

Village of East Troy's Cross Connection Control Plan



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CROSS-CONNECTION CONTROL PROGRAM

I. PURPOSE

Cross-connections between a potable water system and non-potable sources of contamination represent a threat to public health. This program is designed to maintain the safety and potability of the water in the supply and distribution system by preventing the introduction, by backflow, of any foreign liquids, gases, or other substances into the supply system.

II. RESPONSIBILITIES

Under Wisconsin Legislature Code NR 810.15, the Utility is responsible for the Cross Connection Program and the prevention of all future un-protected cross connections to the last flowing tap or end user.

Owner / Consumer

The customer is responsible for ensuring the integrity of the system piping and water downstream of the property line excluding the meter. It is the responsibility of the owner / consumer to avoid cross-connections on their property and/or install appropriate backflow devices, maintain, test, and provide information to the public water utility.

Utility Owner

It is the responsibility of the public water utility to disconnect service upon failure of the property owner to comply with the requirements of the Utility's Cross-Connection Control Program.

III. AUTHORITY

This program derives its enforceability from:

National: Safe Drinking Water Act of 1974

State: Wisconsin Department of Natural Resources

Local: The Village of East Troy's Director of Public Works enforcement of Village ordinances.

IV. DEFINITIONS

A. *BACKFLOW*

The flow of water or other foreign liquids, gases, or other substances into the distribution system of a public water supply from any source other than the intended.

B. *BACKFLOW PREVENTION DEVICE*

A device to prevent backflow.

1. Air Gap

A physical separation sufficient to prevent backflow between the free flowing discharge end of the potable water system and any other system.

2. Atmospheric Vacuum Breaker

A device which prevents back-siphonage by creating an atmospheric vent where there is either a negative pressure or sub-atmospheric pressure in a water system.

3. Backflow Prevention Device with Intermediate Atmospheric Vent

A device having two check valves separated by an atmospheric vent.

4. Double Check Valve Assembly

A device having two, weight or spring loaded, bronze faced with soft rubber disc check valves, with shut-off valves and test cocks for periodic testing.

5. Hose Bibb Vacuum Breaker Device

A device which is permanently attached to a hose bibb and which acts as an atmospheric vacuum breaker.

6. Pressure Vacuum Breaker

A device containing a spring-loaded check valve and a spring loaded atmospheric vent which opens when pressure approaches atmospheric. It contains valves and fittings which allow the assembly to be tested.

7. Reduced Pressure Principle Backflow Prevention Device (RPZ)

An assembly of check valves and a reduced pressure zone which spills water to the atmosphere in event of the failure of the check valves. It has valves and fittings which allow the device to be tested.

C. BACK SIPHONAGE

Backflow resulting from negative or less than atmospheric pressure in the water system.

D. BACK-PRESSURE

A condition in which the owner's system pressure is greater than the supplier's system pressure.

E. CCS

Cross Connection Specialist - An employee of the Utility competent in the knowledge of cross-connections, backflow prevention devices, state/local cross-connection regulations, and the Utility's CCC Program.

F. CONTAINMENT

A method of backflow prevention which requires a backflow prevention device at the water entry source.

G. CROSS-CONNECTION

Any connection or structural arrangement between a public or consumer's potable water system and any non-potable source or system through which backflow can occur.

H. PWS

Public Water System owned and operated by the Utility.

I. UTILITY

Owner and operator of the water supply and distribution system.

J. FIXTURE ISOLATION

A method of backflow prevention in which a backflow prevention device is located to correct a cross-connection at an in-plant unit rather than at the water service entrance.

K. OWNER

Any person, who has legal title to, or license to operate or inhabit in, a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.

L. WATER SERVICE ENTRANCE

That point in the owner's water system beyond the sanitary control of the supplier. This will usually be at the property line excluding the meter and will always be before any unprotected branch.

V. DEGREE OF HAZARD AND APPROVED DEVICES

The Utility recognizes that varying degrees of hazard are caused by different cross-connections. The devices which are permitted for use in each class of hazard and a description of the classes are as follows. A list of manufactured approved devices is available from the Utility and/or Wisconsin Administrative Code 382.41.

A. LOW DEGREE OF HAZARD

If backflow were to occur, the resulting health significance would be limited to minor changes in the aesthetic quality such as taste, odor, or color. The foreign substance must be non-toxic and non-bacterial in nature with no significant health effects. The allowed devices are: Air gap, non-pressure type vacuum breaker, pressure type vacuum breaker, double check valve assembly, and reduced pressure principle device.

