Appendix Q

CROSS-CONNECTION CONTROL PROGRAM

City of Tumwater

Cross Connection Control Plan

2019 Update

CONTENTS

PURPOSE AND SCOPE

This document describes the cross connection control plan for the City of Tumwater. The purpose of this plan is to establish procedures to protect the public water supply from the possibility of contamination or pollution due to existing or potential cross connections as defined under Washington Administrative Code (WAC) 246-290. This plan meets the requirements of WAC 246-290-490 and chapter 19.27 of the Revised Code of Washington (RCW).

The importance of having an effective cross connection control plan is summarized in the American Water Works Association's (AWWA) cross connection policy statement included below.

> *The AWWA recognizes water utilities have the responsibility to supply potable water to their customers. In the exercise of this responsibility, water utilities or other responsible authorities must implement, administer, and maintain ongoing backflow prevention and cross-connection control programs to prevent backflow; protect public water systems from the hazards originating on the premises of their customers, such as the interface between water systems and fire prevention/control systems; and protect public water systems from temporary connections that may impair or alter the water.*
>
> *The return of any water to the public water system after the water has been used for any purpose on the customer's premises or within the customer's plumbing system is unacceptable and opposed by AWWA.*
>
> *Water utilities or other responsible authorities should assure that effective backflow prevention measures are implemented commensurate with the degree of potential hazard and likelihood of occurrence, to ensure protection of the water in public water distribution systems. Customers, together with authorities, are responsible for preventing contamination of the public water supply due to cross connections with their plumbing systems and for maintaining associated backflow prevention devices.*
>
> *If appropriate backflow prevention measures have not been taken, water utilities or other responsible authorities should take or initiate reasonable measures to ensure that public water distribution systems are protected from actual or potential backflow hazards. These measures could include the testing, installation, and assurance of proper operation and installation of backflow-prevention assemblies, devices, and methods commensurate with the degree of hazard and likelihood of occurrence at the service connection, point of use, or both. If these actions are not taken, water utilities should be empowered to suspend service.*
>
> *To reduce the risk customer plumbing systems pose to the public water distribution system, water utilities' backflow prevention programs should include public education and coordination with the cross connection efforts of local authorities -- particularly public health and plumbing officials. This is of increasing importance given the growing application of dual plumbing systems utilizing recycled water. In areas lacking a health or plumbing enforcement agency, water*

utilities should additionally promote the design and maintenance of customer plumbing systems for health and safety and to protect their customers from backflow hazards.

DEFINITIONS

The following definitions are taken largely from WAC 246-290-010, with additional context added from other sources.

Actual Cross Connection	A cross connection that currently exists.
Backflow	Reverse of the normal flow direction of water in a plumbing system or public water distribution system. It occurs due to a differential pressure existing between two different points within a continuous fluid system; a fluid of higher pressure flowing to a fluid of lower pressure. Backflow is caused by either backpressure or back-siphonage.
Back Pressure	Results when the pressure (caused by a pump, elevated tank, or piping, boiler, or other means) on the customer's side of the service connection that is greater than the pressure provided by the public water system and which may cause backflow.
Back-Siphonage	Results from a partial vacuum (negative pressure) within the piping system. Some common causes are (1) high velocities in pipe lines, (2) line repair or break that is lower than a service point, (3) lowered main pressure due to high water withdrawal rate such as firefighting or water main flushing, and (4) reduced supply pressure on the suction side of the booster pump.
Cross Connection	Any actual or potential connection between a potable water line and any pipe, vessel, or machine containing a non-potable fluid, such that it is possible for the non-potable fluid to enter the potable water system by backflow.
Non-Potable Water	All liquids and gases that are not potable water. Used water and reclaimed water are two specific types of non-potable water.
Potential Cross Connection	A cross connection that does not exist at the time of inspection, but which may occur at any time. Examples of potential cross connections include: bypass arrangements, jumper connections, unattached hose connections, intricate piping, auxiliary domestic wells, etc.
Potable Water	Water suitable for human ingestion, free from harmful or objectionable materials.
Premise Isolation	A means of protecting the City owned and controlled water system through the installation of approved air gaps or approved backflow prevention assemblies at or near the service connection or alternative location acceptable to the City to isolate the consumer's water system from the City's distribution system.

