Received
Jan 17 2023
Cross Connection

ROATS WATER SYSTEM
541-382-3029

Written Backflow Prevention Plan

Per OAR 333-061-0070, Section (9) (b)

Version 1/28/2022

(A) List of premises where health hazard cross connections exist, including, but not limited to, those listed in Table 42 (Premises Requiring Isolation);

- RWS can report on the service types listed below:
  - Facility Type (including those types in Table 42)
  - Hazard Type
  - Device Type (RP, DC, etc.)
  - Service Type (Commercial, Residential, etc.)
  - Protection Type (Isolation, Containment)

(B) A current list of certified CCC staff personnel;

- Is listed, and will be updated annually in the cross connection annual summary report
  - Michelle Berg, cert# 977215
  - Lynn (CaitLinn) Perry, cert# 874354

(C) Procedures for evaluating the degree of hazard posted by a water user's premise;

- Per OAR Rules and Regulations
- Degree of hazard is based on but not limited to OAR's Table 42
- Roats Water System Cross Connection Rules & Regulations
- At Plan Review – Reviewer cross connection control trained
- Field Inspections throughout project construction
- Communication with local plumbing inspectors and permits
- Service connections at 1.5" and greater require premise isolation based on the degree of hazard
- Multi-tenant facilities are required to have premise isolation
- All Irrigation and Fire line coded accounts are required to have backflow protection

(D) A procedure for notifying the water user if a non-health hazard or health hazard is identified, and for informing the water user of any corrective action required;

- Assembly detail added to customer account to generate annual backflow test notices requiring assembly to be tested for Opt-out customers.
- Notices Mailed
    - First Notice
    - Reminder Notice
    - Urgent Notice/Enforcement Notice
    - Shut-Off Notice
- Meeting on-site
- Phone call
- Contact appropriate plumbing official when applicable

(E) The type of protection required to prevent backflow into the public water supply, commensurate with the degree of hazard that exists on the water user's premise, as defined in Table 43 (Backflow Prevention Methods);

- RWS adheres to Table 43
- RWS also has an adopted set of Cross Connection Rules & Regulations pertaining to installation and maintenance specifications. The regulations were updated as of January 28, 2022.

(F) A description of what corrective actions will be taken if a water user fails to comply with the water supplier's cross connection control requirements;

- Enforcement Notice and Procedures
- RWS to test and apply fee to water bill
- Shut-Off of water service for non-compliance of those who have opted out of RWS program
- Shut-Off fees applied to water bill

(G) Current records of approved backflow prevention assemblies installed, inspections completed, backflow prevention assembly test results on backflow prevention assemblies and verification of current Backflow Assembly Tester certifications; and

- Cross Connection Program database accommodates:
    - All records of installed backflow assemblies
    - Test results received and posted to individual customer accounts
    - Inspections are noted on individual customer accounts
    - Summary Report includes quantities of assemblies based on type of service, type of assembly, etc.
- All testers in RWS service area are required to provide proof of BAT certification annually

(H) A public education program about cross connection control;

- Website: https://www.roatswatersystem.com/aboutbackflow

- Brochure – Brochures are available by request or at the front office
- Utility bill message and inserts – Cross Connection information is mailed to customers annually as part of the Consumer Confidence Report(s).
- RWS water department personnel
    - Meetings – Staff receives ongoing education during weekly safety meetings
    - Trainings – Cross Connection Inspection and Backflow Tester certifications and continuing education programs.

Roats Water System
Cross Connection Rules & Regulations

January 28, 2022

Pursuant to Chapter 333, Division 61 of the Oregon Administrative Rules (OAR), it is the responsibility of Roats Water System (RWS) to protect its drinking water by instituting and enforcing a cross connection program. As stipulated in the OAR's, RWS may adopt requirements which are more stringent than those set forth in their Rules. Therefore, the following regulations are hereby adopted:

Contents:

1 Definitions

1.1 **Air Gap** means the vertical physical separation between the free-flowing discharge end of the potable water supply line and the overflow rim of the receiving vessel. The separation must be at least two (2) times the inside diameter of the supply line, but never less than one (1) inch. When located near walls, the air gap separation must be increased.

