Rivergrove Water District

Cross Connection Control Program

To ensure clean, safe, potable water, the District maintains a Cross Connection Control Program as required by the Oregon Health Authority (OARS Rule 333-061-0070) and RGWD Ordinance 23-01. Our goal is to protect our valuable drinking water resources through the implementation and enforcement of this program and to protect the quality and integrity of the District's drinking water system from potential contamination through cross connections.

When properly installed, tested, and maintained Backflow Prevention Assemblies will prevent contamination from entering the water system through a cross connection due to back-siphonage or backpressure. Customers with inground irrigation, sprinkler systems, and/or certain water features such as fountains and pools are required by law to have their backflow tested annually by a state certified tester. The District requires all annual testing to be completed by September 30th each year.

The District's Cross Connection and Backflow Prevention Program Director or designee shall survey the District's distribution system on an annual basis for possible illegal cross connections and for approved backflow devices that may be tampered with or inoperable. If it is determined from the survey that an illegal cross connection exists or that a back flow device is not operating correctly, the District will send notification to the customer along with a date to bring the property into compliance. The District has the discretion to require either the removal of the cross connection, the installation of an approved backflow prevention device, or the repair of the existing device by a certified technician.

The District recognizes that it is beneficial to have customers educated on what cross connection are, how they can be prevented, what types of protection are available, and the concerns associated with thermal expansion. We will meet this obligation to our customers by using the following strategies: bi-monthly newsletters, website, site visits to explain cross connection control, educational materials available at the District office, and personal notices of any required corrective action.

Section 1: General Requirements

1. A plumbing permit must be obtained from the city in which the installation will take place prior to any assembly being installed. The District does not issue permits and shall be notified by the applicant when the permit is applied for through the local municipality.

2. Only assemblies commensurate with the degree of hazard and approved by the Oregon Health Authority, University of Southern California Foundation for Cross Connection Control, and Rivergrove Water District will be accepted.
3. Backflow Prevention Assemblies commensurate with the degree of hazard are required whenever an actual or potential cross connection exists. All backflow assemblies installed per these regulations shall:
    a. Be on the approved list of the Oregon Healthy Authority and the University of Southern California Foundation for Cross Connection Control and Hydraulic Research. www.usc.edu/dept/fccchr/list.html
    b. Be inspected by Rivergrove Water District upon installation completion.
    c. Have all backflow test reports submitted to the Rivergrove Water District.
    d. Have adequate clearance for routine maintenance and testing.
    e. Be protected from freezing.
    f. Have test ports plugged with brass fittings.
    g. Be approved for the orientation for which it is installed (i.e., vertically, etc.).
    h. Have an OSHA approved permanent platform installed for maintenance and testing if the assembly is installed more than 5 feet off ground level.
    i. Be tested by an Oregon State Certified Backflow Tester upon installation, annually, after any repairs, if the assembly is moved, or after a known incident that may have created a backflow condition.
    j. Comply with all specifications required by the District and local plumbing code.
4. Additional requirements for **all** backflow assemblies larger than 2 inches include:
    a. A minimum of 12 inches clearance on the backside.
    b. A minimum of 24 inches clearance on the test cock side.
    c. A minimum of 12 inches clearance below the assembly.
    d. Adequate clearance of 3 inches minimum must be maintained above the fully opened O.S. and Y gate valve stems (O.S. and Y valves are required on all dedicated and/or combination fire line assemblies). ***Headroom of at least 6 feet is required in all vaults/assembly locations.***
    e. Additional requirements may apply where applicable.
5. Additional requirements for all assemblies 2 inches and smaller include:
    a. A minimum of 3 inches of clearance on all sides.
    b. A minimum of 6 inches of clearance below.
    c. A minimum of 12” but not more than 24” to the top of the assembly that is installed below grade.
    d. A minimum of 24 inches of clearance must be provided on the test side of an assembly installed above ground.
    e. Additional requirements may apply where applicable.
6. Assemblies of any size installed above ground, indoors, or outdoors must be installed with precautions applicable to the installation. Minimum clearance requirements listed in

Section 1 must be provided unless the District grants a variance. Most *exterior* above ground installations will require an above ground enclosure in which clearances may be less than the fore mentioned provided they are equipped with removable panels or doors that create clearances equal to or greater than those described. Conditions of freeze and other environmental protection must be provided where applicable.

