



Fuels Safety Division	Ref. No.: FS-201-12	Rev. No.:
Propane Code Adoption Document Amendment	Date: October 1, 2012...	Date:

IN THE MATTER OF:

THE TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000, c. 16 (the "Act")

- and -

**ONTARIO REGULATION 223/01
(Codes and Standards Adopted by Reference) made under the Act**

- and -

**ONTARIO REGULATION 211/01
(Propane Storage and Handling) made under the Act**

The Director of Ontario Regulation 211/01 (Propane Storage and Handling), pursuant to section 9 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), hereby provides notice that the Propane Code Adoption Document, dated June 1, 2001 and published by the Technical Standards & Safety Authority, as amended, is further amended as follows:

All sections of the Propane Code Adoption Document are revoked and replaced with the following:

1. The CSA Standard B149.2-10 "Propane Storage and Handling Code" published in January 2010 by the Canadian Standards Association is adopted with the following amendments:
 - 1.1 Clause 1.2 is amended by adding the following subclause:
 - (i) propane used as refrigerant.
 - 1.2 Clause 3 is amended by revoking the definitions of "Appliance", "Approved", and "Authority having jurisdiction".
 - 1.3 Clause 3 is amended by adding the following definition:

Authority having jurisdiction — the Director designated for the purposes of O. Reg. 211/01 (Propane Storage and Handling).

1.4 Clause 4.1.4 is revoked and the following substituted:

4.1.4

Where a conflict exists between the manufacturer's *certified* instructions and this Code, the requirements of this Code shall prevail unless otherwise *approved* by the authority having jurisdiction.

1.5 Clause 4.2.3 is revoked and the following substituted:

4.2.3

The approval of the assembly or construction of an *appliance* is subject to the *authority having jurisdiction*. (See TSSA Field Approval Code, TSSA-FA-2012.)

1.6 Clause 6.1.2 is revoked and the following substituted:

6.1.2

Refillable vapour service cylinders manufactured after January 1, 2008 with a capacity of 4 lb (1.8 kg) through 40 lb (18.2 kg) shall be equipped with an overfill prevention device (OPD) in compliance with UL 2227; except for:

- (a) cylinders used in industrial truck service; or,
- (b) cylinders identified and used for industrial welding and cutting gases.

1.7 Clause 6.1.14 is revoked and the following substituted:

6.1.14

Cylinders requalified in accordance with Clause 6.1.5 and with a propane capacity of 40 lbs (18 kg) or less shall be equipped with a *cylinder valve* that does not permit the flow of propane until a positive seal has been achieved. Industrial cylinders manufactured under specification DOT-4BW260/TC-4BWM18 are exempt from this requirement when used in cutting or welding applications.

When requalifying DOT-4BW260/TC-4BWM18 *cylinders*, valve replacement may be made by using a valve outlet conforming to the CGA 510 standard, not requiring a positive seal and with a PRV set at 405 psi.

1.8 Clause 6.4.4 is revoked and the following substituted:

6.4.4

- (a) Before filling a container, it shall be inspected. If a cylinder has a sleeve, it shall be removed to facilitate the visual inspection prior to filling the cylinder.
- (b) A cylinder that is damaged, leaking, or corroded beyond TC limits, or is due for a prescribed re-examination, shall not be filled but shall be removed from service.

1.9 Subclause 6.5.2.4 (d) is revoked and the following substituted:

(d) It shall be maintained in an upright position.

1.10 Clause 6.6 (Transportation of cylinders) is revoked.¹

1.11 Clause 6 is amended by adding the following:

6.10 Requirements for Operation of Appliances and Cylinders at Shows, Exhibitions or other Similar Events

The operation of appliances and cylinders at shows, exhibitions, or other similar events shall comply with Annex J of CSA-B149.1-10 as adopted by Gaseous Fuel Code Adoption Document published by the Technical Standards & Safety Authority.

6.11 Filling cylinders under 100 lbs from bulk trucks

The filling of cylinders under 100 lbs from bulk trucks shall comply with Annex M of this Code.

1.12 Clause 7.8.1 is revoked and the following substituted:

7.8.1

A *tank* shall only be installed underground in accordance with the manufacturer's instructions and the requirements of this section.