1.2 **Approved Backflow Assembly** means an assembly to counteract backpressures or prevent backsiphonage, such as a Double Check Valve Assembly (DCVA), or a Reduced Pressure Principle Backflow Prevention Assembly (RPBA), plus the attached resilient seated shut-off valves on the

inlet and outlet ends of the unit, and the appropriate test cocks for testing, assembled as a complete unit. The unit must appear on the current 'Approved Backflow List' as published by USC.

1.3 **Auxiliary Supply** means any water source or system other than the public water system, which may be available in the building or on the premises.

1.4 **Backflow** means the flow of water or other liquids, gasses, or solids from any source back into the distribution piping of the public potable water supply, which is caused by backpressure or backsiphonage.

1.5 **Backpressure** means water pressure which exceeds the operating pressure of the public potable water supply that would cause, or tend to cause, water to flow opposite of its intended direction.

1.6 **Backsiphonage** means backflow due to a negative, or reduced, pressure within the public potable water system that would cause, or tend to cause, water to flow opposite of its intended direction.

1.7 **Bore-Sight Drain to Daylight** means an unrestricted straight-line opening in an enclosure that vents to grade, is sized and constructed to adequately drain the full flow discharge from a Reduced Pressure Principle Backflow Prevention Assembly (RPBA) thus preventing any potential for submersion of the unit.

1.8 **Contaminate** means any physical, chemical, biological, or radiological substance or matter in water that creates a health hazard.

1.9 **Cross Connection** means any actual, or potentially, unprotected connection or structural arrangement between the public, or user's, potable water system and any other source or system through which it is possible to introduce into any part of the public potable water system any used water, industrial fluid, gas, or substances other than the intended potable water with which the system is supplied. Bypass arrangements, jumper connections, removable sections, swivel, or change-over devices, and other temporary or permanent devices through which, or because of which, backflow can occur, are considered to be cross connections.

1.10 **Degree of Hazard** means either pollution (non-health hazard) or contamination (health hazard) and is determined by an evaluation of hazardous conditions within a system.

1.11 **Double Check Valve Assembly (DCVA)** means a backflow prevention assembly of two (2) independently acting approved check valves, including tightly closing resilient seated shut-off valves attached at each end of the unit and fitted with properly located resilient seated test cocks. These units are designed to protect against a non-health hazard only.

1.12 **Health Hazard** means an actual, or potential, threat of contamination of a physical or toxic nature to the public potable water system that could cause illness, or even death, due to poisoning or spread of disease by sewage, industrial fluids, waste, or other substances.

1.13 **Non-Health Hazard** means an impairment to the quality of the water due to pollutants, to a degree that does not create a hazard to the public health but does adversely affect the aesthetic quality of the water for potable use.

1.14 **Non-Potable Water** means any water, liquid, gas, or other substance, which is not safe for human consumption, or is not part of the public potable water supply, as described by the health authority.

1.15 **Pollutant** means a substance that creates an impairment of the quality of the water to a degree which does not create a hazard to the public health, but does adversely affect the aesthetic qualities of the water. Also defined as a non-health hazard.

1.16 **Potable Water** means water which is safe for human consumption, free from harmful or objectionable materials, as described by the health authority.

1.17 **Premises** means any piece of land to which water is provided including all structures, improvements, and additions.

1.18 **Reduced Pressure Principle Backflow Prevention Assembly (RPBA)** means a backflow prevention assembly containing two independently acting approved check valves together with a hydraulically operated mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The unit shall include properly located resilient seated test cocks and tightly closing resilient seated shut-off valves at each end of the unit. These units are designed to protect against a non-health hazard or a health hazard.

1.19 **Thermal Expansion** means the pressure created by heated water or fluid that is not given the room to expand due to a 'closed' system by the installation of a backflow prevention assembly, or other means, and will not allow for expansion beyond the point of installation.

