



System No.1910028

Cross-Connection Control Plan

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CHAPTER 1: INTRODUCTION

1.1. CRESCENTA VALLEY WATER DISTRICT STATEMENT AND VALUES

Crescenta Valley Water District cares about the quality of the local service it delivers. Crescenta Valley Water District deliberates and invests for the long term. Crescenta Valley Water District places tremendous importance on the safety of its employees and the public.

1.2. PURPOSE, RESPONSIBILITY, AUTHORITY, AND PROGRAM IMPLEMENTATION

The purpose of this plan is (1) to protect the public water supply against actual or potential contamination through cross-connections by isolating sources of contamination or unauthorized cross-connection; (2) to eliminate existing connections between drinking water systems and other sources of water that are not approved as safe and potable for human consumption.

Crescenta Valley Water District shall be responsible for protecting CVWD's system from contamination or pollution due to actual or potential cross-connections.

Under state regulations, Crescenta Valley Water District is required to have a cross-connection control program in the systems it serves. The Crescenta Valley Water District Cross-Connection Control Program (CCCP) includes the following elements:

- A. Adoption of operating rules or ordinances to implement the cross-connection program.
- B. Performance hazard assessments/ surveys to identify water user premises where cross-connections are likely to occur.
- C. Provisions of backflow protection by the water user at the user's connection.
- D. Provisions of at least one person certified to develop and implement a CCCP for local systems.
- E. The establishment of a procedure for timely backflow assembly testing.
- F. Maintenance of records of locations, tests, and repairs of backflow assemblies.
- G. Development and implementation of procedures for investigating and responding to suspected or actual backflow incidents.
- H. Implementation of a cross-connection control public outreach and education program. This program includes educating Crescenta Valley Water District staff, customers, and the community about backflow protection and cross-connection control.
- I. Coordination with local agencies associated with cross-connection control or public health protection to ensure hazard assessments can be performed; appropriate backflow protection is installed and maintained; and coordination in the investigation of backflow incidents when necessary.

Note: *It is understood that states may apply variations of the general requirements presented in this main document or impose additional requirements to meet their state and local needs. Variations and additions to this general document can be found in the Appendices.*

1.3. PROHIBITION

It is unlawful for any person, firm, or corporation at any time to make or maintain or cause to be made or maintained, temporarily or permanently, for any period of time whatsoever, any cross-connection between plumbing pipes or water fixtures being served with water by Crescenta Valley Water District and any other source of water supply or to maintain any sanitary fixture or other appurtenances or fixtures which, because of their construction, may cause or allow backflow of water or other substances into CVWD's water supply system.

1.4. DEFINITIONS

- A. Air-Gap Separation (AG): An air-gap separation means a physical separation between the free-flowing discharge end of a potable water supply discharge pipe and an open or non-pressurized receiving vessel. The air gap shall be at least double the diameter of the supply pipe measured vertically above the top rim of the vessel, in no case less than one inch. Wherever used in this manual, the term "air-gap separation" shall mean an installation inspected and approved according to the requirements of this plan and local regulations. An AG must be inspected and evaluated on a regular schedule as defined by state regulations or permit (if applicable) and CVWD.
- B. Approved Water Supply: An approved water supply means a water source approved by the state for domestic use in a public water system and designated as such in a domestic water supply permit.
- C. Auxiliary Supply: The term "auxiliary supply" means any water supply on or available to the premises other than the approved water supply delivered by the water purveyor to the service connection. An auxiliary supply may refer to a private well, a pond, a lake, a river, etc.
- D. AWWA Standard: The term "AWWA Standard" means an official and current standard developed and approved by the American Water Works Association (AWWA).
- E. Backflow: The term "backflow" shall mean a flow condition caused by a differential in pressure that causes the flow of water or other liquids, gases, mixtures, or substances into the distributing pipes of a potable water supply from any source other than an approved water supply source. Backsiphonage is one cause of backflow. Back pressure is the other cause.
- F. Backflow Prevention Assembly (BPA): A backflow prevention assembly is a mechanical assembly designed and constructed to prevent backflow, such that while in line, it can be tested and repaired, if needed, to ensure correct function. Only approved BPAs shall be installed. An approved BPA is one that has passed laboratory and field evaluation tests performed by a recognized testing organization, such as the Foundation for Cross-Connection Control and Hydraulic Research from the University of Southern California.

- G. Backpressure: Backpressure is defined as the flow from a customer’s pressurized system through an unprotected cross-connection into the potable water supply. This condition occurs when a force is exerted and reverses the flow of water in a direction opposite the intended normal direction of flow.
- H. Backsiphonage: Backsiphonage refers to backflow resulting from negative or reduced pressure in the water distribution supply.
- I. Certified Backflow Assembly Tester: A Certified Backflow Assembly Tester is any individual who has passed a backflow certification examination and is thus on a “List of Certified Testers” established by:

California **County of Los Angeles Public Health, CA-NV AWWA, or American Backflow Prevention Association (ABPA).**

- J. Chemigation: Chemigation means utilizing underground sprinkler systems to apply herbicides and pesticides.
- K. Confined Space: Any space that meets one or more of the following criteria:
 - 1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and,
 - 2. Has limited or restricted means for entry or exit (for example, tanks vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and,
 - 3. Is not designed for continuous occupancy. This definition is given because backflow assemblies are often found in these spaces.
- L. Contamination: The term contamination means a degradation of the quality of the potable water by any foreign substance which creates a hazard to public health; or which may otherwise impair the water's usefulness or quality.
- M. Cross-Connection: The term cross-connection, as used in this manual, means any unprotected actual or potential connection between a potable water system used to supply potable water: and any source or system containing unapproved water or a substance that is not or cannot be approved as safe, wholesome, and potable. By-pass arrangements, jumper connections, removable sections, swivel or changeover assemblies, or other assemblies through which backflow could occur shall be considered cross-connections.
- N. Cross-Connection Control Assessment/Survey: A “Cross-Connection Control Assessment” (or survey) is an assessment conducted at a premise to determine whether there is an actual or potential backflow hazard to the public water supply.
- O. Cross-Connection Control Specialist (Specialist): Also known as Field Inspector, is the designated employee(s) certified in backflow prevention who serves as a company contact for technical cross-connection/backflow-related issues.

- P. Days: The term “days” shall mean calendar days, unless otherwise specified.
- Q. Double Check Valve Assembly (DCV): The term "double check valve assembly" means an assembly of two internally loaded, independently acting check valves, including resilient seated shut-off valves on each end of the assembly and test cocks for testing the water tightness of each check valve.
- R. Double Check Detector Assembly (DCDA): The term “double check detector assembly” means a double-check valve backflow assembly that includes a bypass with a water meter and double-check backflow assembly, with the bypass water meter accurately registering flow rates up to two gallons per minute and visually indicating all rates of flow. This type of assembly may only be used to isolate low-hazard cross-connections.
- S. Hazardous Substance: A hazardous substance is a contaminant to the public water supply which can negatively impact public health.
- T. Internal Protection: “Internal protection” means the appropriate type or method of backflow prevention within the customer’s potable water system at the point of use that is commensurate with the degree of hazard. Crescenta Valley Water District is not responsible for any cross-connection that occurs or could occur within the customer’s premises. Crescenta Valley Water District is not responsible for and does not manage or maintain any backflow assemblies or methods that are located within a customer’s premises.
- U. Multi-Family Dwelling: A “multifamily dwelling” is any detached residential structure designed for human habitation divided into two or more independent living quarters. This definition includes apartments or similar structures but does not include row or townhouses.
- V. Non-Residential Customer: The term “non-residential customer” refers to commercial, industrial, and public authority customers.
- W. Person: The term “person” means an individual, corporation, company, association, partnership, municipality, public utility, or other public body or institution.
- X. Premise Isolation: The term premise isolation means protection of a public water system’s distribution system from backflow from a user premises. This is accomplished through the installation of one or more air gaps or BPAs, installed as close as practical to the user’s service connection, in a manner intended to isolate the water user’s water supply from the public water system’s distribution system.
- Y. Pressure Vacuum Breaker (PVB): A “pressure vacuum breaker” is a type of backflow assembly consisting of a spring-loaded check valve that closes tightly when the pressure in the assembly drops below one (1) psi or when zero flow occurs. The unit also contains an air relief valve that opens to break a siphon.

- Z. Public Water System (PWS): The term "Public Water System" means a system for the provision of piped water to the public for human consumption that has five or more service connections or regularly serves an average of 25 individuals daily for at least 60 days out of the year.
- AA. Qualified Backflow Assembly Installer (Installer): A qualified backflow assembly installer must be a plumber licensed by the state and/or municipality; or a plumber working under the direct supervision of a licensed plumber who meets all applicable local and state requirements to install backflow assemblies.
- BB. Recycled Water: The term "recycled water" or "reclaimed water" means wastewater which, as a result of treatment, is suitable for uses other than potable use.
- CC. Reduced Pressure Principle Backflow Prevention Assembly (RP): The term "reduced pressure principle backflow prevention assembly" means an assembly incorporating two internally loaded, independently operating check valves and an automatically operating differential relief valve located between the two checks, including resilient seated shutoff valves on each end of the assembly, and equipped with necessary test cocks for testing the assembly.
- DD. Reduced Pressure Principle Detector Backflow Prevention Assembly (RPDA): This is an RP assembly that includes a bypass with a water meter and reduced pressure principle backflow prevention assembly. The bypass water meter accurately registers flow rates up to two gallons per minute and visually indicates all rates of flow.
- EE. Reduced Pressure Principle Detector Backflow Prevention Assembly – Type II (RPDA-II): This is an RP that includes a bypass around the second check, with the bypass having a reduced pressure principle backflow prevention assembly and a water meter that accurately registers flow rates up to two gallons per minute and visually indicates all rates of flow.
- FF. Service Connection: A "service connection" is the connection point of a user's piping to the water supplier's facilities. This connection is generally, but not always, found at the meter.
- GG. Water Supplier: A "water supplier" is the person who owns and/or operates the approved water supply system.
- HH. Water User: A "water user" is anyone obtaining water from CVWD's water supply system.

CHAPTER 2: HAZARD ASSESSMENTS

The cross-connection control specialist (Specialist) will assess the distribution system to determine if residential and non-residential customers have a potential for cross-connection. If the specialist identifies a hazard, a backflow device will need to be installed. The degree of hazard will determine the type of backflow device required. (See Appendix D for a list of hazard types and minimum protection level required). Notification of the type of backflow assembly(-ies) required, and the date of compliance will be sent via mail to the customer within ten (10) business days after the day of the assessment.

The frequency of hazard assessments is based on the potential hazards involved and/or regulations related to cross-connections. Appendices A through G shows state regulations pertaining to cross-connection.

Following CVWD's assessment protocols, the Specialist shall be permitted to enter, at any reasonable time, any property served by a connection to CVWD's water system to inspect the piping system for cross-connections, auxiliary intakes, bypasses, or interconnections. On request, the owner, lessee, and occupant of any property that Crescenta Valley Water District serves shall furnish any pertinent information regarding the piping system on such property. The refusal of such information or denial of access, when requested, shall be deemed evidence of the presence of cross-connections and shall be addressed in accordance with Section 3.4 of this plan.

2.1. NON-RESIDENTIAL HAZARD ASSESSMENT

All non-residential (commercial, industrial, public authority) establishments are required to be assessed to determine if a BPA is necessary. A Specialist will perform the hazard assessments on all new services before starting water service, or within fifteen (15) days of connection. For any existing non-residential services that still need to be identified and assessed, Crescenta Valley Water District will develop a list based on risk and public safety and a timeline for assessment.

Additionally, a new hazard assessment shall be performed on known existing non-residential services under the following circumstances:

- Change of ownership (name listed on water bill);
- Plumbing permit issued;
- Installation of an irrigation system;
- A private well is drilled on the property;
- The presence of any other hazard criteria shown in state or local regulation; or,
- Any other activity that could influence the plumbing or affect the hazard level associated with a service

Under these circumstances, a hazard assessment will be performed no later than thirty (30) days from the change. Should the assessment reveal a new or increased hazard, notification of the type of BPA required and the date of compliance will be sent to the customer within five (5) business days after the assessment.

The procedure of how the hazard assessment is conducted is described in section 2.5 of this plan.

2.2. RESIDENTIAL HAZARD ASSESSMENT

For new residential customers, a written questionnaire will be given digitally upon request for water service as part of opening a new account. Each new residential customer will agree in writing to avoid creating a cross-connection (Appendix H). If the questionnaire responses indicate that potential hazards for cross-connection may be present, an inspection may be performed by the Specialist. The need for backflow protection will be determined based on the inspection results. Notification of the type of backflow assembly (if required) and the date of compliance will be sent to the Customer via mail within five (5) days after the assessment.

When opening a new account, a brochure will be given to each new customer describing cross-connection and the customer's responsibility in not creating one (Appendix I).

Existing residential customers may be required by local and/or state regulations to undergo hazard assessments at least once. The frequency of these assessments will vary depending on the specific regulations in the area (See Appendix A through G) and/or potential hazards found in the initial or prior assessments.

2.3. PRIVATE WELL-SYSTEM INSPECTIONS

Wells drilled on properties supplied by CVWD's water will need to be assessed to ensure separation from the public water system.

If the well system is connected directly or indirectly to CVWD's water system, a BPA is required.

If the well system is not connected directly or indirectly to the public water system, an annual assessment is required. Installation of a BPA may be required if the assessment indicates a new or potential cross-connection exists.

2.4. INTERNAL PROTECTION

A non-residential connection with a backflow assembly installed to abate an internal backflow hazard must also install a backflow assembly at the meter, or at a location required by state or local regulation, to be commensurate with the degree of hazard.

Crescenta Valley Water District has no responsibility or authority to abate internal hazards or monitor testing of backflow assemblies installed internally at a customer's premise (residential or non-residential).

2.5. PROCEDURES FOR HAZARD ASSESSMENTS

Crescenta Valley Water District strives to educate customers about the hazards of cross-connections and how to recognize and avoid them. A thorough investigation of all premises considered likely to have cross-connections provides an opportunity for education, as well as providing a formal assessment. Such assessments will involve the Customer's entire water-using equipment and other system components to locate all actual and potential cross-connections and allow the Specialist to ensure all Crescenta Valley Water District requirements and state regulations related to cross-connection are met. Findings will be reported to the owner or occupant in writing, along with a request for corrective action, if needed, to protect the public water system adequately.

2.5.1. FIELD VISIT PROCEDURES

For non-residential and residential facilities, during the assessment, a digital hazard assessment form will be completed showing details of significant findings. Cross-connection hazards will be explained fully to the persons assisting with the assessment. The Customer will be informed that CVWD's cross-connection

Specialist will review the information gathered during the assessment. A written notice containing recommendations and requirements will be mailed to them within ten (10) business days.

