



PREMISE ISOLATION CROSS-CONNECTION CONTROL PROGRAM

COVINGTON WATER DISTRICT

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PREMISE ISOLATION CROSS-CONNECTION CONTROL PROGRAM

1. LEGAL AUTHORITY

The Covington Water District's (District) Premise Isolation Cross-Connection Control Program (Program) was developed in accordance with the requirements of WAC 246-290-020 and adopted by the District Board of Commissioners, as a required section of the May 2016 Water System Plan (Plan), approved by Resolution 4230 on March 15, 2017. Updates to this Program were codified by the Covington Water District Board of Directors, as a section of the DAC, adopted on December 7, 2016 by Resolution No. 4210.

2. PURPOSE

The intent of this Program is to provide for the permanent abatement or control, by way of backflow prevention, of all cross-connections to the Covington Water District system as required by WAC 246-290-490. When it is deemed necessary by the General Manager or the Cross Connection Control Coordinator of the District, there will be installed, at a customer's service connection, an approved backflow prevention assembly commensurate with the degree of health hazard to the District water supply (premise isolation).

3. DEFINITIONS:

ACCESSIBLE – In reference to the installation of backflow preventers, accessible will mean that such backflow preventers will be placed so that they can be reached for testing and/or maintenance safely, but may allow access panels, doors, etc.

APPROVED AIR GAP – a physical separation between the free flowing end of a potable water supply pipeline and the overflow rim of an open or non-pressurized receiving vessel. To be approved the separation must be at least:

- Twice the diameter of the supply piping measured vertically from the overflow rim of the receiving vessel, and in no case be less than one inch, when unaffected by vertical surfaces (sidewalls);
- Three times the diameter of the supply piping if the horizontal distance between the supply pipe and a vertical surface (sidewall) is less than or equal to three times the diameter of the supply pipe. Or if the horizontal distance between the supply pipe and intersecting vertical surfaces (sidewalls) is less than or equal to four times the diameter of the supply pipe and in no case less than one and one-half inches.

APPROVED BACKFLOW PREVENTION – an air gap or assembly that has been approved by the Washington State Department of Health and Covington Water District for preventing backflow.

AUXILIARY WATER SUPPLY – any water supply on or available to the premise other than the Covington Water District’s approved public water supply. These auxiliary supplies may include water from another purveyor’s public water supply, or any natural source such as a well, spring, river, stream, lake, etc. and/or reclaimed water or industrial fluids.

BACKFLOW – the undesirable reversal of flow of water or other substances through a cross-connection into the District’s water system, or consumer’s potable water system.

BACKFLOW ASSEMBLY TESTER (BAT) – a person who is certified by the Washington State Department of Health to test backflow prevention assemblies.

BACKFLOW PREVENTION ASSEMBLY – a certified assembly that prevents backflow into the District’s water distribution system.

BACKFLOW PREVENTION DEVICE – Refers to a backflow preventer that is not designed for in-line testing.

BACKFLOW / CROSS-CONNECTION SPECIALIST – person(s) authorized and designated by the District to inspect premises for potential cross-connection.

BACKPRESSURE – backflow caused by a pump, elevated tank, boiler, or other means that could create pressure within the system greater than the supply pressure.

BACKSIPHONAGE – a form of backflow due to a negative or sub-atmospheric pressure within a water system.

CERTIFIED CROSS-CONNECTION CONTROL SPECIALIST – an individual certified by the State and approved by the District to administer a cross-connection control program and to conduct cross-connection surveys.

CHECK VALVE – a generic term used for a variety of valves that specifically allows flow in one direction only. The variety of such valves include slanting disc checks, silent checks (wafer or globe) automatic control valves, rubber flapper checks, double disc swing checks, swing checks (internally or externally weighted), and a spring loaded check. A check valve in an approved assembly must be an approved check valve that is drip tight in the normal direction of flow when the inlet pressure is at least one psi.

CONSUMER’S WATER SYSTEM – is any potable and/or industrial water system that begins at the point of delivery from the District water meter or connection and is located on the consumer’s premises.

CONTAMINANT – any substance present in drinking water that may adversely affect the health of the consumer or the aesthetic qualities of the water.

CROSS-CONNECTION – any physical arrangement or potential arrangement whereby the District’s water system is or may be connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains, or may contain, contaminated water, sewage, or other waste or liquid of unknown quality which may be capable of having the potential to contaminate the District’s water supply as the result of backflow or backsiphonage. By-pass arrangements, jumper connections, removable sections, swivel or changeable devices, and other temporary or permanent devices through which, or because of which, a backflow or backsiphonage may occur, are considered to be cross-connections.