B. MODERATE DEGREE OF HAZARD

If backflow were to occur, the resulting effect on the water supply would be significant changes in the aesthetic qualities. The foreign substances must be non-toxic to humans either in short or long term exposure. The allowed devices are: Air gap, pressure type vacuum breaker, double check valve assembly, and reduced pressure principle devices.

C. HIGH DEGREE OF HAZARD

If backflow were to occur the resulting effect on the water supply could cause illness or death if consumed by humans. The allowed devices are: Air gap and reduced pressure principle devices.

VI. ADMINISTRATION

A. PROGRAM

1. Developed and maintained by the Utility through Cross Connection Ordinance Chapter 3 Sec, 9-3-1.
2. Approved by State of Wisconsin.
3. Inspections performed by Utility and or designated designee.
4. Records shall be kept by the Utility for seven years

B. INSPECTION

1. Inspections are made during normal working hours unless otherwise arranged with the owner.
2. Locations that are considered Low Hazard are to receive Public Education Materials every three years, however a survey will be conducted during the Utilities routine meter change out or testing program.
3. Property owners of High and Medium Hazard Industrial and Commercial properties will be required to complete survey questionnaires provided by the Utility every two years or as necessary. The questionnaires shall be completed and returned to the Utility within 30 calendar days. The Utility CCS will review the questionnaires and determine the presence of cross-connections, the appropriate backflow prevention device required, and if further inspection is needed.
4. The owner shall allow his property to be inspected for possible cross-connections and for the testing of backflow prevention devices. Utility personnel or designated designee trained to recognize Cross-Connections may perform the inspections. As a result of the submitted inspection reports and questionnaires, the Utility CCS will classify the hazard and will provide a list of appropriate devices.
5. When applying for a new service the owner shall state the nature of the establishment to be served and inform the Utility if there are any possible Cross-Connections existing or proposed. Prior to activation of all new water services and new construction including residential services, compliance with this program and with the state of Wisconsin shall be mandatory.
6. Whenever existing systems are modified, the Utilities Building Inspector shall be informed by the owner. The Utility shall be immediately informed of any malfunctioning backflow devices.

7. After inspection of plans or premises the Utility shall inform the owner by written notice of any Cross-Connections or malfunctioning devices, suggest ways of correcting the problem and will establish a time limit for the correction to be made.
8. If the Utility determines at any time that an immediate threat to the public health exists, service shall be terminated immediately.
9. Frequency
 - a. Industrial – shall be inspected at least every two (2) years.
 - b. Commercial – shall be inspected at least every two (2) years or less if considered “Low Hazard”
 - c. Residential – shall be inspected in conjunction meter change out cycle, in addition public education material will be provided to all residential users on a three (3) year cycle.
10. Owners of Apartment Complexes of two (2) or more units shall be encouraged to install backflow prevention devices on hose bibs and shall be warned of possible hazards. If a Cross-Connection is present the owner will be required to install a backflow prevention device appropriate for the potential hazard.
11. The Utility reserves the right to inspect all Cross-Connections. The owner shall comply with any required changes as a result of the inspections.

C. TESTING

1. The testing, inspection, and maintenance of approved devices shall be the responsibility of the owner.
2. Frequency of testing:
All testable devices are required to be properly maintained and tested annually by a state certified backflow device tester approved by the Utility and testing results be recorded with the Wisconsin Department of Commerce.
3. All newly installed devices must be tested upon installation and prior to official operation.
4. The owner must use the test form issued by the Utility or approved licensed inspector.
5. If a device fails a test, the Utility must be notified immediately.

6. Malfunctioning devices must be repaired immediately. If removal is necessary, service must be shut down. It is mandatory that a spare parts kit be on the premises.
7. The device is to be retested immediately after any type of maintenance including repairs, overhauls, re-piping or relocation of the device.
8. The Utility may notify the owner on an annual basis when testing of a device is required. The notification will include an official Utility test form and an explanation of responsibilities and requirements regarding completion of the test. The owner must then return the completed Utility test form by the due date provided on the notification. Also the completed inspection is required to be recorded with the Wisconsin Department of Commerce.