For new constructions:

- All applications for new services and/or expansion of existing services shall be routed through the Specialist.
- Based upon the information submitted on the cross-connection assessment form, the need for a backflow assembly(-ies) shall be determined. When it is determined that a backflow assembly(-ies) is required, a notice shall be sent informing the Customer that the installation is a condition of service. The notice shall be sent within ten (10) business days after the assessment.

When the new service line is installed, it shall be locked off, and no service shall be provided until the appropriate BPA is installed and has passed a test. Upon installation of the BPA and a passing test, Crescenta Valley Water District shall inspect the installation and provide water service. If the Specialist cannot physically inspect the installation of the backflow assembly, the installer shall send pictures of the excavation showing the entire backflow assembly installation, including the connections made into the customer's service line. The pictures must be clear so that the installation requirements can be seen and approved.

2.5.2. COMMUNICATIONS

The investigation findings will be summarized in a written notice and provided to the customer. Any cross-connections found will be described, along with the recommended correction measures. The correspondence will indicate a willingness to assist with questions. The Customer will be given a time limit for making the needed corrections depending upon the degree of hazard and the complexity and difficulty of correcting the problems. The correspondence will be issued within ten (10) business days after the assessment.

2.5.3. FOLLOW-UP VISITS AND RE-INSPECTIONS

Follow-up visits will be made as needed to assist the Customer and ensure satisfactory progress is made. Such visits will continue until all corrective actions have been completed.

Re-inspections of a facility will be conducted under the following circumstance:

- Change of ownership (name listed on water bill);
- Plumbing permit issued;
- Installation of an irrigation system;
- A private well is drilled on the property;
- The presence of any other hazard criteria shown in state or local regulation; or,

- Any other activity that could influence the plumbing or affect the hazard level associated with a service

A re-inspection will need to be performed no later than ninety (90) days from the change. The need for backflow protection will be determined based on the hazard assessment results. Notification of the type of BPA required and the date of compliance will be sent to the customer within ten (10) business days after the assessment.

Annual inspections will be conducted for facilities identified as high hazards, including dual plumbing.

CHAPTER 3: REQUIRED PROTECTIVE DEVICE

The type of protective device depends on state and local regulations.

Crescenta Valley Water District will require the installation of approved backflow assembly(-ies) of the required type, including, but not limited to, those listed below:

- a. Where a fresh water supply that the state regulatory agency has not approved is already available from a well, spring, reservoir, or another source. (If the customer agrees to eliminate this other supply and remove all pumps and piping necessary for the utilization of an auxiliary supply, the installation of backflow assembly(-ies) will not be required.)
- b. Where salt water or water otherwise contaminated is available for industrial or fire protection purposes at the same premises.
- c. Where the premises are or may be engaged in industrial processes using or producing process waters or liquid industrial wastes, or where the premises are or may be involved in handling sewage or any other dangerous substances.
- d. Where freshwater hydrants or other outlets may be installed on piers or docks.
- e. Where the circumstances are such that there is a particular danger of backflow of sewage or other contaminated liquids through plumbing fixtures, water-using or treating equipment, storage tanks, or reservoirs.
- f. Where premises have internal cross-connections that are not abated to the satisfaction of the utility or the health agency.
- g. Where intricate plumbing and piping arrangements exists, or premises where cross-connections are likely to occur, and entry is restricted so that cross-connection inspections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connections do not exist.
- h. Premises that have a repeated history of cross-connections being established or re-established.

- i. Premises with multiple service connections present a loop-through hazard, so backflow protection on all service connections must be installed. Each backflow assembly(-ies) must be commensurate with the highest degree of hazard present.
- j. Premises with multiple users sharing one meter must install an approved backflow assembly(-ies) due to the risk of occupancy change without notification to the utility.
- k. Premises that manufacture, store or handle materials and substances dangerous to health, in such a fashion that there is an actual or potential cross connection, shall require, at a minimum, an approved reduced pressure principle backflow prevention assembly to protect the public water system.
- l. Premises that manufacture, store or handle any substance that, if introduced to the public water system, would pose an aesthetic risk but not be hazardous to health, shall require an approved backflow prevention assembly.

Crescenta Valley Water District must ensure its distribution system is protected with no less than DC protection for a premise with a fire protection system by July 1, 2034.

The protective devices shall be approved by the State and Local regulations.

The backflow assembly(-ies) must be installed according to the manufacturer's instructions and in compliance with state and local regulations and Crescenta Valley Water District requirements. The installation shall be at the expense of the owner or occupant of the premises.

Applications requiring backflow assemblies include but are not limited to, service and/or fire flow connections for most commercial and educational buildings, construction sites, all industrial, institutional, and medical facilities, all non-residential fountains, lawn irrigation systems, swimming pools, softeners, and any other point of use treatment systems, and on all fire hydrant connections other than by the Fire Department in combating fires.

3.1. RESPONSIBILITIES

3.1.1. CRESCENTA VALLEY WATER DISTRICT

Under the rules of the Environmental Protection Agency (EPA), Federal Safe Drinking Water Act of 1974, 40 CFR 141, and state regulations relating to Cross-Connection Control, the water system has the primary responsibility of maintaining a Cross-Connection Control Program to prevent water from unapproved sources, or any other substances, from entering the public water supply. Upon detection of a prohibited cross-connection, the Cross-Connections Control Specialist is to eliminate the cross-connection by requiring the installation of an approved backflow assembly(-ies) or immediately discontinuing service until the source of contamination is eliminated.

1. Crescenta Valley Water District shall ensure that all Cross-Connection Control personnel are certified in cross-connection.

2. Crescenta Valley Water District shall ensure all assemblies are tested annually or more frequently if determined to be necessary by the Cross-Connections Control Specialist.
3. Crescenta Valley Water District shall maintain electronic records of all tests conducted by certified testers for the minimum period of time established on CVWD's Water Records Retention Policy.
4. The Cross-Connection Specialist shall have the right to inspect and require testing of the assemblies whenever necessary.
5. Crescenta Valley Water District shall ensure that when water service has been terminated for non-compliance, the backflow assembly(-ies) is repaired or replaced prior to restoring water service.
6. When a new backflow assembly has been installed or a backflow assembly has been replaced, the Specialist shall inspect the backflow assembly before the excavation has been backfilled to ensure the installation meets CVWD's requirements and Standards. If the Specialist cannot physically inspect the installation of the backflow assembly, the installer shall send pictures of the excavation showing the entire backflow assembly installation, including the connections made into the customer's service line. The pictures must be clear so that the installation requirements can be seen and approved.
7. For new construction, Crescenta Valley Water District will provide on-site evaluation and/or inspection of plans to determine the type of backflow assembly(-ies), if any, that will be required.
8. If Crescenta Valley Water District determines that a severe threat to public health exists at any time, the water service will be terminated immediately.

3.1.2. THE CUSTOMER

1. The Customer shall ensure that no cross-connections exist without the approved backflow protection on the Customer's premises starting at the point of service from the public potable water system.
2. The Customer shall, at the Customer's own expense, install, test, repair, and maintain the backflow assemblies.
3. The Customer shall, prior to backfilling the excavation, notify the Specialist that the backflow assembly(-ies) has been installed, and within five business (5) days after installation is completed, provide Crescenta Valley Water District with copies of records of the installation of the backflow assembly(ies).

4. The Customer shall correct any malfunction of the backflow assembly(-ies) or method revealed by periodic testing within thirty (30) days. The correction of the malfunctions shall be conducted by a certified tester or plumber.
5. The Customer shall inform Crescenta Valley Water District of any proposed or modified cross-connection and any existing cross-connection of which the customer is aware but has yet to be found by CVWD.
6. The Customer shall notify Crescenta Valley Water District of backflow assemblies or methods that are in place but have been out of operation for more than three (3) months or that have been removed for storage and reinstalled. The Customer will ensure the assemblies are tested before being put back into operation and provide proof of such testing prior to return to service of the assembly.
7. The Customer shall notify Crescenta Valley Water District if backflow assemblies or devices are used in seasonal applications. Crescenta Valley Water District shall ensure the assemblies or devices are tested before being put into operation each season.
8. The Customer shall not install a bypass around any backflow assembly(-ies) or method unless there is a backflow assembly(-ies) or method of the same type on the bypass. Customers who cannot shut down operations to test the assemblies or methods must supply additional assemblies or methods necessary to allow testing to occur.
9. In the event of a backflow incident, the Customer shall immediately notify Crescenta Valley Water District of the incident and take steps to confine the contamination or pollution. Water service will not be restored until corrective action is taken and approved after inspection by CVWD's Cross Connections Control Specialist.
10. The Customer shall be responsible for paying assembly testing fees, costs associated with the repair or replacement of the assembly if required, and any retesting fees.
11. The Customer shall promptly make all repairs and keep any protective assembly working correctly. The owner or occupant of the premises shall bear the expense of such repairs. Repairs shall be made by certified testers or plumbers. The failure to maintain a backflow assembly(-ies) in proper working order shall be grounds for discontinuing water service to a Customer premise.

3.1.3. THE INSTALLER

1. The Installer's responsibility is to properly install backflow assemblies in accordance with the manufacturers' installation instructions and Crescenta Valley Water District requirements; if there

is a conflict between the manufacturer's instructions and Crescenta Valley Water District requirements, the manufacturer's instructions for installation will prevail.

2. The Installer is responsible for installing approved backflow assemblies. The backflow assemblies shall be of the type approved by state and local regulations.
3. The Installer is responsible for making sure an assembly is working correctly when it is installed and is required to furnish the following information to CVWD:
 - a. Service address where the device is located.
 - b. Owner's name and contact information.
 - c. Description of device location.
 - d. Date of installation.
 - e. Type of device (i.e., DCV, RPZ, etc.).
 - f. Manufacturer.
 - g. Model number.
 - h. Serial number.
 - i. Size of device.
 - j. Meter number.
 - k. Type of use (i.e., Fire, Domestic, Irrigation).
4. The installer shall notify Crescenta Valley Water District that the backflow assembly has been installed and shall not backfill the excavation until the Cross-connections Specialist inspects the installation. If the Specialist cannot physically inspect the installation of the backflow assembly, the installer shall send pictures of the excavation showing the entire backflow assembly installation, including the connections made in the customer's service line. The pictures must be clear so that the installation requirements can be seen and approved.
5. All backflow assemblies are required to be tested following installation.
6. The Installer shall ensure that only a licensed fire protection contractor installs fire protection systems.

3.1.4. THE REPAIRER

1. The individual(s) conducting the repairs must be a certified tester.
2. The Repairer shall test the device in accordance with standards and testing procedures approved by the local regulator.
3. The Repairer shall notify the Customer when repair(s) or replacement of an assembly is completed.
4. The Repairer is recommended to be available for follow-up testing if the device fails inspection.

3.2. INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES

3.2.1. INSTALLATION CRITERIA

Minimum acceptable criteria for the installation of reduced pressure principle detector type backflow prevention assemblies and double-check valve assemblies requiring regular inspection and testing shall include the following:

1. All required assemblies must be installed according to state or local regulations.
2. All assemblies shall be installed in accordance with the manufacturer's installation instructions and shall possess all test cocks and fittings required for testing the assembly.
3. The entire assembly, including test cocks and valves, shall be easily accessible for testing and repair.
4. Reduced pressure principle backflow prevention assemblies shall be located a minimum of twelve (12) inches above the ground surface. Maximum height above the ground surface shall not exceed thirty-six (36) inches.
5. Assemblies shall be protected from vandalism, mechanical abuse, and any corrosive, sticky, greasy, abrasive, or other damaging environment.
6. Assemblies shall be positioned where discharge from the relief port will not create undesirable conditions.
7. An approved air gap shall separate the relief port from any drainage system.
8. Assemblies shall be located in an area free from submergence or flood potential.
9. No backflow prevention assemblies or methods shall be installed in a place where they would create a safety hazard, such as but not limited to, over an electrical panel or above ceiling level.
10. The removal, bypass, or alteration of a BPA so that the PBA is rendered ineffective shall constitute grounds for discontinuance of water service. Water service to such premises shall not be restored until the Customer has corrected or eliminated such conditions or defects.
11. Installation of AG, DC, PVB, or SVB shall be conducted following state or local regulations.

3.2.2. FIRE PROTECTION SYSTEMS

Crescenta Valley Water District has adopted the American Water Works Association classification scheme (Manual M-14) for backflow protection on fire prevention systems. This scheme classifies fire systems into six classes based on the water source and arrangement of supplies. The classification of the fire system

determines the type of backflow protection necessary for the premises. A double-check detector assembly is the minimum acceptable backflow protection on customers on-site fire systems.

All existing fire systems must upgrade to current Crescenta Valley Water District ordinance requirements and state or local regulations. Crescenta Valley Water District shall identify facilities with fire systems. Those with the highest potential hazard will be required to upgrade their systems until all deficiencies are corrected. All fire protection systems will meet minimum requirements by July 1, 2034.

3.2.3. NON-POTABLE SUPPLIES

1. The potable water system made available to premises served by Crescenta Valley Water District shall be protected from possible contamination as specified herein. Any water outlet which could be used for potable or domestic purposes, and which is not supplied by the potable system must be labeled, for example:



2. Color coding of pipelines in accordance with Occupational Safety and Health Act (OSHA) guidelines may be required in locations where, in the judgment of the Cross-Connections Control Specialist, such color coding is necessary to identify and protect the potable water supply.

3.3. CORRECTION OF VIOLATIONS

Any Customer found to have cross-connections, auxiliary intakes bypass, or interconnections in violation of Crescenta Valley Water District requirements and/or state or local regulations shall be allowed a

reasonable time to comply. After a thorough investigation of existing conditions and an appraisal of the time required for completing the work, the Specialist shall determine the time permitted for correction. These time frames are 14 days for a high-risk hazard, and 45 days for a general hazard. The Specialist may extend the time for correction to accommodate special circumstances (general hazard only), but in no case will the time allotted for correction for a general hazard exceed 90 days.

Where cross-connections, auxiliary intakes, bypasses, or interconnections are found that constitute a hazard of immediate concern of contaminating the public water system, the Specialist shall require that immediate corrective action be taken to eliminate the threat to the public water system. If, in the opinion of the Specialist, an imminent threat to public health exists, the Specialist shall have the authority to terminate water service without prior notification.

Failure to correct conditions that threaten the safety of the public water supply within the time limits set by the Specialist shall be grounds for discontinuation of water service. If proper protection has not been provided after a reasonable time, the Specialist shall give the Customer legal notification that water service is to be discontinued and physically separated from the Customer's on-site piping system.

