription lenses is not practicable due to conditions present at the workplace and there is no danger of impact, prescription lenses made of treated safety glass meet the requirements of the following standard;
 - i. ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face

- Protection Devices, or
ii. other similar standard acceptable to the director.

PROVISION

1.25 Workers shall be required to wear appropriate hearing protection devices provided by the employer when they are required to work in an area where the noise level cannot be controlled below the permissible values established in the Occupational Health Regulations.

AIR QUALITY EVALUATION

1.26 Where a worker is or may be exposed to an air contaminant in excess of the permissible concentration or excursion limit, or to an oxygen-deficient or enriched atmosphere, as established by the Occupational Health Regulations:

- (a) the employer shall carry out a comprehensive determination and evaluation to assess the quality of the air and the measures required to render the atmosphere safe to work in; and
- (b) when necessary, as established by the Occupational Health Regulations, a proper ventilation system or other measure shall be installed or implemented.

REQUIREMENT FOR USE

1.27 Where air contamination beyond the permissible concentration occurs at a workplace as a temporary or an emergency situation, and where a worker is or may be exposed to such atmosphere:

- (a) the worker shall be provided with and wear appropriate respiratory protective equipment and be adequately trained in its use, limitations and maintenance; and
- (b) the respiratory equipment shall be selected in accordance with the CSA Standard Z94.4-02, Selection, Use and Care of Respirators or other similar standard acceptable to the director.

WORKER IDLH OR OXYGEN DEFICIENT ATMOSPHERE

1.28 If a worker is required to enter or work in an IDLH or oxygen-deficient atmosphere, or where there is risk of accidental release of an air contaminant or development of such conditions, the employer shall provide and the worker shall:

- (a) wear a full facepiece positive pressure respirator that is an SCBA, or an airline respirator with auxiliary self-contained air cylinder of sufficient capacity to permit the worker to escape from the contaminated area without any assistance if air supply fails;
- (b) be attended by at least one other worker who is similarly equipped, trained and capable of effecting rescue, stationed at or near the entrance to the

- contaminated area; and
(c) be aware of the requirements of Part 2 - Confined Spaces.

EMERGENCY ESCAPE AIR BOTTLE

1.29 A worker using SCBA or an airline respirator shall:

- (a) carry an emergency escape air bottle if there is any possibility that the worker may not be able to escape from a contaminated area without assistance; and
- (b) carry the emergency escape air bottle or ensure that it is within arm's reach at all times.

ANNUAL TESTING OF AIR QUALITY

1.30 The compressed air supplied to respirators, such as SCBA or 'supplied air respirators', shall be tested at least annually to check the quality of the air and compliance with the requirements of CSA Standard Z180.1-00, Compressed Breathing Air and Systems, or other similar standard acceptable to the director.

EYEWEAR

1.31 (1) When a worker uses a positive pressure full facepiece respirator, nothing shall be permitted to interfere with the face seal of the facepiece except for specialty eyewear approved by the manufacturer of the respirator or the director for use with positive pressure full facepiece respirators.

(2) Appropriate specialty corrective eyewear shall be provided to a worker whose prescription eyeglasses may interfere with the use of a full facepiece respirator.

(3) A worker may use contact lenses with positive pressure full facepiece respirators if the use of contact lenses will not affect the health or safety of the worker.

CLEAN SHAVEN FACE

1.32 A worker required to wear a respirator that requires an effective seal with the face for proper functioning shall be clean-shaven where the respirator seals with the face.

FIT CHECKS

1.33 Fit tests and fit checks shall be carried out on workers as required to ensure an acceptable performance from the respirators being used and records of the tests shall be maintained.

PROVISION AND USE

1.34 Each worker shall be provided with, and be required to use, an appropriate

personal flotation device with the required buoyancy where a worker is employed in a situation where there is a risk of drowning unless:

- (a) other safety measures acceptable to the director are in place that will protect workers from the risk of drowning; or
- (b) the water is too shallow to allow the personal flotation device to function effectively.

BUOYANCY

1.35 Personal flotation equipment provided to the worker shall not require any manual manipulation to produce buoyancy, and shall be appropriately labelled and meet the requirements of:

- (a) CGSB Standard B-65.11-M88, Personal Floatation Devices;
- (b) CGSB Standard 65.7-M88, Lifejackets, Inherently Buoyant Type;
- (c) CGSB Standard 65-GP-14M, Lifejackets, Inherently Buoyant, Standard Type; or
- (d) other similar standards acceptable to the director.

AUTO-INFLATABLE LIFE JACKETS

1.36 Automatically inflatable lifejackets shall only be used if they are inspected and maintained in accordance with the manufacturer's instructions and recommendations, and records of all inspections and maintenance shall be maintained.

PROVISION AND USE

1.37 Where it is not practical to protect a worker by guards, guardrails, safety nets or other devices, the worker shall be provided with and required to use the appropriate fall arrest protection:

- (a) when working at a place from which a fall of;
 - i. 3 m (10 ft.) or more may occur, or
 - ii. less than 3 m (10 ft.), if it involves an unusual risk of injury,
- (b) where there is a possibility of falling into a pit, shaft, machinery, water or bulk material that could shift;
- (c) when climbing or descending from utility poles, communication and transmission towers or single point suspension equipment;
- (d) when working on a swing stage or thrust out scaffold, elevating work platform or basket or suspended platform or cage;
- (e) when barring or scaling loose material from a wall in an open pit or an earth work; or
- (f) when working on a roof;
 - i. having a slope of 2 vertical to 3 horizontal or steeper, or
 - ii. where the surface is slippery.

FALL PROTECTION PROGRAM

1.38 Where work is performed at a location not protected by permanent guardrails and from which a fall of 7.5 m (25 ft.) or more may occur, a written fall protection plan shall be in place and communicated to workers with adequate consideration and description of:

- (a) falling hazards expected;
- (b) fall protection system or systems to be used;
- (c) the procedure to assemble, maintain, inspect, use and disassemble the fall protection system or systems; and
- (d) methods to rescue a fallen worker or one who is suspended by a personal fall protection system or safety net and is unable to effect self rescue.

COMPONENTS

1.39 A worker shall:

- (a) when using a personal protection system for fall arrest, wear a full body harness or other such acceptable harness or device which meets the requirements of CSA Standard Z259.10-M90, Full Body Harness or other similar standard acceptable to the director;
- (b) when using a personal protection system for fall arrest, wear an energy absorbing system which meets the requirements of CSA Standard Z259.11-05, Energy Absorbers and Lanyards or other similar standard acceptable to the director; and
- (c) when using a personal protection system for fall restraint, wear a safety belt, a full body harness or other such acceptable harness or device and lanyard which meets CSA Standard Z259.1-95, Safety Belts and Lanyards, or other similar standard acceptable to the director.

VERTICAL LIFELINES

1.40 A vertical lifeline shall meet the requirements of CSA Standard Z259.2.1-98, Fall Arresters, Vertical Lifelines and Rails, or other similar standard acceptable to the director, and it shall be:

- (a) secured independently to an anchor with adequate strength;
- (b) padded or protected at points of attachment and everywhere else the lifelines may come in contact with sharp or abrasive edges;
- (c) used to protect only one worker per line;
- (d) first grade, three strand, hawser laid manila rope of not less than 0.019 m (3/4 in.), having a breaking strength of not less than 24 kN (5400 lbs.), or synthetic or wire rope of at least equal strength;
- (e) wire rope or wire-cored manila rope when there is a possibility of the line being cut, burned or other quick severing incidence;

- (f) non-conductive and used in duplicate (two lines per worker), where workers are using the lifelines in proximity of an energized electrical line;
- (g) less than 90 m (300 ft.) in length; and
- (h) extended to within 3 m (10 ft.) of the ground or other safe landing.

HORIZONTAL LIFELINE USAGE

1.41 Where a horizontal lifeline is used as a temporary system of fall restraint, it shall:

- (a) be designed to provide an ultimate load capacity of at least 3.5 kN (800 lbs.) for each worker connected to it; and
- (b) be either certified by a professional engineer as meeting the requirements of a permanent system as outlined in section 1.42; or
- (c) meet the following requirements:
 - i. the horizontal lifeline shall be a minimum of 0.012 m (½ in.) diameter wire rope with a breaking strength of at least 89 kN (20,000 lbs.),
 - ii. the horizontal lifeline shall be free of splices except at the terminations,
 - iii. all connecting hardware and end anchors shall have ultimate load capacity of at least 71 kN (16,000 lbs.),
 - iv. the lifeline shall span at least 6 m (20 ft.) and not more than 18 m (60 ft.),
 - v. the unloaded sag in the lifeline shall be approximately equal to the span length divided by 60, with a minimum elevation of 1 m (39 in.) above the work surface,
 - vi. any free fall distance shall be limited to 1.2 m (4 ft.),
 - vii. a minimum of 3.5 m (12 ft.) of unobstructed clearance shall be available below the working surface,
 - viii. no more than three workers shall be secured to a horizontal lifeline, and
 - ix. the lifeline shall be positioned so it does not impede safe movement of a worker.

HORIZONTAL LIFELINE DESIGN

1.42 A permanent horizontal lifeline shall be designed by a professional engineer, who shall provide the workplace with signed and dated drawings and instructions for the lifeline system, indicating:

- (a) the layout in plan and elevation, including anchor locations, installation specifications, anchor design and detailing;
- (b) system specifications that include permissible free fall distance, clearance to obstructions below, and rope size, breaking strength, termination details and initial sag or tension;
- (c) the number of workers permitted to connect to the lifeline, and maximum arrest force to each worker; and
- (d) written certification that the lifeline system has been installed in accordance with the design documents.

LIFELINES AND LANYARDS

1.43 Workers using lifelines and lanyards shall ensure that they are:

- (a) free of knots or splices except at their terminals; and
- (b) capable of limiting the worker's free fall to less than 1.2 m (4 ft.).