D. INSTALLATION

1. After being informed by written notice from the Utility, the owner at their own expense, shall install a backflow prevention device listed and approved by the Utility.
2. The manner of installation shall be according to manufacturer's specifications and approved by the Utility. A licensed plumber with the State of Wisconsin is required to retain a plumbing permit from the Utilities Building Inspector prior to any installations.
3. Pit installations are strongly discouraged and must have Utility approval prior to installation.
4. The Utility prohibits any interconnections by the owner or consumer within the owners plumbing system which would create a real or potential Cross-Connection with the public water system thereby creating a public health hazard.
5. Installation of devices should allow for peak demand and fire flows.
6. If the device will be subject to hot water, a backflow prevention device that can withstand the maximum temperatures expected must be installed. Please note that some manufactured devices will accept greater temperatures than others.
7. In situations where the water supply cannot be interrupted to allow for testing or repair of the backflow prevention device, the owner must supply an additional device appropriate to the degree of hazard. A bypass is not allowed around any backflow prevention device unless a backflow prevention device is installed on the bypass piping.

E. EXEMPTIONS

Any existing backflow prevention device in service at the time this program goes into effect shall be allowed to continue in service if proof of latest inspection has been conducted within the last 12 months and until:

1. The Utility considers the condition of any portion of the device to be such that replacement shall be a backflow prevention device of the appropriate classification.
2. The device protecting the cross-connection is inadequate for the degree of hazard.
3. The device fails when tested.
4. The device malfunctions and requires repairs.

F. COMPLIANCE

1. All Cross-Connections that are deemed to be a high hazard shall be immediately eliminated or protected by a proper backflow device. The water utility reserves the right to terminate service if the cross connection cannot be eliminated or protected. Upon termination, the Village shall provide written notice to the property owner of the right to submit a written request to the Village Administrator for a hearing under Chapt. 68, Wis. Stats., objecting to the termination of service which hearing shall be held by the Village within ten (10) days of such request.
2. All Cross-Connections that are deemed to be a low or medium hazard shall be eliminated or protected by a proper backflow device within 60 days of discovery.
 - a. First notice shall be the letter of inspection requirement.
 - b. Second notice will be a reminder informing the owner in writing of failure to comply with the first notice. If owner cannot comply with original deadline, the owner may submit a request for an extension to be considered by the utility.
 - c. Final notice shall be a written notice of service termination to take place within 5 days.
 - d. Prior to termination of service, the Village shall provide written notice to the property owner of the right to a hearing under Chapt. 68, Wis. Stats., objecting to the termination of service. Upon receipt of such

notice and prior to termination of service, the property owner shall submit a written request to the Village Administrator for a hearing which shall be held by the Village within ten (10) days of such request.

3. Failure to comply with these regulations either by neglect to complete the application, procure and install the proper device, or repair a malfunctioning device may lead to termination of service until compliance has been restored.
4. Re-establishment of service before the installation of a backflow prevention device may be allowed by the Utility after an agreement with the Utility and owner has been made indicating the intention of the owner to comply and a compliance schedule is determined.
5. Should the utility deem the connection to be immediately dangerous to the public's health, the service will be immediately disconnected and will remain off until such time the Cross-Connection is eliminated or adequately protected by a proper and approved backflow device. Upon termination, the Village shall provide written notice to the property owner of the right to submit a written request to the Village Administrator for a hearing under Chapt. 68, Wis. Stats., objecting to the termination of service which hearing shall be held by the Village within ten (10) days of such request.

VII. APPENDICES

APPENDIX A

UTILITY AND STATE APPROVED DEVICES

1. **ASME 112.1.2** Air Gap- The unobstructed vertical distance between the lowest point of any pipe, faucet of fixture and the FLOOD LEVEL RIM of the receptor into which it is discharging.
2. **ASSE 1011*** Hose Bibb Vacuum Breaker (for indoor use)
3. **ASSE 1002*** Anti-Siphon Ball Cock for Gravity Water Closet Flush Tanks
4. **ASSE 1012** Vented Dual Check Valve-For supplies to untreated boilers with less than 15 psig steam of maximum water pressure of 30 psig.
5. **ASSE 1019** Hose Bibb Integrated Vacuum Breaker.
6. **ASSE 1011*** Anti-Frost Hose Bibb Vacuum Breaker-For use on outside hose bibs where it could be exposed to freezing conditions.
7. **ASSE 1014** Vacuum Breaker for hand held showers
8. **ASSE 1001** Atmospheric Vacuum Breaker- Critical Level of AVB must be installed at least 6" above all downstream piping and no valves downstream.
9. **ASSE 1020** Pressure Vacuum Breaker- this assembly is not allowed for indoor installations.
10. **ASSE 1056** Spill-Resistant Vacuum Breaker-Critical Level of SVB must be installed at least 6" above all downstream piping.

*These backflow preventers can be found at hardware stores.
All other requirements will require a plumber for installation.