7. Backflow Prevention in the form of Premises Isolation (directly behind the water service meter at the property line) is required wherever the following conditions exist: ***Only OHA, USC, and District approved Double Check Valve and Reduced Pressure type backflow assemblies may be used for premises isolation*.**
    a. There is an auxiliary water supply, which is, or can be, connected to potable water piping.
    b. There is piping for conveying liquids other than potable water and where that piping is under pressure and installed in proximity to potable water piping.
    c. There is intricate plumbing which makes it impractical to ascertain whether or not a cross-connection exists.
    d. There is a water meter one and a half (1 ½) inches or larger supplying public water to the premises.
    e. There is structure more than thirty-two (32) feet in height (as measured between the highest peak of the structure) and the elevation of the service at the public water main to those premises.
    f. There is a risk of back-siphoning or back pressure.
    g. There is a cross-connection or a potential cross connection.
    h. There is an underground irrigation/sprinkler system not protected by a properly functioning backflow assembly.
    i. There is a water meter of any size supplying water to any multi-unit complex (3 or more units), commercial, or industrial facility.
    j. When a service connection installed before the effective date of these rules and regulations has been permitted to remain in service without an approved backflow prevention assembly, an approved backflow assembly will be installed on said service connection if the service requires more than minimum maintenance, is modified, is changed or remodeled, and falls under (a) through (i).
8. A location plan with an elevation view of the piping arrangement shall be furnished to the District and approved before installation.
9. The owner for the purpose of inspections, meter reading, and other duties deemed necessary by the District shall grant an easement to the Rivergrove Water District.
10. The District will make all taps to District water mains and extend the service to the customer's property line or to a designated area within the applicable right of way.
11. The cost of the materials, maintenance, testing, and installation of assemblies and vaults shall be the responsibility of the owner.

12. All backflow assemblies required by the District must be installed as close to property line as possible with the exception of irrigation systems where point of use installation is recommended.
13. Plumbing inspectors may also require point of use backflow protection within the premises as per plumbing code. These assemblies shall be tested according to plumbing code unless the installation is in lieu of premises isolation. In this case, the assembly must be tested according to OAR 333-061-0070.
14. The installation of a backflow assembly may alter system operating pressure, flow and/or other hydraulic conditions.
15. Thermal expansion may cause excessive pressure as a result from the installation of a backflow assembly. It shall be the owner/user/installer's responsibility to ensure any and all thermal expansion concerns are addressed including all applicable State and City codes.
16. Retro-fit and replacement backflow assemblies shall meet all current requirements outlined in this document.
17. Any variances to these requirements must be submitted in writing to the District for approval.
18. Upon completion all assemblies installed as premises isolation or in lieu of premises isolation must be inspected and approved by the District before service is granted.

***The Rivergrove Water District may discontinue water service to any customer for failure to install or test a required backflow assembly as stated in OARS RULE 333-061-0070.**

5/8" – 2" Services:

The District staff will lock ALL new services that require property line backflow prevention upon installation.

The customer requesting service must install the specified backflow preventer and coordinate the initial backflow test.

A District representative shall be present during the initial backflow test. A copy of the passing test report shall be furnished to the District representative. At this time, permanent service will be granted.

3" or Larger Services Including Fire Services:

Contractor to install any vaults and necessary piping prior to District meter installation. A District representative will connect to piping stubbed into right-of-way by contractor. Upon installation, the valve in the street is to be turned off by the District representative.

The customer requesting service must install the specified backflow preventer and coordinate the initial backflow test.

A Rivergrove Water District representative shall be present during the initial backflow test. A copy of the passing test report shall be furnished to the District representative. At this time, permanent service will be granted.

Section 2: Fire Service Installations

The following are general specifications required on all fire service installations. These specifications are in addition to those depicted in Section 1.