1.13 Clause 7.8.11 is revoked and the following substituted:

7.8.11

The minimum distance between the top of an underground *tank* and grade shall be in accordance with subclauses 7.8.12(c) and (d). Adequate protection in the form of fencing, guardrails, or bumper posts that comply with the requirements of clause 7.19.4 shall be provided for the above ground piping system and relief *valve* exhaust stacks to prevent abrasive action or physical damage from vehicular traffic. Tanks with a capacity below 2000 USWG are not required to have an exhaust stack.

1.14 Clause 7.8.12 is revoked and the following substituted:

7.8.12

An underground tank shall be located a minimum distance of
(a) 5 ft (1.5 m) from a line of adjoining property that cannot be built upon and from other underground services;

¹ The subject matter falls under the federal Transportation of Dangerous Goods Regulation.

- (b) 10 ft (3 m) from a line of adjoining property that may be built upon and from another underground tank;
- (c) 6 in. (15 cm) below grade in areas where there is no vehicle traffic or where the tank is protected from damage by vehicles by fencing, guardrails or bumper posts that comply with the requirements of clause 7.19.4; and
- (d) 18 in. (46 cm) below grade in areas where vehicular traffic can be expected.

1.15 Clause 7.8 is amended by adding following clause:

7.8.18

Underground tanks shall be inspected in accordance with the manufacturer's recommendations.

1.16 Clause 7.12.6 is revoked and the following is substituted:

7.12.6

In heavily populated or congested areas, the *authority having jurisdiction* may determine restrictions on individual *tank* capacity, total storage, parking of tank trailers and cargo liners, distance to line of adjoining property, and other requirements.

1.17 Subclause 7.19.4.2(b) is amended by appending the following sentence:

Alternatively, the Ontario Provincial Standard Drawing precast concrete barrier (OPSD-920.010 or 920.014, 911.140) may be used.

1.18 Clause 7.19.4 is amended by adding to it the following clauses:

7.19.4.4

Protection of tanks used to supply propane to buildings or sites under construction, repair or improvement may be accomplished by the installation of posts, guardrails or reinforced concrete barriers as required in clauses 7.19.4.1, 7.19.4.2 and 7.19.4.3 or by using:

(a) concrete castings, weighting at least 900 lbs (410 kg) and not less than 30 inches (750 mm) in height. Any opening between barriers shall not exceed 54 inches (1350 mm); or

(b) a continuous berm pile having a minimum height of 36 inches (900 mm). Distances between barriers and tanks shall be in compliance with the typical illustrations shown in Annex B.

7.19.4.5

In mine sites, logging facilities or asphalt plants, a continuous berm pile having a minimum height of 36 inches (900 mm) may be used to protect propane storage tanks and equipment.

1.19 Clause 8.12.3 is revoked and the following substituted:

8.12.3

The contents of a *tank* on a *tank truck* or a *cargo liner* shall not be transferred to the cargo *tank* on another *tank truck* or *cargo liner* unless the operation is carried out at a filling plant.

Except for an emergency such as a loss of power due to unexpected natural weather, the transfer of propane from a cargo *tank* to another *tank truck* or *cargo liner* at the filling plant shall be approved.

Note: TSSA will consider the following before granting an approval to transfer propane from a cargo tank to another tank truck or cargo liner at a filling plant:

- *The filling plant shall hold a valid licence*
- *The filling plant shall have a permanent licenced storage capacity of at least the largest tank truck, or the amount of the truck to truck transfer shall be specifically approved by TSSA*
- *The transfer shall be performed by a Propane Truck Operator (PTO) certificate holder*
- *The risks associated with the operation, including mitigation measures and emergency procedures in place*
- *Sufficient space to accommodate both tank trucks without blocking any emergency exits shall be maintained; and*
- *All requirements and minimum clearances of CSA B149.2-10, including emergency shutoff valves shall be complied with.*

1.20 Clause 8.14.3 is amended by adding to it the following:

(c) Notwithstanding (a) and (b), a *tank truck, tank trailer or cargo liner* carrying propane shall not be parked and used for storage in a congested or heavily populated area or within 50 ft of a building used for assembly, care or detention or multiple residential occupancy.

