Section 4.6. Fuel-Dispensing Stations

4.6.1. Scope

4.6.1.1. Application

(See Note A-4.6.1.1.)

1) This Section applies to the storage, handling and use of *flammable liquids*, *combustible liquids* and *dangerous goods* classified as flammable gases at *fuel-dispensing stations*.

2) Except as provided in this Section, the storage and dispensing of *dangerous goods* classified as flammable gases at *fuel-dispensing stations* shall conform to the British Columbia Gas Safety Regulation.

3) Requirements of this Section that pertain to the location of dispensers, *storage tanks*, pumps, piping and their ancillary equipment inside *buildings* shall not apply to a canopy that is open on not less than 75% of its perimeter.

4.6.2. Storage and Handling

4.6.2.1. Outside Aboveground Storage Tanks

1) Except as provided in Sentences (2) to (5), the installation of outside aboveground *storage tanks* at *fuel-dispensing stations* shall be in conformance with Subsection 4.3.2.

2) Except as permitted in Sentence (3), outside aboveground *storage tanks* at *fuel-dispensing stations* shall have an individual capacity of not more than 80 000 L, and their aggregate capacity shall not exceed 200 000 L.

3) The individual capacity of outside aboveground *storage tanks* at *fuel-dispensing stations* is permitted to exceed the individual capacity limit of 80 000 L required in Sentence (2), provided

a) they conform to ULC-S655, "Aboveground Protected Tank Assemblies for Flammable and Combustible Liquids," and

b) their aggregate capacity does not exceed 200 000 L.

4) Outside aboveground *storage tanks* at *fuel-dispensing stations* shall be provided with

a) physical protection against collision damage,

b) measures to prevent unauthorized access to the *storage tank* and its ancillary equipment,

c) measures to contain accidental spillage in conformance with Subsection 4.3.7.,

d) an overfill protection device in conformance with Sentence 4.3.1.8.(2), where a tight-filled connection is provided, and

e) where the piping is connected to the *storage tank* at a point that is lower than the maximum fill level, an external valve to prevent gravity discharge in the event the piping is severed.

5) In cases where a compartmentalized tank is used, the entire tank shall be treated as one tank with the aggregate of all compartments totaling the total capacity of that tank.

4.6.2.2. Containers

1) All packaged *flammable liquid* and *combustible liquid* products stored or sold at a *fuel-dispensing station* shall be in *closed containers* conforming to Article 4.2.3.1., distinctly marked with the generic name of the liquid they contain.

4.6.2.3. Piping

1) All piping for *flammable liquids* or *combustible liquids* at a *fuel-dispensing station* shall be in conformance with Article 4.5.2.1.

2) Joints in piping systems shall comply with Subsection 4.5.5.

3) Underground piping systems shall comply with Sentence 4.5.6.1.(1).

4) Piping shall be supported and backfilled in accordance with the manufacturer's instructions.

5) In the design of the piping system, provisions shall be made for the expansion, contraction, vibration, settling and temperature changes of piping in accordance with Article 4.5.6.14.

4.6.2.4. Corrosion Protection for Piping

1) All piping, valves and fittings at a *fuel-dispensing station* shall be protected against corrosion in conformance with Article 4.5.3.1.

4.6.2.5. Piping Supports and Guards

1) Piping shall be firmly supported and protected by means of guarding devices where necessary to prevent vehicular, watercraft or floatplane impact damage, or other physical damage.

4.6.2.6. Pits

1) Pits for subsurface pumps or for piping connected to submersed pumps shall conform to Article 4.5.9.3.

4.6.3. Dispensing Systems

4.6.3.1. Dispensers

1) Fixed dispensers for *flammable liquids* or *combustible liquids* shall conform to CSA B346-M, "Power-Operated Dispensing Devices for Flammable liquids."

4.6.3.2. Dispenser Sumps

1) *Dispenser sumps* shall conform to the construction and performance requirements of ULC/ORD-C107.21, "Under-Dispenser Sumps."

4.6.3.3. Location

1) Fixed dispensers for Class I liquids shall be installed outside *buildings* and not less than

a) 3 m from any right-of-way and any property line,

b) 3 m from any propane gas dispenser,

c) 1.5 m from any natural gas dispenser,

d) 6 m horizontally from any fixed source of ignition,

e) 6 m horizontally from any liquefied petroleum gas cylinder or *storage tank*, and

f) 3 m from any *building* openings, other than those that serve as shelter for operating personnel and in which electrical installations conform to Article 4.1.4.1.