1. A Double Check Detector Assembly or Reduced Pressure Principle Detector Assembly will be required on all fire lines that are not fully metered.
2. Double Check Detector Assemblies will be the required backflow protection on fire systems that are **not or cannot** be injected or connected to an auxiliary water source; do not contain antifreeze; or do not pose any other health risk to be determined by the District. Installations must follow the District's specifications.
3. Reduced Pressure Detector Assemblies (RPDA) will be the required backflow protection on all fire systems that are or have the provisions to be injected, connected to an auxiliary water source, contain antifreeze, or pose any health risk to be determined by the District. An RPDA must be installed above ground in a protective enclosure and follow the District's installation specifications.
4. Any system or service with private fire hydrants will require a minimum of a DCDA at the property line. ***Private fire hydrants shall not be used as a water supply/source.***
5. All fire protection service installations shall be at the property line, within a vault approved by the District. Only approved products will be accepted. The District shall approve the proposed location of the vault and type of backflow assemblies to be used prior to installation.
6. The domestic water service may be installed in the same vault as the fire service only if the District approves the proposed installation. Please contact the District for more information on these applications.
7. The meter on the detector assembly bypass shall be a Neptune T-10 that reads in cubic feet and have a remote read touch pad installed in the vault lid.
8. Post indicator valves shall not be installed in place of Double Check Valve Assembly gate valves.

Section 3: Vault / Enclosure Specifications

1. Backflow assemblies shall not be installed in locations subject to continuous flooding. Vaults, any below grade installations, and above ground enclosures must be provided with adequate drainage. Drains or sump pumps may **not** be connected directly to sewers or

catch basins. A sump pump is required on all vaults unless one vault can drain by gravity into an adjacent vault equipped with an automatic sump pump. Use of the center sump is approved unless installation criteria cannot be met. In this case, an additional sump must be core drilled in a location approved by the District.

2. Vault like with frame and hinged cover: (Utility Vault or equivalent) where applicable use Center-Offset and cover lids (Utility Vault or equivalent). These will allow for necessary clearance for ladders in single assembly installations. For multiple assemblies in the same vault, Utility Vault Centered frame and cover lids may better accommodate installation criteria. A minimum of 30" manhole cover, with a recessed lift handle, may be used in parking lot and driveway installations only and where traffic loading exceeds that of a traffic rated frame and cover.
3. An approved rigidly mounted ladder, with an extension which extends 3' above the vault lid (Utility Vault Pull-Up Extension or equivalent) is required if the vault or chamber is 4' or greater in depth. The ladder shall be mounted vertically in the entryway of the vault or chamber and be securely anchored at top and bottom. The top and bottom rungs must be within 12" of the opening and floor, respectively. All rungs must have at least 7" of toe clearance. The ladder shall not infringe on the installation clearances for the type of assembly required.
4. A moisture-proof light fixture will be required if adequate lighting is not available.
5. At least 6' of vertical headroom is required in all vaults, and/or below grade installations. Full opening double doors (Utility Vault or equivalent) can be used to obtain the 6' requirement but must encompass the entire lay-length of the assembly and must not encroach on required ladder clearances.
6. Shall be sealed watertight at all openings with non-shrink grout or equivalent.
7. Only pre-cast vaults (Utility Vault or equivalent) that accommodates the installation criteria will be accepted for backflow assemblies installed below grade.
8. Above ground enclosures may have clearances less than those mentioned in Section 1, provided they are equipped with removable panels or doors that create clearances equal to or greater than those described in Section 1 for testing and maintenance. Such installations must be protected from freezing or other environmental concerns.
9. All vaults and enclosures for backflow assemblies shall be kept free of any debris and objects that interfere with these installation requirements.
10. Vault and enclosures shall not contain loose fill materials of any kind.
11. Coat all outside concrete surfaces with Crystal Seal or approved equal.
12. Shall comply with all specifications of this document where applicable. It is the contractor's responsibility to verify the assembly purchased will meet OARS Rule 333-061-0070 for concrete vault size.

Double Check Valve Sizing Chart		
Size	Vault	Lid

2.5”	660LA (42”W x 66”L x 62” D)	2-332P Center Offset
3”	577LA (50”W x 78”L x 72” D)	2-332P Center Offset
4”	577LA (50”W x 78”L x 72” D)	2-332P Center Offset
6”	676LA/WA (64”W x 82” L x 73” D)	2-332P Center Offset
8”	687LA/WA (72” W x 96” L x 84” D)	2-332P Center Offset
10”	5106LA/WA (60”W x 126” L x 73” D)	2-332P Center Offset

*676LA vaults may be required on 3” and 4” installations when used with FDC if clearances cannot be met.