3.4. ENFORCEMENT

The water service may be discontinued in the case of non-compliance with Crescenta Valley Water District requirements. Non-compliance includes, but is not limited to, the following:

1. Refusal to allow the Specialist access to the property to assess for cross-connection(s).
2. Removal of a backflow prevention assembly or method that Crescenta Valley Water District requires.
3. Bypassing a backflow prevention assembly or method that Crescenta Valley Water District requires.
4. Providing inadequate backflow prevention when potential or actual cross-connections exist.
5. Failure to install a backflow prevention assembly or method Crescenta Valley Water District requires.
6. Failure to test and/or adequately repair a backflow prevention assembly or method as required by CVWD.
7. Failure to comply with the Crescenta Valley Water District requirements and/or state and local regulations.

It is CVWD's responsibility to ensure that the public water supply is protected from all cross-connection hazards, and that all external backflow assemblies are tested and working properly. In the event of non-compliance on the part of the customer, Crescenta Valley Water District will pursue the following actions:

1. A first letter is sent to the customer for a non-protected site, untested assembly, a failed backflow test, backflow replacement, or repair, giving the customer 30 days to comply with Crescenta Valley Water District requirements.
2. A second notice is sent to the customer to allow them 15 more days to comply – Service will be discontinued if no action is taken.

Where cross-connections exist, Crescenta Valley Water District will require the problem to be eliminated or isolated by a properly installed, approved backflow prevention assembly to prevent the possibility of

backflow into the distribution system. Such protective measures will include a backflow prevention assembly on the Customer's water service line ahead of any water outlets. Every effort will be made to secure the voluntary cooperation of the Customer in correcting cross-connection hazards. If voluntary action cannot be obtained within the time set forth by written notice (45 days) to the Customer, water service will be discontinued until Crescenta Valley Water District requirements are met for the protection of the health and safety of the public water supply.

After assessments or inspections have been completed, the Customer will be contacted by written correspondence outlining any correction needed (e.g., adding or repairing backflow prevention devices) and the schedule allowed for the correction of conditions. If the conditions have been corrected, Crescenta Valley Water District will reinstate the water service.

In the case of backflow prevention devices on fire systems, the Fire Department will be contacted before water service is discontinued in a public building to prevent harm to anyone in case of fire occurs in a public building. The Fire Department has the authority to condemn the building, thus not allowing anyone to enter.

3.4.1. DUE PROCESS

The requirements of this program shall apply to all premises served by CVWD. This Cross-Connection Control Program shall be rigidly enforced since it is essential to protect the water distribution system against contamination.

Where cross-connections, auxiliary intakes, bypasses, or interconnections are found that constitute a hazard of immediate concern of contaminating the public water system, the Specialist shall require immediate corrective action taken to eliminate the threat to the public water system. When an imminent threat to public health exists, the Specialist shall have the authority to terminate water service without prior notification.

CHAPTER 4: INSPECTION AND TESTING OF BACKFLOW PREVENTION ASSEMBLIES

4.1. APPROVAL OF NEW INSTALLATIONS

The Water System will not consider the installation of assemblies to be complete until:

1. The installation has been inspected and approved by CVWD's Cross-connections Specialist based on installation criteria.
2. The assembly is tested initially and has a status of Passed.

4.2. ROUTINE INSPECTION AND TESTING OF ASSEMBLIES

To ensure that all assemblies are functioning correctly, assemblies will be tested every 12 months by backflow prevention assembly testers with a valid L.A. County tester's license, CA-NV AWWA license, and an ABPA tester's license, and who meet all the requirements presented by state and local regulations. If assembly is not tested within 12 months, enforcement action will be started. In addition to the annual testing, the Specialist may investigate to determine the following:

1. If cross-connections, actual or potential, have been added ahead of the protective assemblies.
2. The assembly meets all installation criteria.
3. The assembly has not been bypassed or altered in some other way to compromise the backflow protection.

All reduced pressure principle and double-check valve backflow prevention assemblies, including detector assemblies, utilized for the protection of the water system will be tested by a person possessing a valid Certificate of Competency:

1. Immediately following installation.
2. At least every twelve (12) months, or more frequently, if required.
3. Any time assemblies have been partially disassembled for cleaning and/or repair.
4. Where there is an indication that the unit may not be functioning correctly (i.e., excessive, or continuous discharges from the relief valve, chatter, or vibration of internal parts).

4.3. OFFICIAL TESTS

Only tests performed by persons possessing a valid L.A. County tester's license, CA-NV AWWA license, and an ABPA tester's license will be considered official tests by CVWD. All test reports submitted must be of the type approved by CVWD. All parts of the testing procedure must be recorded accurately on the test report with a determination of status (Pass or Fail).

4.4. REPAIRS

Should a protective assembly be found defective or have a status of Failed, Crescenta Valley Water District will require the assembly to be repaired promptly with the manufacturer's specified parts by a licensed plumber, in accordance with the manufacturer's suggested procedure, and placed in proper operating condition within the specified time limit established by the Specialist, in any event, no later than thirty (30) days from notice of failed test.

After repairs, the assembly is to be tested again to verify that it is meeting performance standards and has a Passed status. The owner will be held responsible for maintaining backflow assemblies and/or methods in a good state of repair.

CHAPTER 5: PARALLEL UNITS

Crescenta Valley Water District could require the installation of parallel assemblies if the customer needs to accommodate water service interruptions for periodic testing and repairs of the assemblies or is unwilling to cooperate in scheduling a shutdown promptly for testing.

Parallel units shall be provided where the use of water is critical to the continuance of normal operations or protection of life, property, or equipment to avoid the necessity of discontinuing water service to test or repair the protective device. Where it is found that only one unit has been installed and the continuance of service is critical, the occupant shall make plans to interrupt water service and arrange for a mutually acceptable time to test or repair the assembly. In such cases, the Specialist may require the installation of a duplicate unit.

CHAPTER 6: RECORDS

Good records are invaluable in CVWD's efforts to safeguard the quality of water being distributed against degradation from backflow through cross-connections. Adequate records will be maintained as a part of CVWD's permanent files to:

1. Document the overall effort of the water system to properly discharge its responsibility to see that each Customer receives safe water under all foreseeable circumstances.
2. Give a complete picture of the individual premises' current status and history regarding the potential for backflow, corrections made, etc.
3. Support enforcement action, whenever necessary, to obtain backflow protection.
4. Document that assemblies have been properly installed, maintained, and tested routinely.

Records to be maintained by Crescenta Valley Water District will include the ones specified in state and local regulation and the following:

1. List of all establishments with assemblies used for premise isolation, including location, assembly used, make, model, size, serial number, etc.
2. Correspondence between Crescenta Valley Water District and its Customers.
3. Copy of approved plan.
4. Test reports for each assembly.
5. Copies of valid L.A. County tester's license, CA-NV AWWA license, and an ABPA tester's license for each tester.

6. Copies of test kit/calibration certifications.
7. Site inspection reports.
8. Backflow incident reports.
9. Records on initial assessments, recommendations, follow-up, corrective action, routine re-inspections, etc.
10. Public education pamphlets and information.
11. Any other records required by the regulatory agency

The records must be maintained as required in CVWD's Records Retention Policy.

CHAPTER 7: BACKFLOW CONTAMINATION PROCEDURES

7.1. BACKFLOW INCIDENT RESPONSE

Although the law requires the protection of public water systems from contamination through unprotected cross-connections, a backflow incident may occur which results in the contamination of the public water supply. Upon complaints, changes in water quality (i.e., pH, temperature, coliform count, and depletion of disinfectant residual), or a report of contamination, CVWD' cross-connection control Specialist shall investigate the nature of contamination and determine if a backflow incident did occur or is occurring. The regulator will also be informed of the incident. The regulator should provide guidance and support as needed.

If a backflow incident did occur or is occurring, Crescenta Valley Water District will take appropriate actions to eliminate hazardous conditions, including shutting off the water service to any premises suspected of contaminating the public water supply. Crescenta Valley Water District should begin at step 1 below if backflow is either suspected or confirmed. If the cross-connection has been eliminated, begin at step 3.

1. Prevent Further Contamination:

Stop the pressure differential that caused the backflow, if possible. For example, if the differential results from low pressure in the distribution system, check the status of the pumps.

2. Identify and Isolate the Cross-Connection:

For example, if the cross-connection is due to back-siphonage of chemicals through a garden hose left hanging into a chemical tank, disconnect the garden hose at the residence to create an air gap between the potable water supply and the chemicals. This may also entail terminating water at this specific site.

If the system has new AMI meters, a backflow event can be identified. The Specialist should immediately investigate and terminate service until the hazard is removed or isolated.

3. Identify the type of contaminant, if possible, and document it:

Document the reported contaminant. If the contaminant is unknown, skip to step 8 (sampling) in order to determine the type of public health threat posed by the contaminant. Then return to step 4.

4. Notify the Public:

In areas where human exposure to harmful contaminants is suspected, Crescenta Valley Water District will work with local regulators to determine how to notify customers. The public notice should explain the cause of the contamination and corrective actions that are underway and should discuss potential health effects as appropriate.

The type of public notice depends on the type of contaminant. For example, Crescenta Valley Water District may issue a “boil water” notice if the contaminants are biological and if boiling does not create other health problems through inhalation or skin contact with vapor. A “do not drink” notice may be issued if the contaminants are chemical in nature and if vapor and skin contact do not pose risks. A “do not use” notice may be issued if the contaminant is unknown, treatment of the water is not possible, or the contaminant poses a health risk through inhalation of water vapor or skin contact with vapor. Because “do not use” and “do not drink” notices place a great burden on critical facilities, such as hospitals, alternate water sources must be secured immediately.

5. Notify the Appropriate Regulatory Agency:

If backflow is either suspected or confirmed, the appropriate regulatory agency shall be notified as soon as possible. Information relayed to the regulator should include, to the extent possible, the source of contamination, the type of contamination, control measures in place, current actions, and customer notification details.

6. Notify Additional Authorities:

If needed, activate your Emergency Response Plan (ERP) and notify other state and local authorities and facilities as appropriate, such as local government, state, and local emergency management, the health department, and affected critical-care facilities, including the fire department, which needs to know which hydrants can be used for firefighting.

If evidence of intentional contamination of the water system arises, contact the proper authorities. It is their role to notify the following agencies (available 24 hours a day, seven days a week):

- ✓ The Federal Bureau of Investigation (FBI) at 911
- ✓ The National Response Center (NRC) at 800-424-8802

7. Isolate the Contamination:

If the contaminated portion of the distribution system can be isolated, proceed to step 11. If the contamination is extensive and/or its extent is unknown, proceed to step 8.

8. Sample the Water to Determine the Type and Extent of Contamination:

Sample the water to determine the level of the reported contaminant. If your knowledge of the backflow incident is based on a customer complaint, but the specific contaminant is unknown, take samples of water appropriate to the taste, odor, or appearance noted in the complaint and send them to a certified laboratory. For example, if a customer complains of a gasoline odor in the water, perform a test for volatile organic compounds.

Always take bacteriological samples if the specific contaminant is unknown. If personnel from the public water system are unable to collect and send samples for analysis, the regulatory agency should be notified.

Throughout the incident, continue to take appropriate samples within and outside of the suspected contaminated area to assess the extent of the contamination.

9. Implement a Plan for Systematic Flushing:

Develop a plan for thorough cleaning or flushing of the system to minimize the risk of drawing contaminants into uncontaminated areas. The plan should indicate the amount of water and the length of time needed to flush the system completely. The direction of flow should follow the principles of unidirectional flushing, ensuring that clean water is drawn through the contaminated site and contaminated water is prevented from entering uncontaminated areas.

Depending on the nature of the contamination, some wastes may be discharged into the sanitary sewer, and some may need special handling or treatment. Be sure to use all the Best Management Practices (BMPs) and follow the NPDES permit if possible. If it is not possible to meet NPDES discharge limits, a decision will be made internally to best serve the protection of public health.

Inform the water customers of the remediation plans and whether they will need to flush their plumbing, including water heaters, ice makers, and other appliances.

10. Isolate the Contamination and Flush:

Isolate the contaminated portion of the distribution system and flush the system and, where necessary, instruct the customers on how to clean their lines.

11. Sample after Flushing:

After flushing and any necessary cleaning, test the drinking water in affected areas to ensure the contamination has been removed. The type of samples that should be collected depends on the type of contamination that has been identified.

12. Eliminate the Risk of Future Contamination:

Ensure that the source of contamination has been removed and that the risk of future contamination has been eliminated. If the backflow incident occurred at a residence or business (the customer side of the meter), perform a customer-service inspection at that location. If possible, develop a plan to lower the risk of this type of cross-connection recurring in the future. The plan should include contacting similar types of businesses with preventive guidance.

13. Restore Consumer Confidence in Water Quality:

Inform the public when the water is clean and safe to drink. Lift the public-health notice restricting water use in the same manner it was issued.

14. Prepare a Written Summary of the Incident and Submit It to the Regulatory Agency:

Follow the state and local requirements and regulations and submit the report to the appropriate agency.

Important Notes:

- ✓ *Water meters provide data that can indicate backflow incidents. Automatic Meter Reading (AMR) and Advanced Metering Infrastructure (AMI) water meters can provide real-time notification of backflow from a customer connection and meter tampering, both of which could indicate the accidental or intentional introduction of a contaminant into a water distribution system. The cross-connections specialist shall investigate the facilities where the water meter is reading backward or providing a negative reading.*
- ✓ *It is extremely important to document **in detail** all the procedures and every step taken in detail. Take pictures during the investigation; they are evidence that can provide critical information about backflow events.*

7.2. BACKFLOW INCIDENT NOTIFICATION

The Backflow incident notification will be conducted following state and local regulations.

CHAPTER 8: ADMINISTRATIVE PROCEDURES

8.1. WATER SYSTEM ASSESSMENT

1. Crescenta Valley Water District shall review all requests for new services to determine if backflow protection is needed. Plans and specifications must be submitted to Crescenta Valley Water District upon request for review of possible cross-connection hazards as a condition of service for new service connections. If it is determined that a backflow prevention device is necessary to protect that public water system, the required device must be installed before service will be granted.
2. Crescenta Valley Water District may require an on-premises inspection to evaluate cross-connection hazards. Crescenta Valley Water District will transmit a written notice requesting an inspection appointment to each water user; this notice gives the Customer 30 days to respond. After 30 days, a second notice is sent to the customer allowing the customer 15 days to respond. Crescenta Valley Water District will also leave a door hanger, if needed, asking the customer to comply before the due date established on the final notice. Any Customer that cannot, or will not, allow an on-premises inspection of their piping system shall be required to install the backflow prevention device Crescenta Valley Water District considers necessary.
3. Crescenta Valley Water District may require a re-inspection at its discretion for cross-connection hazards of any premise to which it serves water. Crescenta Valley Water District will transmit a written notice requesting an inspection appointment to each affected water user. Any Customer that cannot, or will not, allow an on-premises inspection of their piping system shall be required to install the backflow prevention device Crescenta Valley Water District considers necessary.