1.20 **University of Southern California,** Foundation for Cross-Connection Control and Hydraulic Research **(USC)** means the agency that conducts laboratory and field test to evaluate and grant 'Certificates of Approval' to backflow prevention assemblies meeting their current stringent approval standards.

2 Purpose

The purpose of these regulations is to protect the public potable water supply of Roats Water System from contamination or pollution due to any existing or potential cross connection.

3 Cross Connections Regulated

No cross connections shall be created, installed, used, or maintained within the territory served by RWS except in accordance with these regulations.

4 Backflow Prevention Assembly Requirements

The type of backflow prevention assembly to be installed on the premises shall be based on the degree of hazard as determined by OAR Table 42 and by RWS.

Approved backflow prevention assemblies shall be installed at the expense of the user, either at the service connection or within the premises, as determined by RWS in each of the following circumstances:

4.1 When the nature and extent of any activity on the premises, or the materials used in connection with any activity on the premises, or materials stored on the premises, could contaminate, or pollute the public potable water supply.

4.2 When the premise has one of more cross connections as defined in section 1.9.

4.3 When internal cross connections are not correctable, or intricate plumbing arrangements have made it impractical to ascertain whether cross connections exist.

4.4 When there is a repeated history of cross connections being established or re-established.

4.5 When there is unduly restricted entry so that inspections for cross connections cannot be made with sufficient frequency, or with sufficient notice, to assure that cross connections do not exist.

4.6 When materials of a toxic or hazardous nature are being used such that, if backsiphonage should occur, a health hazard could result.

4.7 When there is any mobile apparatus which uses RWS water, or water from any premises within RWS territory.

4.8 When, in the judgement of RWS, there is a premise that installation of an approved backflow prevention assembly is deemed necessary to accomplish the purpose of these regulations.

4.9 When an appropriate cross connection report has not been filed with the RWS office, for a specific premise.

5 Installation Requirements & Instructions - Irrigation

To ensure proper operation and accessibility of all backflow prevention assembly, the following requirements shall apply to the installation of these units.

5.1 Prior to the installation of ANY TYPE of irrigation system on property served by RWS, a set of plans, prints, drawings, or diagram of the system must be submitted to the RWS office.

The plans shall include location of system (street and lot number), owner's name and address, layout of system and size and description of backflow assembly. This irrigation plan will be reviewed and kept on file at the RWS office.

Within ten (10) working days RWS will return to the submitter initial plan approval or required changes, and a copy of the RWS backflow assembly installation requirements.

RWS requires that the minimum backflow prevention on an irrigation system will be the installation of a currently approved DCVA.

5.2 Following are the requirements for installation of a DCVA on all irrigation systems:

5.2a In order for a backflow prevention assembly to be approved by RWS, it must be on the current USC list of 'Approved Assemblies' that have passed its stringent testing procedures.

5.2b All backflow prevention assemblies installed after September 1, 1986, must be State of Oregon (USC?) approved and have resilient seated gate valves or fully ported ball valves. These valves are to be an integral part of the unit as sold by the local distributor. Lists of approved assemblies are available at the RWS office or reference the University of Southern California Approved Backflow Assembly List.

5.2c All backflow prevention assemblies installed after January 10, 2018, must adhere to the State of Oregon 'lead free' criteria as stated in the OAR's.

5.2d DOUBLE CHECK VALVE ASSEMBLY (DCVA) – Installation

A. The DCVA shall be installed with adequate space to facilitate maintenance and testing. It shall be inspected and tested by a state certified tester after installation to ensure its satisfactory operation and proper installation.

B. The DCVA shall not be installed where the pressure will be maintained above the units rated and labeled capacity.

C. Pit, or below grade, installation of a DCVA must have a minimum or six (6) inch gravel bed for drainage. Pipe plugs must be installed on test cocks to lessen the danger of a cross connection, in the event the unit becomes submerged.

D. The DCVA must be protected from freezing but must facilitate testing and maintenance. There shall be no connections installed between the DCVA and source of supply, for the purpose of draining. (or any other purpose?)