RESTRICTED VISIBILITY

1.44 (1) No workers shall work or be required to work in an area where visibility is restricted by the presence of dust, mist, smoke, steam, or other substances in the atmosphere, which might result in workers being exposed to hazards, unless a safe work procedure is in place.

(2) Where practicable, high or low temperature sources shall be positioned or shielded to prevent a worker from accidental contact with the hazard.

(3) Where such high and low temperature sources in (2) are necessarily unshielded or exposed, workers shall wear the required personal protective equipment.

LOCATION

1.45 Emergency showers, eye wash fountains or other appropriate facilities shall be provided in areas where a worker's skin or eyes may be exposed to contamination from materials at the workplace.

COVERED PUBLIC WAY

1.46 (1) Before the construction, alteration, repair, dismantling or demolition of a building begins within 2 m (6.5 ft.) of a public way, a covered way shall be constructed over that part of the public way immediately adjacent to the building.

(2) Where a covered way is required under subsection (1), it shall:

- (a) have a clear height of not less than 2.5 m (8 ft.);
- (b) have a clear width of not less than 1.5 m (5 ft.) or where it is over a sidewalk that is less than 1.5 m (5 ft.) a width equal to the width of the sidewalk;
- (c) be capable of supporting any load likely to be applied to it, but in no case less than 2.4 kN per sq. m (50 lbs. per sq. ft.) on the roof;
- (d) have a weather-tight roof sloped toward the project;
- (e) be totally enclosed on the project side with a structure having a reasonably smooth surface facing the public way;
- (f) have a railing 1.07 m (42 in.) in height on the street side where the covered way is supported by posts on the street side; and
- (g) be adequately lighted.

(3) When a project of the kind described in subsection (1) may constitute a hazard to the public and is located 2 m (6.5 ft.) or more from a public way, a strongly constructed fence, boarding or barricade not less than 1.8 m (6 ft.) in height shall be erected between the project and the public way.

(4) Barricades shall have a reasonably smooth surface facing the public way and be free of openings, except those required for access.

(5) Access openings through barricades shall be equipped with gates that shall be kept closed and locked when the project is unattended and shall be maintained in place until completion of the project.

(6) Where any special hazard exists from which it is not possible to protect the public by other means, workers shall be employed to prevent the public from entering the danger zone at any time of the day or night.

(7) When work on a construction site is suspended or discontinued, the hazardous parts of the construction site shall be protected by:

- (a) covering all windows, doors and other openings located within 3 m (10 ft.) of the ground with a securely fastened barricade; or
- (b) constructing a fence or barricade according to the requirements of subsections (3), (4) and (5).

(8) Where a project is on or adjacent to a public way, all machinery, equipment and material that might be a hazard to vehicular or pedestrian traffic shall be marked by flashing devices.

(9) Where a public way or public property must be used to carry out works of short duration, public access shall be restricted or controlled by barriers or workers to direct traffic.

(10) Warning lights shall be installed on or adjacent to all barriers during darkness or when visibility is poor.

WORKER PROTECTION ON PUBLIC WAY

1.47 (1) Where a worker may be endangered by vehicular traffic on a project on a public way, or on a public way on a project, workers shall be protected by such of the following measures as are necessary:

- (a) workers directing traffic;
- (b) warning signs;
- (c) solid barriers;
- (d) lane control devices or traffic lights;
- (e) flashing lights, strobe lights or flares;

- (f) pilot car; or
- (g) a combination of the above.

(2) Workers who are required to direct traffic shall be given written and verbal instructions setting out the signals they are to use and the instructions they are to provide motorists.

(3) Workers required to direct traffic during hours of darkness shall be provided with lighting systems to illuminate the entire traffic control workstation, and additional retro-reflective devices such as wristbands and leg bands.

High Visibility Apparel

NOTE: There are three levels of requirement for the application of high visibility equipment in section 1.48 (1), (3) and (5).

LEVEL 1 REQUIRED

1.48 (1) Workers must be provided with, and be required to wear, high visibility safety headwear and high visibility apparel when they are:

- (a) exposed to the hazards of moving vehicles or equipment;
- (b) directing traffic on a public way; or
- (c) are endangered by vehicular traffic on a public way.

(2) High visibility apparel for the purpose of subsection (1) is:

- (a) a vest, coat, jacket, shirt or coveralls with a minimum of 0.13 sq. m (200 sq. in.) of background material on both front and back;
- (b) bright or fluorescent coloured background material of yellow, lime green, red or orange;
- (c) a minimum length of 0.61 m (24 in.); and
- (d) trimmed with a minimum of 0.05 sq. m (80 sq. in.) of trim that is both fluorescent and retro-reflective which is at least 0.05 m (2 in.) wide, or an equivalent combination of fluorescent and retro-reflective trim in two vertical stripes on the front and an 'X' pattern on the back of the garment.

(3) Workers shall be provided with, and wear, high visibility safety headwear and high visibility apparel when exposed to the danger of slow moving mobile equipment at a workplace.

(4) High visibility apparel for the purpose of subsection (3) is:

- (a) at a minimum, a harness type garment with a minimum of 0.064 sq. m (100 sq. in.) background material, on both the front and back;
- (b) bright or fluorescent coloured background material of yellow, lime green, red or

orange; and

- (c) a minimum of 0.51 m (20 in.) in length, and either
 - i. a harness trimmed with a minimum of 0.064 sq. m (100 sq. in.) of trim that is both retro-reflective and fluorescent and is at least 0.05 m (2 in.) wide, or an equivalent combination of fluorescent and retro-reflective trim on the front, back and waistband, or
 - ii. if it is other than a harness, trimmed with a minimum of 0.05 sq. m (80 sq. in.) of trim that is both retro-reflective and fluorescent which is at least 0.05 m (2 in.) wide, or an equivalent combination of fluorescent and retro-reflective trim in two vertical stripes on the front and an 'X' pattern on the back of the garment.

(5) Workers shall be provided with, and required to wear, high visibility headwear and high visibility apparel where there is a need to distinguish the worker in the workplace.

(6) High visibility headwear and high visibility apparel for the purpose of subsection (5) is:

- (a) headwear that is bright coloured and contrasts sharply with the work environment;
- (b) a vest, coat, shirt, jacket, harness or coveralls at least 0.51 m (20 in.) in length, with a minimum of 0.064 sq. m (100 sq. in.) of background material on both front and back; and
- (c) bright or fluorescent coloured background material of yellow, lime green, red or orange, and either;
 - i. a harness, trimmed with a minimum of 0.064 sq. m (100 sq. in.) of trim that is both retro-reflective and fluorescent, which is at least 0.05 m (2 in.) wide or an equivalent combination of fluorescent and retro-reflective trim, on the front, back and waistband, or
 - ii. if it is other than a harness, trimmed with a minimum of 0.05 sq. m (80 sq. in.) of trim that is both retro-reflective and fluorescent, which is at least 0.05 m (2 in.) wide, or an equivalent combination of fluorescent and retro-reflective trim, in two vertical stripes on the front and an 'X' pattern on the back of the garment.

VEHICLE REQUIREMENTS

1.49 (1) Vehicles used to transport workers shall have:

- (a) ventilation in the seating areas;
- (b) an interior light;
- (c) a signal device or other effective method for passengers to communicate with the driver;
- (d) firmly secured seats with effective seat belts;
- (e) a safe means of access and egress;
- (f) a leak proof exhaust system with the outlets located such that the exhaust gases

cannot enter the seating area; and
(g) no loose material or equipment that could injure a worker in the seating area.

(2) No explosive or flammable material, other than the normal fuel supply for the vehicle or the boat, shall be transported in the vehicle or boat while it is in use to transport workers.

(3) No worker shall be required or permitted to:

- (a) travel standing in a bus at the workplace, unless a protective measure has been provided against a standing worker being thrown off balance;
- (b) sit or ride with any portion of the body protruding outside any part of the vehicle or the boat; or
- (c) board or leave a vehicle or boat while it is in motion.

(4) A worker shall be provided with and wear an appropriate personal flotation device while being transported in a boat.

ACCESS, EGRESS AND EMERGENCY EGRESS

1.50 (1) There must be a safe way of entering and leaving the workplace and a worker must not use any other way if it is hazardous.

(2) Hazardous areas shall be secured with a locked door or by other equivalent means to prevent access by workers, unless there is a safe work procedure developed for the purpose and workers are instructed in it.

(3) Access to and egress from all work areas, work stations, storage areas, shut off switches, control panels and any emergency supplies or equipment shall be unrestricted and unimpeded at all times.

(4) An emergency means of escape shall be available from any area where the normal means of exit may be rendered dangerous or unusable from time to time.

WORKPLACE MAINTENANCE

1.51 (1) All floors, decks, platforms, stairs, ramps, walkways, aisles and catwalks shall be maintained in good repair and free of tripping and slipping hazards.

(2) Immediate action shall be taken to eliminate or control slipping or any other hazard originating from a spill or leak of a substance on a floor or other working surface.

(3) Where a floor is wet because of the work process, devices such as matting or grating shall be used to eliminate the hazard of slipping.

(4) Proper clean-up and disposal methods, which do not create hazards to the worker,

other people, equipment, structures or the environment shall be adopted and used.

SALVAGED MATERIAL HAZARDS

1.52 (1) Protruding nails shall be promptly removed from salvaged lumber.

(2) Salvaged lumber shall be piled safely.

(3) No accumulation of salvaged or scrap lumber sufficient to cause a safety hazard shall be allowed.

FIRE HAZARDS

1.53 (1) Rags used for cleaning flammable liquids or harmful substances shall be kept in covered metal containers that are clearly labelled.

(2) Flammable liquids or harmful substances shall be stored in approved containers and in accordance with Workplace Hazardous Materials Information System Regulations and the National Fire Protection Agency.