8.2. CUSTOMER NOTIFICATION – DEVICE INSTALLATION

1. Crescenta Valley Water District will notify the Customer in writing of the assessment findings, listing corrective action to be taken if required. A period of 60 days established by the Specialist will be given to the Customer to complete all corrective actions required, including the installation of backflow prevention devices.
2. A second written notice will be sent to each customer that does not take the required corrective action prescribed in the first notice. The second notice will give the Customer 10 business days to take the necessary corrective action. If action is not brought within 10 business days, a final 7-day notice is sent before discontinuation of service. Crescenta Valley Water District will also leave a door hanger, if needed, asking to comply and showing the due date established on the 7-day final notice. Crescenta Valley Water District may terminate water service to the affected water user until the required corrective actions are taken.

8.3. CUSTOMER NOTIFICATION – TESTING AND MAINTENANCE

1. Customers will be notified in writing when it is time to test the backflow prevention device installed on their service connection. This written notification shall give the Customer 30 days to complete the required testing and submit the necessary backflow test certification to CVWD.
2. After the 30-day period, a second written notice will be sent to each customer who failed to provide an acceptable backflow test certification for their backflow prevention device. The second notice will allow the water user an additional 30 days to have their backflow prevention device tested and acceptable test certification submitted or allow the Customer to request termination of service. If the Customer fails to supply Crescenta Valley Water District with either an acceptable test certification or a Request for Termination of Service within the 30 day period, a final 7-day notice will be sent before discontinuation of service. Crescenta Valley Water District will also leave a door hanger asking the customer to comply before the due date established on the 7-day final notice. Crescenta Valley Water District will terminate water service to the affected Customer until the subject device is repaired, retested, and shown to be operating correctly.

CHAPTER 9: MODIFICATIONS TO CROSS-CONNECTION CONTROL PROGRAM MANUAL

This manual will be reviewed every five (5) years, or as needed, to determine if it meets requirements set forth by the state and local regulations and the Safe Drinking Water Act.

CHAPTER 10: PUBLIC EDUCATION AND AWARENESS EFFORTS

Crescenta Valley Water District recognizes that it is essential to inform its customers of the health hazards associated with cross-connections, and to acquaint them with the Cross-Connection Control Program being pursued to safeguard the quality of their water supply. CVWD will seek to use every practical means available to acquaint customers with the health hazards associated with cross-connections and solicit their cooperation.

Information will be provided to all customers about cross-connection control and backflow prevention by individual pamphlets. A brochure will be given to all customers requesting a new water service describing cross-connections and prevention of backflow. This information will cover the fundamental causes of backflow, the dangers involved, and how to prevent cross-connections.

The following measures may also be taken to inform customers about the need to control cross-connections:

1. Reminders with water bills;
2. Posting on the CVWD website and social media;

3. Posters at the Main Office counter;
4. An article in the annual water quality report on cross-connection control or related issues;
5. Personal visits to commercial, industrial, institutional, and agricultural customers to explain the need for controlling cross-connections;
6. Whenever possible, commercial, industrial, institutional, and agricultural customers will be informed of needed cross-connection measures in the design or construction stage.

CHAPTER 11: CRESCENTA VALLEY WATER DISTRICT

CROSS-CONNECTIONS CONTROL PROGRAM CONTACTS

The installation, repair, testing, or replacement of any backflow prevention device shall be inspected and approved by Crescenta Valley Water District unless prior arrangements have been made and approved by CVWD. Further information regarding the Cross-Connection Control Program may be obtained from CVWD's Operations or Water Quality Department.

Office Location	2700 Foothill Boulevard La Crescenta, CA 91214
Mailing Address	2700 Foothill Boulevard La Crescenta, CA 91214
Cross-Connections Control Specialist	David Rawlings backflow@cvwd.com (818) 248-3925 ext. 4104
Operations/ Water Quality Contacts Information	Gabriel Gomez, III backflow@cvwd.com (818) 248-3925 ext.3109
	Jennifer Bautista backflow@cvwd.com (818) 248-3925 ext. 3117

APPENDICES

Appendix A: Assembly Bill 1671 (2017, Chapter 533) and Assembly Bill 1180 (2019, Chapter 455).

Appendix B: ASME A112.1.2-2012(R2017) Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures, page 4

Appendix C: Backflow Prevention Assembly Diagrams

Appendix D: High Hazard Premises

Appendix E: General Range of Knowledge for Cross-Connection Control Specialists

Appendix F: Example Backflow Incident Reporting Form

Appendix G: Related Statutes and Regulations

Appendix H: Cross Connection Survey – New and Existing Customers

Appendix I: Cross-Connection Brochure – Non-Residential and Residential Customers

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Appendix A

Assembly Bill 1671 (2017, Chapter 533)

Assembly Bill 1180 (2019, Chapter 455)

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CONCURRENCE IN SENATE AMENDMENTS
AB 1671 (Caballero)
As Amended July 11, 2017
Majority vote

ASSEMBLY: 72-1 (May 30, 2017) SENATE: 40-0 (September 14, 2017)

Original Committee Reference: **E.S. & T.M.**

SUMMARY: Requires the State Water Resources Control Board (State Water Board) to, on or before January 1, 2020, adopt standards for backflow protection and cross-connection control.

The Senate amendments

- 1) Require the State Water Board to adopt standards for backflow protection and cross-connection control, instead of updating its backflow protection and cross-connection control regulations.
- 2) Authorize the State Water Board to adopt standards for backflow protection and cross-connection control through the adoption of a policy handbook that is not subject to the requirements of the Administrative Procedure Act. Require the policy handbook to include standards for backflow protection and cross-connection control.
- 3) Require the State Water Board, in developing the standards and any amendments to those standards, to consult with state and local agencies and other persons whom the State Water Board has identified as having expertise in the subject of backflow protection and cross-connection control.
- 4) Require the State Water Board to hold at least two public hearings before adopting the policy handbook.
- 5) Require that the policy handbook be posted on the State Water Board's Internet Web site.
- 6) Provide that, upon the effective date of a policy handbook adopted by the State Water Board, existing cross-connection and backflow regulations shall become inoperative, and, 90 days thereafter, shall be repealed, unless the State Water Board makes a determination not to repeal a specific regulation.
- 7) Require the State Water Board, if it determines not to repeal a specific regulation, to provide to the Office of Administrative Law and the Secretary of State written notice of its determination, including identification of the specific regulation that is not repealed. Provide that, upon the provision of a written notice to the Office of Administrative Law and the Secretary of State, that regulation shall become operative.
- 8) Require that a public water system implement a cross-connection control program that complies with applicable regulations and with standards adopted by the State Water Board.

EXISTING LAW:

- 1) Requires, under the California Safe Drinking Water Act, any person who owns a public water system to ensure that the system will not be subject to backflow under normal operating conditions.
- 2) Requires that local backflow prevention programs be conducted in accordance with backflow protection regulations adopted by the California Department of Public Health (CDPH; these provisions are now under the jurisdiction of the State Water Board).
- 3) Requires the water supplier to protect the public water supply from contamination by implementation of a cross-connection control program.

FISCAL EFFECT: According to the Senate Appropriations Committee, enactment of this bill could result in unknown, likely significant costs to the State Water Board for staff and material necessary to review regulations, develop policies, conduct outreach and provide technical assistance to water agencies, and to enforce new regulations.

COMMENTS:

Backflow: Drinking water distribution systems contain points called cross-connections where nonpotable water can be connected to potable sources. These cross-connections can provide a pathway for backflow, which is the undesirable reversal of the flow of liquid, gas, or solid into the potable water supply. Water supply systems are maintained at a pressure significant enough to enable water to flow from the tap; however, when pressure fails or is reduced, which may happen if a water main bursts, pipes freeze, or there is unexpectedly high demand on the water system such as an emergency firefighting water drawdown, water or substances from the ground, storage, or other sources may be drawn up into the system. Additionally, non-potable substances may be pushed into a potable water supply if the pressure in the downstream piping system exceeds the pressure in the potable water system. Either of these backflow conditions can enable contaminated water or substances to enter the potable water distribution system, potentially presenting risk to public health and safety.

Health risks associated with backflow: A variety of biological and chemical contaminants have been introduced into drinking water distribution systems by cross-connections and backflow. The likelihood and severity of illness and number of people affected depend on various factors including how much of the contaminant enters the system, the dilution factor, the type of contaminant, the number of users exposed, and the health status of each person at the time of exposure. Contamination from cross-connections and backflow can occur not only where the cross-connection is located, but at sites upstream and downstream, as contaminants spread. Contaminants that have entered drinking water systems through backflow include pathogenic microorganisms, pesticides, metals, synthetic and volatile organic compounds, nitrates, and nitrites.

Backflow prevention: Backflow preventers are mechanical assemblies used to prevent contaminated fluids from entering the water supply system. A wide variety of devices exist that can be used to prevent backflow from adding contaminated fluids or gases into a potable water supply system. Generally, the selection of the proper device is based upon the degree of hazard posed by the cross-connection, as well as piping size, location, and the potential need to periodically test the devices to ensure proper operation.

Cross-connection control and backflow regulation in California: The California Code of Regulations (CCR), Title 17, contains the fundamental components of California's regulatory requirements for cross-connections and backflow prevention. The Department of Health Services promulgated the existing cross-connection and backflow regulations in Title 17 in 1987, when that department administered the state's drinking water program. When CDPH became a stand-alone department (it had previously been under the umbrella of the Department of Health Services), it assumed responsibility for administering the drinking water, and thus the backflow prevention, programs. The cross-connection and backflow regulations have not been updated since 1987.

On July 1, 2014, the Legislature transferred the administration of the drinking water and backflow prevention programs from CDPH to the State Water Board. Since it received responsibility for administering the drinking water program, the State Water Board has made great progress in updating and advancing its many programs and regulations, but it is contending with a backlog of programs and regulations that were not revised for many years. One of those outdated programs is the cross-connection control and backflow prevention regulation.

In order to better prioritize its many drinking water programs in need of updating, the State Water Board, at its February 22, 2017, meeting, discussed the consideration of a resolution to adopt a proposed prioritization list of drinking water regulations for 2017. As a result, the State Water Board designated cross-connection control regulations as the sixth highest regulatory priority for 2017. The State Water Board predicts the rule-making process for these regulations to begin this fall.

This bill requires the State Water Board to, on or before January 1, 2020, adopt standards for backflow protection and cross-connection control.

This bill contains provisions that are in conflict with AB 1529 (Thurmond) of the current legislative session.



Assembly Bill No. 1180

CHAPTER 455

An act to amend Section 116407 of the Health and Safety Code, and to add Section 13521.2 to the Water Code, relating to water.

[Approved by Governor October 2, 2019. Filed with Secretary of State October 2, 2019.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1180, Friedman. Water: recycled water.

(1) Existing law, the California Safe Drinking Water Act, requires the State Water Resources Control Board to administer provisions relating to the regulation of drinking water to protect public health. Existing law requires, on or before January 1, 2020, the state board to adopt standards for backflow protection and cross-connection control through the adoption of a policy handbook, as specified.

This bill would require that handbook to include provisions for the use of a swivel or changeover device to supply potable water to a dual-plumbed system during an interruption in recycled water service.

(2) Existing law requires the state board to establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves the protection of public health.

This bill would require the state board, on or before January 1, 2023, as specified, to update the uniform statewide criteria for nonpotable recycled water uses.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) On December 11, 2018, the State Water Resources Control Board unanimously adopted an amendment to the policy for water quality control for recycled water, which included a goal to increase the use of recycled water in the state from 714,000 acre-feet per year in 2015 to 1,500,000 acre-feet per year by 2020 and 2,500,000 acre-feet per year by 2030.

(b) Section 13521 of the Water Code requires the state board to establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves the protection of public health.

(c) The regulations establishing the uniform statewide criteria for recycled water uses are set forth in Chapter 3 (commencing with Section 60301.050) of Division 4 of Title 22 of the California Code of Regulations. The regulations that pertain to nonpotable recycled water uses have not been updated since 2000.

(d) The regulations relating to backflow protection and cross-connection control for recycled water are set forth in Article 1 (commencing with Section 7583) and Article 2 (commencing with Section 7601) of Group 4 of Subchapter 1 of Chapter 5 of Division 1 of Title 17 of the California Code of Regulations. These regulations have not been updated since 1987.

(e) Section 1 of Chapter 533 of the Statutes of 2017 (Assembly Bill 1671 of the 2017–18 Regular Session) requires, on or before January 1, 2020, the state board to adopt backflow protection and cross-connection control standards and authorizes their implementation through a policy handbook.

(f) In order to maximize the amount of recycled water California can safely use for beneficial purposes, it is necessary to update the uniform statewide criteria for nonpotable recycled water uses and specify certain associated backflow protection and cross-connection control provisions.

SEC. 2. Section 116407 of the Health and Safety Code is amended to read:

116407. (a) On or before January 1, 2020, the state board shall adopt standards for backflow protection and cross-connection control.

(b) (1) The state board may implement subdivision (a) through the adoption of a policy handbook that is not subject to the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The policy handbook shall include standards for backflow protection and cross-connection control. In developing the standards and any amendments to those standards, the state board shall consult with state and local agencies and other persons whom the state board has identified as having expertise in the subject of backflow protection and cross-connection control. The state board shall hold at least two public hearings before adopting the policy handbook. The policy handbook shall be posted on the board's internet website.

(2) (A) The policy handbook described in this subdivision shall include provisions for the use of a swivel or changeover device to supply potable water to a dual-plumbed system during an interruption in recycled water service.

(B) The use of a swivel or changeover device shall be consistent with any notification and backflow protection provisions contained in the policy handbook.

(c) (1) Upon the effective date of a policy handbook adopted by the state board pursuant to subdivision (b), the regulations set forth in Article 1 (commencing with Section 7583) and Article 2 (commencing with Section 7601) of Group 4 of Subchapter 1 of Chapter 5 of Division 1 of Title 17 of the California Code of Regulations shall become inoperative, and, 90 days thereafter, are repealed, unless the state board makes a determination not to repeal a specific regulation.

(2) If the state board determines not to repeal a specific regulation pursuant to paragraph (1), the state board shall provide to the Office of Administrative Law and the Secretary of State written notice of its determination, including identification of the specific regulation that is not repealed. That regulation, upon the provision of that written notice to the

Office of Administrative Law and the Secretary of State, shall become operative.