1.21 A new Clause 12 to B149.2-10 is added, as follows:

12 Operation, Maintenance, and Personnel Training

12.1 General

Each holder of a licence to operate a *filling plant* or a *container refill centre*, or any company acting as a distributor as defined in O. Reg, 211/01, shall develop documented operation, maintenance, and training procedures based on its experience, knowledge of its propane plants, and the conditions under which the procedures will be used. Clause 12.2 contains basic requirements and minimum

standards for the safe operation and maintenance of propane operations and for personnel training.

Note: Because there are many variables, it is not possible to prescribe a set of operation and maintenance procedures that will be adequate from the standpoint of safety in all cases without being burdensome and, in some cases, impractical.

12.2 Operations and Maintenance Procedures

Procedures shall be established appropriate to *tank systems, filling plants, container refill centres* and other facilities as follows:

- (a) Operating procedures sufficient to ensure safety and reliability in the day-to-day operation of the facility.
- (b) Maintenance procedures covering testing, inspection, monitoring and documentation, equipment repair and general upkeep.

12.2.1 Documentation of procedures

The procedures in clause 7.22 shall be documented in a form appropriate to the particular facility in notices, manuals, guidelines, or other recorded instructions on display or readily available at the facility.

12.2.2 Review and revision of procedures

The procedures shall be reviewed as necessary to ensure they are promptly modified upon any equipment or organizational changes.

12.2.3 Operating procedures

The operating procedures shall be appropriate to the particular facility and shall take into account, amongst other things, the following:

- (a) Emergency procedures.
- (b) Emergency evacuation procedures and designated safe location.
- (c) Product transfer and handling procedures.
- (d) Monitoring of essential functions and equipment.
- (e) Housekeeping and site maintenance.
- (f) Any manufacturer's operating instructions for equipment.
- (g) Equipment not in use (i.e. isolation, deactivation, identification).
- (h) Maintaining clear spaces for access.
- (i) Maintaining clearances for setbacks.
- (j) Personnel safety.
- (k) Personal protective equipment.
- (l) Control of ignition sources.
- (m) Grounding and bonding.
- (n) Control of access, security and lock-up.
- (o) Vehicle movement and parking.
- (p) Operator experience.

12.2.4 Maintenance Procedures

12.2.4.1

Maintenance procedures shall be appropriate to the particular facility and shall take into account, amongst other things, the following:

- (a) Inspection of protective devices and alarms.
- (b) Regular inspection and testing of hoses.
- (c) Regular review of emergency procedures.
- (d) Regular review of emergency evacuation procedures and designated safe location.
- (e) Propane purging procedures.
- (f) Isolation and tagging.
- (g) Fire extinguishers and firefighting equipment.
- (h) Piping, pumps, valves and other propane equipment.
- (i) Storage tanks.
- (j) Electrical equipment.
- (k) Fencing and security measures, signage and notices.
- (l) Lighting.
- (m) Regular inspection and testing of vaporizers in a grid-type distribution systems.
- (n) Any manufacturer's maintenance instructions for equipment.

12.2.4.2

Persons who perform maintenance on propane systems shall be a certificate or record of training holder and trained in the hazards of the system and in the maintenance and testing procedures applicable to the facility.

1.22 The annexes are amended by adding Annex M as follows:

Annex M

Conditions for Filling Cylinders under 100 lbs from Bulk Trucks

M.1

Section 27 of O. Reg. 211/01 establishes the conditions for cylinder handling facilities. In summary, the following is required:

M.1.1

- Subsection 27(1) requires that each facility is licensed;
- Subsection 27(3)(c) requires a letter from the local municipality stating that the proposed site does not contravene the zoning by-laws; and
- Subsection 27(3) (d) requires drawings for each site.

M.1.2

Each application shall be approved in accordance with the requirements of O. Reg. 211/01 under the *Technical Standards and Safety Act, 2000*, and the

conditions outlined below. Non-conformity with any of the conditions specified shall thereby cause the approval to lapse.

M.1.3

Each proposed site shall be approved. Drawings shall be submitted in accordance with O. Reg. 211/01, s. 27(3) (d).

M.1.4

Applications must include a letter from the local municipality stating that the refueling of propane *cylinders* does not contravene any applicable zoning bylaws.

M.1.5

Calculations shall be submitted confirming that Branch Standard No. 9 has been met.

M.1.6

Cylinders must be secured when being filled.

M.1.7

Hoses used for refueling the *cylinders* shall be of the type used in *container refill centres*.

M.1.8

The refilling of *cylinders* shall be performed in accordance with written procedures for refilling *cylinders* from a bulk truck.

