

CITY OF RICHLAND

CROSS CONNECTION CONTROL PROGRAM

NOVEMBER 2007



City of Richland Cross Connection Control Program

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City of Richland Cross Connection Control Program

Policy and Program Description – November 2007

Note: **Bold** text references WAC 246-290-490. *City program elements are italicized.*

1. PURPOSE

To establish minimum program elements for implementation of a Cross Connection Control Program within the City of Richland water system service area meeting the intent of Washington Administrative Code (WAC) Cross Connection Control Provisions.

2. POLICY

The City's Cross Connection Control Program shall protect the public water system from contamination via cross connections.

3. PROGRAM DESCRIPTION

PUBLIC WATER SYSTEM

The City's responsibility for cross connection control shall begin at the water supply source, include all public water treatment, storage, and distribution facilities, and end at the point of delivery to the consumer's water system. The point of delivery is defined in the Richland Municipal Code and is typically the downstream side of the customer's water meter.

CONSUMER'S WATER SYSTEM

The City shall not be responsible for eliminating or controlling cross connections within the consumer's water system. Under Chapter 19.27 RCW, the responsibility for cross connection control within the consumer's water system, i.e., downstream of the customer's water meter, falls under the jurisdiction of the Local Administrative Authority. (LAA). The Local Administrative Authority for properties within the City limits is the City's Building Official.

PROGRAM

The City of Richland Cross Connection Control Program is a premise isolation program. All new commercial and/or industrial service connections will be premise isolated at the point of delivery as close to the service connection as practical. Any inside location will require a variance from the City and an annual facility inspection.

The City of Richland bases its authority, policy, and corrective actions on the ordinances relating to cross connection control as outlined in Element 1 below. At least one full time City of Richland Public Works staff is certified as a Cross Connection Specialist I (CCS I). Details are found in Element 4.

Evaluations are made of all new service connections by reviewing water service applications. On-site inspections of residential service connections are not normally conducted unless cross-connections are found as set forth in Elements 2 and 3 below, or are identified during plan review. Existing commercial / industrial service connections installed prior to November 1, 2007 that are not premise isolated are site surveyed according to priority with the highest degree of hazard set to the highest priority. Periodic evaluations are conducted at facilities with the highest degree of hazard and/or at those facilities where plumbing changes have been made, or have a high potential for changes. The City's Public Works Department will determine appropriate backflow prevention measures to protect the City of Richland Water Distribution System. The City's Building Department ensures compliance with Uniform Plumbing Code and State Regulations for all in-premise backflow prevention.

Whenever cross connections cannot be eliminated, the City Public Works Representative informs the customer verbally and in writing about the City's backflow prevention requirements according to the degree of hazard as found in Elements 2, 3, and 10.

Inspections are made to ensure proper installation of the appropriate backflow prevention assembly(s) (BFAs) or air gap(s) (A/Gs). Testing and maintenance of City of Richland owned BFAs are performed by the City of Richland. BFAs owned by City of Richland customers are the responsibility of the customer and must be tested by private BATs. Such tests and maintenance are to be performed as outlined in Element 5 below. Assurance of proper testing is detailed in Element 6 below.

Master records are kept of all service connections and vehicles requiring backflow prevention. All information pertaining to the backflow prevention methods used at any given site must be documented and stored in the master record file. Backflow device testing and inspection histories for all backflow devices must be maintained in the master record file. Annual summary reports are submitted to the Washington State Department of Health (DOH). Details are found in Element 9 below.

All backflow incidents shall be reported to the Public Works Director, Washington State Department of Health (DOH), and the Benton-Franklin Health District. Incident reports are recorded with copies sent to DOH. Details are found in Elements 7 and 9.

The City's Public Works Department conducts public education about backflow prevention by producing and distributing pamphlets which address this issue. These pamphlets are distributed to target audiences as selected by City staff. Further details are found in Element 8 below.