Reclaimed Water	Effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that as a result of that treatment, it is suitable for beneficial use or a controlled use that would not otherwise occur, and it is no longer considered wastewater.
Responsible Person	Refers to the owner(s) of the property and/or the tenant(s) or person(s) in possession thereof.
Used Water	Means water which has left the control of the purveyor.

PROGRAM OVERVIEW

LEGAL AUTHORITY

The control or elimination of cross connections is done according to the most current revisions of state and local rules and regulations. State regulations include:

- Chapters 51-56 and 51-57 WAC, Uniform Plumbing Code and Uniform Plumbing Code RCW 18.106,Washington State Plumbers Code
- RCW 19.27, Washington State Building Code
- RCW 43.20.050, Washington State Powers and Duties of the State Board of Health
- RCW 70.119A.060, Washington State Public Water Systems Mandate
- WAC 246-290-490, Cross Connection Control

Local rules and regulations include Tumwater municipal code (TMC) chapters 13.04.430 – 13.04.490. This ordinance was originally adopted in 1987 and was subsequently amended in 2004 and 2011. This ordinance makes cross connections unlawful, requires the installation of backflow prevention assemblies, and officially adopts the provisions of WAC 246-290-490. The full text of the City's cross connection ordinance can be found at the end of this plan.

PROGRAM RESPONSIBILITY

According to Federal and State regulations the City's responsibility for controlling cross connections extends from the source of supply to our customer's taps. The City's cross connection control program is administered by the Public Works Department; however, some responsibilities are shared with the Community Development Department. Public Works implements cross connection control on the City's water system infrastructure up to the service connection/water meter. Community Development is in charge of cross connection control within the customer's service location after the point of delivery, which begins at the downstream end of the service connection/water meter.

In some cases, a facility served by the City water utility is outside of the city limits. These facilities are administered by Thurston County as the local administrative authority for permitting, but water service conditions are provided for by the City of Tumwater. In the event a facility fails to meet the conditions

of service, including cross connection control requirements, the water utility is authorized to discontinue service to the facility until conditions are met.

