STAFF REPORT

To:	**Coastside County Water District Board of Directors**
From:	**Mary Rogren, General Manager**
Agenda:	**June 10, 2025**
Date:	**June 6, 2025**
Agenda Title:	Consider Ordinance 2025-01 Modifying Section W of the District's General Regulations Regarding Water Service Pertaining to the Control of Backflow and Cross Connections.

Recommendation/Motion:
Approve Ordinance 2025-01 modifying Section W of the District's General Regulations Regarding Water Service Pertaining to the Control of Backflow and Cross Connections.

Background:
The District's current Backflow and Cross Connection Control regulations were adopted on September 10, 2013, and incorporated into Section W of the District's General Regulations Regarding Water Service. With the State Water Resources Control Board adopting the Cross Connection Control Policy Handbook on December 19, 2023, under authority of the California Safe Drinking Water Act, Public Water Systems in California must comply with the Cross Connection Control Policy Handbook or face enforcement or other corrective actions by the State Water Resources Control Board.

The State's Cross Connection Control Policy Handbook's primary objective is the protection of public health through the establishment of standards to ensure drinking water distribution systems will not be subject to the backflow of liquids, gases, or other substances.

It is mandated under the Cross Connection Control Policy Handbook that each Public Water System submit a written plan for the State Water Resources Control Board to review. For existing Public Water Systems, the written plan is due 12 months after the effective date of the Cross Connection Control Policy Handbook (July 1, 2025).

The District engaged West Yost & Associates, Inc. to assist staff in preparing the District's Cross Connection Control Program and Plan. (See Attachment B for a copy of the draft.) The final version of the District's Cross Connection Control Program and Plan will be submitted to the State Water Resources Control Board by July 1, 2025.

One of the requirements of the written plan is that the Public Water System provide a description of the legal authority or its operating rules and ordinances to implement their Cross Connection Control Program and Plan, including implementing corrective actions against water users who fail to comply in a timely manner with provisions regarding the installation, inspection, field testing, or maintenance of backflow prevention assemblies.

Public Water Systems must be able to; (1) deny or discontinue water service to a water user, (2) install, inspect, field test, and/or maintain a backflow prevention assembly at a water user's premises, or (3) otherwise address in a timely manner a failure to comply with the cross connection control program and plan.

The District's current Ordinance 2013-01 does not cover all of the requirements of the State's Cross Connection Control Policy Handbook and the District's Cross Connection Control Program and Plan. A revised Ordinance is required and will be included in the District's Cross Connection Control Program and Plan.

Ordinance 2025-01:

Ordinance 2025-01 was written to meet the implementation, enforcement, policies and procedures of the State's Cross Connection Control Policy Handbook. The Ordinance meets the intent to protect the public water system through the implementation and enforcement of the District's Cross Connection Control Program and Plan**.**

The Ordinance states its purpose, authority, applicability, policy, and incorporates the State's Cross Connection Control Policy Handbook and the District's Cross Connection Control Program and Plan. It also includes descriptions of ownership, the right of the District to enter property, appeals, cost recovery, and limitations of liability.

Ordinance 2025-01 will give the District the ability to implement and enforce its Cross Connection Control Program and Plan and comply with the requirements in the state's Cross Connection Control Policy Handbook.

Fiscal Impact:

Costs of developing and implementing the regulations will be borne by all users, as described in the Ordinance.

Attachments:

(A) Ordinance 2025-01
(B) Draft Cross Connection Control Program and Plan of Coastside County Water District

ORDINANCE NO. 2025-01

AN ORDINANCE OF THE

COASTSIDE COUNTY WATER DISTRICT

MODIFYING SECTION W OF THE DISTRICT'S GENERAL REGULATIONS REGARDING WATER SERVICE PERTAINING TO THE CONTROL OF BACKFLOW AND CROSS-CONNECTIONS

RECITALS

WHEREAS, the Coastside County Water District assumed the administration of the backflow and cross-connection control program from the County of San Mateo as suggested by the California Department of Health Services (now the Department of Public Health) due to backflow or cross-connection incidents in the early 2000s; and

WHEREAS, on August 10, 2004, the District adopted Resolution No. 2004-15 adding Section W to the District's General Regulations Regarding Water Service Pertaining to the Control of Backflow and Cross-Connections; and

WHEREAS, on September 10, 2013, the District adopted Ordinance No. 2013-01 modifying Section W of the District's General Regulations Regarding Water Service Pertaining to the Control of Backflow and Cross Connections; and

WHEREAS, pursuant to section 116407 of the California Health and Safety Code, the State Water Resources Control Board chose to adopt standards for backflow protection and cross connection control through the adoption (12/19/2023) of the Cross Connection Control Policy Handbook, which became effective July 1, 2024, and was amended on March 19, 2025; and

WHEREAS, appendix G of the Cross Connection Control Policy Handbook lists related statutes and regulations; and

WHEREAS, the District is a public water system, as defined by California Health and Safety Code section 116275 (h), and all public water systems are subject to the Cross Connection Control Policy Handbook; and

WHEREAS, each public water system must have operating rules to implement the cross-connection program and plan and to be able to: (a) deny or discontinue water service to a water user (user), or (b) install, inspect, field test, and/or maintain a backflow prevention assembly at user premises, or (c)

otherwise address in a timely manner a failure to comply with the cross-connection control program and plan.

NOW, THEREFORE, BE IT ORDAINED by the Board of Directors of the Coastside County Water District that Section W "BACKFLOW AND CROSS-CONNECTION CONTROL" is hereby modified in the General Regulations of the Coastside County Water District to delete the entire Section W and replace it with the following:

W. Backflow and Cross Connection Control

1. General Policy

a. Purpose: The purpose of this ordinance is:

I. To protect public health through the establishment of standards; and
II. To build a foundation of awareness within the community regarding the importance of backflow protection and cross connection control; and
III. To protect the potable water supply of the Coastside County Water District (District) from the possibility of contamination or pollution from backflow events; and
IV. To promote the elimination or control of existing cross connections, actual or potential, between the user's potable water system(s) and non-potable water system(s), plumbing fixtures, appliances, and piping systems; and
V. To comply with all the requirements in the California Cross Connection Control Policy Handbook.

b. Authority: The District is a county water district that was created under the County Water District Law (California Water Code sections 30000 et seq.), and pursuant to the County Water District Law the District has the authority and obligation to implement and enforce the Cross Connection Control Policy Handbook through this Ordinance and the District's Cross Connection Control Program and Plan. This Ordinance is adopted pursuant to the Cross Connection Control Policy Handbook. Where the minimum backflow protection differs between the California Plumbing Code, this Ordinance, and the Cross Connection Control Policy Handbook, the most protective protection of the District's water system will be required. This Ordinance provides the authority of the District to implement and enforce its Cross Connection Control Program and Plan, and all the elements in the Cross Connection Control Policy Handbook.

c. Applicability: The standards of the Cross Connection Control Policy Handbook and the District's Cross Connection Control Program and Plan shall apply to all premises, including portable meters, within the District's jurisdictional boundaries, and premises outside of the jurisdictional boundaries receiving potable and non-potable water from the District.

d. Policy: The intent of the District's Cross Connection Control Program and Plan is to prevent the occurrence of backflow into the District's water distribution system and to protect the health and safety of the community from contamination or pollution from any on site hazards. The District's policy is premises protection directly after the water service connection and not in lieu of protection within the premises. Properly installed and maintained backflow prevention assemblies provide protection against the threat posed by conditions typically found on user premises. The District may also use other technologies in their Cross Connection Control Program and Plan to assist with monitoring for occurrences (events) of backflow incidents.

e. Incorporation of the Cross Connection Control Policy Handbook and the District's Cross Connection Control Program and Plan:
The Cross Connection Control Policy Handbook, as it may be amended or revised, is incorporated into this Ordinance by reference. In addition, the District's Cross Connection Control Program and Plan, as approved by the State Water Resources Control Board, and as may be amended and updated in the future, is incorporated into this Ordinance.

2. Cross Connection Control Program and Plan

The District has prepared a written Cross Connection Control Program and Plan and will submit it to the State Water Resources Control Board. The Cross Connection Control Program and Plan will provide guidance, policies and procedures for implementation, compliance, and enforcement of its requirements.

3. Ownership of Backflow Prevention Assemblies

A user or water user is defined as including the user of water, the property owner, or customer. The user shall have ownership of the backflow prevention assembly installed on their water and fire service(s). The user shall be responsible for maintenance, upgrades, inspections, and testing of backflow prevention assemblies as required by the Cross Connection Control Policy Handbook or the District's Cross Connection Control Program and Plan.

4. **Right to Enter Property**

As a condition of water service for new water users and as a condition of continued water service for existing water users, water users may be required to have a backflow prevention assembly installed on their private property. Water users will permit the District to enter upon water user's property (premises) within the normal working hours of the District, or in case of emergency, at any time, to test, inspect, service, maintain, repair or replace the backflow prevention assembly, and to assess the hazard level of the premises, as set forth in the Cross Connection Control Policy Handbook or the District's Cross Connection Control Program and Plan.

5. Enforcement

The District in implementing its Cross Connection Control Program and Plan, if a water user fails to comply in a timely manner with the requirements of the Cross Connection Control Policy Handbook or the District's Cross Connection Control Program and Plan, may enforce the requirements by (1) denying or discontinuing water service, or (2) installing, inspecting, testing, maintaining, repairing, or replacing a backflow prevention assembly.

Except in an emergency (high hazard conditions exist) when public health and safety is immediately at risk, the District will provide the water user with notice and an opportunity to remedy the failure to comply with the requirements of the Cross Connection Control Policy Handbook or the District's Cross Connection Control Program and Plan. The time frame for the water users to implement the remedy will be based on the hazard level, the nature and risk of the public health and safety and will be established in the District's Cross Connection Control Program and Plan.

a. Any user who willfully fails to install, or permit to be installed, backflow prevention assemblies as required by the Cross Connection Control Policy Handbook or District's Cross Connection Control Program and Plan or who willfully by-passes, alters or refuses to maintain a backflow prevention assembly, shall be subject to civil and criminal penalties to the maximum extent allowed by law.

b. Water service to any user premises may be discontinued by the District if the backflow prevention assemblies have not met the conditions set forth in this Ordinance or the District's Cross Connection Control Program and Plan, or if the Cross Connection Control Coordinator has determined that a situation exists which could cause contamination of the District's water distribution system.

c. Service of water to any premises shall be discontinued by the District

under the following circumstances: (1) if a backflow prevention assembly required by this regulation is not installed, tested, and maintained; (2) if it is found that a backflow prevention assembly has been tampered with, removed, or bypassed, (3) if an unprotected or inadequately protected cross connection exists on the premises, or (4) a known backflow event has occurred. Water service will not be restored until such conditions or defects are corrected to the satisfaction of the District's Cross Connection Control Coordinator.

d. The District has the authority to install, repair, or test a backflow prevention assembly directly after the meter(s), if deemed necessary to protect the District's distribution system, and if the user has failed to act in a timely manner. All costs (time and materials) associated with the District's actions shall be the responsibility of the user. The District is not liable for damages that may occur with the installation, repair, or testing of the backflow prevention assembly.

e. Backflow prevention assemblies must be inspected and tested before a service is connected or after being turned off (water service discontinued) for non-compliance.

6. Appeals

Appeals to any enforcement action initiated by the District's Cross Connection Control Coordinator shall be made in writing to the General Manager. The General Manager shall reply in writing with their determination within 30 days of receiving the written appeal.

7. Cost Recovery

All costs and expenses for enforcing the Cross Connection Control Policy Handbook and District's Cross Connection Control Program and Plan will be the responsibility of the user. These costs and expenses will include all materials, equipment, labor, and services provided by District staff and its consultants, including engineering and legal fees and charges. The District's standard costs and expenses will be established and set forth in the District's Rate and Fee Schedule. The Rate and Fee Schedule is adopted by the Board of Directors, which is done by a separate resolution. The District's non-standard costs and expenses will be based on materials, equipment, labor and services actually provided and documented to enforce the Cross Connection Control Policy Handbook and the District's Cross Connection Control Program and Plan.

8. Severability

If any provision or part of this Ordinance is held to be invalid, or unenforceable in particular circumstances, such invalidity shall not affect

the remainder of the Ordinance which shall continue to be of full force and effect and the Board declares this Ordinance to be severable for that purpose.

9. Limitation of Liability

The District shall be held harmless for any damage to user premises by enforcing the Cross Connection Control Policy Handbook , this Ordinance, or the District's Cross Connection Control Program and Plan.

10. Effect

This Ordinance supersedes Resolution No. 2004-15 and Ordinance No. 2013-13.

PASSED AND ADOPTED this 10th day of June 2025 by the following votes of the Board of Directors:

AYES:

NOES:

ABSTAIN:

ABSENT:

_____
Glenn Reynolds, President
Board of Directors

ATTEST:

_____
Mary Rogren, General Manager
Secretary of the District

PREPARED BY:

WEST YOST
Water. Enaineered.

COASTSIDE COUNTY WATER DISTRICT

CROSS-CONNECTION CONTROL PROGRAM AND PLAN

IN ACCORDANCE WITH THE CROSS-CONNECTION CONTROL POLICY HANDBOOK ADOPTED IN 2024

JUNE 2025

Cross-Connection Control Program and Plan

Prepared for

Coastside County Water District

Project No. 464-A1-25-14

I certify that the information submitted in this Cross-Connection Control Plan is accurate and drafted to be in compliance with the CCCPH.

Public Water System Representative Darin Sturdivan, Distribution Operations Manager	Date
Prepared by: Courtney Rubin AWWA Cross-Connection Control Specialist #01854	Date
QA/QC Review: Alex Bucher AWWA Cross-Connection Control Specialist #10708	Date

Coastside County Water District Cross-Connection Control Program Contact Information				
Program Role 3.1.3 (a) (2) 3.1.4(b)(8)	Title	Name	Contact Information	Backflow Certifications 3.1.3 (C)(1)
-	Distribution Operations Manager	Darin Sturdivan	backflow@coastsidewater.org 650-276-0271	AWWA Backflow Prevention Assembly Tester #20094
Cross-Connection Control Coordinator	Distribution Supervisor	Dustin Jahns	backflow@coastsidewater.org 650-276-0799	AWWA Cross-Connection Control Specialist # 03101 AWWA Backflow Prevention Assembly Tester # 16452

Table of Contents

Table of Contents

LIST OF TABLES

Table of Contents

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

AG	Air Gap Separation
BPA	Backflow Prevention Assembly
BPA Tester	Backflow Prevention Assembly Tester
CCC Program	Cross-Connection Control Program
CCCPP	Cross-Connection Control Program and Plan
CCCPH	Cross-Connection Control Policy Handbook
CCR	California Code of Regulation
Coastside CWD	Coastside County Water District
DC	Double Check Valve Backflow Prevention Assembly
DCDA	Double Check Detector Backflow Prevention Assembly
DCDA-II	Double Check Detector Backflow Prevention Assembly – Type II
PVB	Pressure Vacuum Breaker Backsiphonage Prevention Assembly
PWS	Public Water System
RP	Reduced Pressure Principle Backflow Prevention Assembly
RPDA	Reduced Pressure Principle Detector Backflow Prevention Assembly
RPDA-II	Reduced Pressure Principle Detector Backflow Prevention Assembly – Type II
RW	Recycled Water
SFPUC	San Francisco Public Utilities Commission
SVB	Spill-Resistant Pressure Vacuum Breaker
Swivel-Ell	Swivel-Ell Backflow Prevention Assembly
SWRCB	State Water Resource Control Board

1.0 INTRODUCTION (CCCPH 3.1.4(A)(1))

The State Water Resources Control Board (SWRCB) adopted the Cross-Connection Control Policy Handbook (CCCPH) on December 19, 2023. The effective date for the Cross-Connection Control Policy Handbook was July 1, 2024 replacing the previous regulations housed under Title 17, Chapter V, Sections 7583-7622 under the California Code of Regulation (CCR) (Title 17). Title 17 became inoperative and was repealed 90 days after July 1, 2024 on October 1, 2024. In March 2025, the Cross-Connection Control Policy Handbook was updated to align specific due dates with the effective date of the Cross-Connection Control Policy Handbook. Appendix A includes the March 2025 adopted version, which is the most recently adopted version at the time of developing this Cross-Connection Control Program and Plan.

