EPCOR Water Services

Cross Connection Control Procedure Guide

February 26, 2024

Cross Connection Control Procedure Guide

1. Purpose

2. Authority

3. Responsibilities

   A. EPCOR Water Services
   B. Customer

4. Definitions

1. Purpose

A. To protect the public potable water supply served by EPCOR Water Services (EWS) by monitoring to ensure premises isolation, 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. To promote the elimination, isolation or control of existing cross connections, actual or potential, between the Customer's potable water system and non-potable systems.

C. To provide for the maintenance of an ongoing Cross Connection Control Program which will support the enforcement of Acts, Regulations and Codes to ensure that EWS and the Customer exercise due diligence in protecting the public potable water system.

2. Authority

Pursuant to the Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems (Guidelines) issued by Alberta Environment and Protected Areas (AEPA), EWS must develop a cross control program. The Guidelines provide:

> *The owner shall develop and implement a cross-connection control program. The scope and complexity of the program should be directly related to the size of the system and the potential public health risk.*

EWS derives its authority to deliver and enforce its Cross Connection Control Program through the following additional enactments:

A. *Alberta Environmental Protection and Enhancement Act*, RSA 2000, c E-14, s.148

B. *Nuisance and General Sanitation Regulation*, Alta Reg 243/2003

C. *National Plumbing Code of Canada*, ss. 2.6.2.1 #1-3

D. Alberta Municipal Affairs Standata P-08-03-NPC10[Rev 2] at p 3

E. City of Edmonton EPCOR Water Services Bylaw 19626 (Bylaw)

F. *Safety Codes* Act, RSA 2000, C S-1, Article 14(1)

G. CSA B64.10 Selection and installation of backflow preventers

3. Responsibility

A. EWS shall:

A.1 Administer a Cross Connection Control Premise Isolation program.

A.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.

A.3 Maintain a record file of backflow prevention assemblies that isolate the Customer's water system from the public potable water system.

A.4 Identify backflow preventer assembly installation dates and provide the Customer with notification of annual backflow assembly testing requirements.

A.5 Approve the inspection and testing of backflow prevention 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 EWS within five (5) days of the test being carried out. Should a Customer fail to comply with the direction given by the EWS employee that administers the Cross Connection Control program to conduct the required testing on their premises isolating assemblies or supply the test results in accordance with this Guide, EWS shall have the right to shut off water services to the Customer's premise, and or penalties as outlined in the Bylaw, and/or inform Alberta Health Services of the potential risk of cross contamination.

A.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.

A.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 EWS, an approved backflow preventer is required at the public potable service connection to any Customer's premises, an authorized member of EWS'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

A. 8 Review backflow preventer test results within thirty days (30) 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.

A.9 Not be responsible for nor makes 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.

A.10 Notify Customers (at severe and moderate degree of hazard locations) of inspection deadlines and carry out periodic audits to insure Customer-compliance, tester certification, and verify test kit accuracy.

A.11 Report known or suspected incidences of potable water contamination by backflow or cross connection to Alberta Health Services and AEPA.

A.12 Not be responsible for installing, maintaining, or testing of backflow prevention assemblies within a Customer's premises.

A.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.

B. The Customer Shall:

B.1 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

B.2 Be responsible for all costs associated with the inspection, testing, repair, replacement and maintenance of backflow preventers on the Customer's property.

B.3 Notify EWS in writing of any backflow preventer that the Customer may regard as unnecessary for premise isolation purposes. Notices shall be sent to:

EPCOR Water Services
Cross Connection Control Department
2000 – 10423 101 Street NW
Edmonton AB T5H 0E8

B.4 Through a certified tester, perform tests on all premise isolation, 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 5 business days. The unit must then be tested again following repair or replacement to ensure that it is in compliance. Test results must be submitted to EWS, Cross Connection Control Department, within five days of the test date. Certified testers must hold a Certificate of Achievement in Cross Connection Control endorsed by the Western Canada Section of AWWA. The Certificate must not be older than five years.

B.5 Supply backflow test results to EWS within thirty (5) days of the test being carried out.

B.6. Allow EWS authorized representatives reasonable access to their premises for the purpose of cross connection control inspection/survey.

B.7. Inform EWS of any chemical being fed into the potable water supply within the Customer's premise or used on the Customer's premise.

4. Definitions

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

4.3 Auxiliary Water Supply
Any water supply on or available to the premises other than the purveyor's Approved public water supply. These auxiliary waters may include water from another purveyor'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.

4.4 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.

4.4 Backflow
The undesirable reversal of flow in a potable water distribution system as a result of a cross connection.

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

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

4.7 Backflow Preventer
An assembly or means designed to prevent backflow.

4.7.1 Air Gap (AG)
The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet conveying water or waste to a tank, plumbing fixture, receptor, or other assembly and the flood level rim of the receptacle. These vertical, physical separations must be at least twice the diameter of the water supply outlet, never less than 25 mm (1 inch).

4.7.2 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.

4.7.3 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 be used only to protect against a non-health hazard (i.e. a pollutant).

4.7.4 Dual Check Valve (DuC)
The Approved dual check valve consists of two independently acting, force-loaded, soft seated check valves in series. DuC backflow preventers do not have a relief port or test cocks. They are designed for use under continuous pressure.

4.8 CSA Standard B64.10/B64.10.1
To be used for the Selection and installation of backflow preventers/maintenance and field testing of backflow preventers.

4.9 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.

4.10 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.

4.11 Cross Connections—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.

4.12 Cross-Connection Control by Premises Isolation
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.

4.13 Customer

The term "Customer" in this Guide has the same meaning as is set out in City of Edmonton EPCOR Water Services Bylaw 19626, as amended.

4.15 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.

4.15.1 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.

4.15.2 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.

4.15.3 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.

4.15.4 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.

4.16 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 alkalies; 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.

4.17 Pollution

The presence of any foreign substance in water that tends to degrade its quality so as to constitute a non-health hazard or to impair the usefulness of the water.

4.18 Potable Water

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

4.19 Premise Isolation

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

4.20 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.

4.21 Water—Non-potable

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

4.22 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.