



# TOWN POLICY

**POLICY NUMBER: 4203**

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**REFERENCE:**  
Resolution No.

**ADOPTED BY:**  
Town Council

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**PREPARED BY:** Infrastructure Services

**DATE:** April 2020

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**TITLE: Backflow Prevention and Cross-Connection Control Policy**

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## Policy Statement

The intent of this policy is to protect, promote and provide support for a safe public potable water supply to the Town of Strathmore

### The purpose of this policy is to:

- (a) Protect the public potable water supply served by Town of Strathmore (the Town) by monitoring to ensure containment, via appropriate backflow prevention assemblies, within the Customer's internal distribution system or private water system of any contaminants or pollutants which could backflow through the service connection into the public potable water system.
- (b) Promote the elimination, containment, isolation or control of existing cross connections, actual or potential, between the Customer's potable water system and non-potable systems.
- (c) Provide for the maintenance of an ongoing Cross Connection Control Program which will support the enforcement of Acts, Regulations and Codes to ensure that the Town and the Customer exercise due diligence in protecting the public potable water system.

## 1.0 TITLE

1.1 Backflow Prevention and Cross-Connection Control Policy

## 2.0 DEFINITIONS

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**2.1 Approved**

Accepted by the authority responsible as meeting an applicable specification stated or cited in this ordinance or as suitable for the proposed use

**2.2 Auxiliary Water Supply**

Any water supply on or available to the premises other than the Town's Approved public water supply. These auxiliary waters may include water from another Town's public potable water supply or any natural waters; or industrial fluids. These waters may be contaminated or polluted, or they may be objectionable and constitute an unacceptable water source over which the water purveyor does not have sanitary control.

**2.3 AWWA Canadian Cross Connection Control Manual**

Training manual developed and adopted by the Canadian Sections of AWWA. It is available to educators, administrators, practitioners and to others who concern themselves with the protection of potable water against contamination as a result of backflow through cross connections.

**2.4 Backflow**

The undesirable reversal of flow into a potable water distribution system as a result of a cross connection.

**2.5 Backpressure**

A pressure, higher than the supply pressure, caused by a pump, elevated tank, boiler, or any other means that may cause backflow.

**2.6 Backsiphonage**

Backflow caused by negative or reduced pressure in the supply piping.

**2.7 Backflow Preventer**

An assembly or means designed to prevent backflow.

**2.7.1 Reduced-pressure backflow prevention assembly (RP)**

The Approved reduced-pressure principle backflow-prevention assembly consists of two independently acting Approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and below the first check valve. These units are located between two tightly closing resilient-seated shutoff valves as an assembly and equipped with properly located resilient-seated test cocks.

**2.7.2 Double check valve assembly (DCVA)**

The Approved double check valve assembly consists of two internally loaded check valves, either spring loaded or internally weighted, installed as a unit between two tightly closing resilient seated shutoff valves and fittings with properly located

resilient-seated test cocks. This assembly shall only be used to protect against a non-health hazard (that is, a pollutant).

**2.8 CSA Standard B62.10/B62.10.1**

Selection and installation of backflow preventers/maintenance and field testing of backflow preventers.

**2.9 Containment**

A method of backflow prevention which requires the installation of a backflow prevention assembly at the water service entrance to a premise or at the water meter.

**2.10 Contamination**

An impairment of a potable water supply by the introduction or admission of any foreign substance that degrades the quality and creates a health hazard.

**2.11 Cross Connection**

A connection or potential connection between any part of a potable water system and any other environment containing other substances in a manner that, under any circumstances would allow such substances to enter the potable water system. Other substances may be gases, liquids, or solids, such as chemicals, waste products, steam, water from other sources (potable or non-potable), or any matter that may change the color or add odor to the water.

**2.11.1 Cross Connection—Controlled**

A connection between a potable water system and a non-potable water system with an approved backflow-prevention assembly properly installed and maintained so that it will continuously afford the protection commensurate with the degree of hazard.