4. PROGRAM ELEMENTS

4.1 Element 1: Local Authority

The City shall adopt a local ordinance, resolution, code, bylaw, or other written legal instrument that:

- (i) Establishes the City's legal authority to implement a Cross Connection Control Program:
- (i) Describes the operating policies and technical provisions of the City's Cross Connection Control Program; and
- (ii) Describes the corrective actions used to ensure that consumers comply with the City's Cross Connections Control requirements.

City of Richland Cross Connection Control Ordinances are to be found in the City of Richland Municipal Code, Section 18.13.

4.2 Element 2: Service Evaluation

The City shall develop and implement procedures and schedules for evaluating new and existing service connections to assess the degree of hazard posed by the consumer's premises to the City's distribution system and notifying the consumer within a reasonable timeframe of the hazard evaluation results. At a minimum, the programs shall meet the following:

- (i) For new connections made on or after the effective date of these regulations, procedures shall ensure that an initial evaluation is conducted before service is provided:

A City Public Works Representative will review all permit pre-application documents, new construction plans, all water service applications, and requests for water/sewer estimates. Consultations prior to service installation will be conducted to help the customer meet State Regulations and the City of Richland Cross Connection Control Ordinance in order to minimize retrofits and revisions.

NOTE: Water service will not be provided to new construction until the cross connection control requirements are addressed satisfactorily. Backflow assembly test reports must be submitted to the City for any new assembly installation before water service is provided and test reports must be submitted annually thereafter.

- (ii) For existing connections made prior to the effective date of these regulations, procedures shall ensure that an initial evaluation is conducted in accordance with a schedule acceptable to the department; and

A City Public Works Representative will survey the premise to determine whether the requirement for cross connection control exists.

Facilities not found in Table 9 (WAC 246-290-490) will be evaluated for appropriate premise or in-premise protection based upon potential or actual cross connections(s) found. If the need for in-premise protection is identified premise isolation will be required. The City Public Works Representative will coordinate with the LAA regarding in-premise protection.

- (iii) For all service connections, once an initial evaluation has been conducted, procedures shall ensure that periodic reevaluations are conducted in accordance with a schedule acceptable to the department and whenever there is a change in the use of the premises.**

The minimum criteria required for backflow prevention as stated below is used during the above mentioned evaluations.

Facilities found in Table 9 (WAC 246-290-490) must have an Air Gap (A/G) or a Reduced Pressure Backflow Assembly (RPBA), unless there is no immediate potential for a cross connection. In such case, documentation must be provided as to why the facility does not need backflow prevention and an exception will be granted. Such a facility will be kept on file for future inspections.

Facilities with fire services and complex piping must comply with the principles found in (WAC 246-290-490). Facilities not identified above are evaluated according to the guidelines set forth in the following manual.

The current edition of the manual, Accepted Procedure and Practice in Cross Connection Control, prepared by the Cross Connection Control Committee of the Pacific Northwest Section, American Water Works Association, shall be used as a guideline.

4.3 Element 3: Backflow Prevention Procedures

The City shall develop and implement procedures and schedules for ensuring that:

- (i) Cross Connections are eliminated whenever possible;**
- (ii) When cross connections cannot be eliminated, they are controlled by installation of approved backflow preventers commensurate with the degree of hazard.**

Selection of the type of backflow assembly for a cross connection is found in Table 8 (WAC 246-290-490).

The Criteria detailed in Element 2 are used to determine appropriate backflow prevention.

- (iii) Approved backflow preventers will be selected and installed in accordance with the following requirements.**

WAC 246-290-490 Subsection (6) is used as the basis for approved backflow preventers and installation procedures.

The Accepted Procedure and Practice in Cross Connection Control, Current Edition prepared by the Cross Connection Control Committee of the Pacific Northwest Section, American Water Works Association, shall be used as a guideline.

The current edition of the City of Richland's construction Specifications and Standard Detail.

4.4 Element 4: Cross Connection Specialist Requirement

The City shall ensure that personnel, including at least one person certified as a CCS, are provided to develop and implement the Cross Connection Control Program.