USE OF COMPRESSED AIR

1.54 (1) A worker using compressed air, steam or other propelling agent to remove dust, chips, dirt, grime, paint or other substance:

- (a) shall not expose any worker to the direct or indirect jet stream or the material expelled or propelled by the jet; and
- (b) shall cease use if a fire, explosion or other hazard is likely to result.

(2) A worker shall not blow dust from clothing being worn unless:

- (a) there is an area specifically designated for such purpose;
- (b) all the workers in the area wear proper eye protection; and
- (c) only compressed air, with the pressure regulated down to 69 kPa (10 psi), or a safety nozzle that has the same limiting effect, is used.

SLIPPING AND TRIPPING HAZARDS

1.55 (1) Linoleum or other smooth or polished surfaces shall be treated with a non-slip preparation.

(2) Rugs shall be maintained in good condition and torn or damaged floor coverings shall be replaced or repaired immediately.

(3) Entrance steps and stairs to buildings shall be kept free from ice or snow at all times.

- (4) All stairways shall be equipped with anti-slip treads and suitable handrails.
- (5) Differences of floor elevations in aisles and corridors shall be clearly marked.
- (6) Computer, power and telephone outlets, wires and extension cords shall be located where they will not cause a tripping hazard.
- (7) Step ladders or stands with non-slip feet and treads shall be available to workers when trying to reach high places.
- (8) Materials shall not be placed on the floor where tripping may result.

DESIGN OF WORKPLACES

1.56 Where practicable the workplace shall be designed, constructed and laid out:

- (a) to conform to applicable fire, building or occupancy code;
- (b) to provide easy access to all exits;
- (c) so that all floors, platforms, stairs, structural components and equipment will withstand the anticipated loads; and
- (d) so that filing cabinets, vaults and other heavy objects are placed so as to distribute the weight over as large an area as possible.

EMERGENCY LIGHTING

1.57 An emergency lighting system shall be installed and maintained at a workplace that is used during hours of darkness or where a source of natural light is not available and shall:

- (a) provide an adequate level of illumination for the area, but not less than 10.8 lux (1 foot candle) at all exits;
- (b) be powered by a source independent of the general lighting system;
- (c) be controlled by an automatic device that will activate the secondary source of power; and
- (d) be inspected and maintained annually.

SPECIFICATIONS

1.58 Walkways shall be:

- (a) clearly marked;
- (b) if elevated, be at least 0.45 m (18 in.) wide;
- (c) 1 m (3.3 ft.) in width if used as direct access to an exit; and
- (d) if elevated, accessed by means of a fixed ladder or stairway.

SPECIFICATIONS

1.59 (1) A runway, ramp or platform other than a scaffold platform shall be:

- (a) designed, constructed and maintained to support the anticipated load with the required margin of safety, but not less than 2.4 kN per sq. m (50 lbs. per sq. ft.);
- (b) 0.45 m (18 in.) or more in width; and
- (c) securely fastened in place.

(2) A ramp shall have:

- (a) a slope not exceeding a gradient of 1:3;
- (b) cross cleats installed where the slope exceeds a gradient of 1:8; and
- (c) cleats spaced at regular intervals not exceeding 0.5 m (20 in.), made from 0.02 m (3/4 in.) by 0.04 m (1-1/2 in.) size boards securely nailed to the ramp.

(3) Where a ramp is installed in a stairwell of a building not exceeding two stories in height, the ramp slope shall not exceed a gradient of 1:1, and the cross cleats shall be:

- (a) spaced at regular intervals not exceeding 0.3 m (12 in.); and
- (b) made from 0.038 m (1-1/2 in.) by 0.038 m (1-1/2 in.) size boards securely nailed to the ramp.

(4) Platforms and other structures hooked to concrete forms shall be:

- (a) designed, fabricated and installed with consideration of the work to be performed and the related hazards;
- (b) supported on a solid foundation;
- (c) anchored securely at the rest point; and
- (d) not overloaded.

SECTION 1.60 WHERE REQUIRED

1.60 Subject to subsection (f), areas accessible to a worker shall have guards or guardrails installed:

- (a) if a raised floor, open-sided floor, mezzanine, gallery, balcony, work platform, surface of a bridge, a concrete roof or scaffold has a height exceeding 2.4 m (8 ft.);
- (b) if a walkway, runway, ramp or platform other than a scaffold is used as a path and is more than 1.2 m (4 ft.) in height;
- (c) on any walkway over or adjacent to any hazardous substance, or adjacent to or over machinery or a work area;
- (d) around the perimeter of any open container or containment area such as an open vat, bin, tank or pit that is 1.2 m (4 ft.) or more in depth, and with sides that do not extend at least as high as required for a guardrail above the adjacent grade or work surface;

- (e) if a stairway ends in direct proximity to dangerous traffic or other hazard; and
- (f) except where other effective measures are taken to ensure that workers are protected from falls from the front edge of a loading dock or the edge of a performance stage.

INSPECTIONS

1.61 (1) A competent person shall inspect guardrails on a regular basis and if they do not meet the specification requirements, the guardrails shall be repaired immediately to meet those requirements or they shall be replaced.

(2) An opening for passage through a guardrail shall be equipped with a barrier or gate that may be removed temporarily to permit passage and then replaced immediately.

(3) Where a guardrail is removed in order for work to be done:

- (a) adequate precautions shall be taken to ensure the safety of the workers; and
- (b) the area shall not be left unguarded.

(4) A worker who removes a guardrail, in order to do a particular task, shall replace the guardrail before leaving the area.

ELEVATED WORKERS

1.62 Where a worker working on stilts or a work platform is elevated above the floor, resulting in the reduction of the effective height of guardrails, walls or barricades to less than the required height in 1.63(2), additional guardrails or a personal fall protection system shall be provided and used.

SPECIFICATIONS FOR GUARDS AND GUARDRAILS

1.63 (1) Guardrails shall be designed and installed to withstand:

- (a) a load of 900 N (200 lbs.) applied horizontally at any point along the rail; and
- (b) a vertical load, downward of 1.5 kN per m (100 lbs. per ft.) along the top rail, but the horizontal and vertical loads need not be considered to act simultaneously.

(2) A guardrail shall be:

- (a) not made of fibre rope;
- (b) not less than 0.91 m (36 in.) in height or more than 1.07 m (42 in.) above the surface on which it is installed;
- (c) made of wood not less than 0.038 m by 0.089 m (1-1/2 in. by 3-1/2 in.), securely supported on posts of the same size, and spaced at intervals not more than 2.4 m (8 ft.); or
- (d) made of metal pipe with a top rail and vertical supporting posts that are at least

0.04 m (1-1/2 in.) in diameter and intermediate rails that are 0.025 m (1 in.) in diameter; or

- (e) made of angle iron with a top rail and vertical supporting posts that are at least 0.04 m x 0.04 m x 0.005 m (1-1/2 in. x 1-1/2 in. x 3/16 in.), and intermediate rails that are at least 0.032 m x 0.032 m x 0.003 m (1-1/4 in. x 1-1/4 in. x 1/8 in.); or
- (f) made of wire rope not less than 0.01 m (3/8 in.) in diameter, on vertical separators not less than 0.05 m (2 in.) wide, spaced at intervals of less than 2.4 m (8 ft.), and attached to a welded fastening on the vertical supporting posts with metal clips to prevent unnecessary sagging and easily distinguishable from the background; or
- (g) made from other materials, of at least equivalent strength and protection;
- (h) free of sharp edges, splinters and protruding nails; and
- (i) kept taut by means of turnbuckles where wire rope is used.

HEIGHT

1.64 (1) Floor Openings, elevated walkways and platforms shall have toeboards if there is a danger from tools, materials, equipment or debris falling off the edge of the work surface, or there is a danger of slipping off the work surface due to environmental conditions or work practices being used.

(2) The top of a toeboard shall be at least 0.1 m (4 in.) above the floor or platform, and the space between the bottom of the toeboard and the floor or platform shall not exceed 0.013 m (1/2 in.).

(3) The toeboard shall be made of 0.019 m by 0.089 m (3/4 in. by 3-1/2 in.) wood or of materials of equivalent strength and protection.

(4) The height of the toeboards shall be increased, or mesh panels or other protective devices shall be installed where materials placed near the edge of an overhead area present a hazard to the area below, to prevent material placed near the edge of an overhead area from falling to the area below.

WHEN REQUIRED

1.65 (1) Stairs with more than four risers shall have continuous handrails on:

- (a) any open side of the stairway;
- (b) one side of enclosed stairways 1 m (3.3 ft.) or less in width; and
- (c) both sides of enclosed stairways over 1 m (3.3 ft.) wide.

(2) The top of a handrail shall be 0.8 m to 0.9 m (32 in. to 35 in.) above the stair tread, measured vertically from the nose of the tread, and the height shall not vary on any flight or succession of flights of stairs.

(3) A handrail on an open side of a stairway shall have a mid-rail located approximately

midway between the top of the handrail and the nose of the stair tread.

(4) A handrail shall be able to withstand a load of 1.3 kN (300 lbs.) applied vertically or horizontally at any point along the handrail.

(5) A handrail shall extend 0.3 m (1 ft.) beyond the top and bottom stairs.

COVERED OR GUARDED

1.66 (1) A pit or other opening in a floor, walkway, roof or other area accessible to a worker, shall be securely covered or guarded by properly identified fixed or movable guardrails, and kept in place except when removed to work in the opening or pit.

(2) Where the opening referred to in subsection (1) is covered with a plank or other equivalent material, it shall be capable of supporting a live load of at least 2.4 kN per sq. m (50 lbs. per sq. ft.).

(3) Where the opening is a vehicle service pit:

- (a) the area around the perimeter of the pit shall be curbed to a height of $\frac{1}{4}$ of the outside diameter of the largest tire expected to be on the pit;
- (b) it shall be marked in a high visibility colour extending back at least 1 m (3.3 ft.) from the edge of the pit; and
- (c) the marking coating or material shall provide a skid resistant surface.

(4) Where the opening is a trap door in a performance stage, alternate measures shall be taken to protect the workers.