The Cross-Connection Control Policy Handbook expands on the previous Title 17 requirements for initial and follow-up hazard assessments, program training, backflow prevention testing and certification, maintenance of records, incident response, reporting and notification, public outreach and education, and local entity coordination. The Cross-Connection Control Policy Handbook requires Coastside County Water District (Coastside CWD), the Public Water System (PWS), to develop a Cross-Connection Control Program and Plan (CCCPP) to describe how the Public Water System will manage and administer their Cross-Connection Control Program (CCC Program). This document satisfies all the Cross-Connection Control Policy Handbook requirements for both the Cross-Connection Control Program and the Cross-Connection Control Plan.

1.1 Purpose (CCCPH 3.1.3(a))

The intent of this Cross-Connection Control Program and Plan is to describe the Cross-Connection Control Program implemented and administered by Coastside CWD. The purpose of this Cross-Connection Control Program is:

1. To reduce the risk of actual or potential contamination that may occur within a water user's premises because of some undiscovered or unauthorized cross-connection on the premises;
2. To eliminate existing connections between potable water systems and other sources of water that are not approved as safe and potable for human consumption;
3. To eliminate cross-connections between potable water systems and sources of contamination; and,
4. To prevent the making of cross-connections in the future.

1.2 Coastside CWD Service Area Description

Coastside CWD is a special district governed by a board of directors. It is a public water system located along the Pacific Coast of San Mateo County serving potable water to the City of Half Moon Bay and unincorporated communities of Princeton, Miramar, Moonridge and El Granada. The jurisdictional area is approximately 14 square miles with approximately 7,800 service connections serving a population of 19,000. Coastside CWD has 100 miles of distribution and transmission pipeline, two water treatment plants, and several pump stations along with 9 treated water storage tanks capable of holding 8 million gallons of water. Appendix B "Jurisdictional Boundaries of Coastside CWD" provides a map of the location of the district.

Since the number and type of connections will vary over time, the exact number and types of services can be provided to the State Water Resources Control Board upon request.

2.0 DEFINITIONS (CCCPH 3.1.1)

Air-Gap Separation (AG)

A physical vertical separation of at least (2) times the effective opening between the free-flowing discharge end of a potable water supply pipeline and the flood level of an open or non-pressure receiving vessel, and in no case less than 1-inch.

Approved Water Supply

A water source that has been approved by the State Water Resources Control Board for domestic use in a Public Water System and designated as such in a domestic water supply permit issued pursuant to section 116525 of the California Health and Safety Code.

Auxiliary Water Supply

A source of water, other than an approved water supply, that is either used or equipped, or can be equipped, to be used as a water supply, and is located on the premises of, or available to, a water user. Examples of an auxiliary water supply include wells used for irrigation, ponds, and recycled water.

Backflow

The undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into a public water system's distribution system or approved water supply.

Backflow Prevention Assembly (BPA)

A mechanical assembly designed and constructed to prevent backflow, such that while in-line it can be maintained and its ability to prevent backflow, as designed, can be field tested, inspected, and evaluated.

Backflow Prevention Assembly Tester (BPA Tester)

A person who is certified as a backflow prevention assembly tester by an organization recognized by the State Water Board and is authorized by and in good standing with the Coastside CWD to test backflow prevention assemblies within its jurisdiction.

Coastside County Water District (Coastside CWD)

The water district Coastside County Water District.

Community Water System

A Public Water System that serves at least 15 service connections used by yearlong residents or regularly serves at least 25-year-long residents of the area served by the system.

Contamination

Degradation of the quality of the potable water by any foreign substance which creates a hazard to the public health, or which may impair the usefulness or quality of the water.

Contact Hour

Not less than 50 minutes of a continuing education course.

Continuing Education Course

A presentation or training that transmits information related to cross-connection control programs and backflow prevention and protection.

Cross-Connection

Any actual or potential connection or structural arrangement between a public water system, including a piping system connected to the public water system, and located on the premises of a user or available to the water user, and any source or distribution system containing liquid, gas, or other substances not from an approved water system.

Cross-Connection Control Program Coordinator

The designated individual involved in the development of and be responsible for reporting, tracking, and other administration duties for the Program.

Cross-Connection Control Specialist

A person who is certified as a cross-connection control specialist pursuant to Section 4 of this Cross-Connection Control Program and Plan.

Customer's Water System

All facilities downstream of the water meter would be considered Customer's Water System, including all non-potable water systems.

Distribution System

Has the same meaning as defined in section 63750.50 of CCR Title 22, Division 4, Chapter 2.

Double Check Valve Backflow Prevention Assembly (DC)

An assembly consisting of 2 independently acting internally loaded check valves, with tightly closing shut-off valves located at each end of the assembly (upstream and downstream of the two check valves) and fitted with test cocks that enable accurate field testing of the assembly. This type of assembly may only be used for protection from low hazard cross-connections, backsiphonage, and backpressure events.

To be approved these assemblies must be accessible for in-line maintenance and testing and be installed per Coastside CWD Standards.

Double Check Detector Backflow Prevention Assembly (DCDA)

A double check valve backflow prevention assembly that includes a bypass with a water meter and double check backflow prevention assembly, with the bypass's water meter accurately registering flow rates up to 2 gallons per minute and visually indicating all rates of flow. This type of assembly may only be used for protection from low hazard cross-connections, backsiphonage, and backpressure events.

To be approved these assemblies must be accessible for in-line maintenance and testing and be installed per Coastside CWD Standards.

A schematic of this assembly is provided in Appendix C of the Cross-Connection Control Policy Handbook, which is included in Appendix A of this document.

Hazard Assessment

An evaluation of a user premises designed to evaluate the types and degrees of hazard at a user's premises.

High Hazard Cross-Connection

A cross-connection that poses a threat to the potability or safety of the public water supply.

Materials entering the public water supply through a high hazard cross-connection are contaminants or health hazards. See Appendix D of the Cross-Connection Control Policy Handbook.

Low Hazard Cross-Connection

A cross-connection that has been found to not pose a threat to the potability or safety of the public water supply but may adversely affect the aesthetic quality of the potable water supply.

Materials entering the public water supply through a low hazard cross-connection are pollutants or non-health hazards.

Health Agency

San Mateo County Environmental Health is the local health agency.

It is located at 2000 Alameda de las Pulgas, Suite 100, San Mateo 94403. Contact phone is 650-372-6200.

Pollutant

Material which causes a degradation in the quality of the potable water supply which does not create a hazard to the public health, but which does impair the aesthetic quality of water.

Premises

Any and all areas on a customer's property which are served or have the potential to be served by the Public Water System.

Premises Containment

Protection of a Public Water System's distribution system from backflow from a user's premises through the installation of 1 or more air gaps or Backflow Prevention Assemblies, installed as close as practical to the user's service connection, in a manner that isolates the water user's water supply from the Public Water System's distribution system.

Pressure Vacuum Breaker Backflow Prevention Assembly (PVB)

An assembly with an independently-acting internally-loaded check valve and an independently-acting loaded air inlet valve located on the discharge side of the check valve; with test cocks and tightly closing shutoff valves located at each end of the assembly that enable accurate field testing of the assembly. This type of assembly may only be used for protection from low or high hazard backsiphonage events and is not to be used to protect from any backpressure events.

A schematic of this assembly is provided in Appendix C of the CCCPH, which is included in Appendix A of this document

Public Water System (PWS)

A system for the provision of piped water to the public for human consumption which has 5 or more service connections or regularly serves an average of 25 individuals daily at least 60 days out of the year. Additionally, consists of the source facilities and the distribution system and shall include all those facilities of the water system under the complete control of Coastside CWD up to the point where the Customer's Water System begins the service connection.

Recycled Water (RW)

Wastewater which, as a result of treatment, is suitable for uses other than potable use.

Reduced Pressure Principle Backflow Prevention Assembly (RP)

An assembly with 2 independently acting internally-loaded check valves, with a hydraulically operating mechanically independent differential-pressure relief valve located between the check valves and below the upstream check valve. The assembly shall have shut-off valves located upstream and downstream of the 2 check-valves, and test cocks to enable accurate field testing of the assembly. This type of assembly may be used for protection from low and high hazard backsiphonage and backpressure events.

To be approved these assemblies must be accessible for in-line maintenance and testing and be installed per Coastside CWD Standards.

A schematic of this assembly is provided in Appendix C of the CCCPH, which is included in Appendix A of this document

Reduced Pressure Principle Detector Backflow Prevention Assembly (RPDA)

A reduced pressure principle backflow prevention assembly that includes a bypass with a water meter and reduced pressure principle backflow prevention assembly, with the bypass's water meter accurately registering flow rates up to 2 gallons per minute and visually indicating all rates of flow. This type of assembly may be used for protection from low and high hazard backsiphonage and backpressure events.

To be approved these assemblies must be accessible for in-line maintenance and testing and be installed per Coastside CWD Standards.

A schematic of this assembly is provided in Appendix C of the CCCPH, which is included in Appendix A of this document.

Service Connection

The point where a water user's piping is connected to the Public Water System or the point in the customer's water system where the Public Water System can be protected from backflow using an Air Gap or a Backflow Prevention Assembly.

Spill-Resistant Pressure Vacuum Breaker Backsiphonage Prevention Assembly (SVB)

An assembly with an independently-acting internally-loaded check valve and an independently-acting loaded air inlet valve located on the discharge side of the check valve; with shutoff valves at each end and a test cock and bleed/vent port, to enable accurate field testing of the assembly. This type of assembly may only be used for protection from low hazard cross-connection backsiphonage events and is not to be used to protect from any backpressure events.

A schematic of this assembly is provided in Appendix C of the CCCPH, which is included in Appendix A of this document

State Water Board (SWRCB)

State Water Resources Control Board or the local primacy agency having been delegated the authority to enforce the requirements of the Cross-Connection Control Policy Handbook by the State Water Resources Control Board.

Swivel-Ell Backflow Prevention Assembly

An assembly consisting of a reduced pressure principle backflow prevention assembly combined with a changeover piping configuration (swivel-ell connection) designed and constructed pursuant to Section 5 of this Cross-Connection Control Program and Plan.

Used Water

Any water supplied by Coastside CWD from the Public Water System to a Customer's Water System after it has passed through the service connection and is no longer under the control of Coastside CWD.

User Supervisor

A person designated by a water user to oversee a water use site and responsible for the avoidance of cross-connections.

Water System

The water system shall be considered as made up of 2 parts: The Public Water System and Customer's Water System.

Water Supplier

Coastside CWD, who owns and operates the Public Water System.

Water User

Any person(s) or entity obtaining water from Coastside CWD.

3.0 PROGRAM ADMINISTRATION

3.1 Legal Authority (CCCPH 3.1.3(a)(1) and 3.1.4(b)(3))

Coastside CWD administers the Cross-Connection Control Program in accordance with Ordinance 2025-01 (Ordinance). The Ordinance modified Section W of the District's General Regulations Regarding Water Service and provides authority to implement its Cross-Connection Control Program and Plan.

Within the Ordinance and the District's Cross-Connection Control Program and Plan, Coastside CWD has the legal authority to implement corrective actions if a water user fails to comply in a timely manner with provisions regarding the installation, inspection, and field testing, or maintenance of a Backflow Prevention Assembly required by the Cross-Connection Control Policy Handbook. Coastside CWD's corrective actions include the ability to discontinue water service until the correction has been made.

A copy of the Ordinance is provided in Appendix C of this document.

3.2 Cross-Connection Control Program Administration (CCCPH 3.1.3(a)(2) and 3.1.4(b)(1))

The Cross-Connection Control Program and Plan is administered within Coastside CWD's Operations Division Appendix E provides the current organizational structure of the personnel involved in the cross-connection control program. The Cross-Connection Control Program Coordinator is filled by the Distribution Supervisor who holds a Cross-Connection Control Specialist certification and is responsible for the administrative functions for the Cross-Connection Control Program.

In addition, the Senior Distribution Operator is required to maintain a Cross-Connection Control Specialist certification. Between the Distribution Supervisor and Senior Distribution Operator, Coastside CWD is able to have a Cross-Connection Control Specialist available within one hour of being contacted.

4.0 BACKFLOW PREVENTION ASSEMBLY TESTERS AND CROSS-CONNECTION CONTROL SPECIALISTS

This section specifies the certification requirements for Backflow Prevention Assembly Testers and Cross-Connection Control Specialists.

4.1 CCCPH Backflow Prevention Assembly Tester Requirements (CCCPH 3.4.1(b)(6) and 3.1.3(a)(5))

Chapter 3, Article 4 of the Cross-Connection Control Policy Handbook provides the requirements of a State Water Resources Control Board recognized and American National Standards Institute accredited organization certifying Backflow Prevention Assembly Testers. Within an accredited organization, the program must include provisions for revocation of a Backflow Prevention Assembly Tester's certification and a publicly available list of certified Backflow Prevention Assembly Testers. Certification from an accredited organization requires completion of a program that includes the following:

- Timed and proctored written exams with prescribed number of test questions and covering specified material.
- Performance of a hands-on exam demonstrating proficiency in accurately determining the operating condition of a Reduced Pressure Principle Backflow Prevention Assembly, a Double Check Valve Backflow Prevention Assembly, Pressure Vacuum Breaker Backsiphonage Prevention Assembly, and Spill-Resistant Pressure Vacuum Breaker.
- Recertification no less frequently than every 3 years including both a written and performance exam.
- Prerequisite of either 2 years prior experience or completion of an instructional training course.

4.1.1 Approved Backflow Prevention Assembly Tester List

Coastside CWD maintains a list of approved Backflow Prevention Assembly Testers who are authorized to perform backflow testing related work within the service area. The list of certified Backflow Prevention Assembly Testers is provided to assembly owners with the test notification.

Below are the requirements to be included on Coastside CWD's list:

- The Backflow Prevention Assembly Tester must hold a valid certification from American Water Works Association (AWWA) an accredited State recognized organization for backflow prevention assembly testing.
- The tester must provide a yearly copy of tester gauge calibration report results including the make and model of field-testing equipment.

Tester shall maintain at all times during the performance of work Workers' Compensation insurance and Liability insurance in conformance with the laws of the State of California, and federal laws where applicable. Backflow Prevention Assembly Testers are required to ensure that Coastside CWD has the most recent copy of their certifications and tester gauge calibration reports. Backflow Prevention Assembly Testers submit their qualifications and completed test reports through SwiftComply's online portal using the approved Backflow Prevention Assembly Test Report to record results. The backflow

software program/online portal, SwiftComply, has a quality control mechanism to only accept correctly completed reports from approved Backflow Prevention Assembly Testers with current qualifications.

Appendix F includes the required Backflow Prevention Assembly Test Report.

Testers may be removed from the approved list if any of the following conditions apply:

- Certification expires
- Gauge calibration expires
- Improper testing or repairs
- Falsifying results or documents
- Failure to enter completed tests reports online

4.1.2 Cross-Connection Control Specialist Requirement (CCCPH 3.4.2)

Cross-Connection Control Specialist(s) shall maintain valid certification from a certifying organization recognized by the SWRCB pursuant to Cross-Connection Control Policy Handbook Chapter 3 Article 4. Certification requires completion of a program that includes the following:

- Timed and proctored written exams with prescribed number of test questions and covering specified material;
- Completion of an instructional training course;
- Recertification no less frequently than every 3 years; and,
- Recertification through an exam, 12 contact hours of continuing education, or a combination of both.