E. Thoroughly flush the lines prior to installation of the DCVA.

F. The owner, or representative, must call for an inspection by RWS. Backflow prevention assembly installation service line, and all premise plumbing to the DCVA must be exposed for visual inspection. Water service will be turned on, only after final approval is granted.

G. If there is not a DCVA for premise isolation, this unit will automatically be entered into the RWS annual backflow testing program, and the owner charged for the testing fee, unless the owner signs an RWS Opt-out agreement form.

5.3 Prior to backfill, inspection will be made by RWS within two (2) working days of notice to inspect.

IMPORTANT: Failure to notify RWS prior to backfill will result in re-excavation of the device and point of connection to facilitate inspection.

5.4 Final approval shall be granted following the acceptance of the installation and receipt of a passing state certified tester's report at the RWS office.

5.5 All assemblies must be tested annually by a state certified backflow tester, and a passing test report submitted to the RWS office.

NOTE: The installation of a backflow prevention assembly on the water service line will eliminate the thermal expansion of hot water into the distribution system. Therefore, Roats Water System hereby notifies the water user that it is the water users' responsibility to maintain temperature pressure relief valves within the premise plumbing.

6 Installation Requirements & Instructions – Commercial

6.1 Prior to installation of a commercial water service (services other than single family residential) within RWS service area, a set of plans, prints, drawings, or diagrams of the water system must be submitted to the RWS office.

The plans shall include locations of buildings, irrigation pipes and landscaping, street address, owner's name and mailing address, plumbing and mechanical plans, size of service line and description of intended use of property. This plan will be reviewed and kept on file at the RWS office.

Within ten (10) working days RWS will return to the submitter initial plan approval. The approval notice will include type of backflow device required (minimum requirement is a DCVA), a copy of RWS backflow assembly installation requirements and a list of local state certified backflow testers.

6.2 Following are the requirements for installation of a DCVA on all commercial services:

6.2a All backflow prevention assemblies installed after September 1, 1986, must be State of Oregon (USC?) approved and have resilient seated gate valves or fully ported ball valves. These valves are to be an integral part of the unit as sold by the local distributor. Lists of approved assemblies are available at the RWS office or reference the University of Southern California Approved Backflow Assembly List.

6.2b All backflow prevention assemblies installed after January 10, 2018, must adhere to the State of Oregon 'lead free' criteria as stated in the OAR's.

6.2b DOUBLE CHECK VALVE ASSEMBLY (DCVA) – Installation

A. The DCVA shall be installed with adequate space to facilitate maintenance and testing. It shall be inspected and tested by a state certified tester after installation to ensure its satisfactory operation and proper installation.

B. The DCVA shall not be installed where the pressure will be maintained above the units rated and labeled capacity.

C. Pit, or below grade, installation of a DCVA must have a minimum or six (6) inch gravel bed for drainage. Pipe plugs must be installed on the test cocks to lessen the danger of a cross connection, in the event the unit becomes submerged.

D. The DCVA must be protected from freezing but must facilitate testing and maintenance. There shall be no connections installed between the DCVA and the source of supply, for the purpose of draining.

E. Thoroughly flush the lines prior to installation of the DCVA.

F. The owner, or representative, must call for an inspection by RWS. Backflow prevention assembly installation service line, and all premise plumbing to the DCVA must be exposed for visual inspection. Water service will be turned on, only after final approval is granted

G. The unit will automatically be entered into the RWS annual backflow testing program, and the owner charged for the testing fee, unless the owner signs an RWS Opt-out agreement form.

6.3 Prior to backfill, inspection will be made by RWS within two (2) working days of notice to inspect.

IMPORTANT: Failure to notify RWS prior to backfill will result in re-excavation of the device and point of connection to facilitate inspection.

6.4 Final approval shall be granted following the acceptance of the installation and receipt of a passing state certified tester's report at the RWS office.

6.5 All assemblies must be tested annually by a state certified backflow tester, and a passing test report submitted to the RWS office.