CUSTOMER – any person or organization who receives water from Covington Water District.

CUSTOMER’S SYSTEM – the water piping system located immediately downstream from the District’s water meter or service connection.

DEGREE OF HAZARD – will express the results of an evaluation of a health, system or plumbing hazard.

DISTRIBUTION SYSTEM – the network of pipes and other facilities which are used to distribute water from the source, treatment, transmission, or storage facilities to the water user.

DISTRICT – Covington Water District.

DISTRICT’S WATER DISTRIBUTION SYSTEM – the water distribution system owned and operated by the District including the service connection to a water main.

DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) – a state approved backflow prevention assembly consisting of two approved double check valve assemblies, set in parallel, equipped with a meter on the bypass line to detect small amounts of water leakage or use.

DOUBLE CHECK VALVE ASSEMBLY (DCVA) – a State approved backflow prevention assembly composed of two single, independently acting check valves, spring loaded to the closed position, and installed as a unit with, and between, two resilient seated shutoff valves and having four properly located resilient seated test cocks.

FACILITY SURVEY – the on-site review for the purpose of evaluating any health hazards to the potable water system. A survey of the customer’s premises is not intended to be an inspection of the entire plumbing system, it allows the District’s cross-connection specialist to make a judgment of what requirements will be imposed upon the customer to obtain, or continue to obtain water from the purveyor.

HIGH-HEALTH CROSS-CONNECTION HAZARD – a cross-connection which could impair the quality of potable water and create an actual public health hazard through poisoning or spread of disease by sewage, industrial liquids or waste.

IRRIGATION SYSTEMS - a lawn irrigation system is any system of underground piping, with stationary or non-stationary sprinkler heads, connected directly or indirectly to the District's distribution system, on either a temporary or permanent basis. Irrigation systems can be either low-health hazard or high-health hazard systems. High-health hazard systems contain pumps or injectors for addition of chemicals. An approved air gap or an approved reduced pressure backflow assembly is required for premise protection. The assembly is to be located at the end of the District water connection on the customer's side of the property line.

A low-health hazard is assessed to all other irrigation systems. An approved double check valve assembly will be installed at the end of the meter connection on the customer's side of the property line.

LOCAL ADMINISTRATIVE AUTHORITY – the local official, board, department, or agency authorized to administer and enforce the provisions of the Uniform Plumbing Code as adopted under chapter 19.27 RCW.

LOW-HEALTH CROSS-CONNECTION HAZARD – a cross-connection that could cause an impairment of the quality of potable water to a degree that does not create a hazard to the public health, but does adversely and unreasonably affect the aesthetic qualities of such potable waters for domestic use.

MAXIMUM CONTAMINANT LEVEL (MCL) – the maximum amount of a contaminant allowed in a sample of water according to federal and state regulations.

NON-POTABLE FLUID – any water, other 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.

POTABLE WATER – water which is safe for human consumption and free from harmful or objectionable materials, as described by the health authority.

PREMISES – a piece of land to which water is provided, including all structures and improvements located on it.

PREMISE ISOLATION – the practice of protecting the public potable water supply by installing backflow prevention assemblies at the end of the District's water meter connection on the customer's side of the property line. Covington Water District utilizes premise isolation in its cross-connection control program.

REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) – a state approved backflow prevention assembly composed of two independently acting check valves spring loaded to the closed position and an automatically opening differential relief valve located between the two check valves. Installed as a unit with, and between, two resilient seated shutoff valves and having four properly located resilient seated test cocks.

REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) – a state approved backflow prevention assembly incorporated of two approved reduced pressure backflow assemblies, set in parallel, equipped with a meter on the bypass line to detect small amounts of water leakage or use.

SAFE DRINKING WATER ACT – legislation enacted by the US Congress in 1974 to ensure that the public is provided with safe drinking water.

SERVICE CONNECTION – the piping connection by means of which water is conveyed from the District’s distribution main to a customer’s property line, or to the end of the meter connection.

THERMAL EXPANSION – the pressure increase due to a rise in water temperature. The problem becomes acute in heated water piping systems when such systems become “closed” due to a backflow prevention assembly, which disallows expansion beyond that point.

USC FCCCHR – is the abbreviation for the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research. It is an agency, which tests and approves backflow prevention assemblies by approved standards.