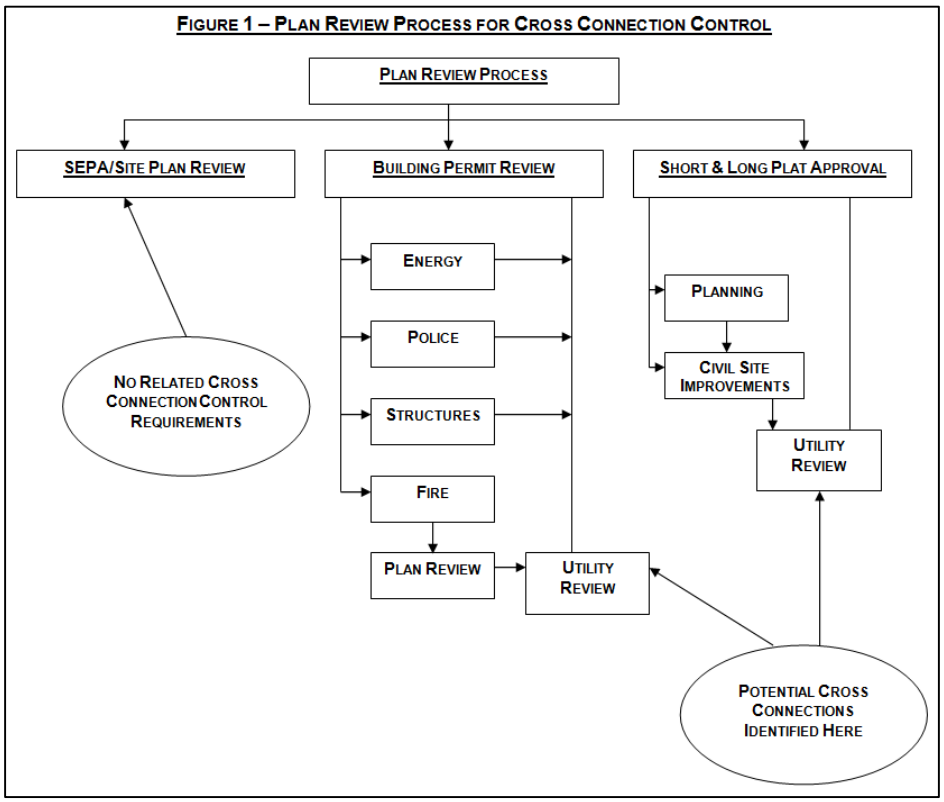
ADMINISTRATION

The City's Public Works Department carries out the functions of the water purveyor's cross connection control program, including survey, enforcement, and record keeping.

The City adheres to the cross connection control standards established by professional and research organizations. Specifically, the City utilizes the following three documents:

- *Manual of Cross Connection Control*, University of Southern California Foundation for Cross Connection Control and Hydraulic Research (USC FCCCHR)
- *Cross Connection Control Accepted Procedure and Practice Manual*, American Water Works Association – Pacific Northwest Section (AWWA-PNWS)
- *Uniform Plumbing Code*, International Association of Plumbing and Mechanical Officials (IAPMO)

When individuals apply for development and building permits with the City, staff review preliminary designs and plans. Potential cross connections are identified and resolved during this process. Implementation of cross connection control measures are confirmed during subsequent site inspections. The figure below illustrates the flow of the plan review process for cross connection control.



In the execution of this program, the Operations and Maintenance Division, in conjunction with the Engineering Division of the Public Works Department, and the Community Development Department will have regular open communication. Each department is responsible for maintaining and surveying facilities as stated above. By agreement between Community Development and Public Works, the Operations and Maintenance Division will have authority, including survey and enforcement, over residential and fire protection service connections beyond the meter, up to and including the backflow prevention assembly. Responsibility for survey and enforcement of in-premise assemblies shall remain with the Community Development Department. In the event of a discrepancy of jurisdictional responsibility, the WAC and RCW directives take precedence.

PERSONNEL AND CERTIFICATION

The Operations Manager will oversee and manage program administration and designate one employee to carry out daily procedures and another to provide assistance in surveying facilities. This designee will meet all certification requirements described in (WAC) 246-290-490. The table below is the most up-to-date list of certified cross connection control specialists (CCS) and backflow assembly testers (BAT) currently employed with the City.

Name & Title	**Department**	**Certification Number**
Forrest Bailey, CCS, BAT	Operations & Maintenance	014683 – CCS, B6866
Steve Craig, CCS	Operations & Maintenance	5536 – CCS
Wayne Lobaugh, BAT	Facilities	B2984

PUBLIC EDUCATION

The City is committed to making information about cross connection control available to the general public and especially to those directly impacted by the City's ordinance. The City has developed resources to educate its customers about cross connection control and about the operation of the water system in general. Outreach efforts include periodic bill inserts, public service announcements, pamphlets, notification to new customers, and write-ups in City publications.

PROGRAM COSTS

The costs to administer this program are primarily personnel and assembly testing/inspection. Funding for the program is provided from the Utility Operating Fund for Public Works responsibilities.

PROGRAM IMPLEMENTATION

FACILITIES REQUIRING PREMISE ISOLATION

Under WAC 246-290-490 the Department of Health has identified twenty specific types of services that require premise isolation. These "severe and high health cross-connection hazards" are listed below:

- Agricultural (farms and dairies)
- Beverage bottling plants
- Car washes
- Chemical plants
- Commercial laundries and dry cleaners
- Premises where both reclaimed water and potable water are provided
- Film processing facilities
- Food processing plants
- Hospitals, medical centers, nursing homes, veterinary, medical, and dental clinics, and blood plasma centers
- Premises with separate irrigation systems using the utilities water supply and with chemical addition
- Laboratories
- Metal plating industries
- Mortuaries
- Petroleum processing or storage plants
- Piers and docks
- Radioactive material processing plants or nuclear reactors
- Survey access denied or restricted
- Wastewater lift and pumping stations
- Wastewater treatment plants
- Premises with an auxiliary water supply interconnected with the potable water supply

The City has opted for a higher level or protection than is required under WAC 246-290-490. In addition to requiring premise isolation for the specific uses listed above, the City requires premise isolation at **all** new connections serving anything other than single family homes or duplexes. This includes fire services, which are defined as a service connection with fire protection systems other than flow-through or combination systems.