SEC. 3. Section 13521.2 is added to the Water Code, to read:

13521.2. (a) On or before January 1, 2023, the state board shall update the uniform statewide criteria for nonpotable recycled water uses established in Chapter 3 (commencing with Section 60301.050) of Division 4 of Title 22 of the California Code of Regulations. The deadline imposed by this section is mandatory only if the Legislature has appropriated sufficient funds, as determined by the executive director of the state board, in the annual Budget Act or otherwise to cover the state board's costs associated with the performance of the duties imposed by this section.

(b) For purposes of the update to the uniform statewide criteria for nonpotable recycled water uses described in subdivision (a), the state board shall adopt a regulation that incorporates by reference the criteria and applicable backflow protection provisions, including the provisions for the use of a swivel or changeover device for dual-plumbed systems, that are contained in the most recently adopted version of the policy handbook adopted pursuant to Section 116407 of the Health and Safety Code and any future versions of the policy handbook.

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Appendix B

ASME A112.1.2-2012(R2017) Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures, page 4

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Appendix B

ASME A112.1.2-2012(R2017) Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures,¹ page
4

TABLE 1
Minimum Air Gaps for Generally used Plumbing Fixtures⁴

FIXTURES	WHERE NOT AFFECTED BY SIDEWALLS ¹ (inches)	WHERE AFFECTED BY SIDEWALLS ² (inches)
Effective opening ³ not greater than ½ of an inch in diameter	1	1½
Effective openings ³ not greater than ¾ of an inch in diameter	1½	2¼
Effective openings ³ not greater than 1 inch in diameter	2	3
Effective openings ³ greater than 1 inch in diameter	Two times the diameter of effective opening	Three times the diameter of effective opening

For SI units: 1 inch = 25.4 mm

Notes:

¹ Sidewalls, ribs, or similar obstructions do not affect air gaps where spaced from the inside edge of the spout opening at a distance exceeding three times the diameter of the effective opening for a single wall, or at a distance exceeding four times the effective opening for two intersecting walls.

² Vertical walls, ribs, or similar obstructions extending from the water surface to or above the horizontal plane of the spout opening other than specified in Footnote 1 above. The effect of three or more such vertical walls or ribs has not been determined. In such cases, the air gap shall be measured from the top of the wall.

³ The effective opening shall be the minimum cross-sectional area at the seat of the control valve or the supply pipe or tubing that feeds the device or outlet. Where two or more lines supply one outlet, the effective opening shall be the sum of the cross-sectional areas of the individual supply lines or the area of the single outlet, whichever is smaller.

⁴ Air gaps less than 1 inch (25.4 mm) shall be approved as a permanent part of a listed assembly that has been tested under actual backflow conditions with vacuums of 0 to 25 inches of mercury (85 kPa).

¹ Reprinted from ASME A112.1.2-2012(R2017), by permission of The American Society of Mechanical Engineers. All rights reserved

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Appendix C

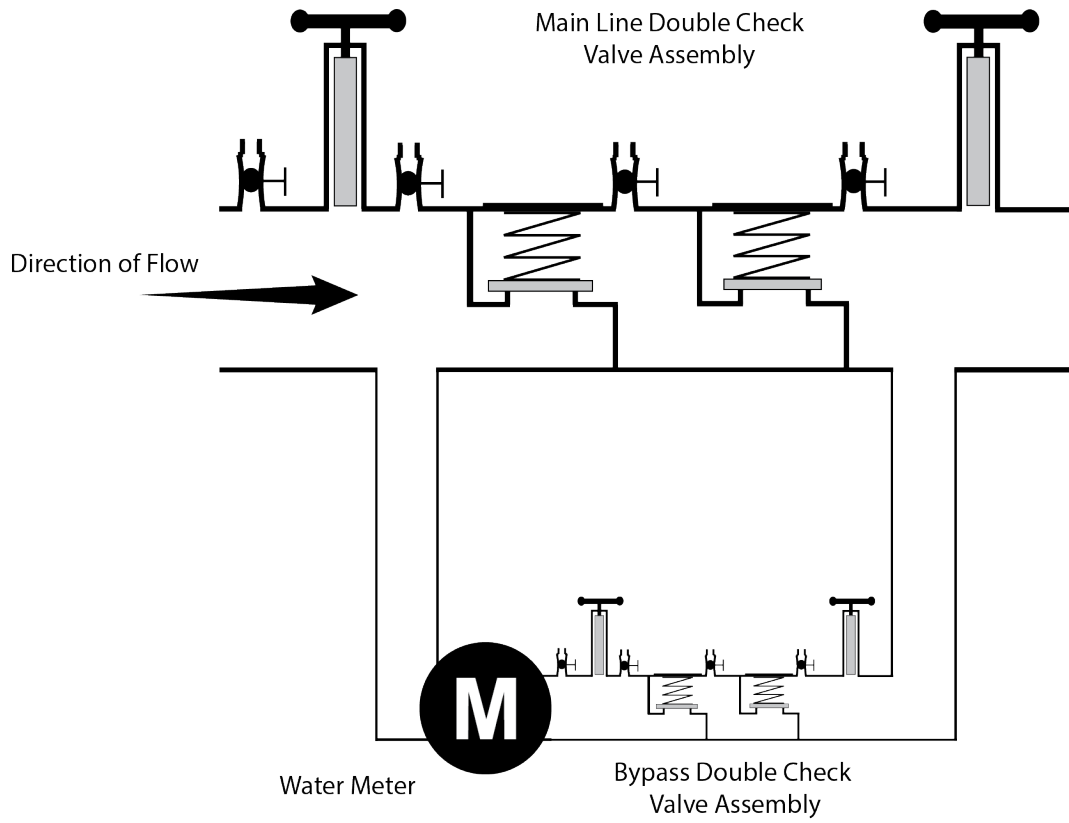
Backflow Prevention Assembly Diagrams

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Appendix C

Diagram 1

Double check detector backflow prevention assembly¹

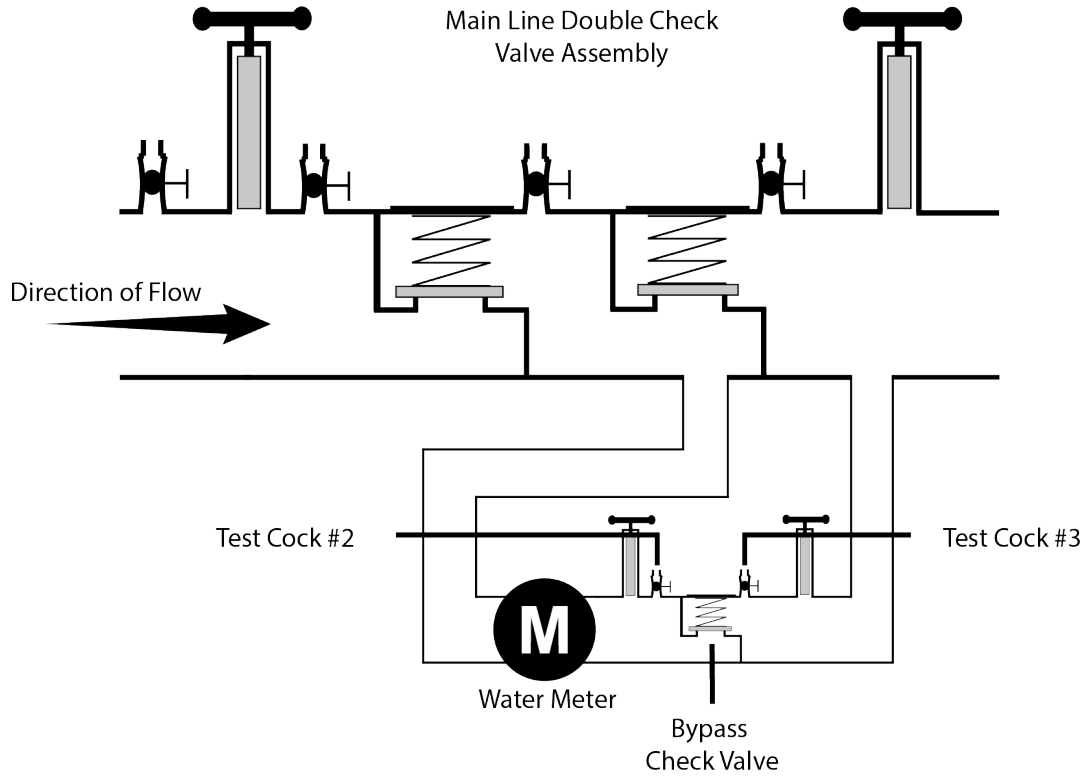


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Appendix C

Diagram 2

*Double check detector backflow prevention assembly – type II*²

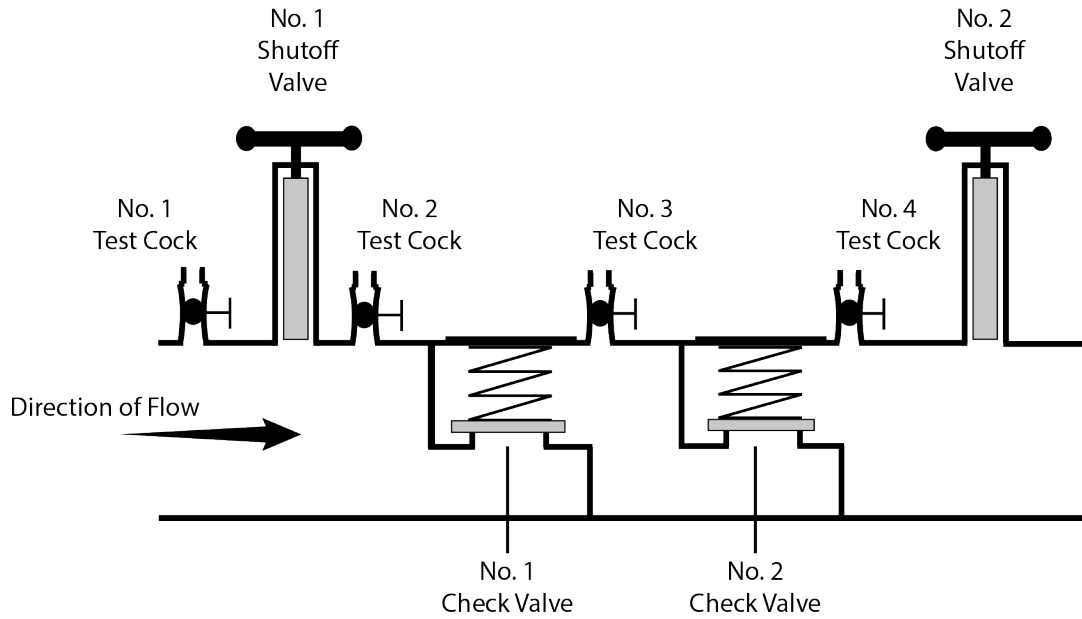


² © 2023 University of Southern California. Used with permission.