4. GENERAL POLICY

- A.** In order to provide for an orderly and adequate means of backflow prevention, the District has adopted the requirements herein for the protection of its distribution system as set forth in the approved District Administrative Code and Standard & Specifications. New water service connections will be installed, and existing water service connections will be modified to conform to these requirements where applicable.
- B.** The District’s responsibility for backflow prevention will begin at the water supply source and include all water treatment, storage, and distribution facilities. The District’s responsibility ends at the point of delivery to the consumer’s water system, which begins at the downstream end of the District’s service connection water meter located on the public right-of-way or utility-held easement.
- C.** Under provisions in WAC 246-290-490, the District is not responsible for eliminating or controlling cross-connections within the consumer’s water system (plumbing). That responsibility falls under the jurisdiction of the local administrative authority that is authorized to administer and enforce the Uniform Plumbing Code.

D. The District's water supply to any premise listed in WAC 246-290-490(4)(b)(iii)(Table 9) will require an approved Reduced Pressure Backflow Assembly (RPBA) installed directly behind the water meter, prior to any branch connections, on the customers side of the property line. These premises include, but are not limited to:

- Farms and Dairies
- Car Washes
- Commercial laundries/dry cleaners
- Film processing facilities
- Nursing Homes
- Medical and Dental Clinics
- Laboratories
- Mortuaries
- Petroleum processing or storage plants
- Sewer Lift stations (grinder pumps)
- Premises with available auxiliary water supplies when interconnected with the District's water supply.
- Beverage bottling plants
- Chemical plants
- Food processing plants
- Hospitals/Medical Centers
- Veterinary Clinics
- Blood Plasma Centers
- Metal Plating Industries
- Piers and Docks
- Survey access denied or restricted

Note: District customers with permit-exempt wells may choose to either decommission the well, according to Washington State Department of Ecology standards, or install RPBA's at all service connections where the well, or piping from the well, is interconnected with the District's system. If the well or other auxiliary water supply is not interconnected with the District's system, the installation of Double Check Valve Assemblies (DCVAs) at all service connections is required.

- Premises with separate irrigation systems using the District's water supply and with chemical additives.
- Premises where both reclaimed water and potable water are provided.
- Wastewater Treatment Plants ♦
- Nuclear reactors ♦
- Radioactive material processing plants ♦

♦ RPBA's for connections serving these premises are acceptable only when used in combination with an in-plant approved air gap; otherwise the District will require an approved air gap at the service connection(s).

E. Backflow prevention requirements for single family residences, when applicable, will comply with the following:

- The type of backflow prevention required will provide a level of protection commensurate with the degree of the cross-connection hazard.
- Backflow prevention devices will be installed according to District specifications;
- Is installed, inspected and tested in accordance with WAC 296-290-490; and
- Backflow preventer must be installed when outdoor water use (irrigation, etc) systems are installed.

5. PREMISE ISOLATION REQUIREMENTS

District connections serving premises with activities or water uses that may create a potential or actual cross-connection require the premise owner to provide backflow prevention methods, as determined by the District, commensurate with the hazard posed by the potential or actual cross-connection. The following list includes but is not limited to, the type of premise, and/or the type of activity or water use, at or within a premise, that require backflow prevention, and the District's minimum allowable method of backflow prevention for each. All other uses will require an assessment survey, conducted by the District's Cross-Connection Control Specialist, to determine the type of backflow protection required.

NON-RESIDENTIAL ACCOUNTS (Commercial, Schools, Government, Apartment Buildings, etc.)

All non-residential connections will require a RPBA to be installed at the end of the meter connection on the customer's side of the property line or utility easement.

WATER RE-USE SYSTEMS

Reclaimed water can be in systems that use treated sewage effluent, stormwater reuse systems, or gray water systems utilizing untreated household wastewater that has not come in contact with toilet or food processing waste. All classes of reclaimed water are considered by the District to be a high-health hazard and as such, direct connections between water re-use systems and the District's water system is strictly prohibited. Any premise utilizing a water re-use system will also be required to install a RPBA at the service connection(s) and to meet any additional Department of Health requirements under a permit issued in accordance with RCW 90.46.

RECLAIMED WATER

Reclaimed water systems refer to the effluent derived in any part from sewage treatment systems that has been adequately treated so that it is suitable for a controlled use that otherwise could not occur. Reclaimed water is considered a high-health hazard and such, a direct connection between a reclaimed water system and the District's water system is strictly prohibited. Any premise utilizing reclaimed water will also be required to install a RPBA at the service connection(s) and to meet any additional Department of Health requirements under a permit issued in accordance with RCW 90.46.

STORMWATER RE-USE

Stormwater reuse systems utilize rainwater collected from roof drains, roads, parking areas for lawn and irrigation purposes. All stormwater is considered a high-health hazard and as such, a direct connection between a stormwater use system and the District's water system is strictly prohibited. Any premise utilizing a stormwater reuse system will also be required to install a RPBA at the service connection(s).