While the City does not require premise isolation for single family homes or duplexes, certain conditions at these types of services do require backflow prevention measures. The need for premise isolation in these situations is based on the degree of hazard and may include irrigation systems, swimming pools, spas, ponds, or boilers.

Other circumstances requiring premise isolation include the following:

1. Premises having internal cross connections that are not correctable, or intricate plumbing arrangements which make it impractical to ascertain whether cross connections exist.

2. Premises having a repeat history of cross connections being established or re-established.
3. Premises on which any substance is handled under pressure so as to permit entry into the public water system, or where a cross connection could reasonably be expected to occur. This includes the handling of process waters and cooling waters.
4. Premises where materials of a toxic or hazardous nature are handled such that if a back-siphonage should occur, a health hazard may result.

Reclaimed Water

As mentioned above, facilities receiving reclaimed water are considered "severe and high health cross-connection hazards" and therefore require premise isolation. The City currently uses reclaimed water for irrigation at the Tumwater Valley Municipal Golf Course, but does not distribute reclaimed water to any of its customers. However, the City is in the process of drafting a reclaimed water ordinance so that it may provide this service to customers in the future. The forthcoming reclaimed water ordinance will address the premise isolation requirements for facilities receiving reclaimed water, as well as any additional cross connection requirements included in the LOTT Clean Water Alliance's reclaimed water permit issued under chapter 90.46 RCW.

In addition to identifying and eliminating backflow hazards that the reclaimed water system presents for the City's potable water system, the City is responsible for preventing backflow into the reclaimed system as well. The City's responsibility for providing protection for the reclaimed system includes all reclaimed pipes downstream from the "delivery point" as defined in the City's reclaimed water agreement with LOTT.

NEW CONSTRUCTION

All applications for new potable or reclaimed water service and enlargement of existing facilities already receiving water service will route through the Community Development Department for the initial plan review to determine if actual and/or potential cross connection hazard exists. The plot plan, mechanical plan, and plumbing fixture schedule will be submitted for review. Reviewers will make use of this plan and other applicable publications, such as the Plumbing Code, when assessing the cross connections.

As developers seek final approval for their plans, Community Development will require that backflow prevention assemblies are listed on the final plans before issuance of any approval. Approval of the backflow prevention design will not relieve the customer of the responsibility to comply with the requirements of other agencies or future requirements to meet a higher standard for the protection of the public health and safety. Changes in the customer's plan for water use or plumbing during the planning process may require the customer to install *additional* backflow assemblies or other modifications prior to providing water service. As part of the plan approval process, Community Development will provide the customer with the City's installation standard specifications and the assembly test requirements.

Water service will not be provided until the customer has fulfilled all of the cross connection control requirements imposed by the City. These requirements must include the satisfactory completion of the

assembly test by a certified tester and submission of test results to the City. Upon completion of construction, the City may follow up with a facility survey to address compliance issues.

Where new development takes place outside of Tumwater city limits, but will connect to the City water utility, the applicant follows the planning review process administered by Thurston County; however, conditions for water service are applied by the City of Tumwater's water utility. Should the County or the applicant not adhere to the conditions required by the City, the connection will not be permitted.

APPROVED ASSEMBLIES AND METHODS

There are several types of assemblies that can prevent cross connection within the water system. Generally, the selection of the proper assembly is based upon the degree of hazard posed by the cross connection as determined by the CCS. Additional considerations include piping size, location and the nature of the activities occurring at the facility. There are six types of assemblies, approved by the USC FCCHR, which can be used to prevent cross connections:

1. Reduced Pressure Backflow Assembly (RPBA)
2. Double Check Valve Assembly (DCVA)
3. Pressure Vacuum Breaker Assembly (PVBA)
4. Spill-Resistant Vacuum Breakers (SRVB)
5. Reduced Pressure Detector Assembly (RPDA)
6. Double Check Detector Assembly (DCDA)

Air gaps and barometric loops are also approved methods of controlling cross contamination. However their approval is limited to specific situations, and currently these configurations are not utilized for premise or in-premise isolation in the City. Pressure vacuum breaker assemblies and spill-resistant vacuum breakers are occasionally used for in-premise isolation, but not for premise isolation. Detector assemblies alone do not prevent cross connection. Anywhere these are used a DCVA or a RPBA is also required.