2) Fixed dispensers for Class II or IIIA liquids are permitted to be installed inside a *building* when

a) the *building* is not open to the public,

b) the dispensers are located on the *first storey*,

c) drainage is provided, and

d) ventilation is provided in conformance with Subsection 4.1.7. and with the requirements for storage garages in Part 6 of Division B of the British Columbia Building Code.

3) The location of dispensers of Class I liquids within a *building* shall conform to Subsection 3.3.5. of Division B of the British Columbia Building Code.

4.6.3.4. Protection against Collision Damage

1) Fixed dispensers shall be protected against collision damage by

a) a concrete island not less than 100 mm high, or

b) posts or guardrails.

4.6.3.5. Marine Fuel-Dispensing Stations

1) Dispensers at *marine fuel-dispensing stations* shall be in a location that will prevent watercraft or floatplane impact, or other physical damage.

4.6.4. Shut-off Devices

4.6.4.1. Location and Identification

1) A device to shut off power to all dispensers and pumps shall be provided at a remote location on the site of the *fuel-dispensing station* and shielded from any fire that might occur in the dispensing area.

2) The device required in Sentence (1) shall be clearly identified and readily accessible to attendants and emergency responders.

3) Steel shut-off valves shall be provided at connecting outlets on aboveground *storage tanks*.

4.6.4.2. Self-service Outlets

1) Except as provided in Sentence (2) and in addition to the device required by Sentence 4.6.4.1.(1), an emergency shut-off switch to simultaneously stop the flow of fuel at all dispensers at *self-service outlets* shall be located at the central control console described in Sentence 4.6.8.2.(2) so that it is readily accessible to the attendant.

2) At card- or key-activated *self-service outlets*, the emergency shut-off switch required in Sentence (1) shall be readily accessible to the customer.

4.6.4.3. Marine Fuel-Dispensing Stations

1) At *marine fuel-dispensing stations*, a readily accessible valve shall be provided in each pipeline at or within 7.5 m of the pier to shut off the supply from shore.

4.6.5. Delivery Hose and Nozzles

4.6.5.1. Delivery Hose

1) Delivery hose shall conform to CAN/ULC-S612, "Hose and Hose Assemblies for Flammable and Combustible Liquids."

2) Except as permitted in Sentences (3) and (4), hose through which *flammable liquids* or *combustible liquids* are dispensed at a *fuel-dispensing station* shall be restricted to a maximum extended length of 4.5 m.

3) Where a retracting mechanism is used, a maximum extended length of 6 m shall be permitted.

4) At *marine fuel-dispensing stations* or at card- or key-activated dispensers, the length of extended hose is permitted to exceed the values in Sentences (2) and (3).

4.6.5.2. Hose Nozzle Valves

1) Every hose nozzle valve through which a Class I or II liquid is dispensed by a motorized dispenser into a vehicle tank shall

a) be automatic closing as required in Sentence (2), and

b) conform to CAN/ULC-S620, "Hose Nozzle Valves for Flammable and Combustible Liquids."

2) Except as provided in Sentences (3) to (5), a hose nozzle valve shall be constructed so that the valve

a) can be kept open only by the continuous application of manual pressure, or

b) is equipped with a hold-open device that is an integral part of the nozzle and that will

i) allow automatic dispensing,

ii) automatically shut off when the vehicle tank is filled, and

iii) shut off if the nozzle is dropped or falls from the fill pipe.

3) A hose nozzle valve at a *marine fuel-dispensing station* shall be of the type without a hold-open device, in conformance with Clause (2)(a).

4) When a hose nozzle valve with a hold-open device is used at an attended *self-service outlet*, a break-away coupling conforming to ULC-S644, "Emergency Breakaway Fittings for Flammable and Combustible Liquids," shall be provided.

5) When the flow of liquid can be stopped other than by the hose nozzle valve, a hose nozzle valve with a hold-open device is permitted to be used only if it is provided with a device that will automatically close the hose nozzle valve upon a drop of pressure in the dispensing hose.

4.6.6. Remote Pumping Systems

4.6.6.1. Application

1) This Subsection shall apply to systems for dispensing *flammable liquids* or *combustible liquids* where such liquids are transferred from bulk storage to individual or multiple dispensers by pumps located elsewhere than at the dispensers.

4.6.6.2. Pumps and Control Equipment

1) Pumps, including associated control equipment, shall be designed so that the system will not be subject to pressures above the design working pressure.

2) Pumps shall be securely anchored and protected against damage from vehicles.

4.6.6.3. Emergency Valves

1) An emergency valve conforming to ULC-S651, "Emergency Valves for Flammable and Combustible Liquids," shall be installed in the supply line so that the shear point of the valve is at a level not higher than the base of the dispenser nor more than 25 mm below it.