The City's Public Works has dedicated one full time equivalent position to implement the City of Richland Cross Connection Control Program. This employee, titled Water Quality Coordinator, is required to possess a current Washington State Department of Health Certificate of Competency as a Cross Connection Specialist I (CCS-I).

4.5 Element 5: Backflow Assembly Testing/Inspection

The City shall develop and implement procedures to ensure that approved backflow preventers are inspected and/or tested (as applicable) in accordance with Subsection (7) of this section.

WAC 246-290-490 Subsection (7) is used for the basis of ensuring that all A/Gs and BFAs are inspected or tested accordingly.

City of Richland water customers are responsible for testing of their own BFAs and must hire private BATs at their own expense. The City Cross Connection Specialist mails test notices after initial installation of the backflow prevention device and annually thereafter to remind customers of their responsibility to test and maintain their own BFAs.

The City tests and maintains City of Richland owned BFAs and A/Gs on vehicles withdrawing water from City of Richland fire hydrants.

4.6 Element 6: Backflow Assembly QA Program

The City shall develop and implement a Backflow Prevention Assembly Testing Quality Assurance Program including, but not limited to, documentation of tester certification and test kit calibration, test report contents, and timeframes for submitting completed test reports.

WAC 246-290-490 Subsection (7) is used for the basis of ensuring performance of all tests done.

The City Cross Connection Specialist ensures that all BATs providing test reports to the City are appropriately licensed. The City Cross Connection Specialist also ensures that all test reports contain the required information, such as test kit calibration dates, line pressure readings, and the presence of a pressure regulating valve upstream of the backflow preventer. A copy of the City's test report, which is to be used by all BATs submitting reports to the City, is provided as Attachment 1.

4.7 Element 7: Backflow Incident Response

The City shall develop and implement (when appropriate) procedures for responding to backflow incidents.

The City's Public Works Water Division will respond to a backflow incident. Upon discovery of a backflow incident the following procedures are followed:

- 1) The Cross Connection Specialist shall organize an on-site inspection to determine the extent and degree of the incident. A Water Quality Complaint Form (see Attachment 2) is completed by the City personnel performing the inspection, with any substandard conditions or deficiencies noted.*
- 2) Notice is made to the facility owner as to the finding of the inspection. Where health hazards are found to exist or the potential of a health hazard is found, immediate verbal notification and instruction for abatement of the health hazard shall be followed up with a certified letter (signed by The City of Richland Director of Public Works) to the property owner.*
- 3) If the property owner fails to take immediate action to isolate the cross connection upon verbal notification from the Cross Connection Control Specialist, City staff may take actions, up to including discontinuing water service to the customer, until the hazard is abated or protected by an approved device.*
- 4) The Benton-Franklin Health District and Washington State Department of Health shall be notified of the situation as soon as the inspection is complete.*
- 5) Inspections revealing cross connections of a non-health hazard nature shall be cause for notification in writing to the property owner by certified mail to abate the cross connection within 60 days of the date of notification. Failure by the property owner to abate the cross connection or provide required protection within the prescribed time frame may be cause for discontinuance of water service. Re-inspection upon notification by the property owner that cross connection(s) has been eliminated or protected shall be made within 10 days.*

4.8 Element 8: Public Education

The City shall include information on cross connection control in the City's existing program for educating consumers about water system operation. Such a program may include periodic bill inserts, public service announcements, pamphlet distribution, and notification of new consumers and consumer confidence reports.

The City's Public Works Department has a program that distributes consumer confidence reports and educational materials regarding water quality and cross

connection control. Examples of the educational materials are provided as Attachment 3.

4.9 Element 9: Records/Reports

The City shall develop and maintain cross connection control records including, but not limited to, the following:

- (i) A master list of service connections and/or consumer's premises where the City relies upon approved backflow preventers to protect the public water system from contamination, the assessed hazard level of each, and the required backflow preventer(s).**

The City's Water Quality Coordinator maintains paper files and an extensive electronic database of service connections where backflow preventers are required.