*A single door can be used on 2.5” installations provided overhead and ladder clearances can still be met.

Section 4: Inground Irrigation Systems (Commercial and Residential)

The following are general specifications required on all inground irrigation systems. These specifications are in addition to those depicted in Section 1.

1. Obtain required permits issued by the local municipality. The District does not issue permits. All building and/or plumbing permits are issued by the local municipality where the work is being done.
2. An Oregon Health Authority approved Double Check Valve Assembly (DCVA) is the recommended backflow assembly for underground irrigation systems. There are other testable alternatives, however the DCVA offers the best protection from freezing because it is the only assembly that can be installed underground. ***Atmospheric vacuum breakers (AVB) are not accepted in the District’s service area because they cannot be tested.**
3. Installation requirements for the DCVA are as follows:
    a. The DCVA must be installed after the meter (house side of the meter) at the point of the Tee or connection to the main water service. It is recommended to also install a ball valve or another type of water shut off valve after the tee and before the DCVA. If the DCVA should ever need to be replaced or is damaged due to freezing or another factor, the irrigation system can be shut off without disrupting your primary water service. This is only a recommendation and is optional.
    b. The DCVA must be readily accessible and installed with adequate room for testing and maintenance.
    c. Assemblies 2” and smaller should have at least a 6” clearance below and 3” clearance on both sides of the assembly.
    d. The assembly should not be less than 12” or more than 24” below grade.
    e. Test ports should be fitted with brass pipe plugs.
    f. Shall provide 12 inches of crushed rock for drainage at the bottom of the assembly box.

g. All backflow assemblies installed per OAR 333-061-0070 are to be tested by an Oregon Certified Backflow Tester when:
    i. Installed
    ii. Annually not later than September 30th
    iii. The assembly is relocated
    iv. The assembly is repaired for any reason
    v. There is a known backflow incident
4. All backflow assemblies installed must be on the USC approved list of backflow assemblies.
5. The Rivergrove Water District **does not** accept Atmospheric Vacuum Breakers (AVB) as sufficient backflow protection.

Section 5: Reduced Pressure Backflow Assembly (RPBA) and Reduced Pressure Detector Assembly (RPDA) Installation Requirements

The following are general specifications required on all RPBA and RPDA installations. These specifications are in addition to those depicted in Section 1.

1. An RPBA and RPDA must be installed at the property line of any customer's service line where there is actual or a potential for contamination that would be a health risk to the potable water supply as determined by the District.
2. In many cases, plumbing codes will require "point of use" RPBA installs within a customer's premises.
3. An RPBA and RPDA of any size must comply with all other backflow assembly requirements outlined by the District.
4. Additional RPBA and RPDA installation requirements include:
    a. Must **not** be installed below grade.
    b. Must be installed in a protective above-ground enclosure when there is potential for freezing or other environmental concerns.
    c. Above ground enclosures must comply with required clearances unless the enclosure is fully removable or has doors that open to provide the required clearances.
    d. Must be installed above the 100-year flood level.
    e. Must **not** have relief valves extended or plugged.
    f. Relief valves can be provided with a District approved air gap drain. (An approved Air Gap separation between an inlet pip and the top rim of a receiving vessel is twice the diameter of the inlet pipe but never less than 1 inch).
    g. Must have adequate drainage.

h. Vault installations are prohibited unless an adequately sized (to handle full flow discharge) bore-sighed drain to daylight is provided. ***The District shall approve this in advance.**
i. Line pressure fluctuations may cause relief valve to discharge. Installation around/over certain areas may be objectionable.
j. In-line strainers are recommended.
k. All Reduced Pressure Backflow Assemblies must be tested per OAR 333-061-0070 when installed in lieu of a Reduced Pressure Backflow Assembly at the property line.

Section 6: Tankers and Other Mobile Apparatus

1. All tankers and other mobile apparatuses to which the District supplies water will provide and ensure necessary backflow protection. Installation of an approved air gap separation on any and all tankers or mobile apparatus' will be required before use of any District hydrants, fill stations, or any other District water source is granted. An inspection by a District representative will be required.
2. A hydrant use permit shall be obtained from the District before use of any District hydrants, fill stations, or any other District water source is granted.