GUARDING OPENINGS

1.67 (1) An opening into which a worker may fall, other than a hatchway, chute, pit or trap-door opening, shall be guarded:

- (a) on all exposed sides by guardrails; or
- (b) by an adequately strong and supported cover, secured over the opening.

(2) Notwithstanding subsection (1), where an opening leads to a stairway or ladder, it shall be guarded on all exposed sides, other than the entrance to the stairway or ladder, by guardrails.

(3) Where a cover is used over an opening and is not in place, the opening shall be constantly attended by a person or guarded by a guardrail on all exposed sides.

(4) A hatchway, chute, pit or trap-door opening into which an employee may fall shall be guarded:

- (a) by guardrails that are removable on not more than two sides and that are fixed on the other exposed sides; or
- (b) by a flush hinged cover of adequate strength, and adequately supported with attached railings so as to leave only one side of the opening exposed when the cover is open.

DOORS

1.68 (1) Doors shall not open directly onto stairways but shall open onto floors or landings having a width in excess of the swing of the doors.

(2) Double-acting swing doors shall be designed and installed to permit adequate view through the doors.

(3) Transparent glass doors and transparent glass panels which extend less than 0.305 m (12 in.) from the floor, and that could be mistaken for doorways, shall be constructed of laminated, tempered or wired safety glass, or fitted with bars or other devices or markings which clearly indicate the presence and position of such doors and panels.

EMERGENCY EXITS

1.69 (1) Emergency exits shall be:

- (a) unlocked and not blocked by any material;
- (b) designed, marked and located to provide easy and quick egress; and
- (c) provided in areas where the regular exit could be rendered unusable.

(2) An emergency plan appropriate to the workplace needs and conditions shall be developed and implemented.

FIRE FIGHTING EQUIPMENT

1.70 (1) Fire hoses with nozzles, portable fire extinguishers, automatic sprinkler system, hydrants and any other firefighting equipment as required by the National Fire Protection Association shall be provided and maintained for the type of the work being conducted and the particular work place.

(2) Portable fire extinguishers of an appropriate type, size and quantity shall be provided and maintained:

- (a) in every workshop;
- (b) at any place used for the storage or handling of combustible material, flammable liquid or explosives;
- (c) in places where welding, cutting or similar operations are being carried out;
- (d) where temporary oil, gas or electric heaters are in operation;
- (e) when operating a tar or asphalt kettle; and

(f) near the exit of each storey of a building under construction.

(3) A reasonable number of workers, as determined through a hazard assessment of the workplace, shall be trained in the use, limitations, types and location of the fire extinguishers provided at the workplace.

(4) Fire extinguishers provided at the workplace shall:

- (a) contain an appropriate extinguishing agent;
- (b) be refilled or replaced immediately after every use;
- (c) be inspected at least annually and maintained in an operating condition; and
- (d) bear the inspection cards with the name of the inspector and the date of the inspection.

1.71 (1) Workers shall be provided with sufficient clean sanitary toilet facilities, taking into account the nature of the work, the number of workers and the gender of the workers.

(2) All workers shall be provided with a sufficient quantity of safe fresh drinking water with sanitary appliances for drinking.

(3) Where the possibility of contamination of food exists, an eating area separate from the work area shall be provided.

(4) Appropriate facilities for showering and/or changing shall be provided where the nature of the work requires workers to:

- (a) change from street clothes to work clothes;
- (b) work in areas where clothes might become contaminated by toxic, noxious, infectious or irritating substances; or
- (c) work in hot, humid, dirty, dusty or wet conditions.

CONFINED SPACES

DEFINITIONS

2.01 In this part, the following definitions apply:

"adjacent piping" means 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;

"blank" means a solid plate installed through the cross-section of a pipe, usually at a flanged connection;

"blanking or blinding" means the absolute closure of adjacent piping by fastening a solid

plate or cap across its bore, that completely covers the bore and is capable of withstanding the maximum pressure of the adjacent piping;

"blind" means a solid plate installed at the end of a pipe that has been physically disconnected from a piping system;

"clean respirable air" means an atmosphere which is equivalent to clean, outdoor air that contains:

- (a) approximately 20.9% oxygen by volume;
- (b) no measurable flammable gas or vapour as determined using a combustible gas measuring instrument; and
- (c) no air contaminant in concentrations exceeding 10% of its applicable exposure limit in the Occupational Health Regulations;

"confined space" means an area, other than an underground mine, that:

- (a) is enclosed or partially enclosed;
- (b) is not designed or intended for human occupancy;
- (c) has limited or restricted means for entry or exit that may complicate the provision of first aid, evacuation, rescue or other emergency response services; and
- (d) is large enough and so configured that a worker could enter to perform assigned work;

"double block and bleed" means the closure of adjacent piping by locking out a drain or vent in the open position in the line between two locked out valves in the closed position;

"high hazard atmosphere" means 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;

"inerting" means intentionally flooding the atmosphere inside a confined space with an inert gas such as nitrogen to eliminate the hazard of ignition of flammable vapours inside the confined space thereby creating an oxygen deficient atmosphere;

"low hazard atmosphere" means 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, as determined by a qualified person after consideration of the design, construction and use of the confined space, the work activities to be performed, and all ventilation, lockout and isolation controls required by the applicable regulations;

"moderate hazard atmosphere" means 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.

GENERAL

INITIAL DETERMINATION AND CONTROL OF HAZARDS

2.02 All confined spaces shall be identified and assessed to determine:

- (a) the level of hazards that exist within each confined space;
- (b) whether the confined space will require entry by a worker either in scheduled work activities or as a result of foreseeable system failure or other emergency; and
- (c) means of controlling or eliminating hazards to ensure safe performance of work activities.

PROHIBITED ENTRY

2.03 If a confined space exists at a workplace but no entry by workers is required, each access to the confined space shall be secured against entry and posted with a sign or other effective means:

- (a) describing the nature of the hazard and the prohibition of entry; and
- (b) prohibiting workers from entering.

CONFINED SPACE ENTRY PROGRAM

2.04 Before a worker is required or permitted to enter a confined space a confined space entry program shall be written and implemented and include:

- (a) assignment of responsibilities;
- (b) a list of confined spaces, and a hazard assessment of each confined space; and
- (c) safe work procedures for entry into and work in the confined space, that address, where applicable;
 - i. identification and entry permits,
 - ii. lockout and isolation,
 - iii. verification and testing,
 - iv. cleaning, purging, venting or inerting,
 - v. ventilation,
 - vi. standby persons,
 - vii. lifelines, harnesses and lifting equipment,
 - viii. personal protective equipment and other precautions,
 - ix. coordination of work activities, and
 - x. rescue plans.

ADMINISTRATION

2.05 The overall responsibility for administration and execution of the confined space entry program shall be assigned to a competent person.

SUPERVISION

2.06 A supervisor, with training and experience in confined space entry, shall ensure that:

- (a) pre-entry testing and inspection are conducted based on the written, safe work procedures;
- (b) precautions identified in the written safe work procedures required by this Part or that are necessary for the health and safety of workers are followed; and
- (c) only authorized workers enter a confined space.

INSTRUCTION

2.07 Each person assigned work related to entry into a confined space shall be adequately trained in and use safe work procedures, as written for confined spaces.

FACTORS TO CONSIDER

2.08 (1) A qualified person shall conduct a hazard assessment of each confined space and related work activities and prepare written confined space entry procedures.

(2) Hazard assessments shall include consideration of:

- (a) conditions that may exist prior to entry due to the design, location or use of the confined space or that may develop during the work activity inside the space;
- (b) the potential for oxygen deficiency (below 19.5% Oxygen by volume in air) or oxygen enrichment (more than 23.5%), flammable gas, vapour or mist, combustible dust, other hazardous atmospheres, harmful substances requiring lockout and isolation, engulfment and entrapment, and other hazardous conditions.

REQUIREMENT FOR PERMIT

2.09 (1) An entry permit shall be completed, signed and posted by the responsible supervisor:

- (a) before a worker enters a confined space;
 - i. with a high hazard atmosphere,
 - ii. that requires lockout or isolation procedures to be followed, or
 - iii. where there is a hazard of engulfment or entrapment,
- (b) at each entry point to a confined space and any other places considered appropriate specifying;

- i. information about whether the confined space is safe to enter or not,
- ii. the work activities to which the entry permit applies,
- iii. the names of the workers who are inside the confined space,
- iv. the precautions to be taken to eliminate or minimize all hazards which may be present or may develop during the work activity, and
- v. the time the entry permit expires.

(2) The entry permit shall be updated and altered only by the responsible supervisor, by the standby worker with the latest information available as regards to the number of workers, and by the tester with the latest atmospheric condition.

(3) The entry permit shall be re-authorized and re-signed by the responsible supervisor:

- (a) if there is a change in the work crew;
- (b) after each shift change; and
- (c) after a change of the responsible supervisor.

(4) The entry permit information shall be conveyed to each worker and individuals affected by and related to the confined space activity.

(5) The entry permit shall be kept for a year in a file.

LOCKOUT REQUIREMENT

2.10 Before a worker enters a confined space:

- (a) all potentially hazardous energy sources shall be de-energized and locked out as required by Part 3 – Lockout; and
- (b) any conveyance equipment that transports material to and from the confined space shall be rendered free of the material if its presence poses a hazard.

ISOLATION OF HAZARDS

2.11 Before a worker enters a confined space

(1) Any adjacent piping, which contains or has contained a harmful substance, shall be controlled by:

- (a) disconnecting, blanking, blinding or an equivalent engineered system; or
- (b) a double block and bleed system if the adjacent piping contains a harmful substance which is not a gas or a vapour, nor a liquid of sufficient volatility to produce a hazardous concentration of an air contaminant in the discharge of the piping; and
- (c) meeting the requirements of subsections (a) or (b) or other equally effective system acceptable to the director, where the adjacent piping contains a substance considered hazardous due only to its pressure, temperature or

quantity.