NOTE: The installation of a backflow prevention device on the water service line will eliminate the thermal expansion of hot water into the distribution system. Therefore, Roats Water System hereby notifies the water user that it is the water user's responsibility to maintain temperature pressure relief valves within the premise plumbing.

7 Installation Requirements & Instructions – Fire Sprinklers

7.1 Pursuant to Chapter 333-61-070 (6)(b) of the OAR, an approved DCVA shall be the minimum backflow protection for fire sprinkler systems.

Prior to the installation of ANY TYPE of fire sprinkler system on property served by RWS, a set of plans, prints, drawings, or diagram of the system must be submitted to the RWS office.

The plans shall include location of system (street and lot number), owner's name and address, layout of system and size and description of backflow assembly. This plan will be reviewed and kept on file at the RWS office.

Within ten (10) working days RWS will return to the submitter initial plan approval or required changes, and a copy of the RWS backflow assembly installation requirements.

RWS requires that the minimum backflow prevention on a fire suppression system will be the installation of a currently approved assembly.

7.2 Following are the requirements for installation of a DCVA on fire sprinkler systems:

7.2a DCVA's may be installed vertically as well as horizontally provided the assembly:

A. Is internally spring loaded – not weighted checks.
B. Is four (4) inches or smaller.
C. Has been approved by USC and the manufacturer for vertical installation.
D. Is installed with the normal flow going upwards.

7.2b DCVA's may be installed below grade in a vault provided plugs are installed on the test cocks. Maximum height of installation shall not exceed five (5) feet for units larger than two (2) inches, unless there is a permanently installed platform meeting Occupations Safety and Health Association (OSHA) standards to facilitate testing and servicing of the assembly.

7.2c Clearances for units two (2) inches or smaller must be accessible for testing and repairing. Adequate drainage must be provided. However, the drain shall not be connected to the sanitary or stormwater drain.

7.3 When intricate plumbing arrangements exist that make it impractical to ascertain water usage or consumption, RWS may require the installation of an approved Double Check Detector Valve Assembly (DCDA).

7.4 Prior to establishing water service to the fire sprinkler system, RWS must inspect and approve the unit installation.

7.5 Prior to establishing water service to the fire sprinkler system, the DCVA must be tested by a state certified tester and a passing test report filed at the RWS office.

7.6 The unit will be automatically entered into the RWS annual backflow testing program, and the owner charged for the testing fee, unless the owner signs an RWS Opt-out agreement form.

7.7 Fire sprinkler systems that incorporate an anti-freeze loop containing any type of chemicals shall have a currently approved RPBA installed on the anti-freeze loop.

7.8 Following are the requirements for installation of an RPBA on fire sprinkler systems:

- 7.8a RPBA's shall always be installed horizontally, never vertically.
- 7.8b RPBA's shall always be installed above the 100-year (1%) flood level.
- 7.8c Relief valves shall never be extended or plugged.
- 7.8d Protection from freezing shall be provided.
- 7.8e An air gapped drain shall be provided.
- 7.8f RPBA's shall not be installed in an enclosed vault or box unless a bore-sighed drain to daylight is provided.

8 Installation Requirements & Instructions – Other hard plumbed features

8.1 As permitted under the OAR's, RWS has established a requirement that the minimum backflow protection assembly for any service connection that has any other hard plumbed features of non-health hazard nature will be a currently approved DCVA.

Prior to the installation of ANY TYPE of assembly on property served by RWS, a set of plans, prints, drawings, or diagram of the system must be submitted to the RWS office.

The plans shall include location of system (street and lot number), owner's name and address, layout of system and size and description of backflow assembly. This irrigation plan will be reviewed and kept on file at the RWS office.

Within ten (10) working days RWS will return to the submitter initial plan approval or required changes, and a copy of the RWS backflow assembly installation requirements.

RWS requires that the minimum backflow prevention be installed.

8.2 The backflow prevention assembly shall be installed at the expense of the user, either at the service connection, or within the premises as determined by RWS.