This survey is being performed in accordance with the local Cross Connection Program; DNR 810.15 Dept, of Commerce chapter Comm. 81,82,84 and the Local Municipal Ordinance for Cross Connection Control.

You may also reference Wisconsin Administration Code 382.41 for additional information pertaining to Backflow Preventers

APPENDIX B

Residential Cross Connection Survey Form

This survey is being performed in accordance with; WI DNR 810.15, Chapter-Comm.81, 82, 84, and the Local Municipal Ordinance for Cross Connection Control Sec 9-3-1

Date _____

Compliant: Yes _____, No _____

Name _____

Address _____

Phone _____

Fixture Type	Approved	Location/Description	Device
Water Softener Drain	Y / N		ASME A112.1.2
Slop Sink	Y / N		ASSE 1011
Toilets	Y / N		ASSE 1002
Inside Hose Bibbs	Y / N		ASSE 1002
Boiler	Y / N		ASSE 1012
Humidifier	Y / N		ASME A112.1.2
Outside Hose Bibbs	Y / N		ASSE 1019, 1011
Lawn Irrigation	Y / N		ASSE 1001,1020,1056
Hand Held Showers	Y / N		ASSE 1014
Other	Y / N		

Water Service: Location _____ Size _____ Material _____

Notes: _____

Cross Connections identified during this inspection must be corrected within _____ days of the initial survey visit. When corrective action is completed, please call the phone number provided to arrange for compliance verification by authorized personnel.

Customer Signature _____

Surveyor Signature _____

Phone Number _____

*Backflow prevention Devices, Assemblies and methods must conform to the following National Standards as indicated in WI Dept of Commerce Chapter 82.41

APPENDIX C

DEVICE TEST & MAINTENANCE REPORT

Account Name / Business Name: _____

Account Address: _____

Account Number: _____ Meter Number: _____

Device Number: _____ Model Number/Name: _____

Serial Number: _____ Size: _____

Location of Device: _____

Type of Device: _____ Domestic Irrigation Fire System Other

Spare Parts Kit On-site: Yes No

	Check # 1	Check # 2	Air-Inlet or Relief Valve	# 1 Gate or Ball	# 2 Gate or Ball
Test Before Repairs	(Mark One) Leaked <input type="checkbox"/> Closed Tight <input type="checkbox"/>	(Mark One) Leaked <input type="checkbox"/> Closed Tight <input type="checkbox"/>	Opened at _____ lbs. Differential Pressure	(Mark One) Leaked <input type="checkbox"/> Closed Tight <input type="checkbox"/>	(Mark One) Leaked <input type="checkbox"/> Closed Tight <input type="checkbox"/>
	Diff Press	Diff Press			
Repairs & New Materials					
Test After Repairs	(Mark One) Leaked <input type="checkbox"/> Closed Tight <input type="checkbox"/>	(Mark One) Leaked <input type="checkbox"/> Closed Tight <input type="checkbox"/>	Opened at _____ lbs. Differential Pressure	(Mark One) Leaked <input type="checkbox"/> Closed Tight <input type="checkbox"/>	(Mark One) Leaked <input type="checkbox"/> Closed Tight <input type="checkbox"/>
	Diff Press	Diff Press			

Above Data Certified and Correct.

Tester Name: _____ Date: _____

Tester Signature: _____ Certification Number: _____

Tester Category: General Tester Limited Tester Inspector Tester

Company Name: _____ Telephone Number: _____

Method of Testing: Direction of Flow Test Kit Used: _____

Differential Pressure Test Kit Used: _____

Tester Comments: _____

APPENDIX D

TESTING NOTIFICATION LETTER



Village of East Troy

2015 Energy Drive East Troy, WI 53120
Office: 262-642-6253 Fax: 262-642-6265
Website: www.easttroy-wi.com

Date:

[Name & Address]

Re: Reminder – Annual Testing of Backflow Prevention Device(s)

Dear Customer:

This letter is to inform you that it is time for the annual testing of your Backflow Prevention Device. This device is installed on your water service or within your plumbing system to protect the public drinking water from becoming contaminated. The Wisconsin Department of Natural Resources and the Village of East Troy requires this test to be performed.

You are required to have the approved backflow prevention device tested and reported on the Wisconsin Department of Commerce web site within 30 days. It will be your responsibility to contact a certified tester to perform the test.

If you have any questions or if we can provide additional information concerning the public water system's Cross-Connection Control Program, please contact our office at 262-642-6253.

Sincerely,
Village of East Troy

Mike Miller
Director of Public Works