Appendix C

Diagram 3

Double check valve backflow prevention assembly³

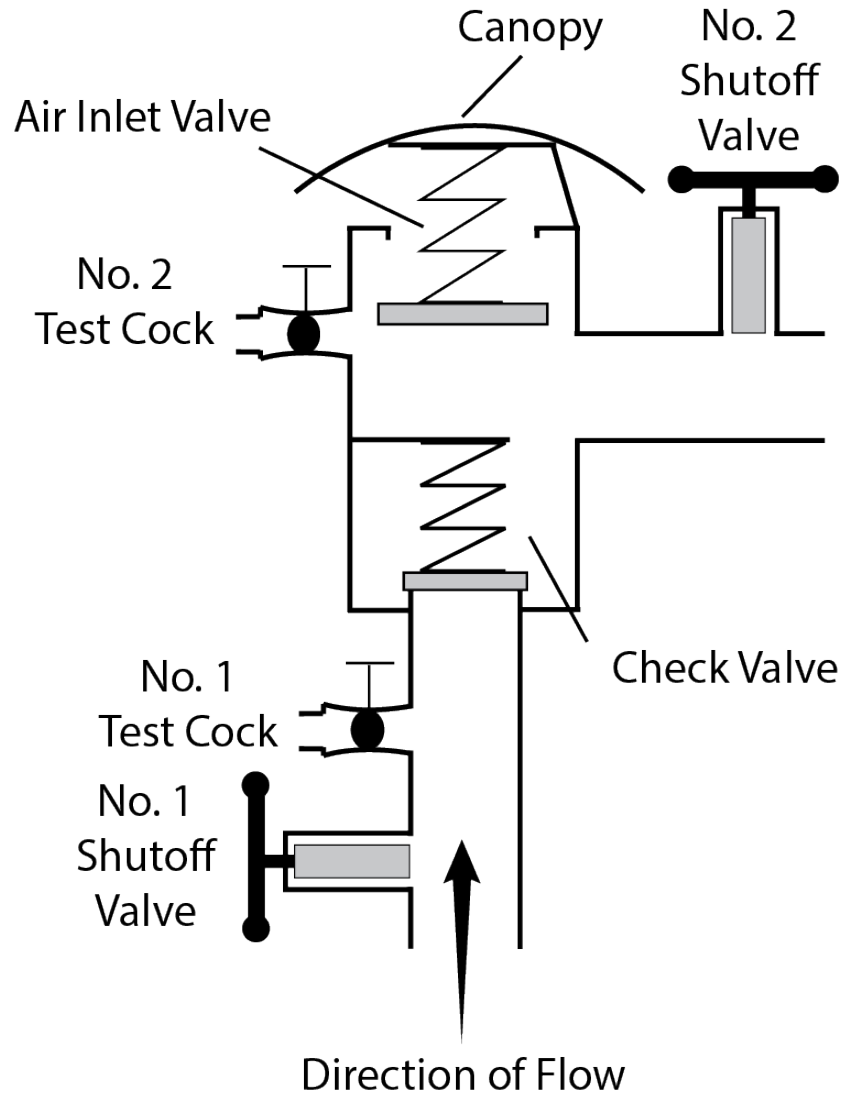


³ © 2023 University of Southern California. Used with permission

Appendix C

Diagram 4

*Pressure vacuum breaker backsiphonage prevention assembly*⁴

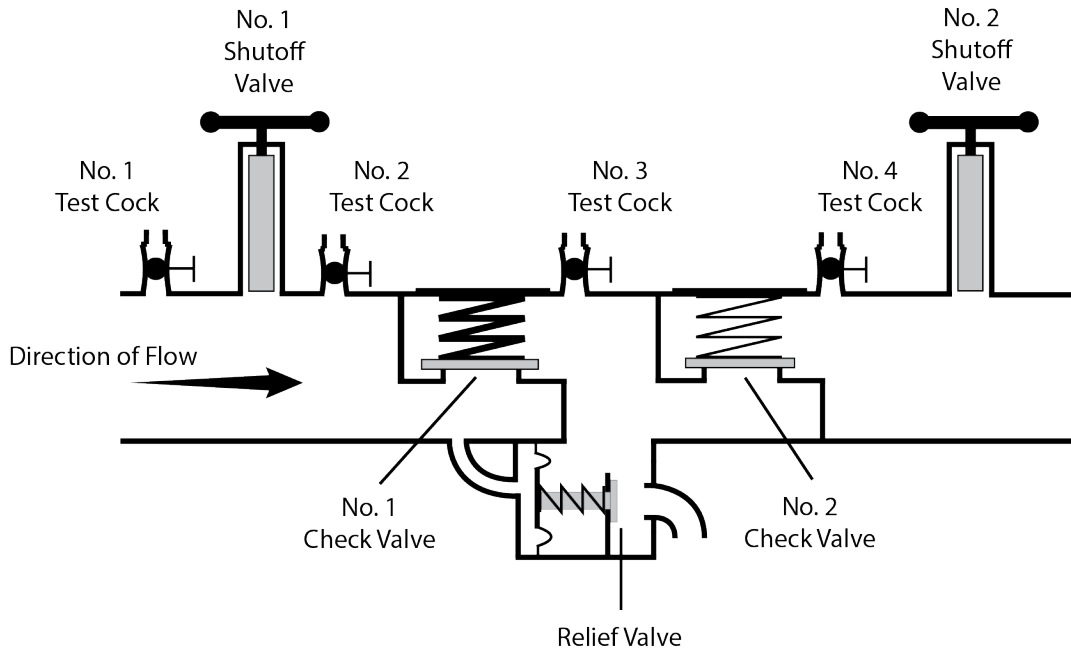


⁴ © 2023 University of Southern California. Used with permission

Appendix C

Diagram 5

Reduced pressure principle backflow prevention assembly⁵

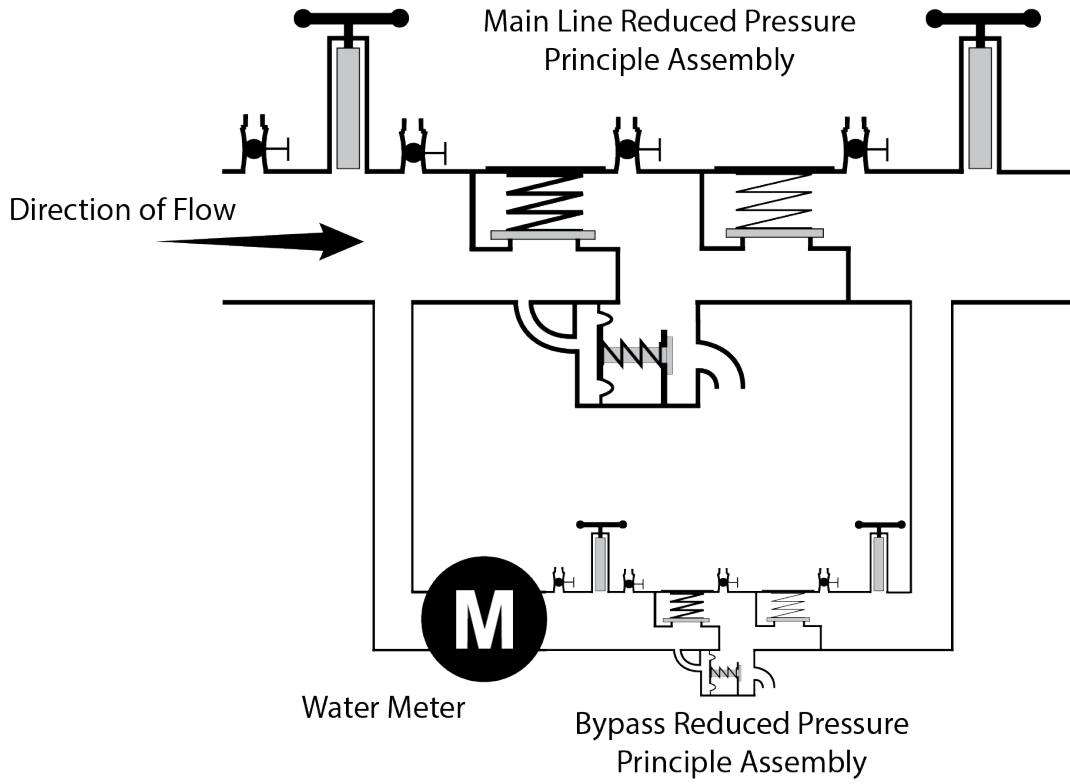


⁵ © 2023 University of Southern California. Used with permission

Appendix C

Diagram 6

*Reduced pressure principle detector backflow prevention assembly*⁶

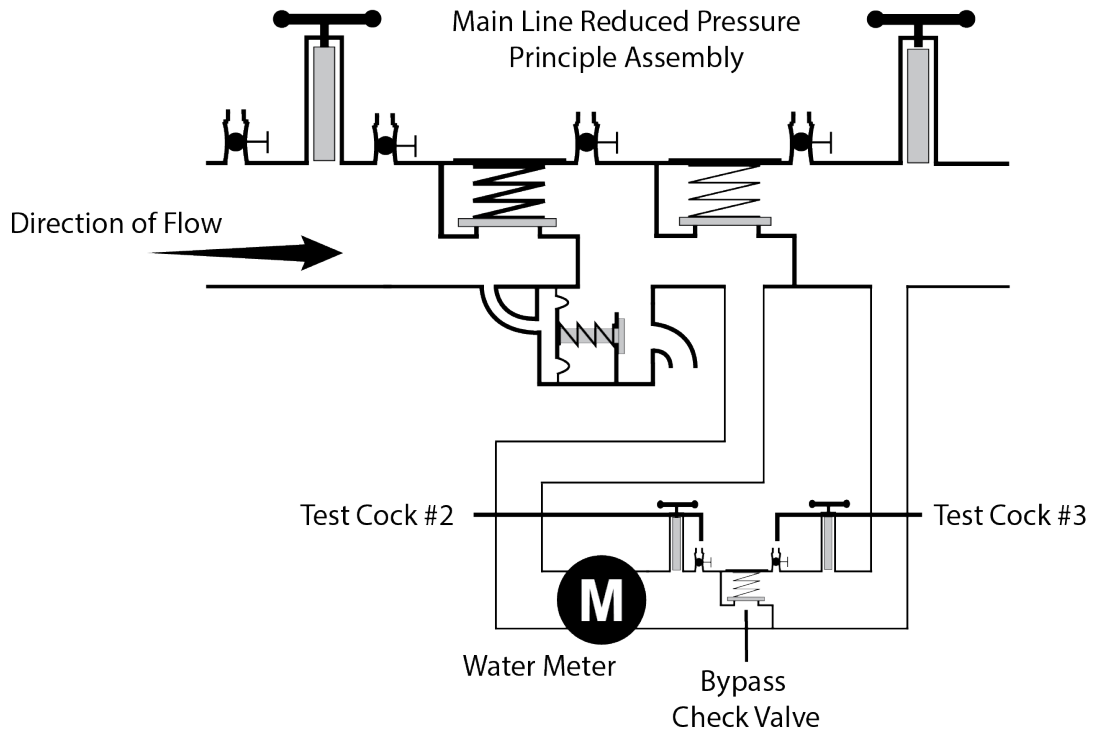


⁶ © 2023 University of Southern California. Used with permission

Appendix C

Diagram 7

*Reduced pressure principle detector backflow prevention assembly – type II*⁷

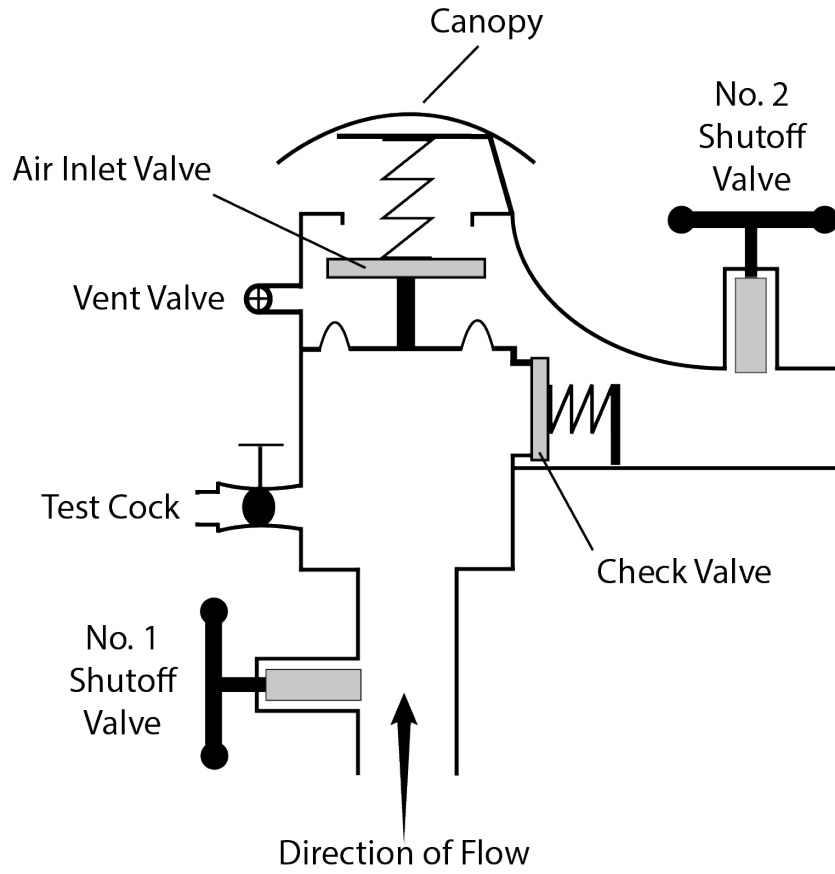


⁷ © 2023 University of Southern California. Used with permission

Appendix C

Diagram 8

*Spill-resistant pressure vacuum breaker backsiphonage prevention assembly*⁸



⁸ © 2023 University of Southern California. Used with permission

Appendix C

Swivel-Ell Design and Construction Criteria

The criteria below, in conjunction with the swivel-ell diagrams that follow (Diagrams 9a and 9b), are **minimum** acceptable design and construction-related requirements for utilizing a swivel-ell. For restrictions and allowances for utilizing a swivel-ell, see CCCPH section 3.2.2.

A. Prior to operation of a swivel-ell, the PWS will receive approval for the design and construction plans of that swivel-ell from the State Water Board.

B. The drinking water supply must not, under any circumstances, be directly connected to the recycled water supply, nor be designed such that the recycled water use site could be supplied concurrently by a recycled water supply and a drinking water supply.

C. The drinking water supply line and the recycled water supply line must be offset (see Diagram 9b) in a manner that ensures a tee-connection, spool, or other prefabricated mechanical appurtenance(s) could not be readily utilized in lieu of the swivel-ell connection, nor result in the recycled water use site being supplied concurrently by recycled water and drinking water.

D. The recycled water supply line used in conjunction with the swivel-ell must be the only recycled water supply to the recycled water use area.

E. The swivel-ell must be located as close as practical to the public water system service connection, with the swivel-ell connection being located as close as practical to the RP upstream of the swivel-ell.

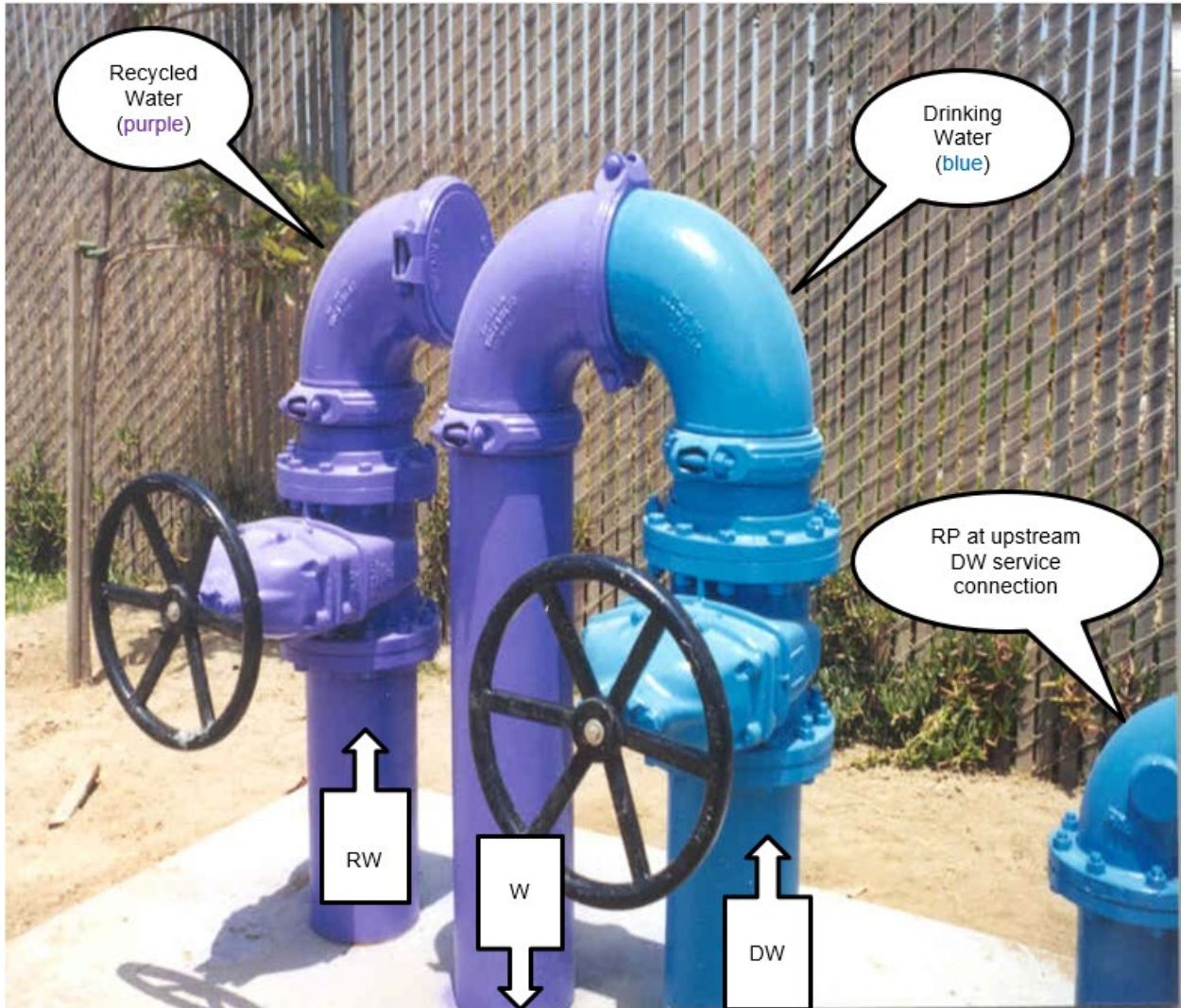
F. The swivel-ell must:

1. be located above ground;
2. be color-coded pursuant to section 116815 of the CHSC and its implementing regulations;
3. include appropriate signage, as required by regulation and the State Water Board;
4. be provided the security necessary to prevent interconnections, vandalism, unauthorized entry, etc.; and
5. be provided with meters on both the recycled water service and drinking water service connections.