**2.11.2 Cross-Connection—Control by Containment**

The installation of an approved backflow-prevention assembly at the water service connection to any Customer's premises, where it is physically and economically unfeasible to find and permanently eliminate or control all actual or potential cross connections within the Customer's water system; or it shall mean the installation of an Approved backflow- prevention assembly on the service line leading to and supplying a portion of a Customer's water system where there are actual or potential cross connections that cannot be effectively eliminated or controlled at the point of the cross connection.

**2.12 Customer**

The term "Customer" in this Guide has the same meaning as is set out in the Town of Strathmore Bylaw 18-06, as amended from time to time.

**2.13 Hazard, Degree of**

The term is derived from an evaluation of the potential risk to public health and the adverse effect of the hazard upon the potable water system. The hazard classification guide is provided in the Appendix of this policy document.

#### 2.13.1 **Hazard—Severe**

A cross connection or potential cross connection involving any substance in sufficient concentration to cause death, spread disease or illness, or contain any substance which has a high probability of causing such effect.

#### 2.13.2 **Hazard—Moderate**

A cross connection or potential cross connection involving any substance which has a low probability of becoming a severe hazard and would constitute a nuisance or be aesthetically objectionable if introduced into the domestic water supply.

#### 2.35.3 **Hazard—Minor**

An existing connection, or a potential connection between the domestic water pipe and any pipe, vat or tank intended for carrying or holding potable water, which has a low probability of becoming a moderate hazard.

#### 2.13.4 **Hazard—system**

An actual or potential threat of severe damage to the physical properties of the public potable water system or the consumer's potable water system or of a pollution or contamination that would have a protracted effect on the quality of the potable water in the system.

#### 2.14 **Industrial Fluids System**

Any system containing a fluid or solution that may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration, such as would constitute a health, system, pollution, or plumbing hazard, if introduced into an Approved water supply. This may include, but not be limited to: polluted or contaminated waters; all types of process waters and used waters originating from the public potable water system that may have deteriorated in sanitary quality; chemicals in fluid form; plating acids and alkalis; circulating cooling waters connected to an open cooling tower; and/or cooling towers that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters, such as wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, and so forth; oils, gases, glycerine, paraffins, caustic and acid solutions, and other liquid and gaseous fluids used in industrial or other purposes for fire-fighting purposes.

#### 2.15 **Pollution**

The presence of any foreign substance in water that tends to degrade its quality so as to constitute a non health hazard or impair the usefulness of the water. Water that is safe for human consumption as described by the regulatory authority having jurisdiction (Alberta Environment Approval).

**2.16 Potable Water**

Water, which is safe for human consumption, as described by Alberta Health Services.

**2.17 Premise Isolation**

Preventing backflow into a public water system by installing backflow protection at the entrance to a building or facility.

**2.18 Service Connection**

The terminal end of a service connection from the public potable water system, that is, where the water purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the Customer's water system. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter. There should be no unprotected takeoffs from the service line upstream of any meter or backflow- prevention assembly located at the point of delivery to the Customer's water system. Service connection shall also include water service connection from a fire hydrant and all other temporary or emergency water service connections from the public potable water system.

**2.19 Water—Non potable**

Water that is not safe for human consumption or that is of questionable quality.

**2.20 Water—Used**

Any water supplied by a water purveyor from a public potable water system to a consumer's water system after it has passed through the point of delivery and is no longer under the sanitary control of the water purveyor

**3.0 RESPONSIBILITIES; The Town and The Customer****The Town Shall:**

- 3.1 Administer a Cross Connection Control Containment or Premise Isolation program.
- 3.2 Protect the public potable water distribution system from contamination or pollution beginning at the water supply source and will include all water treatment, storage and distribution facilities, up to the Customer's property.
- 3.3 Maintain a record file of backflow prevention assemblies that isolate the Customer's water system from the public potable water system.
- 3.4 Identify Cross Connection Control containment backflow assembly installation dates and provide the Customer with notification of annual backflow assembly testing requirements.