An up-to-date listing of all approved backflow prevention assemblies by make and model is available for download through the FCCCHR at: http://fccchr.usc.edu/list.html .

INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES

General considerations for all backflow assemblies and assembly vaults are as follows:

- Backflow prevention assemblies must be installed so as to be readily accessible for maintenance and testing.
- All assemblies intended to provide premise isolation shall be connected at the meter.
- Water lines shall be disinfected, flushed and pressure tested prior to installation of backflow assemblies.
- Backflow assemblies shall not be installed in an area subject to flooding or freezing.

- All pipes, valves, fittings and joints from the supply main shall be flanged and restrained.
- Vaults shall have a minimum of three feet clearance from all structures.
- Pipe entrances and exits in vault should be grouted with water-tight grout.
- All vaults shall be pre-approved prior to installation.

The CCS determines the appropriate method for backflow prevention based on the degree of hazard at each facility. Some situations call for specific measures:

- An air gap separation or reduced backflow prevention assembly shall be installed where the water supply may be contaminated by industrial materials or waste of a toxic nature or any other contamination which would cause a health or system hazard.
- An air gap must be used between a potable water supply and sewer-connected wastes.
- Lawn sprinkler or irrigation systems, which are supplied by City water only as opposed to a separate auxiliary well, shall be required to have a backflow prevention assembly. If such systems contain an auxiliary pump or are subject to chemical additives, air gap separation or a reduced pressure backflow prevention assembly will be required.

Detail drawings and descriptions of approved assemblies as well as procedures for installing and testing them can be found in the most current edition of the *Manual of Cross Connection Control* and the *Cross Connection Control Accepted Procedure and Practice Manual*. Refer to City of Tumwater Development Guidelines section 6.110 for a comprehensive list of standard specifications.

CROSS CONNECTION SURVEYS

The Public Works Department will conduct surveys of new and existing facilities receiving water service in an effort to identify, actual or potential cross connections that are not isolated with backflow prevention. These cross connections may be the result of plumbing arrangements not identified on building plans or changes in customer's water use. To initiate a survey, staff will set an appointment to meet with the owner or authorized representative of the facility. Staff will explain, in writing and verbally, that the purpose of the survey is to ensure the protection of the water distribution system from contamination, and that the survey is not for the purpose of identifying and isolating all cross connections ***within*** the customer's premise. Staff will explain the customer's responsibility to protect the public water supply, the Public Works Department's conditions for water service, and other applicable regulations either at the time of the contact or during the survey. Staff may request that the customer or a maintenance person familiar with the plumbing system accompany staff during the survey for accurate assessment of the system. If Public Works determines at any time that a serious threat to public health exists, water service may be terminated immediately and without notice.

During the survey, City staff will identify cross connections and explain the City's concern about potential health risks associated with uncontrolled cross connections. Staff will take pictures and fully document all cross connection hazards in order to locate them during future tests and/or surveys. Once the survey is complete, staff will mail a copy of the report to the customer. If premise isolation is

deemed necessary the survey report will state the type of backflow assembly or assemblies required by the City. The type of assembly required will be based on the degree of hazard. The report will also include a copy of the City's installation standards and a list of approved assemblies. Once a cross connection hazard has been identified and documented in the subsequent report, the customer will be notified in writing that they must install an approved assembly within 90 days.

The City's cross connection control ordinance requires that individuals make their premises available for surveys and inspections as needed. In the event that property owners or managers are not willing to allow access, the ordinance states that City officials may "seek assistance from any court of competent jurisdiction in obtaining such entry and in seeking any necessary reparative measures in compliance with this article." If access is denied to staff the City may also elect to presume high hazards are present on site and establish backflow prevention requirements consistent with that level of hazard.

