



Received
March 8 2021
Cross Connection

41-00041

CITY OF AMITY CROSS-CONNECTION CONTROL

Version: 1.0
Date: March 20, 2018

VERSION HISTORY

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	<i>Gary Mathis</i>	<i>4/3/18</i>	<i>Gary Mathis</i>	<i>4/3/18</i>	<i>New</i>
1.0	<i>Gary Mathis</i>	<i>1/22/20</i>	<i>Gary Mathis</i>	<i>1/22/20</i>	<i>Verification</i>

POLICY ON CONTROL OF BACKFLOW AND CROSS-CONNECTIONS

SECTION 1. CROSS-CONNECTION CONTROL – GENERAL POLICY

- 1.1. **Purpose.** The purpose of this Policy (the term “Policy”, herein used, shall mean the “*City of Amity* Policy on Control of Backflow and Cross-Connections”) is:
 - 1.1.1. To protect the public potable water supply of *City of Amity* from the possibility of contamination or pollution by isolating at the source such contaminants or pollutants which could backflow into the public water system; and,
 - 1.1.2. To promote the elimination or control of existing cross-connections, actual or potential, and,
 - 1.1.3. To provide for the maintenance of a continuing program of cross-connection control, which will systematically and effectively prevent the contamination or pollution of all potable water systems.
- 1.2. **Responsibility.**
 - 1.2.1. The *City of Amity* shall be responsible for the protection of its public potable water distribution system from contamination or pollution due to the backflow of contaminants or pollutants. The *City of Amity* will require installation of approved backflow-prevention devices or assemblies wherever deemed appropriate in order to be in compliance with this cross-connection control program and applicable regulations, including local plumbing codes.

SECTION 2. DEFINITIONS

- 2.1. **Approved.** 1) The term "approved" as herein used in reference to a water supply shall mean a public water supply that has been approved by the City of Amity public works department. 2) The term "approved" as herein used in reference to an air gap, a double check valve assembly, a reduced pressure principle backflow prevention assembly or other backflow prevention assemblies or methods shall mean approved per (*Amity Municipal Code, Title 3 Utilities, Chapter 3.10*) & *OAR Chapter 333 Division 61*.
- 2.2. **Auxiliary Water Supply.** Any water supply on or available to the premises other than the water purveyor's approved public water supply. These auxiliary waters may include water from another purveyor's public potable water supply or any natural source(s) such as a well, spring, river, stream, harbor, and so forth; used 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. **Backflow.** The undesirable reversal of flow in a potable water distribution system as a result of a cross-connection.
- 2.4. **Backpressure.** A pressure, higher than the supply pressure, caused by a pump, elevated tank, boiler, or any other means that may cause backflow.
- 2.5. **Back-siphonage.** Backflow caused by negative or reduced pressure in the supply piping.
- 2.6. **Backflow Preventer.** An assembly or means designed to prevent backflow.
 - 2.6.1. **Air gap.** The unobstructed vertical distance through the free atmosphere between the lowest opening of 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 1 in. (25 mm)

- 2.6.2. **Reduced Pressure Principle Backflow Prevention Assembly.** The approved reduced pressure-pressure principle backflow-prevention assembly consists of two independent 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.
- 2.6.3. **Double Check Valve Backflow Prevention Assembly.** 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. The assembly shall only be used to protect against a pollutant (that is, a non-health hazard).
- 2.7. **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.
- 2.8. **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.
- 2.9. **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.
- 2.10. **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.
- 2.11. **Cross-Connection Control by Internal Protection.** Fixture isolation and/or isolation of an area or zone. Protection at the fixture means installing an approved backflow preventer at the source of the potential hazard within a specific area.
- 2.12. **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.
- 2.12.1. **Hazard - Health.** A cross-connection or potential cross-connection involving any substance that could, if introduced into the potable water supply, cause death or illness, spread disease, or have a high probability of causing such effects.
- 2.12.2. **Hazard - Plumbing.** A plumbing type cross-connection in a consumer's potable water system that has not been properly protected by an approved air gap or an approved backflow-prevention assembly.
- 2.12.3. **Hazard - Pollution.** A cross-connection or potential cross-connection involving any substance that generally would not be a health hazard but would constitute a nuisance or be aesthetically objectionable, if introduced into the potable water supply.
- 2.12.4. **Hazard - System.** An actual or potential threat of severe danger to the physical properties of the public 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.