- 3.5 Approve the inspection and testing of Cross Connection Control containment assemblies to be in compliance with CSA Standard B64.10/B64.10.1 and the Canadian AWWA Cross Connection Control Manual and require Customers to supply backflow test results to the Town within thirty (30) days of the test being carried out. Should a Customer fail to comply with the direction given by the Town employee that administers the Cross Connection Control program to conduct the required testing on their Cross Connection Control containment assemblies or supply the test results in accordance with this Guide, the Town shall have the right to shut off water services to the Customer's premise and/or inform Alberta Health Services of the potential risk of cross contamination.
- 3.6 Register and keep an updated list of certified testers to ensure that persons engaged in testing backflow prevention assemblies have adequate skills and training.
- 3.7 Undertake random audits at severe and moderate degree of hazard locations to confirm that Customers are in compliance with all Codes and Regulations. If, in the judgment of the Town, an Approved backflow preventer is required at the public potable service connection to any Customer's premises, an authorized member of the Town's Cross Connection Control Group shall give notice to the Customer to install an Approved backflow prevention assembly at the Customer's premises as per CSA Standard B64.10-/B64.10.1
- 3.8 Review backflow preventer test results within five business days (5) of receiving the test result and retain the right to accept or reject submitted backflow preventer test results based on errors, discrepancies and/or omissions.
- 3.9 Not be responsible for nor make any representation or warranty as to the accuracy or completeness of the Customer's backflow preventer test results nor shall have any liability for any errors or omissions or for any damages resulting from third party's use or reliance on the Customer's backflow preventer test results.
- 3.10 Notify Customers (at severe and moderate degree of hazard locations) of inspection deadlines and carry out periodic audits to ensure Customer-compliance, tester certification, and verify test kit accuracy.
- 3.11 Report known or suspected incidences of potable water contamination by backflow or cross connection to Alberta Health Services and Alberta Environment & Parks.
- 3.12 Not be responsible for installing, maintaining, or testing of backflow prevention assemblies within a Customer's premises.

- 3.13 Request from the Customer, information on the use of any chemicals fed to the potable water system, within the building and any chemicals used in any industrial process within the building.

**The Customer Shall:**

- 3.14 Control cross connections by the installation, maintenance and testing of Approved backflow prevention measures on any temporary or permanent connection to the potable water system starting at the point of service from the public potable water system. The type of backflow prevention measure required shall depend upon the degree of hazard that exists, the probability of a backflow incident occurring, and the type of circumstance causing potential or actual backflow to occur as per CSA Standard B64.10-B64.10.1 and the Canadian AWWA Cross Connection Control Manual
- 3.15 Be responsible for all costs associated with the inspection, testing, repair, replacement and maintenance of backflow preventers on the Customer's property.
- 3.16 Notify the Town in writing of any premise containment backflow preventer that the Customer may regard as unnecessary for premise isolation purposes. Notices shall be sent to:

The Town of Strathmore  
Cross Connection Control Services  
680 Westchester Road  
Strathmore AB T1P 1J1

- 3.17 Through a certified licensed tester, perform tests on all premise containment, backflow preventers (assembly) annually or more frequent as per CSA Standard B64.10/B64.10.1. and the Canadian AWWA Cross Connection Control Manual. In the event an assembly fails a test, the Customer must have the unit repaired or replaced within 96 hours. The unit must then be tested again following repair or replacement to ensure that it is in compliance. Test results must be submitted to the Town, Cross Connection Control Section, within thirty days of the test date. Licensed testers must hold a Certificate of Achievement in Cross Connection Control endorsed by the Western Canada Section, AWWA or acceptable equivalent. The Certificate must not be older than five years.
- 3.18 Supply backflow test results to the Town within thirty (30) days of the test being carried out.
- 3.19 Allow the Town's authorized representatives reasonable access to their premises for the purpose of cross connection control inspection.

- 3.20 Inform the Town of any chemical being fed into the potable water supply within the Customer's premise or used on the Customer's premise.