GRAYWATER USE

Graywater systems utilize the effluent from untreated household wastewater, which has not come in contact with toilet or food processing waste. This includes water from bathtubs, showers, wash basins, clothes washers, but not kitchen sinks or dishwashers. All graywater systems will be considered a high-health hazard. As such, a direct connection between a graywater use system and the District's water system is strictly prohibited. Any premise utilizing a graywater use system will also be required to install a RPBA at the service connection(s).

AUXILIARY WATER SUPPLY

Any water supply on or available to the premise other than the Covington Water District's approved public water supply. These auxiliary supplies may include water from another purveyor's public water supply, or any natural source such as a well, spring, river, stream, lake, etc. and/or reclaimed water or industrial fluids.

Auxiliary water supplies are considered a high health hazard and as such, any direct connection between an auxiliary supply system and the District's water system will be protected by the installation of an approved RPBA. If the auxiliary supply is not interconnected with the District's system, premise isolation with a DCVA is required.

FIRE PROTECTION SYSTEMS

Fire protection systems must be considered as non-potable systems due to the poor quality of the water within. Water quality concerns include:

- The growth of microorganisms which create taste and odor problems
- The leaching of metals into the water
- The addition of corrosion inhibitors or other chemicals to protect piping
- Dry systems containing compressed air or nitrogen
- Systems which are constructed of unapproved material

If a backflow incident should occur the hazard may vary from a low health hazard or aesthetics concern to a high-health hazard and as such, the District requires the installation of a RPBA, a Reduced Pressure Detector Assembly (RPDA), a Double Check Valve Assembly (DCVA) or a Double Check Detector Assembly (DCDA), depending upon the application and the District's hazard assessment.

HIGH-HAZARD FIRE SYSTEM

This category of health hazard includes all fomite systems, systems with an auxiliary water supply connected to the fire system, and systems with chemical additives. A fire system (with antifreeze or chemical additives) will require an approved RPDA at the service connection.

The RPDA will be complete with a 3/4" bypass, 3/4" RPBA, and a 5/8" water meter, per District specifications.

LOW-HAZARD FIRE SYSTEM

This category includes only fire systems with NO anti-freeze or chemical additives. The backflow protection required for this type fire system is an approved DCVA or DCDA, depending upon the application.

Should a DCDA be required, it will be complete with a 3/4" bypass, 3/4" DCVA, and a 5/8" water meter, per District specifications.

SEWAGE LIFT/PUMPING STATIONS

All sewage collection and pumping stations pose a severe health hazard due to the potential presence of human pathogens in the sewage. Lift/pumping stations can be utility owned or privately owned. All sewage lift/pumping stations are required to be protected by the installation of an approved RPBA.

ACCESS RESTRICTED OR DENIED

Should District staff be denied access or have restricted access to a premise, when attempting to perform an assessment survey, the District will consider the health hazard to be severe unless it has the knowledge to make an assessment otherwise. In this case, the District may deny water service to the premise, until such time District staff is able to complete an assessment survey.

At such time the assessment survey has been completed, the District will require backflow prevention commensurate with the assessed health hazard.

CAR WASHES

Most automatic car washes use re-circulating water with chemical addition in heated water. The system is considered a high-health hazard because of the chemicals and bacteriological contaminants in the water. All facilities of this type are considered to be a high-health hazard, and as such, the installation, per District specifications, of an approved RPBA is required for this type of facility.

FARMS/DAIRIES

The storage and handling of chemicals and unapproved auxiliary water supplies implies a high-health hazard, and as such the installation, per District specifications, of an approved air gap or an approved RPBA is required for this type of facility.

HOSPITALS, MEDICAL CENTERS, VETERINARY CLINICS, DENTAL CLINICS, MEDICAL CLINICS, and NURSING HOMES

The primary health hazard is from the presence of waterborne disease transmitted in the feces, urine and blood of humans and animals. A secondary health hazard may come from the numerous chemicals used in these facilities. All facilities of this type are considered to be a high-health hazard, and as such, the installation, per District specifications, of an approved air gap or an approved RPBA is required for this type of facility.

IRRIGATION SYSTEMS

A lawn irrigation system is any system of underground piping, with stationary or non-stationary sprinkler heads, connected directly or indirectly to the District's distribution system, on either a temporary or permanent basis. Irrigation can be either low-health hazard or high-health hazard systems.