(2) Where a p-trap is used in the isolation of a confined space from the gases found in a gravity flow municipal or domestic sanitary or storm sewer system, its integrity shall be checked immediately upon entry to the confined space and the atmosphere shall be continuously monitored to ensure the availability of clean respirable air.

(3) The closing of one or more valves in a line shall not be used as a means of isolation.

ALTERNATE PROCEDURES

2.12 (1) Where isolation measures described in section 2.11 are not possible, alternate measures acceptable to the director that ensure equivalent protection to all workers exposed to the hazard shall be implemented.

(2) All workers affected by these isolation measures shall be informed of the measures taken and instructed in any applicable work procedures.

ISOLATION POINTS

2.13 (1) Before a worker is allowed to enter a confined space, each isolation point shall be checked and verified to ensure the confined space is effectively isolated.

(2) The location of each isolation point must be recorded and an updated record maintained.

BLANKS AND BLINDS

2.14 Unless certified by a professional engineer, the blanks and blinds used for isolation shall be properly stamped with their pressure rating, inspected before use and meet the requirements of the following standards or other similar standards acceptable to the director:

- (a) ANSI/ASME B16.48-1997, Steel Line Blank;
- (b) ANSI/ASME B16.5, Pipe Flange and Flanged Fitting;
- (c) ANSI /ASME B31.1-2001, Power Piping; or
- (d) ANSI /ASME B31.3-2004, Process Piping.

BLANKS AND BLINDS

2.15 When a line is opened for disconnection or to insert a blank or blind:

- (a) safe work procedures shall be developed and followed;
- (b) a visual indication that a blank or blind has been installed shall be provided at the point of installation; and
- (c) gaskets or threaded caps shall be installed to prevent leakage.

DOUBLE BLOCK AND BLEED

2.16 When a double block and bleed system is used to isolate a confined space:

- (a) the diameter of the bleed line shall be larger than the line being isolated, unless certified by a professional engineer;
- (b) the bleed lines for a liquid system shall be at lower elevation than the block valves and checked as required to ensure the bleed lines remain clear while the confined space is occupied;
- (c) the valves shall be locked out in their proper open or closed position and the downstream block valves checked to ensure they are capable of safely withstanding the line pressure;
- (d) the bleed shall be checked to ensure that it remains clear of obstructions while the confined space is occupied; and
- (e) in the event of discharge from bleed lines, all workers shall immediately exit the confined space and the space shall be re-isolated before a worker enters the space.

DISCHARGE AREA

2.17 The area of potential discharge from an accidental discharge of liquids due to the disconnection of lines or failure of the double block and bleed isolation system shall be controlled to avoid any possible hazard to workers.

VERIFYING PRECAUTION

2.18 (1) Before a worker enters a confined space, pre-entry testing and inspection shall be conducted to verify that the required precautions have been effective at controlling identified hazards and that it is safe for a worker to enter.

(2) Testing shall be:

- (a) conducted in a safe manner as specified in written work procedures;
- (b) completed less than 20 minutes before a worker enters a confined space;
- (c) repeated when all workers have vacated the confined space for more than 20 minutes;
- (d) carried out by a qualified person, using equipment that is maintained in accordance with the manufacturer's instructions; and
- (e) recorded and the records shall show the date and time of each test, the initials of the tester and the levels or conditions found.

(3) Test results, other than continuous monitoring results, shall be posted without delay at all points of entry to the confined space.

PRE-ENTRY TESTING

2.19 Pre-entry testing in a confined space with a low hazard shall be conducted where:

- (a) a more hazardous atmosphere could develop;
- (b) the effectiveness of isolation and pre-entry control is required; and
- (c) representative sampling has demonstrated that the confined space does not meet the low hazard atmosphere definition.

MODERATE OR HIGH HAZARD

2.20 (1) While a worker is inside a confined space with a moderate or high hazard atmosphere, additional testing shall be conducted as necessary to ensure the worker's continuing safety.

(2) Whenever practicable, the atmosphere in the confined space shall be continuously monitored.

(3) Where a worker enters a confined space with a moderate or high hazard atmosphere, the atmosphere shall be continuously monitored where a flammable or explosive atmosphere in excess of 20% of the lower explosive limit could develop.

CLEANING, PURGING, VENTING

2.21 Where testing has shown that hazards from a contaminated atmosphere may exist in a confined space:

- (a) the possible hazards from a contaminated atmosphere inside a confined space and those from a dead end of an isolated line shall be controlled by cleaning, purging or venting; and
- (b) the atmosphere of the controlled confined space must be re-tested before a worker enters the space.

RISK CONTROL

2.22 Where clean respirable air cannot be assured in a confined space before a worker's entry:

- (a) workers entering the space shall be provided with and use appropriate personal protective equipment including respirators;
- (b) the concentration of flammable gases shall be maintained below 20% of the lower explosive limit; and
- (c) all ignition sources shall be eliminated or adequately controlled where flammable or explosive gas vapours or liquids are present.

INERTING

2.23 Workers may only enter and work in a confined space which has been inerted if:

- (a) a pre-project meeting has been held between the project supervisor and a safety officer;
- (b) a comprehensive safe work procedure has been developed and shall be followed;
- (c) entry precautions meet the requirements of high atmosphere hazards, except for the requirement for continuous ventilation;
- (d) workers are equipped with and use appropriate supplied-air respiratory protective equipment;
- (e) all ignition sources are controlled; and
- (f) the atmosphere inside the confined space remains inerted while workers are inside.

CONTINUOUS VENTILATION

2.24 Each confined space shall be ventilated continuously while a worker is inside the space, except in:

- (a) an atmosphere intentionally inerted in accordance with section 2.23;
- (b) a low hazard atmosphere controlled in accordance with section 2.25; or
- (c) an emergency rescue, where ventilation is not practicable.

LOW HAZARD ATMOSPHERE

2.25 Each worker inside a confined space with a low hazard atmosphere shall be supplied with a minimum of 85m³/hr (50 cfm) of clean respirable air, except where:

- (a) the atmosphere is continuously monitored and shown to contain clean respirable air; or
- (b) the space has an internal volume greater than 1.8 cubic metres (64 cu. ft.) per occupant, is occupied for less than 15 minutes, and the work inside the space generates no contaminants other than exhaled air.

MECHANICAL VENTILATION

2.26 (1) Concentrations of airborne contaminants in a confined space shall be controlled and maintained below the applicable exposure limits by mechanical ventilation systems.

(2) Mechanical ventilation systems shall be designed, installed and maintained in accordance with established engineering principles and as specified in the written procedures.

(3) Ventilation equipment shall be located and arranged to ensure adequate ventilation inside the confined space.

(4) Where a contaminant is produced in a confined space, it shall be controlled at the source by a local exhaust ventilation system if practicable, by general (dilution) ventilation, or by a combination of both.

(5) Where practicable, mechanical ventilation systems shall maintain concentrations of airborne contaminants below the applicable exposure limits.

NATURAL VENTILATION

2.27 (1) Concentrations of airborne contaminants in a confined space may be controlled by natural ventilation systems.

(2) Where natural ventilation is used in a confined space, the rate of airflow through the space shall be monitored to ensure that it is sufficient to maintain concentrations of airborne contaminants below the applicable exposure limits.

(3) Natural ventilation shall not be used:

- (a) to ventilate a confined space that has a high hazard atmosphere; or
- (b) where such ventilation could draw air other than clean respirable air into the confined space.

2.28 (1) Where a worker enters a confined space with a low or moderate hazard atmosphere, another worker(s) shall be assigned as a standby person(s).

(2) The standby person shall:

- (a) be stationed at or near the entrance to the space;
- (b) check on the well-being of workers inside the space at least every 20 minutes;
- (c) have a means to immediately summon rescue personnel; and
- (d) be available to be summoned by the worker or others at any time.

HIGH HAZARD ATMOSPHERE, ENGULFMENT OR ENTRAPMENT

2.29 (1) Where a worker enters a confined space with a high hazard atmosphere, a risk of engulfment or entrapment, or with any other recognized serious health or safety hazard, another worker or workers shall be assigned as the standby person (s).

(2) A standby person shall:

- (a) be stationed at the entrance to the space and continuously attend to the standby duties;
- (b) visually observe or otherwise continuously monitor the well-being of the worker(s) inside the space;
- (c) be equipped and capable of immediately effecting rescue using lifting equipment

- if required;
- (d) be available to be summoned by the workers or others at any time; and
- (e) prevent the entanglement of lifelines and other equipment.

PROVISION, TRAINING AND EQUIPMENT OF RESCUE SERVICES

2.30 (1) The services of rescue personnel shall be available when a worker enters a confined space.

(2) Written safe rescue procedures shall be prepared and followed in a rescue operation of a worker from a confined space.

(3) Rescue personnel shall be appropriately equipped and trained, and a practice drill held at least annually.

(4) A record shall be maintained regarding the training and drill provided to rescue personnel.

NOTIFICATION

2.31 The responsible supervisor or standby person shall notify rescue personnel when workers are commencing work, completing work and exiting from a confined space.

RESCUE PROCEDURES

2.32 A supervisor with training and experience in rescue operations shall:

- (a) direct rescue operations;
- (b) ensure effective voice communication is maintained at all times between workers engaged in the rescue or evacuation and the person directing the rescue;
- (c) ensure that a rescue person does not enter a confined space unless there is a standby person available at the entrance to the confined space; and
- (d) ensure that self-contained breathing apparatus or air supplied respirators with escape bottles are used in an unknown or an IDLH atmosphere.

LIFELINES, HARNESS AND LIFTING EQUIPMENT (FOR CONFINED SPACE)

2.33 (1) Lines, harnesses and lifting equipment shall be provided to workers described in subsection (2) unless a risk assessment identifies obstructions or other conditions that make its use unsafe or not practicable.