Similar to program requirements for Backflow Prevention Assembly Testers, the program for Cross-Connection Control Specialists from the accredited organization must contain:

- Provisions for revocation of a specialist's certification;
- A publicly available list of certified specialists; and,
- A valid backflow prevention assembly tester certification as well as completion of an instructional training course for initial certification or when an examiner has not held a valid certification for 3 or more years.

Cross-Connection Control Specialists working for Coastside CWD will be required to be certified by American Water Works Association (AWWA). American Water Works Association (AWWA) requires recertification every two years.

5.0 CROSS-CONNECTION CONTROL PROGRAM REQUIREMENTS

5.1 General Requirements (CCCPH 2.2)

As required by the State Water Resources Control Board, unprotected cross-connections with the Public Water System are prohibited. Coastside CWD will require the water user to install an approved backflow protection assembly at the expense of the user, for continued service or before a new service is turned on.

The installation and type of backflow protection shall be in accordance with the requirements of this Cross-Connection Control Program and Plan, Coastside CWD's ordinance, and Appendix D of the Cross-Connection Control Policy Handbook. If backflow protection is found to be removed or bypassed, water service will be discontinued until the issue is corrected.

Topics addressed in this section include:

- Backflow Protection Requirements
- Hazard Assessments
- Minimum Backflow Protection Type by Degree of Hazard

5.1.1 Backflow Protection Requirements (CCCPH 3.3.2 and 3.1.3(a)(4))

- Coastside CWD must ensure its distribution system is protected from backflow from identified hazards through the proper installation, continued operation, and field testing of an approved Backflow Prevention Assembly according to chapters 6 and 7 of this Cross-Connection Control Program and Plan. When a Double Check Valve Backflow Prevention Assembly (DC) is required or referenced in this Cross-Connection Control Program and Plan, a Double Check Detector Backflow Prevention Assembly (DCDA) may be substituted if appropriate. When a Reduced Pressure Principle Backflow Prevention Assembly (RP) is required or referenced in this Cross-Connection Control Program and Plan, a Reduced Pressure Principle Detector Backflow Prevention Assembly (RPDA) may be substituted if appropriate.
- The Backflow Prevention Assembly installed must be no less protective than that which is commensurate with the degree of hazard at a user premises and as determined based on the results of the hazard assessment as specified in this Section.
- Unless specified otherwise in this Section and in Section 3.2.2 of the Cross-Connection Control Policy Handbook, Coastside CWD must, at all times, protect its distribution system from high hazard cross-connections (see Appendix D of the Cross-Connection Control Policy Handbook for examples), through premises containment, using Air Gaps (AG(s)) or Reduced Pressure Principle Backflow Prevention Assemblies (RP(s).

5.1.2 General Requirements

Backflow protection is required but not limited to the following conditions that could be present or expected to occur:

- When a premises contains an auxiliary water supply the water supply to the premises shall be protected against backflow of water from the premises into the public water system.

- When a premises on which any substance is handled in such a fashion as may allow its entry into the water system shall be protected against backflow of the water from the premises into the public system. This shall include the handling of processed waters and waters originating from the Coastside CWD water system which have been subjected to deterioration in sanitary quality.
- When a premises has internal cross-connections that cannot be permanently corrected or controlled to the satisfaction of Coastside CWD.
- When a premises has intricate piping arrangements or where entry to all or portions of the site are restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that no cross-connection exist.
- When a premises has a history of repeated cross-connections being established or reestablished.
- When deemed necessary according to Coastside CWD Cross-Connection Control Specialist's and/or Cross-Connection Control Coordinator's discretion.

5.1.3 Minimum Protection Requirements Based on Degree of Hazard (CCCPH 3.2.2)

Per State Water Resources Control Board requirements included in the Cross-Connection Control Policy Handbook, the type of backflow protection that is required is determined based on the degree of hazard that is present at a premises. A Cross-Connection Control Specialist will determine the minimum level of protection required, but a water user may opt for a higher level of protection with approval from Coastside CWD.

Coastside CWD will utilize the Cross-Connection Control Policy Handbook Appendix D as a resource for identifying high hazard cross-connection control premises requiring containment protection with Reduced Pressure Principle Backflow Prevention Assemblies (RP(s)). Coastside CWD does not issue planning or building permits but relies on the County of San Mateo and City of Half Moon Bay for plan review. As a result, Coastside CWD will be requiring an RP assembly for all new water services to protect the Public Water System.

5.1.3.1 Toxic, Sewage, or Hazardous Substances

1. Premises where toxic or hazardous substances are handled in any manner which may allow for contamination of the Public Water System shall be protected by an Air Gap or an RP at the service connection.
2. Premises where there are wastewater pumping and/or treatment plants and there is no interconnection with the potable water system shall have a minimum protection type of Air Gap. This does not include a single-family residence that has a sewage lift pump. An RP may be provided in lieu of an Air Gap if approved by Coastside CWD.

5.1.3.2 Auxiliary Water Supplies

Protection from auxiliary water supplies shall comply with the following:

1. Premises where there is an auxiliary water supply which is interconnected with the Public Water System will use an Air Gap. An RP may be provided in lieu of an Air Gap if approved by Coastside CWD and the State Water Resources Control Board.
2. Premises where there is an auxiliary water supply and there are no interconnections with the Public Water System will use an RP.

5.1.3.3 Commercial Fire systems

Protection from commercial fire systems shall be no less than a Double Check Detector Backflow Prevention Assembly (DCDA) and comply with the following:

1. A high hazard cross-connection fire system, including but not limited to fire systems that may utilize chemical addition (e.g., anti-freeze) or an auxiliary water supply, must have no less than Reduced Pressure Principle Detector Backflow Prevention Assembly (RPDA) protection.
2. Premises where the fire system is directly supplied from the Public Water System and there is an unapproved auxiliary water supply on or to the premises (not interconnected) will use an RPDA.
3. All other fire services will be required to have at a minimum a DCDA or to match the degree of hazard present at the premise.

5.1.3.4 Single-Family Residence Fire Systems

Single-Family Residential homes that have a separate dedicated fire service for sprinkler systems within the premises require a minimum of a Double Check Valve Backflow Prevention Assembly (DC) or Double Check Detector Backflow Prevention Assembly (DCDA) for service protection.

5.1.4 Swivel-Ell Assemblies (CCCPH 3.2.2(d))

Coastside CWD does not have or plan to have recycled water within the service area and as such, swivel ell assemblies will not be allowed within Coastside CWD's service area.

5.1.5 Hazard Assessments (CCCPH 3.2.1 and 3.1.3(a)(3))

An evaluation of hazards on a user's premise will be performed or reviewed by a certified Cross-Connection Control Specialist to determine whether a high, low, or no hazard is present. The required Backflow Prevention Assembly at a user premise will be determined by the degree of hazard through observed or understood water use. The observations and final determination of the required Backflow Prevention Assembly will be included in a final report that will be maintained by Coastside CWD for reference. Appendix D includes the Cross-Connection Control Survey Form Template.

5.1.5.1 Access for Inspection

Coastside CWD's ordinance provides for reasonable access to any water user's premises for purposes of conducting cross-connection control surveys, inspections of Backflow Prevention Assemblies, and as otherwise necessary to protect the Public Water System against cross-connections. If access is refused, Coastside CWD shall discontinue water service to the premises until entry is allowed and/or require a Reduced Pressure Principle Backflow Prevention Assembly (RP) installation.

5.1.5.2 New Construction

Coastside CWD's Cross-Connection Control Specialists evaluates all new water supply requests through review of plans and specifications submitted to Coastside CWD to assess backflow protection requirements and potential hazards.

If a Backflow Prevention Assembly is required, Coastside CWD requires it to be installed and tested prior to turning on water service, as is described in Section 3.3.3(a) of the Cross-Connection Control Policy Handbook.

5.1.5.3 Existing Customers

5.1.5.3.1 Initial Hazard Assessment (CCCPH 3.2.1)

As required by the Cross-Connection Control Policy Handbook, Coastside CWD through either in-house staff or contracted staff will conduct initial site hazard assessments at existing premises to evaluate the potential for backflow into the Public Water System. The hazard assessment will consider the following items:

1. The existence of cross-connections;
2. The type and use of materials handled and present, or likely to be, on the user premises;
3. The degree of piping system complexity and accessibility;
4. Access to auxiliary water supplies, pumping systems, or pressure systems;
5. Distribution system conditions that increase the likelihood or a backflow event;
6. User premises accessibility;
7. Any previous backflow incidents on the user premises; and,
8. The requirements and information provided in the Cross-Connection Control Policy Handbook.

Coastside CWD will perform the initial assessment using a combination of the following actions:

- Review of Building Permits
- Review of as-built or record drawings
- Date of construction
- Cross reference of billing records with known backflow assemblies
- Field Inspections
- Google Maps and Aerial photos
- Reporting from Backflow Prevention Assembly Testers

Completion goals and timelines for conducting initial hazard assessments are provided in Table 5-1. Coastside CWD's approach is to prioritize the highest hazard users to install a Backflow Prevention Assembly within the next few years. The prioritized list includes commercial customers and residential users with confirmed hazards such as wells or other auxiliary water supplies. In an effort to reduce future restrictions of improvements or non-compliance on a user's property, Coastside CWD will be requiring all non-residential users to install RPs at the water service and perform limited hazard assessments.

5.1.5.4 Follow-Up Hazard Assessments (CCCPH 3.2.1(e))

The Program Administrator or the Cross-Connection Control Specialist will conduct or review hazard assessments every 10 years for commercial services, every 15 years for residential services, or when:

1. A user premises changes ownership or account holder, excluding single-family residences;
2. A user premises is newly connected to the Public Water System;
3. Evidence exists of potential changes in the activities or materials on a user's premises;
4. A backflow event from a user's premises occurs;

5. Periodically according to Coastside CWD's Program;
6. The State Water Resources Control Board requests a hazard assessment of a user's premises; and,
7. Coastside CWD concludes an existing hazard assessment may no longer be correct.

Coastside CWD will notify water users through a written notice, in person visit, or by phone in an emergency requesting an inspection appointment. Any water user who cannot or will not allow an on-premises inspection of piping system shall be required to install a Reduced Pressure Principle Backflow Prevention Assembly (RP) or Air Gap.

5.1.5.5 Hazard Assessment Outcomes

During a hazard assessment, Coastside CWD has the ability to immediately discontinue water service in the event a threat to public health is found on a premises. Otherwise, outcomes following the completion of hazard assessments are described below.

5.1.5.5.1 Meets Requirements

If the currently installed Backflow Prevention Assembly is found to meet the requirements of the Cross-Connection Control Policy Handbook and this Cross-Connection Control Program and Plan and is found to be in good working order, then it will remain in place and be considered adequate protection.

5.1.5.5.2 Non-Complying Assembly

All currently installed Backflow Prevention Assemblies which do not meet the requirements set forth in the Cross-Connection Control Policy Handbook and this Cross-Connection Control Program and Plan shall be required to be upgraded to the appropriate Backflow Prevention Assembly as determined by Coastside CWD. Coastside CWD will provide written notice to the customer to install, at their cost and expenses, an approved Backflow Prevention Assembly. Coastside CWD may terminate water service to the affected customer until the required corrective actions are taken. Please see Table 5-2 for enforcement criteria and notification timeframe.

5.1.5.5.3 Upgrade Required

If it is determined that an existing premises requires upgraded backflow protection, Coastside CWD will provide written notice to the customer to install, at their cost and expenses, an approved Backflow Prevention Assembly. Coastside CWD may terminate water service to the affected customer until the required corrective actions are taken. Please see Table 5-2 for enforcement criteria and notification timeframe.

5.2 Discontinuation of Water Service (CCCPH 3.1.3(a)(1)(A))

Conditions for discontinuation of water services may include the following items:

- Refusal to install a required Backflow Prevention Assembly
- Refusal to test a Backflow Prevention Assembly
- Refusal to repair a faulty Backflow Prevention Assembly
- Refusal to replace a faulty Backflow Prevention Assembly

- Potential direct or indirect connection between the Public Water System and a Sanitary and Storm line
- Potential direct or indirect connection between the Public Water System and a body of water within a 100-foot from the premises
- Unprotected direct or indirect connection between the Public Water System and a system or equipment containing contaminants
- Unprotected direct or indirect connection between the Public Water System and an auxiliary water systems
- A situation which presents an immediate health hazard to the Public Water System

Coastside CWD will make reasonable effort to advise water users, through direct contact or written notices, of the necessary corrective actions. See Table 5-2 below.

5.2.1 Enforcement Framework

Table 5-1 includes the criteria and notification timeframe for compliance.

Table 5-1. Hazard Assessment Completion Goals and Timelines(CCCPH 3.1.4(b)(2))

Customer Types	Tasks	Timeframes
Existing Commercial and Irrigation Services		
Commercial/Irrigation Services with Known Backflow Protection Assemblies (High Priority)	• Determine Degree of Hazard for existing services with backflow preventors using SIC codes or other classifications. • Survey any service Coastside CWD deems necessary for further evaluation, such as premises without a Reduced Pressure Principle Backflow Protection Assembly (RP). • Send notifications to users that require new installation of a Reduced Pressure Principle Backflow Protection Assembly backflow protection.	• Begin Audit July 2025 • Survey Completion Goal 2028 • Installation Completion Goal 2030
Commercial/Irrigation Services with No Known Backflow Protection Assemblies (High Priority)	• Audit billing system versus backflow database system to determine services without backflows. • Categorize services based on classifications to assign a potential high or low hazard. • Survey High hazard sites first to determine if backflow protection is required, already exists, or is inadequate and require a Reduced Pressure Principle Backflow Protection Assembly installed. • Survey remaining sites to determine if backflow protection is required.	• Audit Completion Goal 2025 • Begin surveys in 2026 • Complete required installation goal by 2030
Commercial Fire	• Determine fire services without backflow protection assemblies. • Survey services to determine a low or high hazard fire system. • Begin outreach to fire services requiring backflow protection and begin process for installation.	• Completion Goal 2026 • Begin Jan 2026 • Installation by 2035
Hydrant Meters	• Hydrants are protected against backflow through a combination meter and backflow assembly tested by Coastside CWD.	• Complete
Residential Services		
Residential With Possible or Known Auxiliary Water Supplies (High Priority)	• Evaluate areas of Coastside CWD that may have auxiliary water supplies using county well records or other city records. • Follow up on data review and perform field visits to determine the level of hazard present. • Require backflow protection.	• Completion Goal July 2032
Single Family Residential Services with Fire Systems	• Coastside CWD knows the approximate number of single-family homes without backflow protection. • Prepare outreach material to send to customers to begin the process for backflow installation.	• Send Notices by July 2035 • Full Compliance Goal by 2035
Single Family Residential Properties with other potential Hazards	• Send a Coastside CWD wide web-based survey to ask water users about potential hazards on their site. The survey will include educational materials. The aim of the survey is to identify homes with high hazards. • Review building permits for swimming pools, major additions, gray water systems, sewer pumps. Create a list of sites that may require Coastside CWD inspection. • Identify a sampling of homes to inspect to determine typical hazards present on residential sites. • Send notices to homes to require backflow installation.	• Once the reception hits 60%, Coastside CWD will use results to extrapolate results across the service area • Completed Backflow Prevention Assembly installations by 2030
PWS Owned Non-Testable Devices		
"PWS" (Public Water System) Owned Non-Testable Devices	• Evaluate PWS properties such as reservoirs and pump stations to make sure plumbing fixtures are up to code.(CCCPH 3.1.4(b)(5)	• Expected completion in July 2026