In 2017 the City completed 1,128 cross-connection surveys and approximately 10% of these facilities then required backflow prevention. The full summary of Tumwater's 2017 cross-connection surveys is shown below.

2017 Cross-Connection Survey Summary

	New Connection	Existing Connection	Total
Number of connections surveyed for cross-connection hazards	178	950	1128
Number of surveyed connections requiring backflow prevention	56	58	114

ASSEMBLY TESTING

To maintain compliance under state regulations, all backflow prevention assemblies are to be tested using procedures described in the most current edition of the *Manual of Cross Connection Control*. A certified BAT will test these assemblies upon installation and subsequently at a minimum of once a year. Testing is also required after repair, relocation, reinstallation and after a backflow incident. Either a BAT or CCS will inspect all city-approved air gaps annually. The City will inspect and survey fire services annually in coordination with the Fire Department. Facilities will be notified of their annual inspection as follows:

First Notification: First notifications will be sent by mail on or around the anniversary date of initial installation. The responsible person may opt for email notification.

Second Notification: If assembly test results are not received within 30 days of the first notification a second notifications will be sent by mail. The responsible person may opt for email notification.

Third Notification: If assembly test results are not received within 30 days of the second notification a third notification will be sent via certified mail. Customers may be required to reimburse the City for the cost of mailing these notices.

After testing and inspection, the CCS will review results and determine the appropriate follow-up. The owner shall return the assembly test reports to the City within 30 days after receipt of the yearly testing notification and within 10 business days of having the assembly tested. Late test results may not be accepted, which would require that the device be retested.

When the field test report shows that an assembly has failed its test, the City will require the customer to repair the assembly and return it to proper working condition. Once notified of a faulty assembly, the customer will be allowed 15 days to take corrective action (or less if specified by Public Works), have the assembly retested and submit test results to the City. In the event the Owner fails to comply with the necessary correction by the time of the second test and inspection, Public Works will inform the responsible person, by letter, that the water service to the premises may be terminated. If Public Works determines at any time that a serious threat to the public health exists, water service may be terminated immediately and without notice.

Other assembly testing considerations include the following:

1. Public Works, may require owners to test backflow prevention assemblies more than once per year if deemed necessary (e.g. if successive inspections indicate failure).
2. The owner, whether notified by the City or not, shall, at the expense of the owner, install, maintain, and have tested by a certified tester any and all backflow prevention assemblies on the premises.
3. Owners who cannot shut down for operation for testing of assemblies must provide bypass piping with an additional backflow assembly at their expense.
4. Failure of the owner to cooperate in the installation, maintenance, repair, inspection and testing of backflow prevention assemblies required by the City ordinance may be grounds for the termination of water service.
5. The City may conduct random spot inspections of assemblies to verify that they are properly installed and in working order.
6. The owner must replace existing assemblies that are no longer on the most current Washington State approved list. However, these assemblies may remain in service until maintenance is required, at which point the owner will be notified that the assembly must be replaced.

As a service to our customers the City maintains a list of certified testers who have a Tumwater business license. Contractors are removed from this list if their business license expires or they fail to maintain the proper certifications. This list is available on our website at the following location:

http://www.ci.tumwater.wa.us/departments/public-works/operations-maintenance/cross-connections/certified-testers-list

ASSEMBLY TESTING QUALITY ASSURANCE

To ensure the accuracy of assembly tests, City staff are required by WAC 246-290 to periodically review and audit the test results submitted to the City by private contractors using calibrated testing equipment. The City conducts random spot checks of testers as time allows or targeted checks when test results are suspect. Facility owners are notified when quality assurance retests are conducted and the City will report any testing discrepancies to DOH for further action. Testing equipment is calibrated annually and records of this process are maintained at the City.

EXISTING CROSS CONNECTION CONTROL INFRASTRUCTURE

Between the premise isolation backflow preventers tracked by the Public Works Department and the in-premise isolation devices tracked by the Community Development Department the City maintains a total of 2,761 backflow prevention assemblies. A full summary is shown below.