- 2.13. **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 that would constitute a health, system, pollution or plumbing hazard if introduced into an approved water supply. This may include, but is not 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 waters that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, and so forth; oils, gases, glycerin, paraffins, caustic and acid solutions and other liquid and gaseous fluids used in industrial or other purposes for fire fighting purposes.
- 2.14. **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.
- 2.15. **Water - Potable.** Water that is safe for human consumption as described by the public health authority having jurisdiction.
- 2.16. **Water - Non-potable.** Water that is not safe for human consumption or that is of questionable quality.
- 2.17. **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.

SECTION 3. REQUIREMENTS

3.1. Water System

- 3.1.1. The water purveyor's system consists of the source facilities and the distribution system and shall include all those facilities of the water system under the complete control of the water purveyor.
- 3.1.2. The source shall include all components of the facilities utilized in the production, treatment, storage and delivery of water to the distribution system.
- 3.1.3. The distribution system shall include the network of conduits used for the delivery of water from the source to consumers or users.

3.2. Policy

- 3.2.1. **Conditions for Service** - No water service connection shall be installed or maintained by the water purveyor unless the following conditions have been met:
- 3.2.1.1. Any occupant or tenant has been made aware of the purveyor's cross-connection control policy and understands his or her responsibility to not create or maintain any cross-connections, and.
- 3.2.1.2. The water purveyor has completed a cross-connection control survey of the facility.
- 3.2.1.3. The water supply is protected as required by this policy and applicable laws and regulations.
- 3.2.2. **Right of Inspection** – All premises served by the purveyor's water system are under the ownership or control of the water purveyor and are therefore open for inspection at all reasonable times by authorized representatives of the water purveyor for the purpose of determining whether unprotected cross-connections or other structural or sanitary hazards, including violations of these regulations, exist. When such a condition becomes known, the water purveyor shall immediately eliminate the cross-connection by providing for a physical break in the service line or correcting the condition(s) in conformance with this policy, local and state regulations relating to plumbing and water supplies and the regulations adopted pursuant thereto.
- 3.2.3. **Premises or Facilities Requiring Protection** - An approved backflow prevention device or assembly shall be installed according to local plumbing regulations and prior to any branch line wherever the following conditions exist:

- 3.2.3.1. In the case of an auxiliary water supply which is not or may not be of safe bacteriological or chemical quality and which is not acceptable as an additional water source by the Florida Department of Environmental Protection or delegated county health department, the public water system shall be protected against backflow by installing in the service line an approved backflow prevention assembly commensurate with the degree of hazard, and in conformance with the most current edition of the American Water Works Association's manual, M-14, "*Recommended Practice for Backflow Prevention and Cross-Connection Control*" or local plumbing regulations, whichever affords the higher protection.
- 3.2.3.2. In the case of any industrial fluids or any other objectionable substance is handled in such a fashion as to create an actual or potential hazard to the potable water system, the potable water system shall be protected against backflow by installing an approved backflow prevention assembly in the service line, commensurate with the degree of hazard. This shall include the handling of process waters and waters originating from the water purveyor's system which have been subject to deterioration in quality.
- 3.2.3.3. In the case of (1) internal cross-connections that cannot be permanently corrected or protected against, or (2) intricate plumbing, and piping arrangements or where entry to all portions of the premises is not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether or not dangerous cross-connections exist, the public water system shall be protected against backflow by installing an approved backflow prevention assembly in the service line.
- 3.2.4. Type of Protection Required** - The type of protective assembly required under subsections 3.2.3.1, 3.2.3.2, and 3.2.3.3 above shall depend upon the degree of hazard which exists as follows:
- 3.2.4.1. In the case of an auxiliary water supply as stated in subsection 3.2.3.1 of this section and it is not subject to any of the following rules, the public water system shall be protected by an approved air gap or an approved reduced pressure principle backflow prevention assembly.
- 3.2.4.2. In the case of water or a substance that would be objectionable but not hazardous to health, if introduced into the public water system, the public water system shall be protected by, at minimum, an approved double check valve backflow prevention assembly.
- 3.2.4.3. In the case of any material dangerous to health that is handled in such a fashion as to create an actual or potential hazard to the public water system, the public water system shall be protected by an approved air gap or an approved reduced pressure principle backflow prevention assembly.
- 3.2.4.4. In the case of "uncontrolled" cross-connections, either actual or potential, the public water system shall be protected by an approved air gap or an approved reduced pressure principle backflow prevention assembly.
- 3.2.4.5. In the case where, in the opinion of the Oregon Department of Health and Human Services Drinking Water Program or the City of Amity Cross-Connection Control Specialist, an undue health threat is posed because of the presence of extremely toxic substances, Oregon Department of Health and Human Services Drinking Water Program or the City of Amity Cross-Connection Control Specialist may require an air gap. This requirement will be at the discretion of the Oregon Department of Health and Human Services Drinking Water Program or the City of Amity Cross-Connection Control Specialist and is dependent upon the degree of hazard.
- 3.2.5. Assembly Standards and Specifications** - Any backflow prevention device or assembly required herein shall be of a make, model and size approved by the **City of Amity**. The term "Approved Backflow Prevention Assembly" shall mean an assembly that has been manufactured in full conformance with the standards established by the American Water Works Association titled:

AWWA/ANSI C510-07 *Standard for Double Check Valve Backflow Prevention Assembly*; AWWA/ANSI C511-07 *Standard for Reduced Pressure Principle Backflow Prevention Assembly*; and, have met completely the laboratory and field performance specifications of the Foundation for Cross-Connection Control and Hydraulic Research (FCCCHR) of the University of Southern California established by: "Specifications of Backflow Prevention Assemblies" - Section 10 of the most current edition of the *Manual of Cross-Connection Control*.

Said AWWA and USC FCCCHR standards and specifications have been adopted by the water purveyor. Final approval shall be evidenced by a "Certificate of Compliance" for the said AWWA standards or a "Certificate of Approval" for the said USC FCCCHR Specifications, issued by an approved testing laboratory.

The following testing laboratory has been qualified by the AWWA to test and approve backflow prevention assemblies and said qualification is adopted by the water purveyor:

Foundation for Cross-Connection Control and Hydraulic Research
University of Southern California
KAP-200 University Park MC-2531
Los Angeles, California 90089-2531

Testing laboratories other than the laboratory listed above will be added to an approved list as they are qualified by the AWWA.

Backflow preventers that may be subjected to backpressure or backsiphonage that have been fully tested and have been granted a Certificate of Approval by said qualified laboratory, and are listed on the laboratory's current list of approved backflow prevention assemblies, may be used without further testing or qualification.

3.2.6. Testing and Maintenance Requirements - It shall be the duty of the water purveyor to have certified field tests made upon required backflow assemblies upon installation and at least once per year thereafter. Non-testable backflow devices that cannot be field tested with test gauges shall be inspected and assessed or verified by a plumber or certified tester. In instances where the water purveyor deems the hazard to be great enough, inspections or certified field tests at more frequent intervals may be performed.

A field test report shall be created for all backflow preventer inspections or field tests. Backflow prevention devices and assemblies shall be repaired, overhauled or replaced whenever said devices or assemblies are found to be defective. The water purveyor shall retain records of field tests, inspections or repairs of backflow devices and assemblies as specified in this policy.