Table 5-2. Enforcement Framework

Criteria (CCCPH 3.1.4(b)(7) and 3.1.4(b)(11)	Timeframe	Corrective Action	Remedy
• Known backflow event • Immediate hazard to public health • Backflow Protection Assembly has been tampered with, removed, or bypassed • High hazard that is inadequately protected	• Immediate shutoff • Doortag immediately • Follow-up letter sent next business day with compliance requirements	• Discontinuance of Water Service	• Conditions/defects have been corrected to the satisfaction of the Cross-Connection Control Coordinator
• Annual testing is due	• 1st Notice: Mailed; 30 days before due date of annual test • 2nd Notice: 10-day notice, mailed 30 days after testing deadline • 3rd Notice: Mailed; "5 Day Notice to Test" • 4th and Final Notice: Doortag "48-Hour Shut-Off" notice	• Discontinuance of Water Service	• Conditions/defects have been corrected to the satisfaction of the Cross-Connection Control Coordinator
• Repair or replacement of faulty Backflow Protection Assembly	• 1st Notice: Mailed upon discovery; letter includes compliance schedule and requirements • 2nd Notice: Mailed; sent if failed to meet compliance schedule • 3rd Notice: Mailed; "5-Day Notice to Repair/Replace Faulty Backflow Prevention Assembly " • 4th and Final Notice: Doortag "48-Hour Hour Shut-Off" notice	• Discontinuance of Water Service	• Conditions/defects have been corrected to the satisfaction of the Cross-Connection Control Coordinator
• Domestic or dedicated irrigation Backflow Protection Assembly requires upgrade • Fire Backflow Protection Assembly requires upgrade	• 1st Notice: Mailed; letter includes compliance schedule and requirements • 2nd Notice: Mailed; sent if failed to meet compliance schedule • 3rd Notice: Mailed; 30-day extension letter at discretion of Cross-Connection Control Coordinator • 4th and Final Notice: Doortag "48-Hour Shut-Off" notice	• Discontinuance of Water Service	• Conditions/defects have been corrected to the satisfaction of the Cross-Connection Control Coordinator
• Existing domestic or dedicated irrigation services requiring installation of Backflow Prevention Assembly • Existing fire services requiring installation of Backflow Prevention Assembly	• 1st Notice: Mailed; letter includes compliance schedule and requirements • 2nd Notice: Mailed; sent if failed to meet compliance schedule • 3rd Notice: Mailed; 30-day extension letter at discretion of Cross-Connection Control Coordinator 4th and Final Notice: Doortag "48-Hour Shut-Off" notice	• Discontinuance of Water Service	• Conditions/defects have been corrected to the satisfaction of the Cross-Connection Control Coordinator
• New construction (irrigation, fire, domestic)	• Service will not be turned on until Backflow Prevention Assembly is correctly installed and tested per Coastside CCWD Program and Plan	• Discontinuance of Water Service	• Conditions/defects have been corrected to the satisfaction of the Cross-Connection Control Coordinator
• Portable hydrant meters that have been tampered with	• Immediate repossession of meter and loss of privileges to use portable hydrant meters	• Discontinuance of Water Service	• Conditions/defects have been corrected to the satisfaction of the Cross-Connection Control Coordinator

6.0 BACKFLOW PREVENTION ASSEMBLIES

6.1 Approved Backflow Prevention Assemblies (CCCPH 3.3.1(a)(4))

Only Backflow Prevention Assemblies approved and deemed acceptable by Coastside CWD shall be allowed for installation by a water user to protect the Public Water System. Approved Backflow Prevention Assemblies which may be subjected to backpressure or backsiphonage must have been fully tested and granted a Certificate of Approval by a certified laboratory. Coastside CWD will provide, upon request, to any water user required to install a backflow preventer a list of approved Backflow Prevention Assemblies.

Approved Backflow Prevention Assemblies must have passed both laboratory and field evaluation tests in accordance with standards found in any of the following:

- The latest edition of the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California Manual of Cross-Connection Control;
- An equivalent testing organization approved by the State Water Resources Control Board.

Backflow Prevention Assemblies must not be modified from the approved configuration. The type of device required shall depend on the degree of hazard. Different types of approved Backflow Prevention Assemblies are specified for various scenarios to protect the potable water supply. Backflow Prevention Assembly testers are required to notify Coastside CWD if a water user or Coastside CWD-owned backflow preventer has been modified.

Coastside CWD does not allow Type II Backflow Prevention Assemblies to be installed and any Type II Backflow Prevention Assemblies that exist will need to be replaced with an approved Backflow Prevention Assembly.

6.1.1 Installation Requirements (CCCPH 3.3.2)

Backflow Prevention Assemblies shall be installed by the customer and at their expense when found necessary or prior to installation of a new service per Coastside CWD standards and specifications. The Backflow Prevention Assemblies shall be installed in a manner prescribed in the Cross-Connection Control Policy Handbook and Coastside CWD's Cross-Connection Control Program and Planand as close as practical to the user's service connection on the user premises. The final authority in determining the required location shall be Coastside CWD.

Appendix G provides Coastside CWD's Backflow Prevention Assembly drawings.

6.1.1.1 Air Gap

An Air Gap is to be installed on the user's premises at the water user's service connection and in accordance with Cross-Connection Control Policy Handbook and Coastside CWD's Cross-Connection Control Plan requirements. The receiving water container must be located on the water user's premises at the water users service connection. Alternate locations must be approved by Coastside CWD. All piping between the water users service connection and the discharge location of the receiving water container must be above grade and accessible for visual inspection. No connection shall be provided from any point between the service connection and the Air Gap. If installed at the user service connection after the adoption of the Cross-Connection Control Policy Handbook, the Air Gap must be approved by the State Water Resources Control Board prior to installation. The water inlet piping shall terminate a distance of

at least 2 pipe diameters of the supply inlet, but in no case less than 1 inch above the overflow rim of the receiving tank.

6.1.1.2 Reduced Pressure Principle Backflow Prevention Assembly

The approved RP shall be installed on the user's side of and as close to the service connection as is practical. The RP shall be installed such that the lowest point of the assembly is a minimum of 12 inches above the finished grade and not more than 36 inches above grade measured from the bottom of the assembly and with a minimum of 12 inches side clearance, unless an alternative is approved by Coastside CWD. However, a minimum side clearance of 24 inches must be provided on the side of the assembly that contains the test cocks. The assembly should be installed so that it is readily accessible for maintenance and testing.

The same space requirements may be applied to RPDAs.

6.1.1.3 Double Check Valve Backflow Prevention Assembly

DCs installed or replaced after the adoption of the Cross-Connection Control Policy Handbook must be installed on the user's side of and as close to the service connection as is practical. The DC shall be installed such that the lowest point of the assembly is a minimum of 12 inches above the finished grade and not more than 36 inches above grade measured from the bottom of the assembly and with a minimum of 12 inches side clearance, unless an alternative is approved by Coastside CWD. However, a minimum side clearance of 24 inches must be provided on the side of the assembly that contains the test cocks. The assembly should be installed so that it is readily accessible for maintenance and testing.

The same space requirements may be applied to DCDAs.

Below ground installation can be considered if approved by Coastside CWD where no alternative option is available.

7.0 NOTIFICATION AND TESTING OF BACKFLOW PREVENTION ASSEMBLIES

7.1 Backflow Prevention Assembly Testing and Notification Procedures (CCCPH 3.3.3)

This chapter outlines Coastside CWD's overall BPA testing and notification procedures.

7.1.1 Testing (CCCPH 3.1.3(a)(6) & 3.1.4(b)(4))

7.1.1.1 Frequency

Coastside CWD requires all Backflow Prevention Assemblies with active water services be field tested upon installation, repair, or when relocated. Coastside CWD requires Backflow Prevention Assemblies to be field tested at least once per year. More frequent testing may be deemed necessary based on site condition, hazards present, or as determined by Coastside CWD. Prior to initiating or resuming water service, Coastside CWD must receive from a Backflow Prevention Assembly Tester a backflow test report form indicating a passing test.

7.1.1.2 Procedures

Backflow Prevention Assembly Testers shall follow the testing procedures according to the latest edition of the University of Southern California's Manual of Cross-Connection Control. All costs associated with testing, repairing, replacing, or overhauling a Backflow Prevention Assembly shall be borne by the water user. Testing results shall be submitted to Coastside CWD on an approved testing form in electronic format.

7.1.1.3 New Installations

Coastside CWD must receive a passing field test for all newly installed Backflow Prevention Assemblies providing containment protection before water service can be provided. In addition, visual inspections of all newly installed assemblies will be made to assess proper installation and to validate the information from the initial testing of the assembly.

7.1.1.4 Failed Test

Backflow Prevention Assemblies that fail the field test should be repaired or replaced and retested within 30 days. Failed assemblies may be removed for repair or replacement provided the water service is discontinued until repair is completed and the device is returned to service, or the service connection is equipped with other backflow protection approved by Coastside CWD. A retest will be required following the repair or replacement of the assembly.

7.1.2 Notifications

7.1.2.1 Notification Process

It is the responsibility of Coastside CWD to verify that Backflow Prevention Assemblies receive a passing field test at least once a year. Backflow Prevention Assembly owners will receive up to 3 notifications and 1 final notification instructing them to have their Backflow Prevention Assemblies tested. Backflow assembly users receive a first notification notice, providing a reminder 30 days in advance of the yearly test due date. The water user must hire a certified backflow assembly tester from a list of Coastside CWD-approved testers, to perform a field test and submit a test report on the condition of the backflow assembly.

If a test report is not received, a second reminder notice is sent after the test due date providing 10 days to have the assembly tested. A third notice is mailed out 5 days after the second notice providing the user an additional 5 days to have their assembly tested.

In cases where a backflow assembly test has still not been received following the third notice, a water service shut off tag is sent providing 48 hours to resolve the delinquent testing status before the water service will be discontinued. Coastside CWD's goal is to work with customers to ensure timely backflow testing.

Notifications include information regarding cross connection control state regulations, Coastside CWD's ordinance and contact information, instructions for accessing the list of backflow tester companies, processes for submitting a backflow test report, and the due date for testing.

7.1.2.2 Notification of Imminent Hazard

Backflow Prevention Assembly testers are required to notify Coastside CWD within 24 hours if a backflow incident or an unprotected -cross connection is observed at a user premises during field testing. Coastside CWD will immediately investigate the incident as described in Section 9 of this Cross-Connection Control Program and Plan.

8.0 RECORD MAINTENANCE (CCCPH 3.1.4(B)(9))

Coastside CWD will retain the following records in electronic form and make them available to the State Water Resources Control Board upon request. (3.5.1(b) Coastside CWD uses the software program SwiftComply to track, organize, and store cross-connection control Backflow Prevention Assembly records (CCCPH 3.5.1, 3.1.3(a)(7), and 3.1.4((b)(9)(A)).

8.1 Cross-Connection Control Program and Plan (CCCPH 3.5.1(a)(10))

This Cross-Connection Control Program and Plan will be retained and reviewed every 5 years to evaluate for necessary updates.

8.2 Hazard Assessments (CCCPH 3.5.1 (a)(1))

The 2 most recent hazard assessments were conducted according to section 5.1.4 of this Program.

8.3 Assembly Records (CCCPH 3.5.1 (a)(2)) and (3.5.1(a)(3))

For each Backflow Prevention Assembly: type, the associated hazard, location, owner, manufacturer and model, size, installation date, serial number, account number, consumer of record, and repair history shall be kept electronically.

For each Air Gap installation: the associated hazard and the location, owner, and as built plans of the Air Gap.

8.4 Testing Results (CCCPH 3.5.1 (a)(4))

Test results on all Backflow Prevention Assemblies and Air Gaps will be kept electronically for 3 calendar years and will include the name, test date, repair date, and certification number of the Backflow Prevention Assembly tester.

8.5 Repairs (CCCPH 3.5.1 (a)(5))

All repairs made to Backflow Prevention Assemblies for the previous 3 calendar years.

8.6 User Supervisors (CCCPH 3.5.1(a)(7))

Current contact information for the user supervisor and water user, and any applicable training and qualifications as described by Section 10.1.3 of this plan.

8.7 Incident Reports (CCCPH 3.5.1 (a)(8))

Descriptions and follow-up actions related to all backflow incidents for the most recent 10 years will be retained.

8.8 Current Cross Connection Tests (CCCPH 3.5.1 (a)(6))

The most current cross-connection tests (e.g., shutdown test, dye test).

8.9 Agreements and Contracts (CCCPH 3.5.1 (a)(9))

A copy of any contract or agreement which carries out any portion of this Cross-Connection Control Program and Plan.

8.10 Public outreach (CCCPH 3.5.1 (a)(11))

Any public outreach or education materials issued as required in Cross-Connection Control Policy Handbook section 3.1.3(a)(9) for the previous three calendar years.

9.0 INCIDENT RESPONSE AND NOTIFICATION

Coastside CWD will investigate potential backflow incidents when any of the following events are reported (3.5.2(a)):

- Water quality complaints that cannot be explained as a "normal" aesthetic problem
- Backflow incident has been suspected or has known to have occurred
- Unknown increase of system pressure reported
- Unknown decrease of system pressure reported

Additionally, Coastside CWD will initiate notification and water quality sampling procedures when a water main break or power outage causes a negative loss of water pressure within a significant area of the distribution system.

9.1 Incident Response Procedure (CCCPH 3.5.2 and 3.1.2(a)(8) and 3.1.4(b)(7))

In the event of a potential backflow or -cross-connection related incident, Coastside CWD will take the following steps.

9.1.1 Incident Investigation (CCCPH 3.5.2)

The Coastside CWD Distribution Team will investigate a potential incident by dispatching a Certified Operator to the location of the reported incident. Through a field investigation, the Operator will determine if contamination is present in the Public Water System and the extent of the impacted area. Operators will perform the following tasks to investigate for the potential cross-connections:

- Operator will survey the location and surrounding area for possible main breaks.
- Operator will investigate the location to observe for potential source(s) of contamination.
- Operator will observe the domestic meter(s) for negative consumption.
- Operator will survey district assets for possible sources of contamination.

If a backflow incident is discovered, Coastside CWD will discontinue water service to that location until corrective action is taken.

During non-business hours, Coastside CWD will have an on-call Water Operator respond and begin the investigation. During business and non-business hours, Coastside CWD will have either the Cross-Connection Control Specialist or a representative familiar with investigating cross-connections available to be contacted within an hour.

9.1.2 Source of Contamination Isolation

Coastside CWD will isolate the portion of the system suspected of being contaminated by closing isolation valves or the water service and will notify impacted customers.

9.1.3 Notification and Coordination with Outside Agencies (CCCPH 3.5.3 (a))

Coastside CWD will be responsible for notifying, within 24 hours, the State Water Resources Control Board and the San Mateo County Public Health Officer of a potential incident.

9.1.4 Sampling Plan (CCCPH 3.5.2(b))

A sampling plan will be implemented to confirm that the potable system meets Safe Drinking Water Standards. The Sampling Plan will be submitted to the State Water Resources Control Board and the San Mateo County Health Officer and will describe the steps required to identify the contaminants, assess the extent of the contamination, and define the necessary remediation efforts.

9.1.5 Notification of Affected Customers (CCCPH 3.1.4(b)(7))

When required, Coastside CWD will issue a Tier 1 public notification pursuant to CCR, Title 22, Section 64463.1. If the contamination is of biological nature, Coastside CWD will issue a Boil Water Order Notice. If the contamination is of chemical nature, Coastside CWD will issue an Unsafe Water Alerts as "Do-Not-Use" or "Do-Not-Drink" notices. Notices include instructions on what consumers should do, where potable water is available, and if applicable, dates of notice issuance and expected resolution and location where additional information can be obtained.

9.1.6 Incident Reporting (CCCPH 3.5.3 (b) and 3.5.2(c))

If required by the State Water Resources Control Board, Coastside CWD will submit to the State Water Resources Control Board a written incident report describing the nature and severity of the backflow, the actions taken by Coastside CWD in response to the incident, and any follow up actions required to prevent future incidents. The written report will contain, at a minimum, the information provided in Appendix F of the Cross-Connection Control Policy Handbook.