(2) A worker entering a confined space with a high hazard atmosphere, a risk of entrapment or engulfment, or other health and safety hazard shall wear a harness of a type that will keep the worker in a position to permit rescue.

(3) A lifeline shall be attached to the harness and tended at all times by a standby

person stationed outside the entrance to the confined space.

(4) The standby person shall be provided with appropriate lifting equipment to permit the rescue operation.

(5) Lifelines, harness and lifting equipment shall meet the requirements of Part 1 - General.

(6) Where a rescue operation cannot be effected by standby person(s) using the lifeline, harness and lifting equipment, one or more additional persons who are equipped and capable shall be stationed outside the entrance to effect the rescue operation.

PERSONAL PROTECTIVE EQUIPMENT AND OTHER PRECAUTIONS

2.34 (1) A worker entering a confined space with a high hazard atmosphere, a risk of entrapment or engulfment, or other health and safety hazard shall be provided with and use personal protective clothing and equipment in accordance with Part 1 - General.

(2) Emergency escape air supplying respirators with sufficient capacity shall be carried by the worker, placed on his or her body and easily accessible or available within his or her arm's reach to permit an escape from a high hazard atmosphere confined space without any assistance.

(3) Except for compressed air supplied to a respirator, medical resuscitation equipment and handheld aerosol containers, no other cylinders of compressed gases shall be permitted in a confined space.

(4) Torches and hoses used in welding, brazing or cutting shall be removed from a confined space when not in use and when the confined space is vacated.

(5) Electrical tools and equipment used in a confined space shall be:

- (a) properly grounded or double insulated and accordingly marked;
- (b) protected by an approved ground fault circuit interrupter if the confined space is wet or damp; and
- (c) Canadian Standards Association approved for hazardous locations when used in a confined space where flammable or explosive gases, vapours or liquids are present.

(6) Only non-sparking tools shall be used in a confined space where flammable or explosive gases, vapours or liquids are present.

Federal Sector

Canada Occupational Safety and Health Regulations (SOR/86-304)

INTERPRETATION

11.1 In this Part:

"class of confined spaces" means a group of at least two confined spaces that are likely, by reason of their similarity, to present the same hazards to persons entering, exiting or occupying them;

"confined space" means an enclosed or partially enclosed space that:

- (a) is not designed or intended for human occupancy except for the purpose of performing work;
- (b) has restricted means of access and egress; and
- (c) may become hazardous to any person entering it owing to:
 - (i) its design, construction, location or atmosphere,
 - (ii) the materials or substances in it, or
 - (iii) any other conditions relating to it;

"hot work" means any work where flame is used or a source of ignition may be produced.

[SOR/95-286, s. 1]

HAZARD ASSESSMENT

11.2 (1) Where it is likely that a person will, in order to perform work for an employer, enter a confined space and an assessment pursuant to this subsection has not been carried out in respect of the confined space, or in respect of the class of confined spaces to which it belongs, the employer shall appoint a qualified person:

- (a) to carry out an assessment of the physical and chemical hazards to which the person is likely to be exposed in the confined space or the class of confined spaces; and
- (b) to specify the tests that are necessary to determine whether the person would be likely to be exposed to any of the hazards identified pursuant to paragraph (a).

(2) The qualified person referred to in subsection (1) shall, in a signed and dated report to the employer, record the findings of the assessment carried out pursuant to paragraph (1)(a).

(3) The employer shall make a copy of any report made pursuant to subsection (2) available to the work place committee or the health and safety representative.

(4) Subject to subsection (5), the report made pursuant to subsection (2) shall be reviewed by a qualified person at least once every three years to ensure that its

assessment of the hazards with which it is concerned is still accurate.

(5) If a confined space has not been entered in the three years preceding the time when the report referred to in subsection (4) should have been reviewed and no entry is scheduled, the report need not be reviewed until it becomes likely that a person will, in order to perform work for an employer, enter the confined space.

[SOR/2002-208, s. 23]

ENTRY PROCEDURES

11.3 Every employer shall, after considering the report made pursuant to subsection 11.2(2):

- (a) in consultation with the work place committee or the health and safety representative, establish procedures, with the date on which they are established specified therein, that are to be followed by a person entering, exiting or occupying a confined space assessed pursuant to subsection 11.2(1), or a confined space that belongs to a class of confined spaces assessed pursuant to that subsection, and establish, where reasonably practicable, an entry permit system that provides for;
 - (i) specifying, in each case, the length of time for which an entry permit is valid, and
 - (ii) recording,
 - (A) the name of the person entering the confined space; and
 - (B) the date and time of entry and the anticipated time of exit;
- (b) specify the protection equipment referred to in Part XII that is to be used by every person who is granted access to the confined space by the employer;
- (c) specify any insulated protection equipment and tools referred to in Part VIII that a person may need in the confined space; and
- (d) specify the protection equipment and emergency equipment to be used by a person who takes part in the rescue of a person from the confined space or in responding to other emergency situations in the confined space.

[SOR/95-286, s. 3; SOR/2002-208, s. 24]

CONFINED SPACE ENTRY

11.4 (1) The employer shall, where a person is about to enter a confined space, appoint a qualified person:

- (a) to verify, by means of tests, that compliance with the following specifications can be achieved during the period of time that the person will be in the confined space, namely;
 - (i) the concentration of any chemical agent or combination of chemical agents in the confined space to which the person is likely to be exposed will not result in the exposure of the person,
 - (A) to a concentration of that chemical agent or combination of chemical agents in excess of the value referred to in paragraph 10.19(1)(a); or
 - (B) to a concentration of that chemical agent or combination of chemical

agents in excess of the percentage set out in subsection 10.20(1), or in subsection 10.20(2) under the circumstances described in that subsection;

- (ii) the concentration of airborne hazardous substances, other than chemical agents, in the confined space is not hazardous to the health or safety of the person, and
 - (iii) the percentage of oxygen in the air in the confined space is not less than 18 per cent by volume and not more than 23 per cent by volume, at normal atmospheric pressure,
- (b) to verify that;
- (i) any liquid in which the person could drown has been removed from the confined space,
 - (ii) any free-flowing solid in which the person may become entrapped has been removed from the confined space,
 - (iii) the entry of any liquid, free-flowing solid or hazardous substance into the confined space has been prevented by a secure means of disconnection or by the fitting of blank flanges,
 - (iv) all electrical and mechanical equipment that may present a hazard to the person has been disconnected from its power source, real or residual, and has been locked out, and
 - (v) the opening for entry into and exit from the confined space is sufficient to allow the safe passage of a person using protection equipment, and
- (c) subject to subsection 11.5(1), to verify that the specifications set out in paragraph (a) are complied with during all times that a person is in the confined space.

(2) The qualified person referred to in subsection (1) shall, in a signed and dated report to the employer, set out the results of the verification carried out in accordance with that subsection, including the test methods, the test results and a list of the test equipment used.

(3) The employer shall:

- (a) where the report made pursuant to subsection (2) indicates that a person who has entered the confined space has been in danger, send the report to the work place committee or the health and safety representative; and
- (b) in all other cases, make a written copy or a machine-readable version of the report available to the work place committee or the health and safety representative.

[SOR/95-286, s. 4; SOR/96-294, s. 3;
SOR/2002-208, s. 25]

EMERGENCY PROCEDURES AND EQUIPMENT

11.5 (1) Where conditions in a confined space or the nature of the work to be performed in a confined space is such that the specifications set out in paragraph 11.4(1)(a) cannot be complied with during all times that a person is in the confined space, the employer shall:

- (a) in consultation with the work place committee or the health and safety representative, establish emergency procedures to be followed in the event of an accident or other emergency in or near the confined space, which procedures shall specify the date on which they are established and provide for the immediate evacuation of the confined space when;
 - (i) an alarm is activated, or
 - (ii) there is any significant change in a concentration or percentage referred to in paragraph 11.4(1)(a) that would adversely affect the health or safety of a person in the confined space,
- (b) provide the protection equipment referred to in paragraphs 11.3(b), (c) and (d) for each person who is about to enter the confined space;
- (c) ensure that a qualified person trained in the entry and emergency procedures established pursuant to paragraph 11.3(a) and paragraph (a) is;
 - (i) in attendance outside the confined space, and
 - (ii) in communication with the person inside the confined space,
- (d) provide the qualified person referred to in paragraph (c) with a suitable alarm device for summoning assistance; and
- (e) ensure that two or more persons are in the immediate vicinity of the confined space to assist in the event of an accident or other emergency.

(2) One of the persons referred to in paragraph (1)(e) shall:

- (a) be trained in the emergency procedures established pursuant to paragraph (1)(a);
- (b) be the holder of a basic first aid certificate; and
- (c) be provided with the protection equipment and emergency equipment referred to in paragraph 11.3(d).

(3) The employer shall ensure that every person entering, exiting or occupying a confined space referred to in subsection (1) wears an appropriate safety harness that is securely attached to a lifeline that:

- (a) is attached to a secure anchor outside the confined space;
- (b) is controlled by the qualified person referred to in paragraph (1)(c);
- (c) protects the person from the hazard for which it is provided and does not in itself create a hazard; and
- (d) is, where reasonably practicable, equipped with a mechanical lifting device.

[SOR/95-286, s. 6; SOR/2002-208, s. 26]

RECORD OF EMERGENCY PROCEDURES AND EQUIPMENT

11.6 (1) When a person is about to enter a confined space under circumstances such that the specifications set out in paragraph 11.4(1)(a) cannot be complied with, the qualified person referred to in paragraph 11.5(1)(c) shall, in a signed and dated report to the employer:

- (a) specify those procedures established pursuant to paragraph 11.5(1)(a) that are to be followed and the protection equipment, insulated protection equipment and tools and the emergency equipment that are to be used; and
- (b) specify any additional procedures and any other equipment that may be needed to ensure the health and safety of the person.