Legend for Diagram 9a and 9b (also see next page)

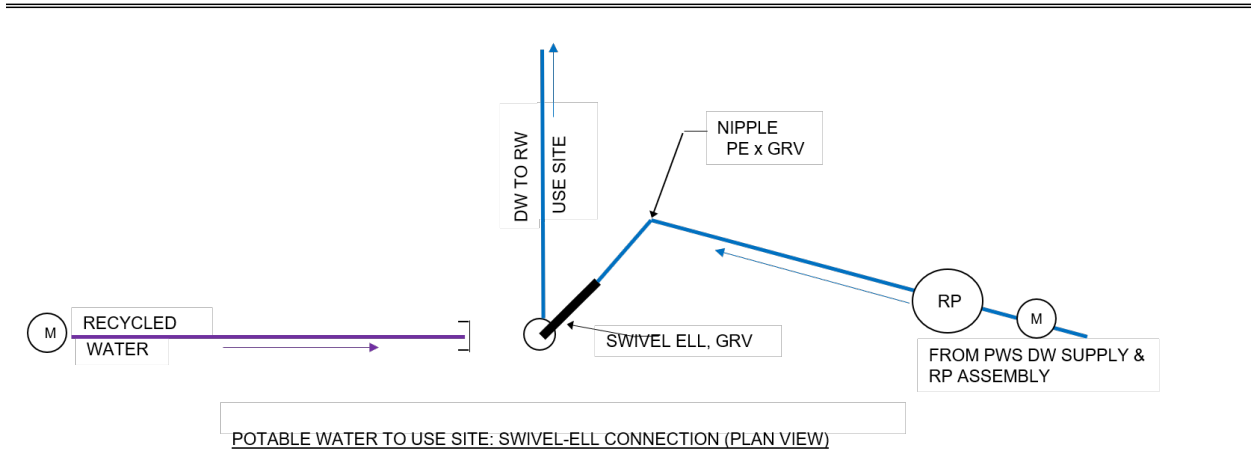
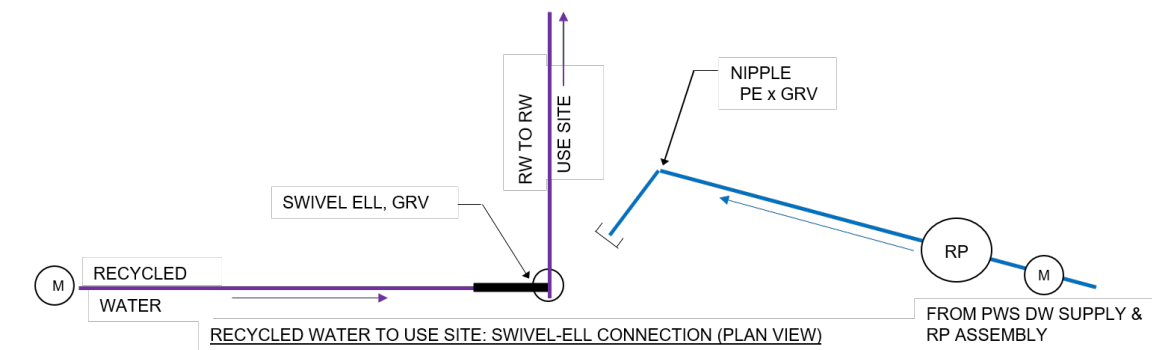
- RP = Reduced pressure principle backflow prevention assembly
- RW = Tertiary-treated recycled water originating from wastewater treatment facility
- DW = Drinking water originating from a public water system
- W = Water (tertiary recycled water or drinking water) to use site. As pictured, configured for supplemental drinking water to the use site.
- M = Meter (*next page*)
- PE = Plain End (*next page*)
- GRV = Groove (*next page*)
- PWS = Public Water System (*next page*)

Diagram 9a: Example Swivel-ElI Pictorial (also see Plan View Schematics)



Note: The RP, a required component of an acceptable swivel-ell, is not shown in the picture.

Diagram 9b: Swivel-Ell Typical Plan View Schematics
 (not intended to be an exact portrayal of the pictorial)



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Appendix D

High Hazard Premises

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APPENDIX D

HIGH HAZARD CROSS-CONNECTION CONTROL PREMISES

The list below identifies premises that require backflow protection provided by an air gap or a reduced pressure principle backflow prevention assembly, unless noted otherwise. The list below is not intended to be all-inclusive. A PWS, State Water Board, or local health agency may require an AG, RP, or both to protect a PWS from other hazards not listed below and identified in premises through the hazard assessment completed in CCCPH Chapter 3, section 3.2.1. A PWS may reduce or increase the minimum protection required for a previously hazard-assessed user premise following a hazard reassessment as described in CCCPH Chapter 3, section 3.2.1.

1. Sewage handling facilities
2. Wastewater lift stations and pumping stations
3. Wastewater treatment processes, handling, or pumping equipment that is interconnected to a piping system connected to a PWS (+)
4. Petroleum processing or storage plants
5. Radioactive material storage, processing plants or nuclear reactors
6. Mortuaries
7. Cemeteries
8. Sites with an auxiliary water supply interconnected with PWS (+)
9. Sites with an auxiliary water supply not interconnected with PWS
10. Premises with more than one connection to the PWS (++++)
11. Recycled water (++)(+++)
12. Recycled water interconnected to piping system that contains water received from a PWS (+)
13. Graywater systems, as defined in California Water Code Section 14876, that are interconnected to a piping system that is connected to a PWS
14. Medical facilities
15. Kidney dialysis facilities
16. Dental office with water-connected equipment
17. Veterinarian facilities
18. Chemical plants
19. Laboratories
20. Biotech facilities
21. Electronics manufacture
22. Dry cleaner facilities
23. Industrial or commercial laundry facilities
24. Metal-plating facilities
25. Business park with a single meter serving multiple businesses
26. Marine-port facilities

27. Car wash facilities
28. Mobile home park, RV park, or campgrounds with RV hookups
29. Hotels/motels
30. Gas stations
31. Fire stations
32. Solid waste disposal facilities
33. Pet groomers
34. Agricultural premises
35. Hazard assessment access denied or restricted
36. Railroad maintenance facilities
37. Incarceration facilities (e.g. prisons)
38. Temporary connections to fire hydrants for miscellaneous uses, including construction
39. Private water distribution mains
40. Drinking water storage tank overflow connected to a sump or storm drain (+)
41. Airports

(+) Premise isolated by air gap only except as allowed through CCCPH Section 3.2.2(c)

(++) Dual-plumbed use areas established per CCR Title 22, Section 60313 through 60316.

(+++ Residences using recycled water for landscape irrigation as part of an approved dual plumbed use area established pursuant to CCR Title 22, sections 60313 through 60316 shall use, at a minimum, a DC. If the water supplier is also the supplier of the recycled water, then the recycled water supplier may obtain approval of the local public water supplier or the State Water Board, to utilize an alternative backflow protection plan that includes an annual inspection of both the recycled water and potable water systems and an annual cross-connection test of the recycled water and potable water systems pursuant to subsection 60316(a) in lieu of any BPA.

(++++ All connections must receive at least the same level of protection excluding fire protection when connected to the PWS distribution system (e.g. if one connection requires an RP then all connections must have RPs installed).

Appendix E

General Range of Knowledge for Cross-Connection
Control Specialists

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APPENDIX E

General Range of Knowledge for Cross-Connection Control Specialists

To effectively prevent unintended backflow into a PWS's distribution system, it is necessary for a cross-connection control specialist to have an understanding of a range of subjects related to cross-connection control. This appendix provides a list of such subjects.

This appendix is not meant to preclude instruction of additional subjects that may be necessary or beneficial to the goal of a prospective or existing cross-connection control specialist in being proficient in protecting public health from backflow through cross-connection control measures. Emphasis on particular subjects should be in a manner that best achieves that goal.

(a) GENERAL

- (1) Cross-connection control terminology.
- (2) The history leading to the need for cross-connection control, including causes, impacts, including but not limited to:
 - (A) potable water distribution systems;
 - (B) examples of backflow incidents and actual or potential public health impacts; and
 - (C) evolution of methods of cross-connection control and backflow prevention assemblies.
- (3) Hydraulics (general) – An understanding of hydraulic gradients, pressure variations, flow rates, temperature, the properties of water, backsiphonage, backpressure, and other elements necessary to understand the causes for backflow.
- (4) Public outreach – How to appropriately convey the value of cross-connection control to PWS personnel and the public.

(b) LAWS, REGULATIONS, AND GUIDANCE

- (1) Federal – Applicable federal laws, regulations, and guidance.
- (2) State – California laws and regulations, including, but not limited to, the State Water Resources Control Board's most recent edition of its *Cross-Connection Control Policy Handbook* and other requirements related to cross-connection control.

(3) Local – An understanding of the need to ensure local requirements are considered and how best to find such requirements.

(c) HAZARD ASSESSMENTS AND METHODS TO PREVENT BACKFLOW

A comprehensive understanding of how to conduct cross-connection surveys of water systems for the purpose of identifying cross-connections, assessing hazards, and identifying the most effective and legally appropriate methods for protection from backflow. At a minimum, the following topics should be considered to achieve such an understanding:

(1) Surveys:

- (A) Preparation (e.g., authority, notification, prioritizing customers/premises, coordinating with public water systems, etc.);
- (B) Design and as-built drawings related to water supply and cross-connection control;
- (C) Public water system schematics;
- (D) How to identify existing and new construction, with an understanding of how construction may impact backflow protection;
- (E) How to identify cross-connections (actual and potential);
- (F) How to identify and differentiate between high hazard and low hazard cross-connections; and
- (G) Problems associated with multi-story buildings, multiple service connections at a premises, typical water-use equipment, etc., and varying types of water service, including irrigation, recycled water, gray water, fire prevention systems, and dual plumbed premises.

(2) Assessing Hazards:

- (A) Identifying and differentiating between premises activities leading to high hazard cross-connections and low hazard cross-connections (for examples of high hazard activities, see Appendix D); and
- (B) Understanding potential public health impacts from backflow associated with the problems in section (c)(1)(G) of this appendix.

(3) Assemblies and Methods for Backflow Prevention:

- (A) A comprehensive understanding of approved methods for cross-connection control and preventing backflow with respect to an assessed hazard;
- (B) Identifying unapproved methods for cross-connection control and preventing backflow;
- (C) An understanding of components, design and operation, proper installation and location of backflow prevention assemblies, including air gaps, and backflow prevention assembly field test methods, field test results, and the assessment of air gaps; and
- (D) Identifying unapproved assemblies, as well as those assemblies whose operation and/or state of repair necessitates replacement with an approved assembly.

(d) CROSS-CONNECTION CONTROL PROGRAMS

A comprehensive understanding of the development, elements, and administration of cross-connection control programs, including, but not limited to:

- (1) An ability to assess the federal, state, and local requirements applicable to a public water system's cross-connection control program, such that adherence to the cross-connection control program would result in compliance with the requirements;
- (2) The roles, responsibilities, and authority of individuals and entities involved in the critical elements of a successful plan for cross-connection control (see CCCPH section 3.1.4); and
- (3) The ability to assess the components of a public water system's Cross-Connection Control Plan (see CCCPH section 3.1.4) that best assures the prevention of undesired backflow into the public water system's distribution system, and to communicate deficiencies to public water system personnel.

(e) CROSS-CONNECTION TESTS

A comprehensive understanding of:

- (1) The purpose of a cross-connection test and when a cross-connection test should be performed;
- (2) The ability to develop protocols and make arrangements for cross-connection tests, and subsequently oversee and/or perform such cross-connection tests, in a manner that determines whether interconnections exist between unapproved sources and approved water supplies; and

(3) Follow-up actions and notifications if a cross-connection test indicates an interconnection.

(f) RECORDKEEPING AND INCIDENT RESPONSE

A comprehensive understanding of:

- (1) The agencies and authorities to be notified in the event of a backflow incident;
- (2) How to determine the cause of a backflow incident and the actions necessary to prevent similar incidents in the future;
- (3) How to properly document a backflow incident, including but not limited to the information in the example backflow incident response form in Appendix F; and
- (4) How to properly document the elements associated with surveys and hazard assessments, including those identified in section (c) of this appendix.

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Appendix F

Example Backflow Incident Reporting Form

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BACKFLOW INCIDENT REPORT FORM

Water System: _____

Water System Number: _____

Incident Date: _____

Incident Time (if known): _____

Incident Location: _____

How was the incident discovered?

Backflow Originated from:

Premise Location: _____

Address: _____

Premise Contact Person: _____ Title: _____

Phone: _____ Email: _____

Connection Type: (please check one)

Industrial Commercial Single-Family Residential Multi-Family Residential

Irrigation Recycled Water Water System Facility

Other: _____

Description and source of backflow substance (please be as descriptive as possible):

If available, please attach an MSDS or other chemical description form

Was the backflow fluid contained within the user side? YES NO

Estimated Number of Affected Persons: _____

Number and description of consumer complaints received:

Did any consumers report illness? Please describe.

If applicable, please describe the consumer notification:

INVESTIGATION

Please describe the water system investigation including time frames:

What was the area system pressure? _____

Is this within typical range: YES NO - typical pressure: _____

Was a sample of the water contaminated by the backflow incident collected and stored before flushing? YES NO

Please describe all sampling:

DDW recommends laboratory or field sampling for the following parameters: total coliform, E. coli, free and total chlorine residual, pH, odor, turbidity, temperature, and color. Additional sampling should be collected at the PWS and regulatory agency's discretion.

CORRECTIVE ACTIONS

Please describe the corrective actions taken by the water system:

Was the chlorine residual increased after discovery of backflow incident? YES NO

Date of the last cross-connection control hazard assessment of the premise with the backflow incident conducted: _____

Did the premise have backflow prevention assemblies? YES NO

Date of most recent backflow prevention assembly test(s): _____

When was the Division of Drinking Water or Local County Health office notified?

Date: _____ Time: _____ Contact Person: _____

Was the Division or Local County Health notified within 24 hours? YES NO

Other agencies or organizations contacted?