Such records are kept as long as the premises pose a cross connection hazard to the City's distribution system. Facilities that are on Table 9 of (WAC 246-290-490 pp. 103-104) but have no cross connections at present are also kept in the master list files documenting why backflow prevention is waived at present.

The City's electronic database system also contains a tracking feature which allows the Water Quality Coordinator to easily identify which service connections are due for backflow assembly testing.

- (ii) Inventory information on:**

- (A) Approved air gaps installed in lieu of approved assemblies including exact air gap location, assessed degree of hazard, installation date, history of inspections, inspection results, and person conducting inspections;**
- (B) Approved backflow assemblies including exact assembly location, assembly description (type, manufacturer, model, size, and serial number), assessed degree of hazard, installation date, history of inspections, tests and repairs, test results, and person performing tests; and**
- (C) Approved PVB's used for irrigation system applications including location, description (manufacturer, model, and size), installation date, history of inspection(s), and person performing inspection(s).**

The City of Richland maintains records or data in paper and electronic format. The Water Quality Coordinator will complete the Cross Connection Control Program Summary Report annually on report forms available from the DOH. The City of Richland will make all records and reports required in WAC 246-290-490 Subsection (8) of this section available to the DOH or its representative upon request. The format of the data stored in the electronic database is such that development of the required summary reports will be easily made.

(iii) Cross Connection Program Summary Reports and Backflow Incident Reports required under Subsection (8) of this section.

City of Richland Water Manager will notify the DOH, local administrative authority, and local health jurisdiction as soon as possible, but no later than the end of the next business day, when a backflow incident is known to have contaminated the public water system or occurred within the premises of a consumer served by the City.

City staff shall document all backflow incidents on a form acceptable to the DOH (see Attachment 2), and include all backflow incident report(s) in the annual Cross Connection Program Summary Report referenced in WAC 246-290-490 Subsection (8) pp. 109, unless otherwise requested by DOH.

4.10 Element 10: Reclaimed Water Requirements

Cities who distribute and/or have facilities that receive reclaimed water within their water service area shall meet any additional cross connection control requirements imposed by the department under a permit issued in accordance with Chapter 90.46 RCW.

Any facility that uses reclaimed water and which is also supplied by the City of Richland water supply, shall have an A/G or RPBA protecting the City's water distribution from that premise. As of this writing there are no facilities in the City of Richland using reclaimed water, other than the City's Wastewater Treatment Plant, whose non-potable water supply is separate and not connected to the City's potable water supply.

5. ORGANIZATIONS AFFECTED

City of Richland (The City)

City of Richland Public Works Department (COR Public Works)

City of Richland Building Department (COR Building Department)

Benton-Franklin Health District

All permanent or temporary (e.g., hydrant users) direct service water customers of COR Public Works which require backflow protection.

6. REFERENCES

City of Richland Cross Connection Control Ordinance, Municipal Code Section 18.13.

1977 Uniform Plumbing Code.

WAC 246-290-490, Cross Connection Control

Accepted Procedure and Practice in Cross Connection Control Manual, Sixth Edition.

Prepared by the Cross Connection Control Committee of the Pacific Northwest Section, American Water Works Association.

Cross Connection Control Program Administration First Edition, January 1998,
Chapter 14. Cross Connection Control Committee-Pacific Northwest Section-
American Water Works Association.

7. CROSS CONNECTION RELATED DEFINITIONS

Approved Backflow Prevention Assemblies: Specifically Reduced Pressure Backflow Assemblies (RPBA), Double Check Valve Assemblies (DCVA), Pressure Vacuum Breaker Assemblies (PVBA), Reduced Pressure Detector Backflow Assemblies (RPDBA) and Double Check Detector Backflow Assemblies (DCDBA). This applies to assemblies that, at the time of original installation, were approved by the State, appeared on their published approval list current at that time, and were approved for use in the Department's direct service area. (See the definitions and descriptions provided in the Manual of Accepted Procedure and Practice in Cross Connection Control – PNWS, AWWA).