- High-health hazard systems contain pumps or injectors for addition of chemicals. The installation, per District specifications, of an approved air gap or an approved RPBA is required for this type of irrigation system.
- A low-health hazard is assessed to all other irrigation systems. The installation, per District specifications, of an approved DCVA is required for this type of irrigation system.

LABORATORIES

Laboratories are facilities using and handling chemicals and bacteriological materials such as medical, biological, chemical, environmental, and material testing laboratories, including government agencies and schools. All laboratories are considered to be a high-health hazard, and as such, the installation, per District specifications, of an approved air gap or an approved RPBA is required for this type of facility.

SHOPPING MALLS

Due to the high probability of changes in water use by tenants, shopping malls are considered a high- health hazard, and as such, the installation, per District specifications, of an approved RPBA is required for this type of facility.

RECREATIONAL VEHICLE PARKS

Recreational vehicle parks usually contain a transient population that significantly increases the probability of cross-connections due to plumbing that has not been approved. Recreational vehicle parks are considered to be a high health hazard, and as such, the installation, per District specifications, of an approved RPBA is required for this type of facility.

HEAT EXCHANGERS/SOLAR HOT WATER SYSTEMS

Heat exchangers physically separate one medium from another and heat or cool a medium by transferring energy from one medium to another across an enlarged surface. Whenever potable water is connected to a heat exchanger, or when a heat

exchanger is used to heat potable water, a hazardous cross-connection exists. Premises with these types of systems are considered to be a high health hazard, and as such, the installation, per District specifications, of an approved RPBA is required.

TALL BUILDINGS (COMMERCIAL-OVER 30')

Whenever the hydraulic gradient (water pressure) falls below the elevation of a plumbing fixture, backsiphonage conditions can occur. This probability of backflow increases the risk assessment for tall buildings over residential houses. Because of this, tall buildings are considered to be a high health hazard, and as such, the installation, per District specifications, of an approved RPBA is required for this type of facility.

NEW WATER MAIN CONSTRUCTION

New sections of water main that are installed must be separated from the existing system until approved and placed in operation. Until satisfactory flushing and bacteriological sampling has been completed, the water must be considered contaminated and backflow protection will be accomplished by the use of an approved RPBA when filling the new main during disinfection and flushing.

TANKER TRUCKS

Tanker trucks should be assessed the same as an unapproved auxiliary source, or a high-health hazard, and as such, the utilization of an approved RPBA connected to the District's source, when filling the truck, is required. In rare cases an approved air-gap may be used in place of a RPBA upon approval from the District's Cross Connection Control Specialist.

SEWER FLUSHING

When sewer or storm drains are flushed an approved air gap separation, between the District water source and the sewer or storm drain, will be maintained at all times to protect the potable water system. If at all possible water for flushing should be provided by tanker trucks.

FIRE HYDRANTS

Any portable pressure spray or cleaning unit that is capable of connecting to any potable water supply will be fitted with an approved DCVA if it does not contain an approved air gap. If chemicals are used, an approved RPBA must be used in place of the DCVA.

6. PERSONNEL

A. PROGRAM ADMINISTRATOR

The Cross Connection Control Coordinator (Program Administrator) is responsible for organizing and implementing the District's program. The Program Administrator will hold a valid Washington State Cross-Connection Control Specialist certification, be experienced in water works operations, and have specific training through recognized courses and seminars in cross-connection control and backflow prevention. Duties include the initial screening of all service applications and determination of the need for the proper backflow prevention device; issuing correspondence to customers; record keeping for the program; periodic review of customer premises and/or consumption patterns, to assure that all cross-connections are controlled; initiation of enforcement action; response to contamination events; investigation; and communication with state health authorities.

B. CROSS-CONNECTION CONTROL SPECIALIST (CCS)

This person must hold a valid Washington State Cross-Connection Control Specialist certification in accordance with WAC 246-292-490. Duties include plan review; initial and repeat survey of facilities; review of tests done by a certified Backflow Assembly Testers (BAT); recommendation of installation standards and procedures required for premise isolation; recommendation of material for public education; input test and device data into computer data base; and assist the program administrator.

7. ENFORCEMENT

A. The District may immediately terminate water service, require disconnection of a cross-connection and/or impose fines when the District determines that a health hazard, or potential health hazard, exists. An example of a health hazard is an uncontrolled potential, direct or indirect cross-connection, and/or a cross-connection that is not controlled commensurate with the degree of health hazard.