10.0 PUBLIC OUTREACH, EDUCATION, AND COORDINATION

Coastside CWD uses public outreach as an opportunity to educate the general public, staff, and Backflow Prevention Assembly owners on Coastside CWD's Program and Plan and the importance of testing and maintaining Backflow Prevention Assemblies. Public outreach may include:

- Flyers, fact sheets and pamphlets
- Consumer Confidence Report
- Emails
- Website

Coastside CWD will develop materials that complement the needs of the outreach for the program. For example, as hazard assessments are performed, and backflow installations are required Coastside CWD will develop and provide either through direct mail or via website posting resources for users on how to install backflows. An example of an existing educational pamphlet is included in Appendix H.

10.1.1 Training

Coastside CWD encourages its Distribution Operators and other staff to obtain and maintain water related certifications such as Backflow Prevention Assembly tester and cross-connection control specialist certifications.

10.1.2 User Supervisors (CCCPH 3.2.2 and 3.1.4(b)(10))

At the time of this Cross-Connection Control Program and Plan, no sites require a User Supervisor.

Coastside CWD may require, when necessary and at its discretion, a water user to designate a user supervisor. If a User Supervisor is required, Coastside CWD will develop a training program to meet the requirements of the CCCPH Program requirements will include:

- The water user shall inform Coastside CWD of the user supervisor's identity on, at a minimum, an annual basis and whenever a change occurs.
- The user supervisor will be responsible for monitoring Backflow Prevention Assemblies and avoiding cross-connections. In the event of contamination or pollution of the Public Water System due to a cross-connection on the premises, Coastside CWD shall be promptly notified by the user supervisor.
- The user supervisor will be required to attend, at the owner's expense, a yearly training provided by Coastside CWD that covers the Program, types of hazards, and concerns typically found on the user's premises.

10.1.3 Interagency Coordination (CCCPH 3.1.4(b)(13) and (3.1.3(a)(10))

Coastside CWD coordinates, when required, with the San Mateo County Environmental Health Services Department, in the event of a backflow incident, significant water service interruptions, and when establishing new water service on domestic wells that have failed within Coastside CWD's jurisdiction. Contact for Environmental Health is 650-372-6200.

Coastside CWD receives referrals from the San Mateo County Planning and Building and the City of Half Moon Bay Community Development for new construction.

Coastside CWD also coordinates with Coastside Fire Protection District on the installation of new or modified Backflow Prevention Assemblies on dedicated fire services.

Appendix A

Cross-Connection Control Policy Handbook (March 2025)

State Water Resources Control Board

Cross-Connection Control Policy Handbook

Standards and Principles for California's Public Water Systems

Adopted: December 19, 2023
Effective: July 1, 2024
Amended: March 19, 2025

California Environmental Protection Agency

Table of Contents

Appendix

Acronyms and Abbreviations

As used in this policy, acronyms and abbreviations reference the following:

Acronym or Abbreviation	***Meaning***
AB	Assembly Bill
AG	Air Gap separation
BAT	Best Available Technology
BPA	Backflow Prevention Assembly
Bus. & Prof. Code	Business and Professional Code
CA	California
CBSC	California Building Standards Commission
CCCPH	Cross-Connection Control Policy Handbook
CCR	California Code of Regulations
C.F.R.	Code of Federal Regulations
CHSC	California Health and Safety Code
Civ. Code	Civil Code
DC	Double Check valve backflow prevention assembly
DCDA	Double Check Detector backflow prevention Assembly
DCDA-II	Double Check Detector backflow prevention Assembly – type II
Division	Division of Drinking Water
EPA	Environmental Protection Agency
Gov. Code	Government Code
MCL	Maximum Contaminant Level
Pen. Code	Penal Code
PVB	Pressure Vacuum Breaker backsiphonage prevention assembly
PWS	Public Water System
RP	Reduced Pressure principle backflow prevention assembly
RPDA	Reduced Pressure principle Detector backflow prevention Assembly
RPDA-II	Reduced Pressure principle Detector backflow prevention Assembly – type II
RW	Recycled Water
SB	Senate Bill
SDWA	Safe Drinking Water Act
State Water Board	State Water Resources Control Board
SVB	Spill-resistant Pressure Vacuum Breaker backsiphonage prevention assembly
U.S.	United States

Chapter 1 – Policy Overview

1.1 Objective

The primary objective of the Cross-Connection Control Policy Handbook (CCCPH) is the protection of public health through the establishment of standards intended to ensure a public water system's (PWS) drinking water distribution system will not be subject to the backflow of liquids, gases, or other substances. In addition, by providing basic educational information on backflow prevention, the State Water Resources Control Board (State Water Board) intends to build a foundation of awareness within the regulated community regarding the importance of backflow protection and cross-connection control, leading to the implementation of a robust cross-connection control program for PWSs.

1.2 Applicability

The CCCPH and its standards apply to all California PWSs, as defined in California's Health and Safety Code (CHSC, section 116275 (h)). Compliance with this CCCPH is mandatory for all California PWSs.

1.3 Policy Development Background and Legal Authorities

Through the adoption of the CCCPH, the State Water Board is exercising its authority, under California's Safe Drinking Water Act[1] (SDWA), to establish enforceable standards applicable to California's PWSs. Failure to comply with the CCCPH may result in the issuance of compliance, enforcement, or other corrective actions against a PWS.

1.3.1 California Safe Drinking Water Act

On October 6, 2017, Assembly Bill 1671 (AB 1671) was approved and filed with the Secretary of State (see Appendix A). AB 1671 amended California's SDWA through the establishment of CHSC sections 116407 and 116555.5. AB 1671 also amended section 116810 of the CHSC, which is briefly discussed in Appendix G.

On October 2, 2019, Assembly Bill 1180 (AB 1180) was approved and filed with the Secretary of State. AB 1180 amended Section 116407 of the CHSC and added section 13521.2 to the Water Code. AB 1180 requires that the CCCPH include provisions for the use of a swivel or changeover device (swivel-ell).

[1] CHSC, div. 104, pt. 12, ch. 4, section 116270 et seq.

AB 1671 and 1180 established the following:

- The State Water Board must adopt standards for backflow protection and cross-connection control by January 1, 2020.
- The State Water Board may establish standards for backflow protection and cross-connection control through the adoption of the CCCPH, with the CCCPH not being subject to the requirements of the CA Administrative Procedure Act.[2]
- If standards for backflow protection and cross-connection control are established via the CCCPH, the State Water Board must:
    - Consult with state and local agencies and persons, identified by the State Water Board, as having expertise on the subject of backflow protection and cross-connection control.
    - Hold at least two public hearings before adoption of the CCCPH.
    - Post the CCCPH on the State Water Board website.
- Upon the effective date of the CCCPH, the previous cross-connection control standards[3] become inoperative, and are repealed 90 days later, unless the State Water Board determines not to repeal a specific existing regulation.
- A PWS must implement a cross-connection control program that complies with the standards adopted by the State Water Board.
- Use of a swivel-ell must be consistent with any notification and backflow protection provisions contained in the CCCPH.

The development of the CCCPH included consultation with stakeholders, including state and local agencies, on an array of subjects related to cross-connection control, consistent with the statutory mandate, as well as consideration of input from other stakeholders and the general public in a February 20, 2020 workshop.

Prior to adoption of the CCCPH, in accordance with the statutory mandate, the State Water Board held two public hearings - one on April 27, 2021, and the other on December 5, 2022. A Board Workshop was held on October 18, 2023.

Pursuant to sections 116407 and 116555.5 of the CHSC, the State Water Board chose to adopt standards for backflow protection and cross-connection control through the adoption of this CCCPH, which became effective July 1, 2024.

Aside from the mandates of AB 1671 related to the State Water Board's need and authority to develop and adopt an enforceable CCCPH, there are long-standing statutory mandates in California's SDWA concerning backflow protection and cross-connection control, some of which are summarized below.

---

[2] Gov. Code, tit. 2, div. 3, pt. 1, ch. 3.5, section 11340 et seq.
[3] Cal. Code Regs., tit. 17, div. 1, ch. 5, subch. 1, grp. 4, arts. 1 & 2, section 7583 et seq.

- The State Water Board is required to adopt regulations for the control of cross-connections that it determines to be necessary for ensuring PWSs "distribute a reliable and adequate supply of pure, wholesome, potable, and healthy water." (CHSC section 116375, subd. (c).)
- Any person who owns a PWS is required to ensure that the distribution system will not be subject to backflow under normal operating conditions. (CHSC section 116555, subd. (a)(2).)

Prior to AB 1671 and the adoption of this CCCPH, California's regulations pertaining to cross-connection control were set forth in regulations in CCR Title 17,[4] which were adopted in 1987 with minor revisions in 2000. Although still protective to public health, the CCR Title 17 cross-connection regulations required updating as both the drinking water and cross-connection control industries had evolved. This CCCPH updates those regulations, which as previously noted are no longer operative following the adoption of the CCCPH.

The State Water Board may update its standards for backflow protection and cross-connection control through revisions of the CCCPH. Prior to adopting substantive revisions to the CCCPH, the State Water Board will consult with state and local agencies and persons identified as having expertise on the subject by the State Water Board, and the State Water Board will hold at least one public hearing to consider public comments.

[4] Cal. Code Regs., tit. 17, div. 1, ch. 5, subch. 1, grp. 4, arts. 1 & 2, section 7583 et seq.

This page intentionally left blank

Chapter 2 – Background on Backflow Protection and Cross-Connection Control

2.1 What is a Cross-Connection?

A cross-connection is an interconnection between a potable water supply and a non-potable source via any actual or potential connection or structural arrangement between a PWS and any source or distribution system containing liquid, gas, or other substances not from an approved water supply. Bypass arrangements, jumper connections, removable sections, improperly installed swivel or change-over devices and other temporary or permanent devices through which, or because of which backflow can occur are considered to be cross-connections.[5] The CCCPH includes acceptable installation criteria for swivel-ell and other types of backflow prevention assemblies (BPAs) to prevent backflow.

Backflow is the undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into a PWS's distribution system or approved water supply.

The presence of a cross-connection represents a location in a distribution system through which backflow of contaminants or pollutants can occur. Backflow occurs when a non-potable source is at a greater pressure than the potable water distribution system. Backflow can occur from either backsiphonage or backpressure. Backsiphonage occurs when a non-potable source enters the drinking water supply due to negative (i.e., sub-atmospheric) distribution system pressure. Backpressure occurs when the pressure from a non-potable source exceeds the pressure in the potable water distribution system.

Backsiphonage may be caused by a variety of circumstances, such as main breaks, flushing, pump failure, or emergency firefighting water demand. Backpressure may occur when heating, cooling, waste disposal, or industrial manufacturing systems are connected to potable supplies and the pressure in the external system exceeds the pressure in the distribution system. Both situations act to change the direction of water, which normally flows from the distribution system to the customer, so that non-potable substances from industrial, commercial, or residential premises flows back into the distribution system through a cross-connection.

Cross-connections are not limited to industrial or commercial facilities. Submerged inlets are found on many common plumbing fixtures and are sometimes necessary features of the fixtures if they are to function properly. Examples of this type of design are siphon-jet urinals or water closets, flushing rim slop sinks, and dental cuspidors.

---

[5] California Department of Health Services (DHS), Public Water Supply Branch. (1988). *Guidance Manual for cross connection Control Program (Green Manual).* California Department of Health Services.

Older bathtubs and lavatories may have supply inlets below the flood level rims, but modern sanitary design has minimized or eliminated this cross-connection in new fixtures. Chemical and industrial process vats sometimes have submerged inlets where the water pressure is used as an aid in diffusion, dispersion and agitation of the vat contents. Even though a supply pipe may be installed above a vat, backsiphonage can still occur. Siphon action has been shown to raise a liquid in a pipe such as water almost 34 feet. Some submerged inlets are difficult to control, including those which are not apparent until a significant change in water level occurs or where a supply may be conveniently extended below the liquid surface by means of a hose or auxiliary piping. A submerged inlet may be created in numerous ways, and its detection may be difficult.

Chemical and biological contaminants have caused illness and deaths during known incidents of backflow, with contamination affecting several service connections, and the number of incidents reported is believed to be a small percentage of the total number of backflow incidents that actually occur. The public health risk from cross-connections and backflow is a function of a variety of factors including cross-connection and backflow occurrence and type and amount of contaminants.

2.2 Purpose of a Cross-Connection Control Program

The purpose of a cross-connection control program is to prevent the occurrence of backflow into a PWS's distribution system in order to protect customers from contamination or pollution from any on-site hazards. Properly installed and maintained BPAs, devices or methods provide protection against the threat posed by many conditions typically found on a user's premise.

The use of approved BPAs ensures that the appropriate performance evaluation of the assembly was conducted. It is important and required by the CCCPH to select and properly install an approved BPA that is capable of protecting the distribution system from the hazard identified. The success of a program depends on individuals that are knowledgeable about cross-connection control to identify actual and potential hazards, apply principles of backflow protection and prevention, and implement cross-connection control policies and procedures. A successful program will have ongoing surveillance of a PWS to ensure BPAs, devices or methods are working, and identify new hazards or changes in the distribution system. Certified specialists are needed to properly evaluate the degree of hazard that exists in the distribution system. Hazards typically identified in distribution systems along with the required level of protection are specified in Chapter 3 of the CCCPH.

2.3 Notes on Applicability of the Cross-Connection Control Policy Handbook

The CCCPH provides the basis for regulating the use and management of cross-connection control programs and BPAs in PWSs, and related requirements for supporting programs and policies. Activities or uses outside of the scope of the

authority of the State Water Board to regulate PWSs are not regulated by the CCCPH, including California Plumbing Code requirements and definitions not related to PWSs.

Recycled water cross-connection control installations and programs for the purposes of protecting the recycled water supply are not regulated by the CCCPH, although a PWS that uses recycled water is regulated by the CCCPH to ensure that a PWS's drinking water system has adequate backflow protection from a recycled water system.

Water systems that do not meet the definition of a PWS (e.g. "State Small Water Systems" under CCR Title 22, Article 3) are not regulated by the CCCPH, although they may need to comply with the California Plumbing Code, local health agencies, and other laws or entities.

Transient noncommunity and nontransient noncommunity systems are PWSs and must comply with both the California Plumbing Code and CCCPH. The California Plumbing Code and the CCCPH will overlap in protection of these user premises. To ensure compliance, these noncommunity water systems may need to have internal cross-connection control programs within the user premises.

Noncommunity water systems must have the ability to enforce backflow protection within the premises. Compliance with the California Plumbing Code can be verified by the PWS and used for compliance with the CCCPH. Compliance with the CCCPH is documented through the hazard assessment and maintenance of an inventory of field-testable BPAs and methods. Annual field testing of BPAs is required. Where the minimum backflow protection differs between the California Plumbing Code and the CCCPH, the more protective minimum protection will be required.

This page intentionally left blank

Chapter 3 – Standards for Backflow Protection and Cross-Connection Control

Article 1 – Definitions and General Requirements

3.1.1 Definitions

The following definitions apply to the terms used in the CCCPH:

"**Air-gap separation**" or "**AG**" means a physical vertical separation of at least two (2) times the effective pipe diameter between the free-flowing discharge end of a potable water supply pipeline and the flood level of an open or non-pressurized receiving vessel, and in no case less than one (1) inch.

"**Approved water supply**" means a water source that has been approved by the State Water Board for domestic use in a public water system and designated as such in a domestic water supply permit issued pursuant to section 116525 of the CHSC.

"**Auxiliary water supply**" means a source of water, other than an approved water supply, that is either used or equipped, or can be equipped, to be used as a water supply and is located on the premises of, or available to, a water user.