2) The emergency valve required in Sentence (1) shall be maintained in operating condition and serviced at intervals not greater than 12 months.

4.6.6.4. Pump Location

1) Pumps installed aboveground and outside *buildings* shall be located not less than

a) 3 m from any property line, and

b) 1.5 m from any *building* opening.

2) When an outside pump location is impractical, pumps are permitted to be installed inside *buildings* or in pits as provided in Article 4.6.2.6.

4.6.6.5. Marine Fuel-Dispensing Stations

1) Except as permitted in Sentence (2), tanks and pumps not integral with the dispenser at *marine fuel-dispensing stations* shall be located on the shore or on a pier of the solid-fill type.

2) Where shore locations would result in excessively long supply lines to the dispenser, *storage tanks* are permitted to be installed on a pier provided that

a) the applicable portions of Subsection 4.3.7. relating to spacing, secondary containment and piping are complied with, and

b) the quantity stored does not exceed 5 000 L aggregate capacity.

3) No *storage tank* at a *marine fuel-dispensing station* shall be located closer than 4.5 m horizontally from the normal annual high-water mark.

4) *Storage tanks* located on shore and supplying *marine fuel-dispensing stations* are permitted to be located aboveground where rock or a high water table make underground tanks impracticable.

5) Where *storage tanks* at a *marine fuel-dispensing station* are elevated above the dispenser, an automatically operated valve that is designed to open only when the dispenser is being operated, so as to prevent gravity draining of the tank in the event of a rupture of the supply line to the dispenser, shall be provided at the *storage tank* outlet, positioned adjacent to and outside the valve specified in Article 4.3.6.1.

6) Piping between *storage tanks* located on shore and dispensers at a *marine fuel-dispensing station* shall conform to Section 4.5., except that where dispensing is from a floating structure, it is permitted to use suitable lengths of flexible hose designed in conformance with good engineering practice between the piping on shore and the piping on the floating structure. (See Note A-4.8.8.1.(1)(a).)

4.6.7. Spill Control

4.6.7.1. Spill Control

1) Areas where *flammable liquids* or *combustible liquids* are dispensed shall be designed to

a) be able to handle accidental spillage in conformance with Subsection 4.1.6., and

b) control a spill of not less than 1 000 L.

4.6.8. Supervision and Dispensing Procedures

4.6.8.1. Attendants

1) Except as provided in Sentence (2), every *fuel-dispensing station* shall have at least one attendant referred to in Article 4.6.8.5. on duty when the station is open for business.

2) *Fuel-dispensing stations* that do not serve the general public do not require an attendant.

3) Except as permitted at *self-service outlets*, a qualified attendant shall be in constant control of the dispensing of Class I and II liquids into the fuel tanks of motor vehicles, watercraft or floatplanes, or into containers.

4) Duties of attendants and fuel-dispensing procedures, as stated in Articles 4.6.8.5. and 4.6.8.6., shall be posted at every *fuel-dispensing station*.

4.6.8.2. Self-service Outlets

1) Instructions for the operation of dispensers in *self-service outlets* shall be posted in a conspicuous location.

2) A control console shall be provided at *self-service outlets* within 25 m of all dispensers so that the attendant has an unobstructed view of all units at the same time.

3) The control console referred to in Sentence (2) shall be equipped to regulate the operation of each dispenser.

4) A 2-way communication system between the control console and each pump island shall be provided at *self-service outlets*.

5) At *fuel-dispensing stations* that provide both attended service and self-service, the attendant required in Sentence 4.6.8.1.(1) is permitted to dispense *flammable liquids* or *combustible liquids* at the attended service island, provided that

a) each island has an emergency shut-off switch as described in Article 4.6.4.2., and

b) the attendant is never more than 25 m from the self-service island or control console.

4.6.8.3. Special Dispensers

1) Except as provided in Article 4.6.8.4. for card- or key-activated equipment, special dispensers including coin-operated, card-operated and preset units, shall not be permitted at *self-service outlets* unless there is at least one qualified attendant on duty for each 12 hoses that can be operated simultaneously while the outlet is open to the public.

4.6.8.4. Card- or Key-Activated Dispensers

1) Card- or key-activated dispensers are permitted at unattended *self-service outlets* and *fuel-dispensing stations* that are not open to the general public, in conformance with Sentences (2) to (6). (See Note A-4.6.8.4.(1).)

2) Except as provided in Sentences (3) to (6), the installation of card- or key-activated dispensers shall conform to the requirements for *self-service outlets* and *fuel-dispensing stations* in this Section.