(2) The report made pursuant to subsection (1) and any procedures specified therein shall be explained by the qualified person to every employee who is about to enter a confined space, and a copy of the report shall be signed and dated by any employee to whom the report and the procedures have been so explained, acknowledging by signature the reading of the report and the explanation thereof.

[SOR/95-286, s. 7; SOR/2002-208, s. 39]

PROVISION AND USE OF EQUIPMENT

11.7 (1) The employer shall provide:

- (a) each person who is granted access to a confined space with the protection equipment specified pursuant to paragraph 11.3(b); and
- (b) each person who is to undertake rescue operations with the protection equipment and emergency equipment specified pursuant to paragraph 11.3(d).

(2) The employer shall ensure that every person who enters, exits or occupies a confined space follows the procedures established pursuant to paragraph 11.3(a) and uses the protection equipment specified pursuant to paragraphs 11.3(b) and (c).

[SOR/95-286, s. 8]

PRECAUTION

11.8 No person shall close off a confined space until a qualified person has verified that no person is inside it.

HOT WORK

11.9 (1) Unless a qualified person has determined that the work can be performed safely, hot work shall not be performed in a confined space that contains:

- (a) an explosive or flammable hazardous substance in a concentration in excess of 10 per cent of its lower explosive limit; or
- (b) oxygen in a concentration in excess of 23 per cent.

(2) Where hot work is to be performed in a confined space that contains concentrations of flammable or explosive materials in excess of the concentration set out in paragraph (1)(a) or (b):

- (a) a qualified person shall patrol the area surrounding the confined space and maintain a fire-protection watch in that area until all fire hazard has passed; and

(b) fire extinguishers specified as emergency equipment pursuant to paragraph 11.3(d) shall be provided in the area referred to in paragraph (a).

(3) Where an airborne hazardous substance may be produced by hot work in a confined space, no person shall enter or occupy the confined space unless:

- (a) section 11.10 is complied with; or
- (b) the person uses a respiratory protective device that meets the requirements of sections 12.2, 12.3 and 12.7.

[SOR/95-286, s. 9]

VENTILATION EQUIPMENT

11.10 (1) Where ventilation equipment is used to maintain the concentration of a chemical agent or combination of chemical agents in a confined space at or below the concentration referred to in subparagraph 11.4(1)(a)(i), or to maintain the percentage of oxygen in the air of a confined space within the limits referred to in subparagraph 11.4(1)(a)(iii), the employer shall not grant access to the confined space to any person unless:

- (a) the ventilation equipment is;
 - (i) equipped with an alarm that will, if the equipment fails, be activated automatically and be audible or visible to every person in the confined space, or
 - (ii) monitored by an employee who is in constant attendance at the equipment and who is in communication with the person or persons in the confined space, and
- (b) in the event of failure of the ventilation equipment, sufficient time will be available for the person to escape from the confined space before;
 - (i) the concentration of the chemical agent or combination of chemical agents in the confined space exceeds the concentrations referred to in subparagraph 11.4(1)(a)(i), or
 - (ii) the percentage of oxygen in the air ceases to remain within the limits referred to in subparagraph 11.4(1)(a)(iii).

(2) If the ventilation equipment fails to operate properly, the employee referred to in subparagraph (1)(a)(ii) shall immediately inform the person or persons in the confined space of the failure of the equipment.

TRAINING

11.11 (1) The employer shall provide every employee who is likely to enter a confined space with instruction and training in:

- (a) the procedures established pursuant to paragraphs 11.3(a) and 11.5(1)(a); and
- (b) the use of the protection equipment referred to in paragraphs 11.3(b), (c) and (d).

(2) The employer shall ensure that no person enters a confined space unless the person is instructed in:

- (a) the procedures to be followed in accordance with paragraphs 11.3(a) and 11.5(1)(a); and
- (b) the use of the protection equipment referred to in paragraphs 11.3(b), (c) and (d).

RECORD KEEPING

11.12 The employer shall, at the employer's place of business nearest to the work place in which the confined space is located, keep a written copy or a machine-readable version of:

- (a) any report made pursuant to subsection 11.2(2) and the procedures established pursuant to paragraphs 11.3(a) and 11.5(1)(a) for a period of ten years after the date on which the qualified person signed the report or the procedures were established; and
- (b) any report made pursuant to subsection 11.4(2);
 - (i) for a period of ten years after the date on which the qualified person signed the report where the verification procedures undertaken pursuant to paragraphs 11.4(1)(a) and (c) indicate that the specifications set out in subparagraphs 11.4(1)(a)(i) to (iii) were not complied with, and
 - (ii) in every other case, for a period of two years after the date on which the qualified person signed the report.

[SOR/92-544, s. 1]

Maritime Occupational Safety and Health Regulations (SOR/2010-120)

GENERAL

169 A person must not enter a confined space without having been issued a work permit under section 166.

170 Before authorizing a person to enter a confined space, the employer must ensure that all the requirements of this Part are met.

ASSESSMENT OF CONDITION

171 (1) Before authorizing a person to enter a confined space on a vessel, the employer must appoint a marine chemist or other qualified person to:

- (a) carry out an assessment of any hazardous substance in the confined space; and
- (b) specify the necessary tests to determine whether employees are likely to be exposed to the hazard.

(2) The assessment must, at a minimum, verify that the following requirements are respected:

- (a) the concentration of any chemical agent to which the person is likely to be exposed in the confined space is not more than the value or level referred to in subsection 255(1) or the percentage referred to in subsection 255(5);
- (b) the concentration of airborne hazardous substances, other than chemical agents, in the confined space is not hazardous to the health or safety of the person;
- (c) the percentage of oxygen in the atmosphere in the confined space is not less than 19.5 per cent by volume and not more than 23 per cent by volume at normal atmospheric pressure and in any case the partial pressure of oxygen is not less than 148 mm Hg; and
- (d) the value, level or percentage referred to in paragraphs (a) to (c) can be maintained during the period of proposed occupancy of the confined space by the person.

(3) The qualified person must, in a written report signed by that person, set out the following information:

- (a) the name of the vessel on which the confined space is located;
- (b) the location of the confined space on the vessel;
- (c) a record of the results of the assessment made in accordance with subsection (2);
- (d) the type, model, serial number and date of last calibration of any instrument used in the assessment process;
- (e) an evaluation of the hazards of the confined space;
- (f) if the employer has established procedures to be followed by a person entering into, exiting from or performing work in the confined space, which of those procedures are applicable;
- (g) if the employer has not established procedures referred to in paragraph (f), the procedures to be followed by the person referred to in that paragraph;
- (h) the protection equipment referred to in Part 10 that is to be used by every person granted access to the confined space; and
- (i) if the employer has established emergency procedures to be followed in the event of an accident or other emergency in or near the confined space, which of the procedures are to be followed, including immediate evacuation of the confined space when;
 - (i) an alarm is activated, or
 - (ii) there is any significant change in the value, level or percentage referred to in subsection (2).

172 The written report referred to in subsection 171(3) must be kept by the employer on the vessel on which the confined space is located for a period of two years after the day on which the marine chemist or other qualified person signs the report.

ADDITIONAL REQUIREMENTS FOR THE ISSUANCE OF A WORK PERMIT

173 (1) In addition to the requirements set out in section 168, before an employer issues

a work permit under section 166, the employer must:

- (a) obtain a written report referred to in subsection 171(3) from a qualified person;
- (b) ensure that any liquid in which a person may drown or any free-flowing solid in which a person may become entrapped has been removed from the confined space;
- (c) ensure that the entry of any liquid, free-flowing solid or hazardous substance into the confined space has been prevented by a secure means of disconnection or the fitting of blank flanges;
- (d) ensure that all electrical equipment and mechanical equipment that presents a hazard to a person entering into, exiting from or performing work in the confined space has been disconnected from its power source and locked out in accordance with the standard referred to in subparagraph 167(e)(ii);
- (e) ensure that the opening for entry into and exit from the confined space is sufficient in size to allow safe passage of a person who is using protection equipment; and
- (f) establish an entry control system.

(2) The written report referred to in subsection 171(3) and any procedures identified in that report must be explained to a person who is about to enter into the confined space and that person must sign a dated copy of the report indicating that they have read the report and that the report and the procedures were explained to them.

(3) If conditions in the confined space or the nature of the work to be performed in the confined space are such that any of paragraphs 171(2)(a) to (c) or (1)(b) to (e) cannot be complied with, the employer must comply with the requirements of sections 123 and 124 and must at a minimum ensure that:

- (a) a qualified person is;
 - (i) in attendance outside the confined space,
 - (ii) in communication with the person inside the confined space, and
 - (iii) provided with a suitable alarm device for summoning assistance,
- (b) each person granted access to the confined space must wear a safety harness that is securely attached to a lifeline that is attached to a secure anchor outside the confined space and is controlled by the qualified person;
- (c) two or more employees, which may include the qualified person, are in the immediate vicinity of the confined space to assist in the event of an accident or other emergency; and
- (d) one of the employees referred to in paragraph (c) is;
 - (i) trained in the emergency procedures referred to in paragraph 172(3)(i),
 - (ii) the holder of a first aid certificate, and
 - (iii) provided with the protection equipment referred to in paragraph 172(3)(h) and any emergency equipment required by the procedures established by the employer under paragraph 172(3)(i).

(4) Before a confined space is sealed, the person in charge of the area surrounding the

confined space must ascertain that no person is inside the confined space.

VENTILATION EQUIPMENT

174 (1) If a hazardous substance may be produced in a confined space by the work to be performed:

- (a) the confined space must be ventilated in accordance with subsection (2); or
- (b) each person granted access to the confined space must use a respiratory protective device or breathing apparatus referred to in section 142.