2. The CSA Standard B149.5-10 “Installation Code for Propane Fuel Systems and Tanks on Highway Vehicles” published in January 2010 by the Canadian Standards Association is adopted with the following amendments:

2.1 Clause 3 is amended by revoking the definitions of “Approved” and “Authority having jurisdiction”.

2.2 Clause 3 is amended by adding to it the following definition:

Authority having jurisdiction — the Director designated for the purposes of O. Reg. 211/01 (Propane Storage and Handling).

2.3 Clause 4.1.5 is revoked and the following substituted:

4.1.5

Where a conflict exists between the manufacturer’s *certified* instructions and this code, the requirements of this code shall prevail unless otherwise approved by the authority having jurisdiction.

- 2.4 Clause 4.2.4 is amended by adding the following at the end of the clause:

Components shall also meet the IGAC Protocol No. 09-17, issued on June 26, 2009, in order to be approved.

- 2.5 Clause 5.3.4.6 is revoked and the following substituted:

5.3.4.6

A shut-off valve on a tank shall be accessible; the removal of any cover shall not require the use of tools.

- 2.6 Clause 5.5.2 is revoked and the following substituted:

5.5.2 *Tanks and any other component of the fuel system shall be installed with as much road clearance as practicable. This clearance shall be measured from the bottom of the tank or the lowest fitting, support or attachment on the tank or fuel system or its housing (if any), whichever is lowest, as follows:*

1. *Tanks and any component of the fuel system installed between axles shall be no lower than the lowest point forward of the tank or fuel system on:*
 - (a) the lowest structural component of the body;
 - (b) the lowest structural component of the frame or subframe, if any;
 - (c) the lowest point of the engine;
 - (d) the lowest point of the transmission (including the clutch housing or torque converter housing, as applicable).
2. *Tanks and fuel system components installed behind the rear axle and extending below frame shall be no lower than the lowest point of the following points and surfaces:*
 - a. *Not lower than the lowest point of the structural component of the body, engine, transmission (including clutch housing or torque converter housing, as applicable), forward of the tank or fuel system. Also no lower than the lines extending rearward from each wheel at the point where the wheels contact the ground directly below the centre of the axle to the lowest and most rearward structural interference (i.e. bumper, bumper frame, etc.).*
 - b. *Where there are two or more rear axles, the projections shall be made from the rearmost axle.*

- 2.7 Subclause 5.7.6 is amended by adding the following:

5.7.6.4

A supply line of a vehicle or a return line from the engine to the tank shall be installed to maintain a clearance of at least 2 inches (50 mm) from any positive unfused terminal.

2.8 Subclause 5.7.7 is amended by adding the following:

5.7.7.8

A supply line that pierces a panel of a vehicle shall be protected from damage by a grommet, bulkhead fitting or a similar device.

2.9 Subclause 5.13 is amended by adding the following subclauses:

5.13.5

Tanks shall be inspected every five years in accordance with the "Province of Ontario 5 Year Periodical Visual Inspection Procedure and Criteria for Propane Fuel Systems and Tanks on Highway Vehicles." Where the Inspection Procedure contains a requirement that conflicts with a requirement in this code, the requirements in this code shall prevail.

5.13.6

A label applied in accordance with 5.13.1 shall show an expiry date of 5 years after the date of conversion or inspection.

5.13.7

Where a label described in 5.13.1 is missing or lost, a new label may be applied showing the remaining time until expiry without a vehicle inspection, provided that documentation is provided of the vehicle conversion or most recent vehicle inspection date.

5.13.8

The inspection required in 5.13.6 shall be carried out by a holder of a valid Internal Combustion Alternate Fuel Technician, Propane (ICE-P) certificate. The inspection shall be carried out at a registered vehicle conversion centre.

3. The TSSA **Field Approval Code**, TSSA-FA-2012, is adopted for the approval of assembly or construction of an appliance.

4. This amendment is effective December 1, 2012.

Any person involved in an activity, process or procedure to which this document applies shall comply with this document.

DATED at Toronto this 1st day of October, 2012



John Marshall

Statutory Director, Ontario Regulation 211/01 made under the *Technical Standards and Safety Act, 2000*

This document has been developed in consultation with the TSSA Propane Council and the TSSA Propane Risk Reduction Group