3) Operation of card- or key-activated dispensers shall be restricted to persons authorized by the supply agent to possess a card or key to operate the dispensers.

4) Clearly legible operating instructions, visible at all times, shall be posted at every dispenser island.

5) A telephone or other clearly identified means to notify the fire department shall be provided in a location readily accessible to the user.

6) Emergency instructions, including the telephone number of the local fire department, shall be conspicuously posted to advise the user, in the event of a spill or accident,

a) to use the emergency shut-off switch required in Article 4.6.4.2., and

b) to call the fire department.

4.6.8.5. Duties of Attendants

1) Attendants on duty at *fuel-dispensing stations* shall

a) supervise the dispensing of *flammable liquids* and *combustible liquids*,

b) activate the controls to permit the dispensing of fuel at an individual dispenser only after the customer at the unit is ready to activate the nozzle,

c) prevent the dispensing of *flammable liquids* and *combustible liquids* into containers that

i) do not conform to Article 4.2.3.1., or

ii) are in a vehicle,

d) take appropriate measures to prevent sources of ignition from creating a hazard at the dispensers,

e) take appropriate action in the event of a spill to reduce the risk of fire,

f) shut off the power to all dispensers in the event of a spill or fire, and

g) perform routine visual inspections in accordance with Article 4.5.10.5.

2) In addition to the requirements in Sentence (1), attendants on duty at *marine fuel-dispensing stations* shall

a) activate the controls to permit the dispensing of fuel at an individual dispenser only after all ports and hatches on the watercraft have been closed, and

b) ensure that containers for *flammable liquids* and *combustible liquids*,

i) are not filled beyond their safe filling level, and

ii) are filled only after they have been removed from the watercraft or floatplane.

3) Attendants shall be trained on how to conduct their duties.

4.6.8.6. Fuel-Dispensing Procedures

1) Except as provided in Sentence (2), *flammable liquids* and *combustible liquids* shall not be dispensed into the fuel tank of a motor vehicle, watercraft or floatplane while the engine is running.

2) It is permitted to dispense a Class II or IIIA liquid into the fuel tank of a motor vehicle while its engine is running provided it is dispensed not less than 6 m away from any Class I liquid dispenser. (See Note A-4.6.8.6.(2).)

3) Class I and II liquids shall not be dispensed at a *fuel-dispensing station* into the fuel tank of a motor vehicle while any part of the motor vehicle or any vehicle attached to it is on a *street*.

4) Every person dispensing *flammable liquids* and *combustible liquids* shall

a) take precautions to prevent overflow or spillage of the liquid being dispensed,

b) not knowingly overfill the fuel system,

c) except as otherwise stated in Article 4.6.8.5., in the event of spillage, immediately apply an absorbent material to soak up the spillage in conformance with Article 4.1.6.3.,

d) not dispense Class I or II liquids in proximity to open sources of ignition,

e) not use any object or device that is not an integral part of the hose nozzle valve assembly to maintain the flow of fuel, and

f) not dispense the liquids into containers that are in a vehicle, watercraft or floatplane.

4.6.8.7. Sources of Ignition

1) Smoking and non-fixed sources of ignition shall not be permitted within 7.5 m of a dispenser at a *fuel-dispensing station*.

4.6.8.8. Signs

1) At least one weather-resistant sign conforming to Sentences (2) to (4) shall be provided for each dispenser in a location visible to every driver approaching the dispenser.

2) The sign required in Sentence (1) shall indicate that smoking is not permitted in the vicinity of the dispenser and that the ignition must be turned off while the vehicle is being refuelled. (See Note A-4.6.8.8.(2).)

3) The sign required in Sentence (1) shall

a) have a minimum dimension of 200 mm, and

b) except as permitted in Sentence (4), have letters not less than 25 mm high.

4) The sign required in Sentence (1) is permitted to display the international "No Smoking – Ignition Off" symbol not less than 100 mm in diameter.

4.6.8.9. Training Procedures

1) Personnel involved in the transfer operations of *flammable liquids* or *combustible liquids* shall be trained in accordance with Article 4.5.10.2.

4.6.9. Fire Prevention and Protection

4.6.9.1. Portable Extinguishers

1) At least 2 portable extinguishers, each having a rating of not less than 40-B:C, shall be provided at every *fuel-dispensing station*.

4.6.9.2. Absorbent Materials

1) Absorbent material to soak up liquid spillage shall be provided for use by attendants at *fuel-dispensing stations* in conformance with Article 4.1.6.3.