Backflow: The flow of any foreign liquids, gases or other substances from any source, back into the potable water supply within a facility and/or public water supply. Backflow may occur due to either back-siphonage or back-pressure.

Back-pressure: Backflow caused by positive pressure (above the supply pressure) in the piping system downstream of the supply piping connection to its service source.

Back-siphonage: Backflow caused by a negative pressure (vacuum) or reduced pressure in the supply piping.

City: City of Richland

Contamination: Any impairment of the quality of the water from any substance which may adversely affect the health of the consumer.

Controlled Cross Connection: A connection between the City of Richland's water system and any non-potable water system with an approved air gap separation or an approved backflow prevention assembly properly installed and maintained so that it will continuously afford the protection commensurate with the degree of hazard.

COR Public Works: City of Richland Public Works Department.

COR Building Department: City of Richland Building Department.

Cross Connection: Any physical arrangement whereby a public water supply is connected, or has the potential for being connected, directly or indirectly, with

anything that does not exclusively contain or convey potable water from a Washington State Department of Health-approved source.

Cross Connection Screen Inspection: An inspection of a direct service customer's premises, performed by COR Public Works, expressly for purposes of evaluating and locating cross connection potential inherent in supplying that customer's water system.

Cross Connection Compliance Inspection: A follow-up inspection of a direct service customer's premises performed by COR Public Works, to monitor the customer's activities toward achieving compliance subsequent to the cross connection screen inspection and any orders or recommendations concerning compliance.

Cross Connection Update Inspection: An inspection of a direct service customer's premises performed by COR Public Works for the continued evaluation and locating cross connection potential.

Degree of Hazard: The degree of hazard is derived from an evaluation of the potential risk to public health and the adverse effect of the hazard upon the potable water system. Hazards may include:

- Health Hazard: Any condition, device, or practice in the water supply system and its operation which could create, or in the judgment of COR Public Works may create a danger to the health and well-being of the water customer.*
- System Hazard: An actual or potential threat to the physical properties of, or to the potability of water in the City's water system or the customer's potable water system, which would constitute a nuisance or be aesthetically objectionable or could cause damage to the system or its appurtenances, but would not be dangerous to health.*

Direct Service Water Customer (or Water Customer): Those customers receiving water through a connection installed by COR Public Works for end uses directly from the City water distribution system and classed as direct service or retail for billing purposes.

Maximum Contaminant Level (MCL): The maximum amount of a contaminant allowed in a sample of water according to federal and state regulations. The importance of this to cross connection control is that the presence of a higher level than at the source may signify the occurrence of a cross connection incident.

Pollution: Any impairment of the quality of the water which may adversely affect the aesthetic characteristics of the water.

Potable Water Supply: Any water supply system intended or used for human consumption or other domestic uses and which must meet Washington State Department of Health Public Water System Rules and Regulations.

State: Washington State Department of Health, Water Supply Section

Temporary Usage Connections: Any vehicle to which a tank or container is affixed for containing water and/or chemicals or material, or any temporary use of water for construction, cooling, testing, or other non-domestic purposes, which are capable of imparting contamination or pollution to the public water supply through a cross connection between such points of usage and the water supply via a fire hydrant or other temporary connection.

Water Service Connection: The terminal end of a service connection from the City water system (i.e., where the City loses jurisdiction and sanitary control over the water at its point of delivery to the customer's water system). Service connection shall also include water service connections from a fire hydrant and all other temporary or emergency water service connections from the public potable water system.

Water System: For the purpose of this policy and procedure, the water system is considered to be made up of two parts: the City's system and the customer's system. The City's system shall consist of the source facilities and the distribution system; and shall include all those facilities of the water system under the complete control of the City up to the point where the customer's system begins. The customer's system shall include those parts of the facilities beyond the termination of COR Public Works distribution system which are utilized in conveying City delivered water to points of use.