Backflow assembly field test reports will provide, at a minimum, the water purveyor's name and street address; type of assembly and location of the assembly on the property; manufacturer, model and serial number of the assembly; tester's gauge manufacturer, test gauge serial number and date the gauge was last calibrated; detailed results of the test and clear indication of whether the assembly passed or failed; name and certification number of the tester and the date and time of the test. The water purveyor may also require that the tester include with the test report an endorsed statement to the effect that the test was performed according to required procedures and that the assembly was not exercised prior to testing. Inspection reports for non-testable devices may omit field test result specifications pertaining to testable assemblies but shall otherwise present all relevant inspection information.

3.2.7. **Enforcement** - Service of water to any facility on the water purveyor's premises may be discontinued if an occupant, tenant or consumer interferes with or obstructs the implementation of this policy. If it is found that a backflow prevention assembly has been removed, bypassed, or if an unprotected cross-connection exists on a tenant or consumer's premises, service shall be discontinued. Service to a facility, tenant or consumer may be discontinued immediately and without written notice if, in the opinion of the water purveyor, such action is necessary to protect public health or the public water supply. Service will not be restored until all circumstances, conditions or defects causing discontinuance of service are fully corrected.

3.2.8. **New Construction Plan Review** - The water purveyor shall not provide water service to a newly constructed facility without first performing a cross-connection control hazard assessment of the facility and ensuring that the purveyor's water system is protected according to this policy. In lieu of such a hazard assessment by the water purveyor, receipt of a documented cross-connection control hazard assessment by a plumbing inspector of the governmental entity requiring a building permit may be utilized. The conditions for service established by this policy must also be satisfied. (See Section 3.2.1. of this policy.)

3.2.9. **Surveying and Retrofitting Existing Facilities** - The water purveyor shall survey and retrofit all existing service connections and facilities and bring such into compliance with this policy as soon as possible but no later than 12 month(s) after adoption of this policy. The initiative to survey and retrofit existing facilities will continue until all facilities served by the water purveyor have been inventoried and each service connection or facility has received a cross-connection control survey.

Facilities or service connections having existing fire-protection systems will have the hydraulics of any existing fire-protection system(s) checked by a registered professional engineer or certified fire-protection contractor to ensure that any installed backflow prevention assembly is compatible with the proper performance of the fire-protection system.

The water purveyor will undertake routine testing of temperature and pressure valves on water heaters or boilers in order to account for thermal expansion that may result from installation of any backflow preventers, and will contact a plumber as necessary in order to otherwise ascertain that there is no undue risk from backflow preventer induced thermal expansion.

3.2.9.1. **Recurring Surveys and Inspections** - All existing service connections and facilities shall, upon completion of an initial survey and retrofit, be re-surveyed and retrofitted as may be necessary at least once every 2 year(s).

3.2.10. **Training** - The water purveyor shall ensure that persons directly responsible for implementation of this policy have had, at a minimum, training in basic cross-connection concepts and cross-connection control practices. The University of Florida Center for Training, Research & Education for Environmental Occupations (UF/TREEO Center) is an example of a facility that may be utilized for this type of training. Training offered by comparable training institutions may be substituted.

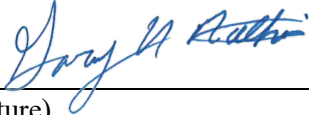
3.2.11. **Public Education** - The water purveyor shall provide occupants, tenants and consumers with educational information concerning cross-connection control and the water purveyor's cross-connection control program. New tenants shall be provided written educational information upon initial use of the water supply. Existing tenants and consumers shall receive educational information at least once every 3 year(s). At a minimum, the following information will be included in public education initiative

- The nature of the public health risk posed by actual or potential cross-connection hazards
- The fact that the water purveyor is responsible for protecting the public water system from contamination and has policies relating to cross-connection control