#### 4.0 ENFORCEMENT

##### **Elements of Backflow Prevention Enforcement and Protocol**

The following enforcement and protocol will apply for customers that the Town requires to install or upgrade their backflow prevention devices:

##### 4.1 Initial Notice – Upgrade/ Install

- A. For existing customers, premises which require backflow prevention devices will be identified by a certified inspector from the Town. An initial notice will be sent out by Town administration to notify the customer to upgrade or install their back-flow prevention device within 60 days.
- B. If the customer installs or upgrades their backflow control device to the satisfaction of the Town within 60 days, a rebate may be offered to the customer based on their meter size along with a request for inspection of the installed or upgraded device. The rebate schedule based on device size will be as follows:

19mm dia. or less	\$200
25mm dia.	\$300
38mm dia.	\$400
50mm dia. or larger	\$500
- C. The Town will provide a list of certified testers which the customer may use to annually inspect their new or upgraded devices.
- D. Optionally, the customer may choose to have the Town to install or upgrade their backflow prevention device and bill the customer quarterly over a period of two years within the 60-day period of notice issuance. The Town may offer a rebate for installation or upgrade of the device in this case. Rebate schedules will vary from time to time and be communicated by the Town at the request of the customer.

##### 4.2 Second Notice – Upgrade/ Install

- A. In the event that the customer does not comply with the Town's request to install or upgrade their backflow prevention device within 60 days after the initial Notice is sent out to them, a second letter or notice will be issue to the customer as a reminder to install or upgrade the required device within 30 days.
- B. The Town will not offer a rebate for complying with the second notification to the customer to install or upgrade their backflow prevention device.
- C. The Town will provide a list of certified testers which the customer may use to annually inspect their new or upgraded devices.
- D. The customer may still have the option to have the Town to install or upgrade their backflow prevention device and bill the customer quarterly over a period of two years subject to a 10% administrative fee for this option. The customer must notify the Town if they prefer this option within the 30-day period of notice



issuance. The Town will not offer a rebate for installation or upgrade of the device in this case.

#### 4.3 Third Notice – Upgrade/ Install

- A. In the event that the customer does not comply with the Town's request to install or upgrade their backflow prevention device within 30 days after the second Notice is sent out to them, a third letter or notice will be issue to the customer as a reminder to install or upgrade the required device within 30 days.
- B. The Town will not offer a rebate for complying with the third notification to the customer to install or upgrade their backflow prevention device.
- C. The Town will provide a list of certified testers which the customer may use to annually inspect their new or upgraded devices.
- D. The customer will not have the option to have the Town to install or upgrade their backflow prevention device and bill back to the customer.
- E. If the customer does not comply with the third notice to install or upgrade their backflow prevention device within 30 days of notice issuance, the Town will access the customer's premises and install the required backflow prevention device at the customer's cost plus a 15% administration fee. The cost to install the required device will be billed back to the customer by way of their water utility bill.

#### 4.4 Fourth Notice – Upgrade/ Install

- A. In the event that the customer does not comply with the Town's request to install or upgrade their backflow prevention device within 30 days after the third Notice is sent out to them, a fourth and final letter or notice will be issue to the customer as a reminder to install or upgrade the required device within 7 days.
- B. The customer will be required to provide a written response to the Town to confirmation the device installation or upgrade date within 7 days.
- C. The customer may optionally provide a written response to request the Town to install or upgrade the required device at the customer's cost plus a 20% administration fee. The cost to install the required device will be billed back to the customer by way of their water utility bill.
- D. If the customer does not comply with 4.4 B or 4.4C above within 7 days, a water shut off notification will be issued to the customer by the Town

The Town will follow a similar enforcement process for annual testing of backflow control devices and submission of testing records. Non-submission of annual backflow prevention device testing records can trigger the Town to test the device at the customer's cost plus a 10% administrative fee. Refusal to provide the annual test results after four notifications triggers a water shut-off notification.

## 5.0 END OF POLICY

# Appendix: Hazard Classification Guide

## Premises Isolation Hazard Classification Guide

The National and Provincial Plumbing codes require premises isolation. Table 6.2 identifies the types of facilities requiring premises isolation. The table is based on factors that include (but are not limited to) the following:

- types of hazards present
- hazardous processes or activities within the premises
- types of materials stored on the premises
- complexity of the plumbing system
- potential for changes to the plumbing system and water uses
- history of backflow incidents
- likelihood of recurrence

The hazard classification of the facilities and water uses in Table 6.2 can help determine the type of backflow preventer/backflow prevention method required for premises isolation.