8.3 All backflow prevention assemblies installed after September 1, 1986, must be State of Oregon/ University of Southern California Approved Backflow Assembly list approved and have resilient seated gate valves or fully ported ball valves. There valves are to be an integral part of the assembly as sold by the local distributor. Lists of approved assemblies are available at the RWS office or reference the University of Southern California Approved Backflow Assembly List.

8.4 All backflow prevention assemblies installed after January 10, 2018, must adhere to the State of Oregon 'lead free' criteria as stated in the OAR's.

- 8.4a The DCVA shall be installed with adequate space to facilitate maintenance and testing. It shall be inspected and tested by a state certified tester after installation to ensure its satisfactory operation and proper installation.

8.4b The DCVA shall not be installed where the pressure will be maintained above the units rated and labeled capacity.

8.4c Pit, or below grade, installation of a DCVA must have a minimum of six (6) inch gravel bed for drainage. Pipe plugs must be installed on test cocks to lessen the danger of cross connection, in the event the assembly becomes submerged.

8.4d The DCVA must be protected from freezing but must facilitate testing and maintenance. There shall be no connections installed between DCVA and source of supply, for the purpose of draining. (or any other purpose?)

8.4e Thoroughly flush the lines prior to installation of the DCVA.

8.4f The owner, or representative, must call for an inspection by RWS. Backflow prevention assembly installation service line, and all premise plumbing to the DCVA must be exposed for visual inspection. Water service will be turned on, only after final approval is granted.

8.5 The unit will automatically be entered into the RWS annual backflow testing program, and the owner charged for the testing fee, unless the owner signs an RWS Opt-out agreement form.

8.6 Prior to backfill, inspection will be made by RWS within two (2) working days of notice to inspect.

IMPORTANT: Failure to notify RWS prior to backfill will result in re-excavation of the device and point of connection to facilitate inspection.

8.6 Final approval shall be granted following the acceptance of the installation and receipt of a passing state certified tester's report at the RWS office.

8.7 All assemblies must be tested annually by a state certified backflow tester, and a passing test report submitted to the RWS office.

NOTE: The installation of a backflow prevention assembly on the water service line will eliminate the thermal expansion of hot water into the distribution system. Therefore, Roats Water System hereby notifies the water user that it is the water user's responsibility to maintain temperature pressure relief valves within the premise plumbing.

9 Access to Premises

Authorized employees, or agents, of RWS, with proper identification, shall have access during reasonable hours to all parts of the premise and within the building to which water is supplied. If any water user refuses access to a premise or to the interior of a structure at reasonable times and on reasonable notice for inspection by a cross connection specialist appointed by RWS, an RPBA will be required to be installed at the service connection to that premise, or service will be discontinued.

10 Annual Testing and Repairs

All backflow prevention assemblies installed, or moved, within the territory served by RWS shall be tested immediately upon installation. Thereafter, the unit shall be tested annually by a state certified tester, and a passing test report submitted to the RWS office. All such devices found not functioning properly shall be promptly repaired or replaced by the water user and then retested. If any such device is not promptly repaired or replaced, RWS may deny or discontinue water to the premise.

All units installed at facilities which pose a health hazard, and units which repeatedly fail, shall be tested on a more frequent basis that annually, as determined by RWS.

All testing and repairs are the financial responsibility of the water user.

11 Variances

Any variances from these requirements shall be requested in writing by the owner and approved by RWS prior to installation.

12 Cost of Compliance

All costs associated with purchase, installation, inspections, testing, replacement, maintenance, parts, and repairs of the backflow prevention assemblies are the responsibility of the water user.

13 Termination of Service

Failure on the part of any customer to discontinue the use of all cross connections, or to physically separate cross connections, is sufficient cause for immediate discontinuance of public potable water service to the premises. (OAR chapter 333-61-070)

14 Effective Date and Revisions

These regulations shall be effective as of July 1, 1993.
These regulations were revised effective March 15, 1999.
These regulations were revised effective January 28, 2022.

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