- The fact that the customer is responsible for preventing a contaminant from entering their plumbing system and thereafter entering the public water system
 - The fact that customer's need to be aware that the installation of a backflow prevention device or assembly on their premise causes their plumbing system to be a closed system and closed systems are at greater risk for damage or harm due to thermal expansion that may be caused by water heaters or boilers.
- 3.2.12. **Backflow Incident Reports** – The water purveyor shall investigate backflow incidents specifically as such and shall maintain investigatory and corrective action records in a file separate from customer complaint investigations or other investigations determined to not be related to a backflow incident.
- 3.2.13. **Backflow Incident Response Plan** – The water purveyor shall, upon becoming aware of an actual or suspected backflow incident, perform the following actions:
- Locate the source of the contamination
 - Isolate that source to protect the water distribution system from further contamination
 - Determine the extent of the spread of contamination through the distribution system and provide timely, appropriate notification to the public and to regulatory agencies
 - Take corrective action to clean the contamination from the distribution system
 - Restore service to the customers
- 3.2.14. **Record Keeping** - Cross-connection control related records shall be retained for a minimum of ten years and shall be available for review by regulatory agencies when requested. At a minimum, the following records shall be maintained:
- **Cross-Connection Survey Reports and Customer Questionnaires** – Cross-connection survey reports or hazard assessments shall be created and maintained on approved forms. Such forms shall make clear the type and degree of hazard present upon the premises, and the minimum type of backflow assembly required.
 - **Inventory** - The water purveyor shall maintain, in a spreadsheet format, written inventory of all required backflow prevention assemblies present in the water system. Such information will include a description of the hazard isolated at each applicable premise, the location of each backflow assembly or air gap, the type of backflow prevention assembly and, if not an air gap, information describing the size, make, model and serial number of installed backflow assemblies. The most recent inspection or test date or cross-connection control survey or received questionnaire (if applicable) of each required assembly will be noted recorded.
 - **Test Reports and Certified Testers** – Backflow device inspection and assembly test, maintenance and repair reports shall be retained. Documentation supporting the credentials of certified testers will be retained.
 - **Public Education and Training**– Copies of materials used to convey to consumers information about cross-connection control and their responsibilities shall be maintained. The dates such information is disseminated shall be recorded. Documentation supporting the credentials and training of the water purveyor's cross-connection control program personnel, including any sub-contracted personnel, shall be retained.
 - **Other Documentation** – Copies of all other cross-connection program documentation will be retained, including service contracts, notifications to customers, enforcement actions, backflow incident reports and other related activity.
- 3.2.15. **Budgeting** – The water purveyor shall ensure that all the actions necessary to implement this policy are budgeted and that monies to implement this policy are available as necessary.

- 3.2.16. **Reclaimed Water** – Reclaimed water is currently not available in the water purveyor’s service area. At such time as reclaimed water may be available to premises served by the water purveyor this policy will be amended or modified as necessary to protect against potential backflow from reclaimed water.
- 3.2.17. The water purveyor is authorized to make all necessary and reasonable rules and policies with respect to the enforcement of this policy. All such rules and policies shall be consistent with the provisions of this policy and shall be effective upon adoption.

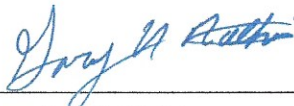
The foregoing policy was approved and adopted on the 22nd day of January, 2020.





(Signature)

Printed Name: Gary Mathis Printed Title: Public Works Superintendent

Appendix A: Operations and Maintenance Personnel

Signature:  Date: 1/22/2020
Print Name: Gary N. Mathis
Title: Public Works Superintendent
Role: Direct Responsible Charge person and oversee all public works operations.

Signature:  Date: 1.22.2020
Print Name: Chris Pasto
Title: Utility Worker / Assistant Operator
Role: Help in all aspects of the public works department and assist the operator in plant operation.

Signature:  Date: 1-22-2020
Print Name: Gary Bacon
Title: Utility Worker / Assistant Operator
Role: Help in all aspects of the public works department and assist the operator in plant operation.

Signature: _____ Date: _____
Print Name: _____
Title: Public Works Part Time Worker
Role: Help in all aspects of the public works department