CERTIFICATION

Name: _____ Job Title: _____

Certification(s): _____

Please list all cross-connection control related certifications including number and expiration date

I certify that the forgoing information is true and correct to the best of my ability.

Signature: _____ Date: _____

Attach the following applicable documentation

1. Laboratory Test Results
2. Sketch of the cross-connection and modifications
3. MSDS or chemical information forms if chemical hazard is known
4. Applicable backflow assembly test reports including the most recent test before the incident
5. Other relevant supporting documentation

Appendix G

Related Statutes and Regulations

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The following laws and regulations are considered related or tangential to the CCCPH, and are included in a descriptive format to provide additional, relevant background information

California Laws and Regulations

In addition to the California SDWA statutory requirements cited in CCCPH Chapter 1, section 1.3.1, California has statutes addressing certain authorities and requirements that may have influenced the CCCPH or may otherwise be of interest.

- Urban and community water systems must have a written policy on discontinuation of residential service for nonpayment and must not discontinue residential service for nonpayment if certain conditions are met. (CHSC sections 116900 – 116926)
- Senate Bill 1263 (2017) requires that before a person submits an application for a permit for a proposed new public water system, the person shall first submit a preliminary technical report which must include a cost comparison of a new public water system and consolidations with an existing system. (CHSC section 116527)
- Effective June 24, 2015, Senate Bill 88 (SB 88) (Statutes 2015, Chapter 27) added sections 116680-116684 to the CHSC, allowing the State Water Board to require certain water systems that consistently fail to provide safe drinking water to consolidate with, or receive an extension of service from, another public water system. The consolidation can be physical or managerial.
- Local health officers may maintain programs for the control of cross-connections by water users, within water users' premises, where public exposure to backflow may occur. Such programs may include water user premises inspections, collection of fees, certification of backflow prevention assembly¹ (BPA) testers, and other discretionary elements. Local health officer BPA tester certification standards must be consistent with the standards prescribed in the CCCPH. Water users are required to comply with all orders, instructions, regulations, and notices from the local health officer regarding installation, testing, and maintenance of a BPA. (CHSC sections 116800 - 116820).
- Pursuant to the California Building Standards Law (CHSC sections 18901 - 18949.31), the California Building Standards Commission (CBSC) must administer the processes related to the adoption, approval, and publication of regulations referred to as the California Building Standards Code (Title 24, California Code of Regulation). Title 24 serves as the basis for the minimum design and construction of buildings in California and includes the

¹ California statutes use a variety of terms when referencing a 'backflow prevention assembly' (e.g., backflow protective device, backflow protection equipment, backflow prevention device, backflow or back siphonage protection device, backflow preventer, or backflow device). For consistency with industry terminology, 'backflow prevention assembly' is used in the CCCPH, unless directly quoted otherwise.

California Plumbing Code (Part 5 of Title 24), which contains requirements pertaining to cross-connection control and backflow prevention.

- A BPA intended to convey or dispense water for human consumption via drinking or cooking must meet California’s “lead free” requirements. (CHSC section 116875)
- Limits are established for the installation of backflow protection equipment where automatic fire sprinkler systems are utilized. (CHSC section 13114.7)²
- Cross-connection control must be addressed in engineering reports that are required (CCR Title 22, section 60323) for recycled water projects. (Wat. Code section 13552.8)
- If a public agency requires the use of recycled water for toilet and urinal flushing in a structure (except certain mental health facilities), the public health agency must prepare an engineering report that addresses cross-connection control. (Wat. Code section 13554)
- Prior to indoor use of recycled water in a condominium project, the entity delivering the recycled water must submit a report, for State Water Board³ approval, and include the following related to cross-connection control (Wat. Code section 13553(d)(1)):
 - The condominium project must be provided with a backflow prevention assembly approved by the State Water Board.
 - The backflow prevention assembly must be inspected and tested annually by a certified tester.
 - The condominium project must be tested by the recycled water agency or local agency at least once every four years for indications of possible cross-connections between the condominium’s potable and non-potable systems.
- California’s Department of Water Resources was required to convene a task force, known as the 2002 Recycled Water Task Force, to identify constraints, impediments, and opportunities for the increased use of recycled water and report to the Legislature by July 1, 2003. The task force was also asked to advise and make recommendations concerning cross-connection control, including the applicability of visual inspections instead of pressure tests for cross-connections between potable and non-potable water systems.

² CHSC section 13114.7 historically provided potential limits for backflow prevention assemblies on fire sprinklers. Even though current standards differ from the language stated in CHSC section 13114.7, it is still being provided as a historical reference as there may still be installations with the now outdated limits established in section 13114.7

³ The California Department of Public Health’s authority and responsibility pertaining to this reference was transferred to the State Water Board via Senate Bill 861 (2014, Chapter 35). As such, applicable statutory mandates that may refer to “California Department of Public Health” or “Department” may be referred to as “State Water Board” in this document.

(Wat. Code section 13578(b)(1). The final report⁴ provided the following recommendations to the State Water Board – Division of Drinking Water (Division):

- Prepare guidance on dual plumbed regulations (22 CCR sections 60313-60316) consistent with Appendix J of plumbing code (Chapter 15 of 2019 California Plumbing Code, formerly Chapter 16A).
- Support thorough assessment of risk associated with cross-connections between disinfection tertiary recycled water and potable water.
- Ensure uniform interpretation of cross-connection control requirement of Title 22 regulations (recycled water) and Title 17 (cross-connection control regulations)
- Recommend stakeholders to review draft Title 17 regulations.
- A person engaged in the salvage, purchase, or sale of scrap metal who knowingly possesses a backflow prevention assembly (or connections to the assembly or any part of the assembly), or who failed to report the possession of such items, which was previously owned by a utility or public agency, is guilty of a crime. (Pen. Code section 496e)
- Junk dealers or recyclers who possess a backflow prevention assembly (or connections to that assembly or any part of the assembly) without a written certification from the agency or utility owning or previously owning the assembly will be liable to the agency or utility for the wrongful possession. (Civ. Code section 3336.5 and, similarly, Bus. & Prof. Code section 21609.1)

Please note that a number of the codes, regulations, and statutes cited above are implemented under the authority of regulatory entities other than the State Water Board and would therefore be beyond the scope of this CCCPH. The intent of providing such citations is to increase general awareness with respect to other potential statutory requirements associated with cross-connection control. The list is not exhaustive and does not include other requirements that may exist, including those via regulations that may have been adopted by an appropriate regulatory entity.

Federal Laws and Regulations

All suppliers of domestic water to the public are subject to regulations adopted by the U.S. Environmental Protection Agency (EPA) under the U.S. Safe Drinking Water Act (SDWA) of 1974, as amended (42 U.S.C. section 300f et seq.), as well as by the State Board under the California SDWA (Health & Saf. Code, div. 104, pt. 12, ch. 4, section 116270 et seq.). Additionally, the State Water Board has been delegated primacy - the responsibility and authority to administer

⁴ California Department of Water Resources. (2003). *Water Recycling 2030: Recommendations of California's Recycled Water Task Force*

U.S. EPA's drinking water regulations within California – on the condition that California adopt enforceable requirements no less stringent than U.S. EPA's.

The U.S. EPA currently has no distinct cross-connection control requirements that apply broadly to public water systems (PWS); however, the importance of cross-connection control is evident by the issue papers and guidance documents developed by U.S. EPA and their recognition that cross-connections and backflow represent a significant public health risk (see discussion in Chapter 2). Although U.S. EPA currently has no distinct cross-connection control requirements, the subject of cross-connection or backflow prevention assemblies is included in the U.S. SDWA and the Code of Federal Regulations (C.F.R.) in relation to PWS, including the following:⁵

- If used exclusively for non-potable services, a backflow prevention assembly (BPA) is exempt from the federal lead prohibitions. (42, U.S.C. section 300g)
- Allows increasing disinfectant concentrations in a PWS distribution system in the event of a cross-connection (backflow) event. (40 C.F.R. section 141.130(d))
- Proper maintenance of the distribution system, including cross-connection control, is identified as a best available technology (BAT) for microbial contaminant control. (40 C.F.R. section 141.63(e))
- Under the federal Revised Total Coliform Rule, a PWS having a cross-connection control program is one of the enhancements necessary to reduce monitoring for a PWS that had been under an increased monitoring frequency. (40 C.F.R. section 141.854(h)(2))
- Under the federal Revised Total Coliform Rule, a PWS having a cross-connection control program is a criterion for a state to allow a reduced monitoring frequency (40 C.F.R. section 141.855(d)(1))
- If a state allows the monitoring frequency reductions previously mentioned under the federal Revised Total Coliform Rule, a state is required to include in its primacy package to U.S. EPA how a PWS will be required to demonstrate cross-connection control. (40 C.F.R. section 142.16(q))

⁵ For requirements unrelated to cross-connection control, please consult California's laws and regulations specific to the topic of interest. California may have more stringent requirements (e.g., reduced monitoring allowed via federal regulations may be prohibited in California).

Appendix H

Cross Connection Survey – New and Existing
Customers

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Safe Drinking Water Is Priceless

Safe drinking water is priceless. Unlike other utility services such as gas or electricity, tap water is consumed.

Federal, state, and local regulations require drinking water to meet quality and safety standards. CVWD takes these regulations seriously and not only meets them, but often exceeds them.

Treated water, however, can become contaminated within the water distribution system by cross connections that result in backflow occurrence.



We Can Help

Have questions about cross connections? Contact our Cross-Connection Hotline at (818) 248-3925 OR

Visit our website at cvwd.com



Cross Connection Survey

New Residential Customers

To be completed by the property owner or their authorized agent.

This questionnaire aims to help determine if you have any special plumbing or activities that pose an increased risk of contamination to CVWD's water system. Please complete the following questionnaire and check the appropriate boxes that apply to your property. Backflow prevention assemblies shall be

installed at all service connections where in the judgment of CVWD and the nature of activities on the premise may present a nuisance or hazard to the public water system. Residential properties may be required to provide premise isolation as minimum protection. Installed devices are required to be tested annually, and the test results and certification must be provided to CVWD.

Type of Residence: Single Family Multi-Family Townhouse/Condo Other _____

Property Site Address: Owner's Name: _____

Owner's Phone Number: _____ Owner's Address: _____

Owner's Email Address: _____

Place a check next to all equipment and fixtures listed below that are or will be connected to water for use at your project or residence.

- Photo developing equipment
- Private well on property
- Decorative pond/fountain
- Treatment/filtration system
- Livestock watering
- Drinking fountain
- Septic system/pump
- Hot tub/spa/sauna
- Commercial grade appliances
- Lawn landscape irrigation
- Swimming pool
- Baptismal pools
- Garbage disposals
- Fire sprinklers on the ceiling
- None of the above
- Solar heating equipment
- Air conditioner connected to the water system
- Medical equipment

Certification: Under penalty of perjury, I (the undersigned) certify that I am the property owner or their authorized agent and that the above information is complete and accurate to the best of my knowledge. I understand that any changes in equipment connected to the water system must be reported immediately to CVWD as a condition of continued service. I understand that failure to report changes or provide yearly test reports of installed backflow protection devices may result in CVWD interrupting water service to the premises. I agree not to cause or maintain, temporarily or permanently, any cross-connection between plumbing pipes or water fixtures and the public water system.

Completed by: _____ Date: _____

THIS SECTION TO BE COMPLETED BY CVWD

Type of Water Use	Hazard Assessment			Backflow Protection Required							
	Low	Medium	High	None	DCVA	DCDA	RCBA	RPDA	PVB	DCV	RPZ
Domestic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Irrigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Status of Meter	<input type="checkbox"/> Meter is set			<input type="checkbox"/>	<input type="checkbox"/> Okay to install						
Certified by:					<input type="checkbox"/> Locked by CVWD						

FOR STAFF USE ONLY

Account # _____ Accepted By _____ Premise Isolation Required _____ Assembly Type _____ Date _____



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Federal, state, and local regulations require drinking water to meet quality and safety standards. CVWD takes these regulations seriously and not only meets them, but often exceeds them.

Treated water, however, can become contaminated within the water distribution system by cross connections that result in backflow occurrence.



We Can Help

Have questions or need help determining if you are in compliance with cross connection requirements? Contact our Office at (818) 248-3925

Visit our website at www.cvwd.com



Help Prevent Cross Connections

Under State regulations, the Cross Connection and Backflow Prevention Program is designed to protect the drinking water system from the possibility of contamination through cross connections. With your cooperation, we can increase the effectiveness of this important program!

Please complete this survey and return it to CVWD within 30 days of receipt. If we do not hear from you, we will assume that a high risk cross connection exists, and you will be required to install a reduced pressure zone backflow prevention device.

Thank you for helping us to protect the safety of the water that serves your community. If you have any questions, don't hesitate to give us a call.

Cross Connection Survey

Please complete and return to CVWD: 2700 Foothill Blvd, La Crescenta-Montrose, CA 91214

For Service to: _____

Please check the box that best describes your home or premise:

- Single Family Residence
- Multi-Family (2-4 Units)
- Church/Religious Purposes
- Apartment with ____ Units
- Day Care
- Other _____

Describe what water is used for at your home or premise (please check all that apply):

- Typical (i.e., toilets, sinks, drinking fountains, outside water faucets, household laundry, or dish washing appliances)
- Private well(s) supplying any part of your facility
- Connected into lawn sprinkler irrigation system
- Pool filled by hose without backflow device
- Connected to water operated/cooled equipment/appliances/ boilers

If you have an existing backflow device(s), please provide the information below and attach a copy of the most recent backflow test report(s) for each device. If more than three, attach information. If no backflow device(s) is installed on your plumbing, please skip this section.

Device: Reduced Pressure Double Check Pressure Vacuum Breaker
 Manufacturer: _____ Serial #: _____ Online to: _____
 Location: _____ Model: _____ Size: _____

Device: Reduced Pressure Double Check Pressure Vacuum Breaker
 Manufacturer: _____ Serial #: _____ Online to: _____
 Location: _____ Model: _____ Size: _____

Individual completing this survey (please print): _____

Signature: _____ Date: _____

Phone: _____ Email (optional): _____

Please return completed survey by mail, fax or email to:
 Cross Connection Control Department Mailing Address:
 2700 Foothill Blvd, La Crescenta-Montrose, CA 91214
 Fax: 818-248-1659 | Email: backflow@cvwd.com

Appendix H

Cross-Connection Brochure – Non-Residential and Residential Customers

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Non-Residential Brochure

<https://www.cvwd.com/uploads/files/Connection-FORMS/Cross%20Connections%20Brochure%20-%20Non-Res-Cust.pdf>

Residential Brochure

<https://www.cvwd.com/uploads/files/Cross%20Connections%20Brochure%20-%20Residential%20Customers.pdf>