B. Advanced notification will be provided before any of the above measures are taken, unless the degree of hazard, or potential degree of hazard, is so severe that it could cause immediate contamination and/or health threat. The following circumstances may result in termination of water service, the imposition of a fine, or both:

- Refusal to install a backflow prevention assembly when required by the District, or the State Department of Health.
- Failure to replace an improper type, and/or failure to replace or repair a defective or improperly installed backflow prevention assembly.
- Failure to have the backflow prevention assembly tested and/or inspected per District requirements.
- Existence of a high-health hazard cross-connection, to the District's system, that is not protected with the appropriate backflow prevention assembly.
- Refusal to allow inspection of the premises.

In the case of application for water service, the service will not be granted if the District determines that any of the above conditions exist.

- C.** Prior to taking action to terminate or deny service to a premise, the appropriate Local Administrative Authority, and/or Fire Marshal will be notified.
- D.** In the event that water service is terminated and/or the meter removed, service will not be resumed nor the meter reinstalled until the customer has complied with the cross connection program requirements. All non-compliance fines and related fees as identified in Rate Table III will be charged to the property.
- E.** In the event of cross-connection fine/s and meter lock fee being levied, the customer will pay all penalties to their account prior to paying the assessed water bill. If complete payment is not received, the service may be subject to disconnect for non-payment. Fines for non-compliance will be assessed in accordance with the District's then current Rate Table III.
- F.** Customers who remain out of compliance will be subject to water service termination and will remain terminated until compliance is met. The foregoing remedy for violations will not be exclusive. The District, the State Department of Health, and/or other regulatory agencies will be entitled to enforce this Cross Connection Control Program and the referenced regulations in any manner available by law.
- G.** Covington Water District will not be liable for damages nor will allowances be made for loss of production, sales or services, or any other consequential damages arising from the implementation of any of the measures required by and/or contained in this Program.

8. ANNUAL BACKFLOW PREVENTION ASSEMBLY TESTING

- A.** All backflow prevention assemblies will be tested upon installation, repair, or relocation and annually by a certified Backflow Assembly Tester (BAT). All tests are due to the District by July 31st to avoid fines and potential termination of service. Annual testing for the compliance period shall begin January 1st and end July 31st each calendar year.
- B.** A Backflow Assembly Tester (BAT), holding a valid Washington State BAT certification is required to complete all testing of backflow prevention assemblies. Testers will be required to furnish a current Washington State Department of Health Certification to the District prior to the District's acceptance of any backflow prevention assembly test reports.
- C.** If the customer remains out of compliance they will be subject to termination of water service.

9. PREVIOUSLY INSTALLED ASSEMBLIES

Backflow prevention assemblies which were approved at the time of installation but are not on the current list of approved assemblies will be permitted to remain in service provided they are maintained; are commensurate with the degree of hazard; are tested at least annually; and perform satisfactorily.

- Backflow prevention assemblies in service but not currently listed, as an approved assembly will be replaced by an assembly on the current list of approved assemblies if the not-currently listed assembly is relocated or requires more than minimum maintenance to successfully pass the annual test.
- If a water system protected by a backflow prevention assembly is modified to include components or additives requiring a higher level of protection against backflow, the backflow prevention assembly will be replaced with an approved assembly appropriate for the degree of hazard.

10. DISTRICT IS AUTHORIZED TO HIRE APPROVED CONTRACTOR

In the event the cross-connection is not abated within the prescribed time, water service to the premises will be discontinued immediately. Or, if the General Manager or designated representative determines that the service should not be interrupted, the District may hire a contractor to abate the cross-connection by means of installing an approved backflow prevention assembly. In such event, the District will bill the property owner for all costs and administration incurred.

11. RECORDS AND REPORTS

An adequate record system is essential for the operation of a backflow prevention program. These records form the basis for any enforcement action or legal defense by the District, as well as giving a basis for comparing test results of different backflow assemblies. The Program Health Hazard Database will consist of:

- a) A separate record will be established for each individual customer that requires the installation of a backflow prevention assembly.
- b) All backflow prevention assembly test reports will be entered into a computer program that tracks assembly testing and dates of tests.

12. CONSUMER EDUCATION

A. Public education is a very important aspect of the cross connection control program. Premises with a low priority for a survey, such as single family residential homes, may never be surveyed. Customers are provided with informational brochures describing cross-connection hazards in homes and the recommended assemblies that are to be installed by the homeowner to reduce the hazards. Public education explains the necessity of the cross connection control program and prevents misunderstandings.

- B.** The District's consumer education will be clear that the information provided is based on its perspective of cross-connection control and the necessary backflow prevention to protect the public water supply, and that the customer has the obligation to comply with these requirements.

- C.** District education programs consist of; customer newsletters, brochures, consumer confidence reports, displays at public gatherings, the District's website and special training sessions for District employees and interested persons.