Backflow Preventer Type	Premise Isolation Count	In-Premise Isolation Count	Total
Air Gap	0	0	0
Reduced Pressure Backflow Assembly	597	171	768
Double Check Valve Assembly	609	1371	1980
Pressure Vacuum Breaker Assembly	0	5	5
Spill Resistant Vacuum Breaker Assembly	0	8	8
Atmospheric Vacuum Breaker	0	0	0

RECORDS AND REPORTING

Accurate record keeping is required under WAC 246-290-490. DOH requires that the City have all records and reports available to the department or its representative(s) upon request. Additionally, each year the City is required to report certain information in summary reports and backflow incident reports. To comply with this reporting requirement and to facilitate program implementation the Public Works Department has developed an asset management system and record keeping process. The City maintains a master list of service connections with backflow prevention, the assessed hazard level, the specific equipment installed, installation date, the history of inspections, inspection results and the person conducting inspections. The City will retain these records for as long as the premises pose a cross connection hazard. Once the potential hazard or connection is removed from the system, the City will retain the records for a minimum of five years.

INCIDENT RESPONSE

In the event of a cross connection incident that has contaminated the public water system or reclaimed water system, or occurred within a premise of a customer served by the City, the City will work quickly to respond. The City's response would include an onsite inspection to determine the extent of the

backflow event and if necessary, samples may be taken, the water line flushed, or the water turned off to contain the contamination. The City will then notify DOH, Community Development, and the Thurston County Health Department as soon as possible after the incident, but no later than the end of the next business day. In the event that the reclaimed water system has been compromised the City will notify LOTT. The City will work in collaboration with these entities to resolve the cross contamination incident. The City will document the details of the backflow incident using the standardized form provided by DOH, available online at the link below:

https://www.doh.wa.gov/Portals/1/Documents/Pubs/331-457-F.doc

The City has not experienced any backflow incidents in recent years. The City tracks backflow risk factors and indicators of possible backflow. A full summary from the last 5 years (2010 – 2017) is provided below

	Incident Type	2013	2014	2015	2016	2017
Backflow Incidents	Incidents that contaminated the Public Water System	0	0	0	0	0
	Incidents that contaminated the customer's drinking water system only	0	0	0	0	0
Backflow Risk Factors	Distribution main breaks per 100 miles of pipe.	5.0	6.6	4.1	3.3	2.4
	Low pressure events	0	3	1	2	2
	Water outage events	0	5	5	2	2
Indicators of Possible Backflow	Total health-related complaints	0	0	0	0	0
	Total aesthetic complaints	10	4	2	15	19

VIOLATIONS

TMC chapter 13.04.490 addresses violations of the City's water service regulations. This section states the following:

- Any person who shall violate or fail to comply with any provisions of this chapter shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished in accordance with TMC Chapter 1.12.

TUMWATER MUNICIPAL CODE, TITLE 13 ARTICLE IV

The full text of the City's cross connection control ordinance is provided below. This ordinance gives the City its legal authority to manage cross connection hazards within its jurisdiction.

13.04.430 Purpose.

It is the purpose of this article to protect the health of customers receiving water from the city by protecting the public water system of the city from contamination.

(Ord. 1102, Added, 06/02/1987)

13.04.440 Definitions.

A. Whenever used in this article:

1. "Backflow" means the undesirable reversal of flow of water or other substances through a cross-connection into the public water system or consumer's potable water system.

2. "Backflow prevention assembly" means a reduced-pressure backflow assembly (RPBA), reduced-pressure detector assembly (RPDA), double check valve assembly (DCVA), double check detector assembly (DCDA), pressure vacuum breaker assembly (PVBA), or spill-resistant vacuum breaker assembly (SVBA) of make, model, and size that is approved by the Washington State Department of Health.

3. "Cross-connection" means any actual or potential physical connection between a public water system or the consumer's water system and any source of nonpotable liquid, solid, or gas that could contaminate the potable water supply by backflow.