(2) If an airborne hazardous substance or oxygen in the atmosphere in a confined space is maintained at the value, level or percentage referred to in subsection 172(2) by the use of ventilation equipment, a person may only be granted access to the confined space if:

- (a) the ventilation equipment is;
 - (i) equipped with an alarm that will, if the equipment fails, be activated automatically and be audible or visible to any person in the confined space, or
 - (ii) monitored by an employee who is in constant attendance at the equipment and in communication with any person in the confined space, and
- (b) in the event of failure of the ventilation equipment, sufficient time will be available for the person to escape from the confined space before one of the following occurs;
 - (i) their exposure to or the concentration of a hazardous substance in the confined space is more than the value, level or percentage prescribed in paragraph 172(2)(a) or (b), and
 - (ii) the percentage of oxygen in the atmosphere ceases to meet the requirements of paragraph 172(2)(c).

(3) The employee referred to in subparagraph (2)(a)(ii) must activate an alarm in the event of faulty operation of the ventilation equipment.

Oil and Gas Occupational Safety and Health Regulations (SOR/87-612)

INTERPRETATION

12.1 In this Part, "confined space" means a storage tank, process vessel, ballast tank or other enclosure not designed or intended for human occupancy, except for the purpose of performing work:

- (a) that has poor ventilation;
- (b) in which there may be an oxygen deficient atmosphere; or
- (c) in which there may be an airborne hazardous substance.

GENERAL

12.2 (1) Where a person is about to enter into a confined space, the employer shall appoint a qualified person to verify by tests that:

- (a) the concentration of any chemical agent in the confined space;
 - (i) to which the person is likely to be exposed does not exceed the value referred to in subsection 11.23(1), and
 - (ii) does not exceed the percentage referred to in section 11.24,
- (b) the concentration of airborne hazardous substances, other than chemical agents, in the confined space is not hazardous to the safety or health of the person;
- (c) the percentage of oxygen in the atmosphere in the confined space is not less than 18 per cent by volume and not more than 23 per cent by volume at normal atmospheric pressure and in any case the partial pressure of oxygen is not less than 135 mm Hg;
- (d) the value, level or percentage referred to in paragraphs (a) to (c) can be maintained during the period of proposed occupancy of the confined space by the person;
- (e) any liquid in which a person may drown or any free-flowing solid in which a person may become entrapped has been removed so far as is practicable from the confined space;
- (f) the entry of any liquid, free-flowing solid or hazardous substance into the confined space has been prevented by a secure means of disconnection or the fitting of blank flanges;
- (g) all electrical and mechanical equipment that presents a hazard to a person entering into, exiting from or occupying the confined space has been disconnected from its power source and locked out; and
- (h) the opening for entry into and exit from the confined space is sufficient in size to allow safe passage of a person who is using protection equipment.

(2) The qualified person referred to in subsection (1) shall, in a written report signed by him:

- (a) set out;
 - (i) the location of the confined space,
 - (ii) a record of the results of the tests made in accordance with subsection (1), and
 - (iii) an evaluation of the hazards of the confined space,
- (b) where the employer has established procedures to be followed by a person entering into, exiting from or occupying the confined space, identify which of those procedures are to be followed;
- (c) Where the employer has not established procedures referred to in paragraph (b), set out the procedures to be followed by a person referred to in that paragraph;
- (d) identify the protection equipment referred to in Part XIII that is to be used by every person granted access to the confined space;
- (e) where the employer has established emergency procedures to be followed in the

event of an accident or other emergency in or near the confined space, including immediate evacuation of the confined space when;

- (i) an alarm is activated, or
- (ii) there is any significant change in the value, level or percentage referred to in subsection (1), identify which of the procedures are to be followed;
- (f) where the employer has not established emergency procedures referred to in paragraph (e), set out emergency procedures to be followed, including immediate evacuation of the confined space in the circumstances referred to in that paragraph; and
- (g) specify the protection equipment, emergency equipment and any additional equipment to be used by an employee who undertakes rescue operations in the event of an accident or other emergency.

(3) The employer shall provide to each person granted access to the confined space the protection equipment referred to in subsection (2).

(4) The written report referred to in subsection (2) and any procedures identified therein shall be explained to an employee who is about to enter into the confined space, other than the qualified person referred to in subsection (1), and the employee shall acknowledge by signing a dated copy of the report that he has read the report and that the report and the procedures were explained to him.

(5) The employee referred to in subsection (4) shall be instructed and trained:

- (a) in the procedures referred to in subsection (2); and
- (b) in the use of the protection equipment referred to in subsection (2).

(6) Every employee who enters into, exits from or occupies the confined space shall:

- (a) follow the procedures referred to in subsection (2); and
- (b) use the protection equipment referred to in subsection (2).

12.3 Where conditions in the confined space or the nature of the work to be performed in the confined space are such that subparagraph 12.2(1)(a)(i) and paragraphs 12.2(1)(c), (e) and (f) cannot be complied with, the following procedures shall apply:

- (a) a qualified person trained in the procedures referred to in subsection 12.2(2) shall be;
 - (i) in attendance outside the confined space,
 - (ii) in communication with the person inside the confined space, and
 - (iii) provided with a suitable alarm device for summoning assistance,
- (b) every person granted access to the confined space shall be provided with and trained in the use of the protection equipment referred to in subsection 12.2(2);
- (c) every employee entering into, exiting from and occupying the confined space shall wear a safety harness that is securely attached to a life line that

- (i) is attached to a secure anchor outside the confined space, and
- (ii) is controlled by the qualified person referred to in paragraph (a),
- (d) two or more employees shall be in the immediate vicinity of the confined space to assist in the event of an accident or other emergency; and
- (e) one of the employees referred to in paragraph (d) shall;
 - (i) be trained in the emergency procedures referred to in subsection 12.2(2),
 - (ii) be a first aid attendant who has successfully completed a CPR course, and
 - (iii) be provided with the protection equipment and emergency equipment referred to in subsection 12.2(2).

12.4 Before a confined space is sealed, the person in charge of the area surrounding the confined space shall ascertain that no person is inside the confined space.

HOT WORK OPERATIONS

12.5 (1) Hot work shall not be performed in a confined space where an explosive or flammable hazardous substance may be present unless a qualified person has determined that the work can be safely performed therein.

(2) Where hot work is to be performed in a confined space:

- (a) a qualified person shall patrol the area surrounding the confined space and maintain therein a fire protection watch until all hazard of fire is passed; and
- (b) fire extinguishers shall be provided in the area referred to in paragraph (a).

VENTILATION EQUIPMENT

12.6 (1) Where a hazardous substance may be produced by hot work in a confined space:

- (a) the confined space shall be ventilated in accordance with subsection (2); or
- (b) every employee who enters into, exists from and occupies the confined space shall use a respiratory protective device that meets the requirements of section 13.7 of Part XIII.

(2) Where an airborne hazardous substance or oxygen in the atmosphere in a confined space is maintained at the value, level or percentage prescribed in subsection 12.2(1) by the use of ventilation equipment, no person shall be granted access to the confined space unless:

- (a) the ventilation equipment is;
 - (i) equipped with an alarm that will, if the equipment fails, be activated automatically and be audible or visible to any person in the confined space, or
 - (ii) monitored by an employee who is in constant attendance at the equipment, and

- (b) in the event of failure of the ventilation equipment, sufficient time will be available for the person to escape from the confined space before;
- (i) his exposure to or the concentration of a hazardous substance therein exceeds the value, level or percentage prescribed in paragraph 12.2(1)(a) or (b), or
 - (ii) the percentage of oxygen in the atmosphere ceases to meet the requirements of paragraph 12.2(1)(c).

(3) The employee referred to in subparagraph (2)(a)(ii) shall activate an alarm in the event of faulty operation of the ventilation equipment.

REPORTS AND PROCEDURES

12.7 The written report referred to in subsection 12.2(2) shall be kept by the employer for one year after the date on which the qualified person signs the report.

12.8 Where the employer establishes procedures or emergency procedures referred to in paragraph 12.2(2)(b) or (e), he shall keep a copy of them at his place of business nearest to the work place in which the confined space is located.

Canada Oil and Gas Drilling and Production Regulations (C.R.C., c. 1517)

OIL AND GAS STORAGE TANKS AND CONTAINERS

78 (1) No workman shall be required to enter any tank or other container used for the storage of oil or of any product thereof or any confined space unless and until:

- (a) all gases likely to prove injurious to each workman have been removed;
- (b) such workman has been equipped with an air line mask or other breathing apparatus and whatever equipment is used must be of a type approved by the Oil Conservation Engineer; and
- (c) such workman has been supplied with a rope that has been made fast to his body and also to a substantial support on the outside of the tank or other container; such rope must be of sufficient length to reach from the support on the outside to any point of work in the tank or container and shall be of sufficient strength to bear the weight of the workman, and the workman shall be attended by two men whose duty it is to stay on the outside of the tank and to keep a close watch over the workman inside.

(2) All work in any confined space where conditions are such as to produce nausea or indisposition on the part of the workman shall be arranged in short shifts with the men on the outside alternating with the workman inside.

(3) No flashlights or lanterns other than those that are approved for such use by the Oil Conservation Engineer shall be used around gas or oil wells.

Also see: Confined Spaces - No Easy Way Out

Comments

Listed below are selected sections of standards which refer to confined space entry.
B139-04 Installation code for oil-burning equipment Section 4.4; Section 9.6; Section 12.4

B620-1987 Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods Section 9.3.2

W117.2-94 Safety in Welding, Cutting, and Allied Processes. Primary information is in Section 10.6 and Table 5, with additional references in Subsections 4.1.5; 4.3.1; 4.4.3; 8.5.2; 9.4.4; 9.5.5; 9.5.6; 11.2.2; 11.3; and 11.5.

Z94.3-02 Eye and Face Protectors Section 8.3

Z94.4-02 Selection, Use and Care of Respirators Section 5.7; Section 9.2; Section H1.2

Z114-M1977 (R1982) Safety Code for the Woodworking Industry, Section 4.5

Z259.10-M90 Full Body Harness, Part 3

Z275.4-02 Competency Standard for Diving Operations, Section 16.10

Z795-03 Coding of Work Injury or Disease Information, Sections 6.2, 7.5, 7.6

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