"**Backflow**" means an undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into a public water system's distribution system or approved water supply.

"**Backflow prevention assembly**" or "BPA" means a mechanical assembly designed and constructed to prevent backflow, such that while in-line it can be maintained and its ability to prevent backflow, as designed, can be field tested, inspected and evaluated.

"**Backflow prevention assembly tester**" means a person who is certified as a backflow prevention assembly tester.

*"***Community water system"** means a public water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents of the area served by the system.

*"***Contact hour"** means not less than 50 minutes of a continuing education course.

*"***Continuing education course"** means a presentation or training that transmits information related to cross-connection control programs and backflow prevention and protection.

"**Cross-connection**" means any actual or potential connection or structural arrangement between a public water system, including a piping system connected to the public water system and located on the premises of a water user or available to the water user, and any source or distribution system containing liquid, gas, or other substances not from an approved water supply.

"**Cross-connection control specialist**" means a person who is certified as a cross-connection control specialist.

"**Distribution system**" has the same meaning as defined in section 63750.50 of CCR, Title 22, Division 4, Chapter 2.

"**Double check detector backflow prevention assembly**" or "**DCDA**" means a double check valve backflow prevention assembly that includes a bypass with a water meter and double check backflow prevention assembly, with the bypass's water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. This type of assembly may only be used to isolate low hazard cross-connections. See Diagram 1, Appendix C.

"**Double check detector backflow prevention assembly – type II**" or "**DCDA-II**" means a double check valve backflow prevention assembly that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. This type of assembly may only be used to isolate low hazard cross-connections. See Diagram 2, Appendix C.

"**Double check valve backflow prevention assembly**" or "**DC**" means an assembly consisting of two independently-acting internally-loaded check valves, with tightly closing shut-off valves located at each end of the assembly (upstream and downstream of the two check valves) and fitted with test cocks that enable accurate field testing of the assembly. This type of assembly may only be used to isolate low hazard cross-connections. See Diagram 3, Appendix C.

"**Existing public water system**" or "**existing PWS**" means a public water system initially permitted on or before July 1, 2024 as a public water system by the State Water Board.

"Hazard Assessment" means an evaluation of a user premises designed to evaluate the types and degrees of hazard at a user's premises.

"**High hazard cross-connection**" means a cross-connection that poses a threat to the potability or safety of the public water supply. Materials entering the public water supply through a high hazard cross-connection are contaminants or health hazards. See Appendix D for some examples.

"**Low hazard cross-connection**" means a cross-connection that has been found to not pose a threat to the potability or safety of the public water supply but may adversely affect the aesthetic quality of the potable water supply. Materials entering the public water supply through a low hazard cross-connection are pollutants or non-health hazards.

"**New public water system**" or "**new PWS**" means a public water system permitted after July 1, 2024 as a public water system by the State Water Board. A new public water system includes a public water system receiving a new permit because of a change in ownership.

"**Noncommunity water system"** means a public water system that is not a community water system.

"**Nontransient noncommunity water system"** means a public water system that is not a community water system and that regularly serves at least 25 of the same persons over six months per year.

"**Premises containment**" means protection of a public water system's distribution system from backflow from a user's premises 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 that isolates the water user's water supply from the public water system's distribution system.

"**Pressure vacuum breaker backsiphonage prevention assembly**" or "**PVB**" means an assembly with an independently-acting internally-loaded check valve and an independently-acting loaded air inlet valve located on the discharge side of the check valve; with test cocks and tightly closing shutoff valves located at each end of the assembly that enable accurate field testing of the assembly. This type of assembly may only be used for protection from backsiphonage and is not to be used to protect from backpressure. See Diagram 4, Appendix C.

"**Public water system**" or "**PWS**" has the same meaning as defined in section 116275(h) of the CHSC.

"**Recycled Water"** is a wastewater which as a result of treatment is suitable for uses other than potable use.

"**Reduced pressure principle backflow prevention assembly**" or "**RP**" means an assembly with two independently acting internally-loaded check valves, with a hydraulically operating mechanically independent differential-pressure relief valve located between the check valves and below the upstream check valve. The assembly shall have shut-off valves located upstream and downstream of the two check-valves, and test cocks to enable accurate field testing of the assembly. See Diagram 5, Appendix C.

"**Reduced pressure principle detector backflow prevention assembly**" or "**RPDA**" means a reduced pressure principle backflow prevention assembly that includes a bypass with a water meter and reduced pressure principle backflow prevention assembly, with the bypass's water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. See Diagram 6, Appendix C.

"**Reduced pressure principle detector backflow prevention assembly – type II**" or "**RPDA-II**" means a reduced pressure principle backflow prevention assembly that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. See Diagram 7, Appendix C.

"**Spill-resistant pressure vacuum breaker backsiphonage prevention assembly**" or "**SVB**" means an assembly with an independently-acting internally-loaded check valve and an independently-acting loaded air inlet valve located on the discharge side of the check valve; with shutoff valves at each end and a test cock and bleed/vent port, to enable accurate field testing of the assembly. This type of assembly may only be used for protection from backsiphonage and is not to be used to protect from backpressure. See Diagram 8, Appendix C.

"**State Water Board**", unless otherwise specified, means the State Water Resources Control Board or the local primacy agency having been delegated the authority to enforce the requirements of the CCCPH by the State Water Resources Control Board.

"**Swivel-Ell**" means a reduced pressure principle backflow prevention assembly combined with a changeover piping configuration (swivel-ell connection) designed and constructed pursuant to this Chapter. See design and construction criteria, as well as Diagrams 9a and 9b, Appendix C.

"**Transient noncommunity water system"** means a noncommunity water system that does not regularly serve at least 25 of the same persons over six months per year.

"**User premises**" means the property under the ownership or control of a water user and is served, or is readily capable of being served, with water via a service connection with a public water system.

"**User's service connection**" means either the point where a water user's piping is connected to a water system or the point in a water system where the approved water supply can be protected from backflow using an air gap or backflow prevention assembly.

"**User Supervisor"** means a person designated by a water user to oversee a water use site and responsible for the avoidance of cross-connections.

"**Water supplier**" means a person who owns or operates a public water system.

"**Water user**" means a person or entity who is authorized by the PWS to receive water.

3.1.2 Applicability

A public water system (PWS) must comply with the requirements of the CCCPH.

3.1.3 Program for Public Water System Cross-Connection Control

(a) A PWS must protect the public water supply through implementation and enforcement of a cross-connection control program. Unless otherwise specified by this Chapter or directed by the State Water Board, a PWS may implement its cross-connection control program, in whole or in part, either directly or by way of contract or agreement with another party. The PWS, however, shall not be responsible for abatement of cross-connections which may exist within a user's premises. The cross-connection control program must include at a minimum the following elements:

(1) **Operating rules or ordinances** – Each PWS must have operating rules, ordinances, by-laws or a resolution to implement the cross-connection program. The PWS must have legal authority to implement corrective actions in the event a water user fails to comply in a timely manner with the PWS's provisions regarding the installation, inspection, field testing, or maintenance of BPAs required pursuant to this Chapter. Such corrective actions must include the PWS's ability to perform at least one of the following:

(A) deny or discontinue water service to a water user,
(B) install, inspect, field test, and/or maintain a BPA at a water user's premises, or
(C) otherwise address in a timely manner a failure to comply with the cross-connection control program.

(2) **Cross-Connection Control Program Coordinator** – The PWS must designate at least one individual involved in the development of and be responsible for the reporting, tracking, and other administration duties of its cross-connection control program. For PWS with more than 3,000 service connections the Cross-Connection Control Program Coordinator must be a cross-connection control specialist.
(3) **Hazard Assessments** – The PWS must survey its service area and conduct hazard assessments per Article 2 of this Chapter that identifies actual or potential cross-connection hazards, degree of hazard, and any backflow protection needed.
(4) **Backflow Prevention** – The PWS must ensure that actual and potential cross-connections are eliminated when possible or controlled by the installation of approved BPAs or AG's consistent with the requirements of the Article 3 of this Chapter.

(5) **Certified Backflow Prevention Assembly Testers and Certified Cross-Connection Control Specialists** – The PWS must ensure all BPA testers and cross-connection control specialists used are certified per Article 4 of this Chapter.
(6) **Backflow Prevention Assembly Testing** – The PWS must develop and implement a procedure for ensuring all BPAs are field tested, inspected, and maintained and AG's are inspected and maintained in accordance with CCCPH section 3.3.3.
(7) **Recordkeeping** – The PWS must develop and implement a recordkeeping system in accordance with CCCPH section 3.5.1.
(8) **Backflow Incident Response, Reporting and Notification** – The PWS must develop and implement procedures for investigating and responding to suspected or actual backflow incidents in accordance with Article 5 of this chapter.
(9) **Public Outreach and Education –** The PWS must implement a cross-connection control public outreach and education program element that includes educating staff, customers, and the community about backflow protection and cross-connection control. The PWS may implement this requirement through a variety of methods which may include providing information on cross-connection control and backflow protection in periodic water bill inserts, pamphlet distribution, new customer documentation, email, and consumer confidence reports.
(10) **Local Entity Coordination** – The PWS must coordinate with applicable local entities that are involved in either cross-connection control or public health protection to ensure hazard assessments can be performed, appropriate backflow protection is provided, and provide assistance in the investigation of backflow incidents. Local entities may include but are not limited to plumbing, permitting, or health officials, law enforcement, fire departments, maintenance, and public and private entities.

(b) The cross-connection control program must be developed in consultation with a cross-connection control specialist if:

(1) The PWS has 1,000 or more service connections, or
(2) required by the State Water Board.

(c) A PWS must have at least one cross-connection control specialist as a permanent or contracted employee of the PWS, and that specialist, or their designee, must be able to be contacted within one hour, if:

(1) The PWS has 3,000 or more service connections, or
(2) the PWS has less than 3,000 service connections and is directed by the State Water Board based on hazard assessments conducted pursuant to CCCPH section 3.2.1. or the PWS's history of backflow incidents.

3.1.4 Plan for Public Water System Cross-Connection Control

(a) After adoption of the CCCPH, each PWS must submit a written Cross-Connection Control Plan for State Water Board review in accordance with the following schedule:

(1) An Existing PWS must submit the Cross-Connection Control Plan no later than 12 months after the effective date of the CCCPH.
(2) A new PWS must submit the Cross-Connection Control Plan for review and approval prior to issuance of a domestic water supply permit.
(3) A PWS may submit a written request to the State Water Board for an extension of the deadline for submittal of its initial Cross-Connection Control Plan. The PWS's application must include a written description of the need for an extension. Approval of an extension will be at the sole discretion of the State Water Board.

(b) The Cross-Connection Control Plan for a community water system must include, at a minimum, the following cross-connection control program procedures and documentation:

(1) a description of how the community water system will achieve and maintain compliance with each requirement in this Chapter;
(2) a description of the process, personnel, and timeframes for completing initial and ongoing hazard assessments pursuant to CCCPH section 3.2.1;
(3) a description of the legal authority pursuant to CCCPH section 3.1.3 to implement corrective actions in the event a water user fails to comply in a timely manner with the provisions of the PWS's cross-connection control program;
(4) a description of the process and timeframes for ensuring each BPA is inspected and field tested, and AG is inspected, at a frequency no less than required by this Chapter;
(5) a description of the process and timeframe for ensuring each non-testable backflow preventer that is under the PWS ownership or administration is installed and maintained according to the California Plumbing Code;
(6) a description of the process for ensuring individuals field testing and inspecting BPAs are no less qualified than required by this Chapter, including but not limited to confirmation of the individual's:

(A) certification as a backflow prevention assembly tester,
(B) field test kit or gage equipment accuracy verification, and
(C) BPA field test result reports;

(7) a description of the procedures and timeframes of activities for responding to backflow incidents, including notification of customers, and reporting of backflow incidents pursuant to CCCPH section 3.5.2;
(8) contact information for cross-connection control personnel including any cross-connection control program coordinator and specialist;
(9) a description of the tracking system that maintains current and relevant information, including:

(A) recordkeeping information required pursuant to CCCPH section 3.5.1,
(B) location and type of each BPA, and
(C) highest threat potential hazard from which a given BPA is protecting the public water system distribution system;

(10) for user supervisors, if used, the required information pursuant to CCCPH section 3.2.2 (f);
(11) the corrective actions, including timeframes for the corrective actions, that a community water system will implement when:

(A) a cross-connection exists and the BPA installed is not commensurate with the user premises' hazard or no BPA has been installed, or
(B) a BPA needs to be replaced or maintained;

(12) a description of the public outreach and education program to comply with CCCPH section 3.1.3(a)(9); and
(13) the procedures for coordination with local entities

(c) The Cross-Connection Control Plan for a noncommunity water system must include, at a minimum, the following cross-connection control program procedures and documentation:

(1) a description of how the noncommunity water system will achieve and maintain compliance with each requirement in this Chapter that is applicable to the noncommunity water system;
(2) a description of the process, personnel, and timeframes for completing initial and ongoing hazard assessments pursuant to CCCPH section 3.2.1;
(3) a description of the legal authority pursuant to CCCPH section 3.1.3 to implement corrective actions in the event a water user fails to comply in a timely manner with the provisions of the PWS's cross-connection control program;
(4) a description of the process and timeframes for ensuring each BPA is inspected and field tested and AG is inspected, at a frequency no less than required by this Chapter;
(5) a description of the process and timeframe for ensuring each non-testable backflow preventer for internal protection that is under the PWS ownership or administration is installed and maintained according to the California Plumbing Code;
(6) a description of the process for ensuring individuals field testing and inspecting BPAs are no less qualified than required by this Chapter, including but not limited to confirmation of the individual's:

(A) certification as a backflow prevention assembly tester,
(B) field test kit or gage equipment accuracy verification, and
(C) BPA field test result reports;

(7) a description of the procedures and timeframes of activities for responding to backflow incidents, including notification of customers, and reporting of backflow incidents pursuant to CCCPH section 3.5.2;
(8) contact information for cross-connection control personnel including the cross-connection control program coordinator;
(9) maintaining a tracking system with current and relevant information, including:

(A) recordkeeping information required pursuant to CCCPH section 3.5.1,
(B) location and type of each BPA,
(C) location and type of each non-testable backflow preventer used for internal protection in accordance with the California Plumbing Code, if applicable, and
(D) potential hazard from which a BPA is protecting the public water system distribution system;

(10) for user supervisors, if used, the required information pursuant to CCCPH section 3.2.2(f);
(11) the corrective actions, including timeframes for the corrective actions, that a noncommunity water system will implement when:

(A) a cross-connection exists and the BPA installed is not commensurate with the user premises' hazard or no BPA has been installed, or
(B) a BPA or non-testable backflow preventer needs to be replaced or maintained;

(12) a description of the public outreach and education program to comply with CCCPH section 3.1.3(a)(9); and,
(13) the procedures for coordination with local entities (e.g., local health departments with internal cross-connection control programs, building officials, plumbing officials, etc.).

(d) A PWS must ensure its Cross-Connection Control Plan is, at all times, representative of the current operation of its Cross-Connection Control program. The PWS must make its Cross-Connection Control Plan available to the State Water Board for review upon request. If a PWS makes a substantive revision to its Cross-Connection Control Plan, the PWS must submit the revised Cross-Connection Control Plan to the State Water Board for review.

Article 2 – Hazard Assessments and Required Protection

3.2.1 Hazard Assessments

(a) To evaluate the potential for backflow into the PWS, each community water system must conduct an initial hazard assessment of the user premises within its service area and each noncommunity water system must conduct an initial hazard assessment of its water distribution system. The hazard assessment must consider:

(1) The existence of cross-connections;
(2) the type and use of materials handled and present, or likely to be, on the user premises;
(3) the degree of piping system complexity and accessibility;
(4) access to auxiliary water supplies, pumping systems, or pressure systems;
(5) distribution system conditions that increase the likelihood of a backflow event (e.g., hydraulic gradient differences impacted by main breaks and high water-demand situations, multiple service connections that may result in flow-through conditions, etc.);
(6) user premises accessibility;
(7) any previous backflow incidents on the user premises; and
(8) the requirements and information provided in the CCCPH.