**Table 6.2** Guide to Degree of Hazard for Various Premises or Water Uses

*Note: This table is intended to serve as a guide to water purveyors, cross-connection control inspectors, health authorities, and others on the level of public health hazard associated with a wide variety of premises. This is not a complete list. A similar table is contained in the annex of CSA 864.10.1.*

Type of Premises or Use Of Water	Degree of Hazard
Airport	Moderate
Apartment building	Moderate
Aquaculture, hatchery or fish farm	Severe
Aquarium (public)	Severe
Asphalt plant	Severe
Auto repair or body shop	Severe
Auto dealership	Moderate
Beverage processing plant (includes distillery and brewery)	Severe
Blood clinic	Severe
Campsite	Moderate
Campsite with RV hook-ups or dump-stations	Severe
Car wash	Severe
Care or nursing home	Moderate
Chemical plant	Severe
Church	Minor to moderate
College or university	Moderate to severe
Commercial premises	Moderate to severe
Concrete plant	Severe

Table 6.2 Guide to Degree of Hazard for Various Premises or Water Uses, *continued*

Type of Premises or Use Of Water	Degree of Hazard
Dental office	Moderate
Dental surgery	Severe
Exhibition ground	Severe
Farming or agricultural facilities	Moderate to severe
Film processing facility	Severe
Fire station	Moderate to severe
Food processing plant	Severe
Fuel dispensing facility	Moderate
Funeral home	Moderate to severe
Garbage transfer station or recycling facility	Severe
Golf course	Moderate to severe
Grocer	Moderate
Hair salon	Moderate
Hospital, dialysis or blood clinic	Severe
Hotel	Moderate
Industrial and institutional premises	Moderate to severe
Kennel	Moderate
Laboratory or research facility	Severe
Laundry (commercial)/ dry cleaning plant	Severe
Laundry (commercial, coin-operated)	Moderate
Livestock feedlot	Moderate to severe
Manufacturing plant	Moderate to severe
Marina (pleasure boat) or dockside facility	Moderate to severe
Meat packing plant	Severe
Medical clinic (non-surgical)	Moderate
Medical clinic (surgical)	Severe
Mining facility	Severe
Mobile home park	Moderate
Mortuary, morgue or embalming facility	Severe
Motel	Moderate
Motorcycle & watercraft repair facility	Severe
Multi-service interconnected facility	Moderate
Multi-tenant single-service facility	Moderate
Office building	Moderate
Oil refinery	Severe
Paint manufacturing plant	Severe
Penitentiary	Moderate
Petroleum processing or storage facility	Severe
Pharmaceutical manufacturing facility	Severe
Plants using radioactive material	Severe
Plastic manufacturing plant	Severe

**Table 6.2** Guide to Degree of Hazard for Various Premises or Water Uses, *continued*

Type of Premises or Use Of Water	Degree of Hazard
Plating shop and plant	Severe
Poultry farm	Severe
Power generating facility	Severe
Premises where access is prohibited or restricted	Severe
Printing plant	Severe
Pulp and/or paper plant	Severe
Refinery, petroleum processing	Severe
Rendering facility	Severe
Residential premises or single service multi-tenant (fewer than 4 dwellings)	Minor
Restaurant	Moderate
School (elementary, junior high, and senior high)	Moderate
Sewage dump station (sani-dump)	Severe
Sewage lift or pump station	Severe
Shopping mall	Moderate
Sports arena	Moderate
Steam plant	Severe
Steel manufacturing plant	Severe
Swimming pool facility	Moderate
Townhouse complex (shared services)	Minor
Trackside facility for trains	Severe
Veterinary clinic or hospital	Moderate to severe
Waste disposal plant	Moderate to severe
Wastewater treatment plant	Severe
Water filling station	Severe
Water park	Moderate
Water treatment plant	Severe
Water treatment pump station	Severe
Zoo	Severe