13. BACKFLOW PREVENTION ASSEMBLY INSTALLATION

A. GENERAL REQUIREMENTS

All backflow prevention assemblies will be listed on the most current list of approved backflow prevention assemblies published by the Washington State Department of Health. Installation of backflow prevention assemblies in existing systems, especially fire sprinkler systems, will be accompanied by the necessary upsizing of the system to assure adequate flow capacity for proper operation of the system. Retrofitted fire systems will be installed by a licensed fire protection sprinkler system contractor in accordance with RCW 18.160 and meet the approval of the Fire Marshal. Installation requirements include, but are not limited to, the following:

- Approved assemblies must be installed directly behind the water meter and on the customer side of the property line.
- When installed in an enclosure, adequate space considerations must be given for proper testing and maintenance as per District specifications.
- Any assembly or device with an air inlet or relief port must be installed outside any enclosure or hooded area containing fumes that are corrosive, toxic, or poisonous.
- No part of the approved assembly will be submerged under water, nor installed at a location subject to flooding. If installed in a vault, adequate drainage will be provided.
- In all cases, whenever access to a vault is required, follow and comply with local state, and federal safety rules regarding confined space entry. The vault will be large enough for free access for workers to enter for testing and/or repairing the assembly.
- Reduced Pressure Backflow Assemblies may be installed in a vault only if the relief valve discharge can be drained to daylight through a “bore sight” type drain. The drain will be of adequate capacity to carry the full rated flow of the assembly and will be screened at both ends. An approved air gap will be located on the relief valve.
- Assemblies 2-1/2 inches and larger will have support blocks to prevent damage to the assembly or piping.
- For installations where 24 hour uninterrupted service is necessary, a parallel assembly should be provided to permit assembly testing and maintenance. The bypass or parallel backflow prevention assembly must be of the same type as the main line assembly.
- Thoroughly flush the lines before installing the assembly to eliminate debris from the lines that could foul one of the checks or relief port.

B. FREEZE PROTECTION:

Backflow prevention assemblies are installed on all types of water services, so it is not always appropriate to shut down a system to drain the assembly to prevent freezing. Backflow prevention assemblies should be protected from freezing and other severe weather, and from accidental physical damage. Experience has shown that freeze damaged assemblies are often damaged beyond repair, so they must be replaced. All backflow prevention assemblies should have provisions for freeze protection.

C. THERMAL EXPANSION

A backflow prevention assembly placed on a water service can cause thermal expansion. Serious damage could occur to a plumbing system if the pressure and high temperature caused by thermal expansion is not relieved. Excessive water temperature or pressure inside a hot water tank, if not relieved, could cause the tank to explode. The customer's hot water tank and connected plumbing system is normally protected by a temperature/pressure relief valve located at or near the top of the hot water heater. In addition some plumbing codes require a thermal expansion tank to be installed.

REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)

INSTALLATION REQUIREMENTS

The reduced pressure backflow assembly is designed to prevent backflow caused by backpressure and backsiphonage for both low and high-health hazard assessments.

The following installation practices are common to all reduced pressure backflow assemblies and reduced pressure detector assemblies.

1. An RPBA will only be installed in the orientation for which they are approved. Any other configuration may hinder the assembly in preventing backflow.
2. The RPBA must be on Washington State DOH Approved list.
3. The RPBA must be tested upon installation & then annually thereafter.
4. The RPBA must be tested if moved or repaired.
5. An RPBA must be installed above ground at a minimum of twelve (12) inches from relief valve opening to ground level or flood level.
6. The assembly must be protected from freezing, other severe weather and from accidental damage.
7. Because of the inherent design of a reduced pressure backflow assembly, fluctuating supply pressure condition may cause nuisance dripping and potential fouling of the assembly. In a static condition the zone of reduced pressure between the check valves must be maintained at 2.0 PSI or greater differential below incoming supply pressure. Depending upon the degree of fluctuating pressure, the assembly may discharge water from time to time.
8. Approved assemblies larger than two (2) inches will have a minimum clearance of twelve (12) inches on the backside and twenty-four (24) inches on the test cock side, twelve (12) inches plus the nominal size of the assembly below the device and thirty-six (36) inches above the assembly.

Assemblies less than two (2) inches will have a minimum clearance of six (6) inches on the backside, twelve (12) inches on the test cock side of the assembly, and twelve (12) inches plus the nominal size of the assembly below the device and thirty-six (36) inches above the assembly.

For standard details refer to the Districts Standards and Specifications, available on the District's website or by contacting the District office.

DOUBLE CHECK VALVE ASSEMBLY (DCVA)

INSTALLATION REQUIREMENTS

The double check valve assembly is designed to prevent backflow caused by backpressure and backsiphonage for low health hazard assessments.