(b) Each hazard assessment must identify the degree of hazard to the PWS's distribution system as either a high hazard cross-connection, a low hazard cross-connection, or having no hazard. Examples of some high hazard cross-connection activities may be found in Appendix D.

(c) The hazard assessment must determine whether an existing BPA, if any, provides adequate protection based on the degree of hazard.

(d) Hazard assessments completed prior to the adoption of the CCCPH may be considered as an initial hazard assessment provided that such hazard assessments and associated backflow protection provide protection consistent with the CCCPH and the PWS describes their review of these assessments in the Cross-Connection Control Plan required in CCCPH section 3.1.4.

(e) Subsequent to the initial hazard assessment described in subsection (a), a community water system must perform a hazard assessment under the following criteria:

(1) if a user premises changes account holder, excluding single-family residences;
(2) if a user premises is newly or re-connected to the PWS;
(3) if evidence exists of changes in the activities or materials on a user's premises;
(4) if backflow from a user's premises occurs;
(5) periodically, as identified in the PWS's Cross-Connection Control Plan required pursuant to CCCPH section 3.1.4.;

(6) if the State Water Board requests a hazard assessment of a user's premises; and
(7) if the PWS concludes an existing hazard assessment may no longer accurately represent the degree of hazard.

(f) Noncommunity water systems must conduct an initial or follow-up hazard assessment within two years of the effective date of the CCCPH.

(g) Noncommunity water system must conduct a follow-up hazard assessment of its water distribution system if any changes are made that could result in a cross-connection or any backflow incidents occur.

(h) A cross-connection control specialist must review or conduct each initial and follow-up hazard assessment pursuant to this section and make a written finding that, in the specialist's judgment based on cross-connection control principles, the PWS's hazard assessment properly identified all hazards at the time of the assessment, the appropriate degree of hazards, and the corresponding backflow protection.

3.2.2 Backflow Protection Required

(a) A PWS must ensure its distribution system is protected from backflow from identified hazards through the proper installation, continued operation, and field testing of an approved BPA (see Article 3 for installation and approved BPA criteria). When a DC is required or referenced in the CCCPH, a DCDA or DCDA-II type of assembly may be substituted if appropriate. When an RP is required or referenced in the CCCPH, an RPDA or RPDA-II type of assembly may be substituted if appropriate.

(b) The BPA installed must be no less protective than that which is commensurate with the degree of hazard at a user premises, as specified in this Chapter and as determined based on the results of the hazard assessment conducted pursuant to CCCPH section 3.2.1.

(c) Unless specified otherwise in this Chapter, a PWS must, at all times, protect its distribution system from high hazard cross-connections (see Appendix D for examples), through premises containment, through the use of AG(s) or RP(s).

(1) Following State Water Board review and approval, a PWS may implement an alternate method of premises containment in lieu of a required AG provided that the proposed alternative would not increase the level of risk to protection of public health.
(2) Following State Water Board review and approval, a PWS may accept internal protection in lieu of containment when premises containment is not feasible.

(d) Except as otherwise allowed or prohibited in statute or in CCR Title 22, Division 4, Chapter 3, a swivel-ell may be used instead of an AG for premises containment protection when temporarily substituting tertiary recycled water use areas with potable water from a PWS if all the following criteria are met:

(1) the swivel-ell is approved by the State Water Board;
(2) the PWS has a cross-connection control program, required pursuant to CCCPH section 3.1.3, and the use and operation of the swivel-ell is described in the Cross-Connection Control Plan required pursuant to CCCPH section 3.1.4;
(3) the design and construction-related requirements of the swivel-ell adheres to the criteria in Appendix C;
(4) at least every 12 months, inspections are performed and documented to confirm ongoing compliance with the design and construction-related requirements in Appendix C;
(5) the RP used in conjunction with the swivel-ell is field tested and found to be functioning properly:

(A) immediately upon each switchover to potable water use, a visual inspection of the RP must be completed
(B) within 72 hours of each switchover to potable water use, a field test must be completed, and
(C) at least every 12 weeks the use site is supplied with potable water; and

(6) there is a legally binding agreement between the PWS and the entity supplying the recycled water, signed by those with relevant legal authority, that includes the following requirements:

(A) The State Water Board will be notified within 24 hours of all switchovers to or from potable water, will be given an estimate of the timeframe until the next switchover, and will be provided the results of the field testing required in paragraph (5);
(B) a trained representative of the PWS be present to supervise each switchover; and
(C) within seven days of each switchover, if requested by the State Water Board, the PWS will submit a written report describing compliance with this subsection, as well as potable and recycled water usage information.

(e) Except as noted below, a PWS must ensure its distribution system is protected with no less than DC protection for a user premises with a fire protection system within ten years of the effective date of the CCCPH.

(1) A high hazard cross-connection fire protection system, including but not limited to fire protection systems that may utilize chemical addition (e.g., wetting agents, foam, anti-freeze, corrosion inhibitor, etc.) or an auxiliary water supply, must have no less than RP protection.

(2) For existing fire protection systems that do not meet Section 3.2.2 (e)(3) or cannot install DC protection within ten years of the effective date of the CCCPH, a PWS may propose in the cross-connection control plan submitted for CCCPH Section 3.1.4:

(A) an alternative date; or
(B) an alternative method of backflow protection that provides at least the same level of protection to public health.

(3) A BPA is not necessary for a low hazard fire protection system on a residential user premises if the following criteria are satisfied:

(A) the user premises has only one service connection to the PWS;
(B) a single service line onto the user premises exists that subsequently splits on the property for domestic flow and fire protection system flow, such that the fire protection system may be isolated from the rest of the user premises;
(C) a single, water industry standard, water meter is provided to measure combined domestic flow and fire protection system flow;
(D) the fire protection system is constructed of piping materials certified as meeting NSF/ANSI Standard 61; and
(E) the fire protection system's piping is looped within the structure and is connected to one or more routinely used fixtures (such as a water closet) to prevent stagnant water.

(f) The State Water Board and PWS may, at their discretion, require a water user to designate a user supervisor when the user premises has a multi-piping system that conveys various types of fluids and where changes in the piping system are frequently made. If a user supervisor is designated the following is required:

(1) The user supervisor is responsible for the avoidance of cross-connections during the installation, operation and maintenance of the water user's pipelines and equipment. The user supervisor must be trained on the fluids used and backflow protection for the premise, and must inform the PWS of changes in piping, and maintain current contact information on file with the PWS; and
(2) The PWS must include in the Cross-Connection Control Plan required in CCCPH section 3.1.4 the training and qualification requirements for user supervisors, identify the entity that will provide the user supervisor training, and frequency of any necessary recurring training. The training must adequately address the types of hazards and concerns typically found.

(g) Facilities producing, treating, storing, or distributing drinking water that are an approved water supply or water recycling plants as defined by CCR Title 22, Section 60301.710 must have proper internal protection from cross-connections to ensure that all drinking water produced and delivered to customers and workers at those facilities is free from unprotected cross-connections.

Article 3 – Backflow Prevention Assemblies

3.3.1 Standards for Types of Backflow Protection

(a) The PWS must ensure that each AG used for its Cross-Connection Control Program meets the requirements in Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures, page 4 of the American Society of Mechanical Engineers (ASME) A112.1.2-2012(R2017) (See Appendix B).

(b) The PWS must ensure that each replaced or newly installed PVB, SVB, DC, and RP for protection of the PWS is approved through both laboratory and field evaluation tests performed in accordance with at least one of the following:

> (1) Standards found in Chapter 10 of the *Manual of Cross-Connection Control, Tenth Edition*, published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research; or
> (2) certification requirements for BPAs in the Standards of ASSE International current as of 2022 that include ASSE 1015-2021 for the DC, ASSE 1048-2021 for the DCDA & DCDA-II, ASSE 1013-2021 for the RP, and ASSE 1047-2021 for the RPDA & RPDA-II and must have the 1YT mark.

(c) BPAs must not be modified following approval granted under section 3.3.1 (b). PWS must require BPA testers to notify the PWS if a water user or PWS-owned BPA has been modified from the CCCPH section 3.3.1 (b) approval.

3.3.2 Installation Criteria for Backflow Protection

(a) For AGs, the following is required:

> (1) The receiving water container must be located on the water user's premises at the water user's service connection unless an alternate location has been approved by the PWS;
> (2) all piping between the water user's service connection and the discharge location of the receiving water container must be above finished grade and be accessible for visual inspection unless an alternative piping configuration is approved by the PWS;
> (3) the PWS must ensure that the AG specified in CCCPH section 3.3.1 (a) has been installed; and
> (4) any new air gap installation at a user's service connection must be reviewed and approved by the State Water Board prior to installation.

(b) RPs must be installed such that the lowest point of an assembly is a minimum of twelve inches above grade, and a maximum of thirty-six inches above the finished grade, unless an alternative is approved by the PWS.

(c) DCs installed or replaced after the adoption of the CCCPH must be installed according to CCCPH section 3.3.2 (b). Below ground installation can be considered if approved by the PWS where it determines no alternative options are available.

(d) A PVB or SVB must be installed a minimum of twelve inches above all downstream piping and outlets.

(e) SVBs may not be used for premises containment. PVBs may only be used for roadway right of way irrigation systems as premises containment where there is no potential for backpressure.

(f) A RP or DC installed after the adoption of the CCCPH must have a minimum side clearance of twelve inches, except that a minimum side clearance of twenty-four inches must be provided on the side of the assembly that contains the test cocks. The PWS may approve alternate clearances providing that there is adequate clearance for field testing and maintenance.

(g) Backflow protection must be located as close as practical to the water user's service connection unless one or more alternative locations have been approved by the PWS. If internal protection is provided in lieu of premises containment, the PWS must obtain access to the user premises and must ensure that the on-site protection meets the requirements of this Chapter for installation, field testing, and inspections.

(h) Each BPA and air gap separation must be accessible for field testing, inspection, and maintenance.

3.3.3 Field Testing and Repair of Backflow Prevention Assemblies and Air Gap Inspection

(a) PWS must ensure that all BPAs installed for its Cross-Connection Control Program are field tested following installation, repair, depressurization for winterizing, or permanent relocation. All required field testing must be performed by certified backflow prevention assembly testers.

(b) BPAs must be field tested at least annually. The CCCPH does not preclude a PWS, the State Water Board, or a local health agency from requiring more frequent field testing for premises with high hazard cross-connection or BPA at increased risk of testing failure.

(c) Air-gap separations must be visually inspected at least annually to determine compliance with this Chapter by persons certified as backflow prevention assembly testers or certified as a cross-connection control specialist pursuant to this Chapter.

(d) PWS must receive passing field tests before providing continuous service to a water user with a newly installed BPA.

(e) PWS must ensure that BPAs that fail the field test are repaired or replaced within 30 days of notification of the failure. Extensions may be allowed by the PWS if included as part of the Cross-Connection Control Plan.

(f) PWS must require backflow prevention assembly testers to notify the PWS as soon as possible within 24 hours if a backflow incident or an unprotected cross-connection is observed at the BPA or prior to the user premises during field testing. PWS must immediately conduct an investigation and discontinue service to the user premises if a backflow incident is confirmed, and water service must not be restored to that user premises until the PWS receives a confirmation of a passing BPA field test from a backflow prevention assembly tester and the assembly is protecting the PWS.

Article 4 – Backflow Prevention Assembly Testers and Cross-Connection Control Specialists

3.4.1 Backflow Prevention Assembly Tester Certification

(a) A PWS must ensure that each BPA required by this Chapter to protect the public water system is field tested by a person with valid certification from a certifying organization recognized by the State Water Board pursuant to this Article.

(b) A State Water Board-recognized organization certifying backflow prevention assembly testers is one that has a certification process that, at a minimum, includes the following:

(1) A timed and proctored written[6] exam, using a closed-book, objective grading format, consisting of no less than 100 questions for initial certification and no less than 50 questions for recertification. A passing score must be achieved by an examinee as a requirement for certification.

(A) Written exam proctors must:

1. not provide an examinee any assistance in answering exam questions, verbal or otherwise; and
2. be impartial.

(B) Passing scores for the written exams are to be determined prior to exam sessions, such that passing a written exam demonstrates sufficient knowledge of subjects associated with the proper field testing of BPAs, including but not limited to:

1. the hydraulics and theory of backflow;
2. California's laws, regulations, and requirements related to cross-connection control;
3. types of BPA field test equipment and the need to verify accuracy, at least annually and when otherwise necessary, to ensure accuracy of field test results;
4. field test procedures for an RP, RPDA, RPDA-II, DC, DCDA, DCDA-II, PVB, and SVB using the procedures provided in the *Manual of Cross-Connection Control, Tenth Edition,* published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or equivalent;
5. identification of improperly functioning BPAs (i.e., diagnostics or troubleshooting); and
6. recordkeeping and safety.

[6] The requirement for a written exam does not preclude using computerized exams.

(2) A performance (i.e., hands-on) exam, using a closed-book, objective grading process and the field test procedures in paragraph (1)(B)(4), designed such that passing the performance exam demonstrates proficiency in accurately determining the operating condition of an RP, DC, PVB, and SVB, when properly or improperly functioning, including but not limited to BPAs with leaks in shutoff valves, and failures in check valves, air inlet valves, or relief valves. A passing score must be achieved by an examinee as a requisite for certification. The performance exam process must include the following:

(A) Performance exam proctors must:

1. be certified as a backflow prevention assembly tester pursuant to this Article;
2. evaluate no more than one examinee at a time;
3. not provide an examinee any assistance in answering exam questions, verbal or otherwise;
4. provide no indication an examinee has erred until completion of a BPA field test, at which time only the fact the examinee has erred may be indicated (i.e., not the nature of the error);
5. be impartial and not affiliated with the certifying organization's preparation of, or preparatory course for (if applicable), the performance exam; and
6. not evaluate an examinee who was trained by the proctor during the six-month period prior to the exam or other conflict of interest.

(B) An examinee is considered to have failed a performance exam if the examinee:

1. makes a field test procedure or recording error that could impact an accurate determination of the operating condition of a BPA,
2. completes the BPA performance exam form with an error,
3. is informed of making an error (see subparagraph (A)(4)) and begins the procedure a second time, and
4. errs a second time and completes the BPA performance exam form accordingly.

(3) recertification requirements of no less frequently than every three years which includes both a written and performance exam;
(4) provisions for revocation of a backflow prevention assembly tester's certification, including but not limited to, revocation for falsifying field test results or field test reports;

(5) a website providing public access to the most recent list of backflow prevention assembly testers:

(A) who hold a valid certification from the certifying organization. At a minimum, the list is to include each backflow prevention assembly tester's last name, first name, certification number, and the date on which each backflow prevention assembly tester's certification expires; and
(B) whose certification was revoked, pursuant to paragraph (4), in the three years preceding the date of the list. At a minimum, the list is to include each backflow prevention assembly tester's last name, first name, revoked certification number, the date on which each backflow prevention assembly tester's certification was revoked, and the reason for revocation.

(6) as a prerequisite to sections 3.4.1(b)(1) and (b)(2), completion of an instructional training course accepted by the certifying organization[7] that covers the subjects in subsection (1)(B) and is no less than 30 hours in length over no fewer than four days for:

(A) a backflow prevention assembly tester's initial certification;
(B) a backflow prevention assembly tester's recertification as a result of revocation; or

(7) In lieu of compliance with section 3.4.1(b)(6) a certifying organization may accept two years prior experience in backflow prevention assembly testing.