4. "Premises isolation" means a manner of protecting the city owned and controlled water system through the installation of approved air gaps or approved backflow prevention assemblies at or near the service connection or alternative location acceptable to the city to isolate the consumer's water system from the city's distribution system.

5. "Responsible person" means, as applicable, the owner(s) of the property and/or the tenant(s) or person(s) in possession thereof.

6. "Public works director" means the director of the city public works department or his/her designee.

B. Upon the filing of one copy with the finance director, all definitions contained in WAC 246-290-490, as amended as of or after the effective date of the ordinance from which this section derives, shall by this reference be considered definitions within this article.

(Ord. O2011-002, Amended, 03/01/2011; Ord. O2004-013, Amended, 09/07/2004; Ord. O95-032, Amended, 10/17/1995; Ord. 1102, Amended, 06/02/1987; Ord. 869, Added, 03/18/1980)

13.04.450 State provisions adopted.

The provisions of WAC 246-290-490 as amended as of or after the effective date of the ordinance from which this section derives, relating to cross-connection control and elimination and the use of backflow prevention assemblies, are adopted and made a part hereof. In furtherance of the city's goal to protect the public health and safety, all provisions of the Washington Administrative Code may be executed and applied by the department of public works in determining when cross-connections are prohibited and when backflow prevention assemblies shall be required.

(Ord. O2004-013, Amended, 09/07/2004; Ord. 1102, Added, 06/02/1987)

13.04.460 Inspection – Right of entry.

Whenever it is necessary to make an inspection to enforce any provision of this article, or whenever there is reasonable cause to believe that there exists a violation of this article in any building or upon any premises within the jurisdiction of the city that is receiving water service from the city, the public works director or his/her designee, upon presentation of proper credentials, may, with the responsible person's permission, enter upon the premises at all reasonable times to inspect and/or test the same or to perform any duty imposed upon him or her by this article. Except in emergency situations, he or she shall first give the responsible person, if they can be located after reasonable effort, advance written notice of the authorized official's intention to enter upon the premises. In the event the responsible person refuses entry, or does not respond to the notice of intention to inspect, the authorized official is empowered to seek assistance from any court of competent jurisdiction in obtaining such entry and in seeking any necessary reparative measures in compliance with this article.

(Ord. O2011-002, Amended, 03/01/2011; Ord. O2004-013, Amended, 09/07/2004; Ord. 1102, Added, 06/02/1987)

13.04.470 Backflow prevention assembly – Compliance required.

A. No water service connection from the city's water system to any premises shall be installed or maintained unless the water supply is protected by backflow prevention assemblies as required by the public works director or his/her designee and the rules and regulations of the Washington State Department of Health and this article. The installation or maintenance of a cross-connection which will, or has the potential to endanger the city's water quality is prohibited. Any such cross-connection existing at the effective date of the ordinance from which this section derives, or hereafter installed, is declared to be unlawful. The control and/or elimination of cross-connections within the city shall be in accordance with WAC 246-290-490 or superseding Washington Administrative Code provisions, and shall provide the highest degree of protection to the city's water system.

B. Service to any property, landowner or water user receiving its water supply from the city water supply system shall be contingent upon compliance with all requirements of the rules and regulations of the Washington State Department of Health and of this article. Service shall be

discontinued to any premises, water user or property owner for failure to comply or for failure to permit entry upon the premises for purposes of inspection and/or testing. Any discontinued service will not be reestablished until the public works director has approved compliance with such requirement of the rules and regulations contained in this article.

C. Any customers using water from the city of Tumwater are responsible for compliance with this article and shall be strictly liable for all damage incurred as a result of failure to comply with the express terms and provisions contained herein.

(Ord. O2011-002, Amended, 03/01/2011; Ord. O2004-013, Amended, 09/07/2004; Ord. 1102, Added, 06/02/1987)

13.04.480 Public works to administer.

The department of public works shall be responsible for administering this article including the development of the necessary procedures and practices to accomplish same, consistent with the standards in this article and WAC 246-290-490 as set forth in the city's cross-connection control program as approved by the Washington State Department of Health.

(Ord. O2004-013, Amended, 09/07/2004; Ord. 1102, Added, 06/02/1987)