The following installation practices are common to all double check valve assemblies.

1. Unless the DCVA has been elevated and approved by the District, it will only be installed in a horizontal configuration. Any other orientation may deter the DCVA from preventing backflow.
2. A DCVA may be installed in a pit below ground. If so, adequate room for testing and maintenance must be provided. Plugs must be installed in the test cocks to reduce the risk of ground water from being siphoned through a leaking test cock. The test cocks must be installed facing up or to one side. Sufficient draining must be provided to prevent the assembly from being submerged.
3. Approved assemblies (2) inches or larger will have a minimum clearance of six (6) inches on the backside and twelve (12) inches on the test cock side, twelve (12) inches below the assembly and adequate room above the assembly.

Assemblies less than two (2) inches will have a minimum clearance of six (6) inches on the test cock side and (6) inches below the assembly.

4. The DCVA must be on Washington State DOH Approved list.
5. The DCVA must be tested upon installation & then annually thereafter.
6. The DCVA must be tested if moved or repaired.
7. The DCVA must be protected from freezing, other severe weather and physical damage.

For standard details refer to the Districts Standards and Specifications, available on the District's website or by contacting the District office.

DOUBLE CHECK DETECTOR ASSEMBLY (DCDA)

INSTALLATION REQUIREMENTS

The double check detector assembly is designed to prevent backflow caused by backpressure and backsiphonage. They are used for low health hazard assessments on fire lines.

The following installation practices are common to all double check detector assemblies.

1. Unless the DCDA has been elevated and approved by the District, it will only be installed in a horizontal configuration. Any other orientation may deter the DCDA from preventing backflow.
2. A DCDA may be installed in a pit below ground. If so, adequate room for testing and maintenance must be provided. Plugs must be installed in the test cocks to reduce the risk of ground water from being siphoned through a leaking test cock. The test cocks must be installed facing up or to one side. Sufficient draining must be provided to prevent the assembly from being submerged.
3. Approved assemblies larger than two (2) inches will have a minimum clearance of twelve (12) inches on the backside and twenty-four (24) inches on the test cock side, twelve (12) inches plus the nominal size of the assembly below the device and thirty-six (36) inches above the assembly.
4. The DCDA must be on Washington State DOH Approved list.
5. The DCDA must be tested upon installation & then annually thereafter.
6. The DCDA must be tested if moved or repaired.
7. The DCDA must be protected from freezing, other severe weather and physical damage.

For standard details refer to the Districts Standards and Specifications, available on the District's website or by contacting the District office.

14. LOCAL ADMINISTRATIVE AUTHORITY

The District and the local administrative authorities (City of Covington, Maple Valley, Black Diamond, Kent, Auburn and King County) agree to delineate responsibilities and coordinate activities relating to cross-connection control. The District will be responsible for the protection of the water distribution system at the property line from backflow. The local administrative authority will be responsible for cross-connection control within the property plumbing as required by the Uniform Plumbing Code.

15. BACKFLOW INCIDENT INVESTIGATION:

- A. When a taste, color, or odor inquiry is received, the person responding should try to gather as much relevant information as possible by using a Backflow Incident Report. While it is important to get a good description of the problem, the person taking the inquiry should try to refrain from suggesting problems if possible, as people generally tend to agree with the suggestion instead of carefully assessing the real problem.

- C. The next step is to investigate the inquiry, and determine what sort of response is appropriate under a certain set of conditions. For instance, if there were only one inquiry, the response would probably be somewhat different than if there are ten queries from the same area. In either circumstance there are certain minimum steps that should be taken.
 - The District will send an employee to the site in question to examine the water.
 - Certain minimum tests should be performed, such as pH, and chlorine residual. The pH and chlorine tests are good immediate indicators of potential problems, and if the results indicate a potential problem, a bacteriological analysis should be completed.
 - Water Management Laboratories, Inc. will test samples quickly and on short notice, including weekends or evenings, in the event of an extreme emergency.

16. REFERENCES

Covington Water District Cross-Connection Control Program references include:

- The Federal Safe Drinking Water Act
- Washington Administrative Code 246-290-490
- Covington Water District Administrative Code
- Covington Water District Standards and Specifications
- The Cross-Connection Control Manual Accepted Procedure and Practice - Pacific Northwest Section of American Water Works Association – 6th edition,
- University of Southern California Foundation for Cross Connection Control and Hydraulic Research.
- Recommended Practice for Backflow Prevention and Cross-Connection Control (M-14) – American Water Works Association, 1990