(c) To be recognized by the State Water Board as a certifying organization for backflow prevention assembly testers, a certifying organization shall:

(1) submit an application with the following information to the State Water Board for review:

(A) written documentation of a certification program that includes a process that is no less stringent than the criteria in subsection (b);
(B) evidence that the organization's certification program and exam process has been reviewed, with concerns adequately addressed, by a credentialed psychometrician proficient in the design of objective exams, experienced in the assessment of certification or licensing organizations, and familiar with the application of the requirements of *ISO[8]/IEC[9] 17024: Conformity Assessment- General Requirements for Bodies Operating Certification of Persons*; and

[7] But not limited only to training provided by the certifying organization or its affiliates.
[8] International Organization for Standardization
[9] International Electrotechnical Commission

(C) a written statement, signed by the certifying organization's representative(s) having the authority and legal responsibility for operation of the certifying organization, attesting that the certifying organization will implement its certification program in a manner meeting or exceeding the criteria in subsection (b) and consistent with the application submitted to the State Water Board.

(2) adequately address each State Water Board comment and/or question concerning the application, and
(3) receive written acknowledgment from the State Water Board that the application is complete.

(d) An American National Standards Institute (ANSI)-accredited certifying organization, accredited in accordance with subsection (b) and ISO/IEC 17024, will be considered to be a State Water Board-recognized certifying organization. Beginning three years after the effective date of the CCCPH, only those testers with a valid certification from an ANSI-accredited certifying organization shall satisfy subsection (a) and certifications obtained by organizations in accordance with subsection (c) will be invalid.

(e) This Article does not preclude a local health agency from maintaining a backflow prevention assembly tester certification program for the field testing of BPAs within the local health agency's jurisdiction. Accepting a tester certified by a local health agency does not relieve a PWS from meeting the requirements of this Article.

(f) This Article does not preclude a PWS from disallowing the use of an individual tester certified pursuant to this Article if the PWS has reason to believe a certified tester may not be proficient in accurately determining the operating condition of BPA, or for any other reason (e.g., fraud, deceit, negligence, misconduct, etc.). A PWS must report any evidence of a tester falsifying reports to that tester's certifying organization.

(g) This Article is effective July 1, 2025.

3.4.2 Cross-Connection Control Specialist Certification

(a) A PWS must ensure that cross-connection control specialists, used pursuant to the CCCPH, have valid certification from a certifying organization recognized by the State Water Board pursuant to this Article.

(b) A State Water Board-recognized organization certifying cross-connection control specialists is one that has a certification process that, at a minimum, includes the following:

(1) A timed and proctored, written[10] exam, using a closed-book, objective grading format, consisting of no less than 100 questions for certification. A passing score must be achieved by an examinee as a requirement for certification.

(A) Written exam proctors must:

1. not provide an examinee any assistance in answering exam questions, verbal or otherwise; and
2. be impartial.

(B) Passing scores for the exams are to be determined prior to exam sessions, such that passing an exam demonstrates sufficient and comprehensive range of knowledge of the subjects provided in Appendix E, as they may relate to cross-connection control and the causes, effects, and prevention of backflow.

(2) recertification requirements of no less frequently than every three years. Recertification may be done through at least one of the following:

(A) an exam as required by section 3.4.2 (b)(1),
(B) through 12 contact hours from continuing education courses covering material in Appendix E or,
(C) a combination of exam and continuing education contact hours equivalent to (A) or (B);

(3) provisions for revocation of a specialist's certification, including but not limited to, falsifying information or providing negligent recommendations inconsistent with industry-standard cross-connection control guidelines;
(4) a website providing public access to the most recent list of cross-connection control specialists:

(A) who hold a valid certification from the certifying organization. At a minimum, the list is to include each specialist's last name, first name, certification number, and the date on which each specialist's certification expires; or

[10] The requirement for a written exam does not preclude using computerized exams.

(B) whose certification was revoked, pursuant paragraph (3), in the three years preceding the date of the list. At a minimum, the list is to include each specialist's last name, first name, revoked certification number, the date on which each specialist's certification was revoked, and the reason for revocation.

(5) initial certification requirements:

(A) a valid backflow prevention assembly tester certification from a certification organization recognized by the State Water Board pursuant to section 3.4.1; and
(B) completion of an instructional training course (acceptable to the certifying organization[11]) that covers the subjects in Appendix E and is no less than 30 hours in length over no fewer than five days (inclusive of an exam, if provided). This paragraph does not preclude a certification organization from providing the instructional training course to the public, including certified specialists.
(C) As an alternative to (A) the certifying organization may accept additional instruction in the subject areas of testing, maintaining and repairing BPAs equivalent in length and scope to the requirements in 3.4.1(b)(6).
(D) As an alternative to (A) the certifying organization may accept a minimum of five (5) years documented experience performing cross-connection control specialist duties, as outlined in Appendix E.

(c) To be recognized by the State Water Board as a certifying organization for cross-connection control specialists, a certifying organization shall:

(1)submit an application with the following information to the State Water Board for review:

(A) Written documentation of a certification program that includes a process that is no less stringent than the criteria in subsection (b);
(B) evidence that the organization's certification program and exam process has been reviewed, with concerns adequately addressed, by a credentialed psychometrician proficient in the design of objective exams, experienced in the assessment of certification or licensing organizations, and familiar with the application of the requirements of *ISO[12]/IEC[13] 17024: Conformity Assessment- General Requirements for Bodies Operating Certification of Persons*; and

[11] But not limited only to training provided by the certifying organization or its affiliates.
[12] International Organization for Standardization
[13] International Electrotechnical Commission

(C) a written statement, signed by the certifying organization's representative(s) having the authority and legal responsibility for operation of the certifying organization, attesting that the certifying organization will implement its certification program in a manner meeting or exceeding the criteria in subsection (b) and consistent with the application submitted to the State Water Board.

(2) adequately address each State Water Board comment and question concerning the application, and
(3) receive a written acknowledgment from the State Water Board that the application is complete:

(d) A certifying organization, accredited by the American National Standards Institute (ANSI) in accordance with ISO/IEC 17024, which complies with subsection (b), will be considered to be a State Water Board-recognized certifying organization. Beginning three years after the effective date of the CCCPH, only those specialists with a valid certification from an ANSI-accredited certifying organization shall satisfy subsection (a) and certifications obtained by organizations in accordance with subsection (c) will be invalid.

(e) This Article does not preclude a local health agency from maintaining a cross-connection control specialist certification program for specialists within the local health agency's jurisdiction. Using a specialist certified by a local health agency does not relieve a PWS from meeting the requirements of this Article.

(f) This Article does not preclude a PWS from disallowing the use of an individual cross-connection control specialist certified pursuant to this Article if the PWS has reason to believe a certified specialist may not be proficient in their knowledge of cross-connection control and the causes, effects, and prevention of backflow, or for any other reason (e.g., fraud, deceit, negligence, misconduct, etc.). A PWS must report any evidence of a specialist falsifying reports to that specialist's certifying organization.

(g) This Article is effective July 1, 2025.

Article 5 – Recordkeeping, Backflow Incident Response, and Notification

3.5.1 Recordkeeping

(a) Each PWS must maintain the following records:

(1) The two most recent hazard assessments for each user premise, conducted pursuant to CCCPH section 3.2.1 (Hazard Assessment);
(2) for each BPA, the associated hazard or application, location, owner, type, manufacturer and model, size, installation date, and serial number;
(3) for each AG installation, the associated hazard or application and the location, owner, and as-built plans of the AG;
(4) results of all BPA field testing, AG inspection, and swivel-ell inspections and field tests for the previous three calendar years, including the name, test date, repair date, and certification number of the backflow prevention assembly tester for each BPA field test and AG and swivel-ell;
(5) repairs made to, or replacement or relocation of, BPAs for the previous three calendar years;
(6) the most current cross-connection tests (e.g. shutdown test, dye test);
(7) if a user supervisor is designated for a user premise, the current contact information for the user supervisor and water user, and any applicable training and qualifications as described by CCCPH section 3.2.2(f);
(8) descriptions and follow-up actions related to all backflow incidents;
(9) if any portion of the cross-connection control program is carried out under contract or agreement, a copy of the current contract or agreement;
(10) the current Cross-Connection Control Plan as required in CCCPH section 3.1.4.; and
(11) any public outreach or education materials issued as required in CCCPH section 3.1.3.(a)(9) for the previous three calendar years.

(b) All information in subsection (a) must be available to the State Water Board upon request.

3.5.2 Backflow Incident Response Procedure

Each PWS must include backflow incident response procedures in the Cross-Connection Control Plan required in CCCPH section 3.1.4. The PWS must describe its procedures for investigating and responding to suspected backflow incidents including, but not limited to, the following:

(a) Consideration of complaints or reports of changes in water quality as possible incidents of backflow;

(b) Water quality sampling and pressure recording; and

(c) Documentation of the investigation, and any response and follow-up activities.

3.5.3 Backflow Incident Notification

(a) Each PWS must notify the State Water Board and local health agencies of any known or suspected incident of backflow within 24 hours of the determination. If required by the State Water Board, a PWS must issue a Tier 1 public notification pursuant to CCR, Title 22, Section 64463.1.

(b) If required by the State Water Board, the PWS must submit, by a date specified by the State Water Board, a written incident report describing the details and affected area of the backflow incident, the actions taken by the PWS in response to the backflow incident, and the follow up actions to prevent future backflow incidents. The written report must contain, at a minimum, the information requested in Appendix F.

This page intentionally left blank

Appendix

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

This page intentionally left blank

Appendix A

Assembly Bill 1671 (2017, Chapter 533)
Assembly Bill 1180 (2019, Chapter 455)

This page intentionally left blank

PLACEHOLDER – ADD PDFs HERE OF AB 1671 (3 PAGES) AND AB 1180 (3 PAGES) AND DELETE THIS PAGE. NEXT PAGE INTENTIONALLY BLANK.

This page intentionally left blank

Appendix B

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

This page intentionally left blank

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 Fixtures[4]

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	1 1/2
Effective openings[3] not greater than ¾ of an inch in diameter	1 1/2	2 1/4
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).

This page intentionally left blank

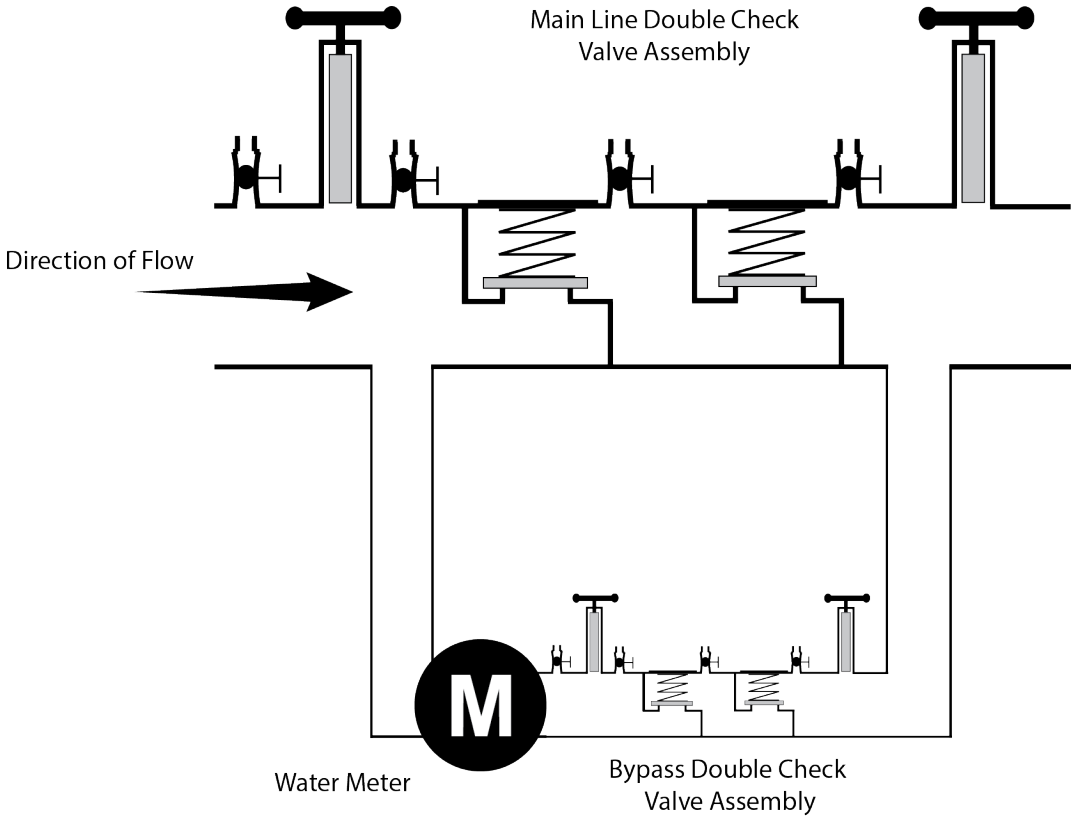
Appendix C

Backflow Prevention Assembly Diagrams

This page intentionally left blank

Appendix C

Diagram 1
Double check detector backflow prevention assembly[1]

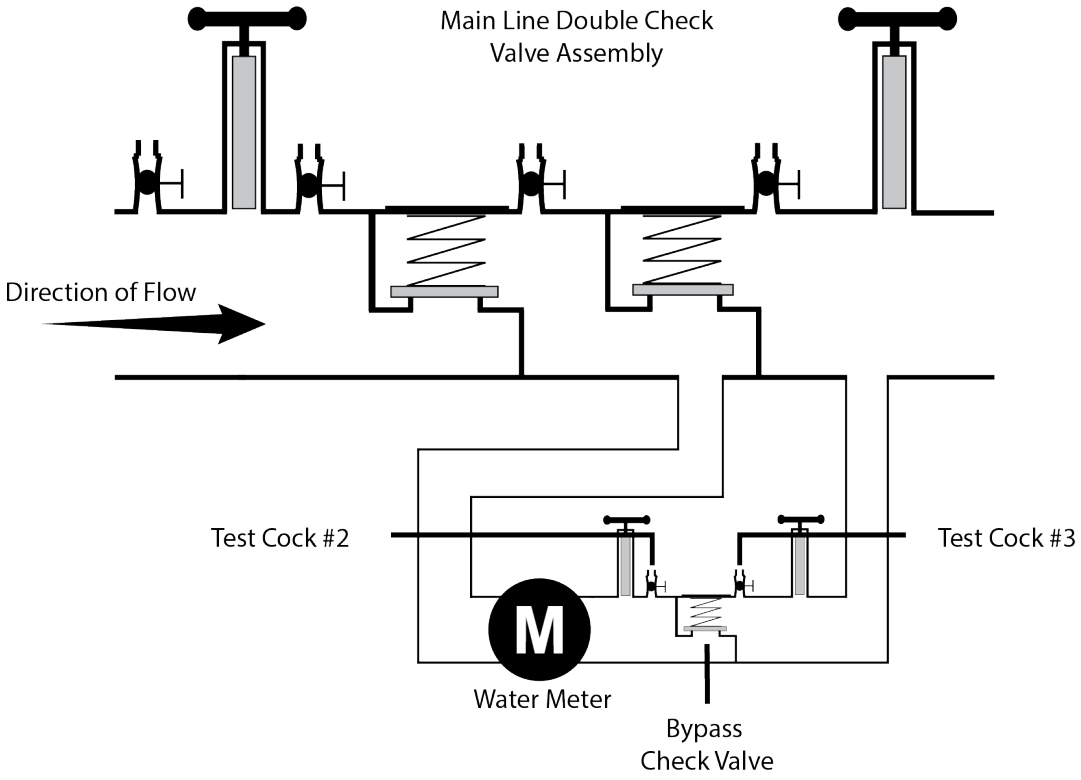


[1] © 2023 University of Southern California. Used with permission.

Appendix C

Diagram 2

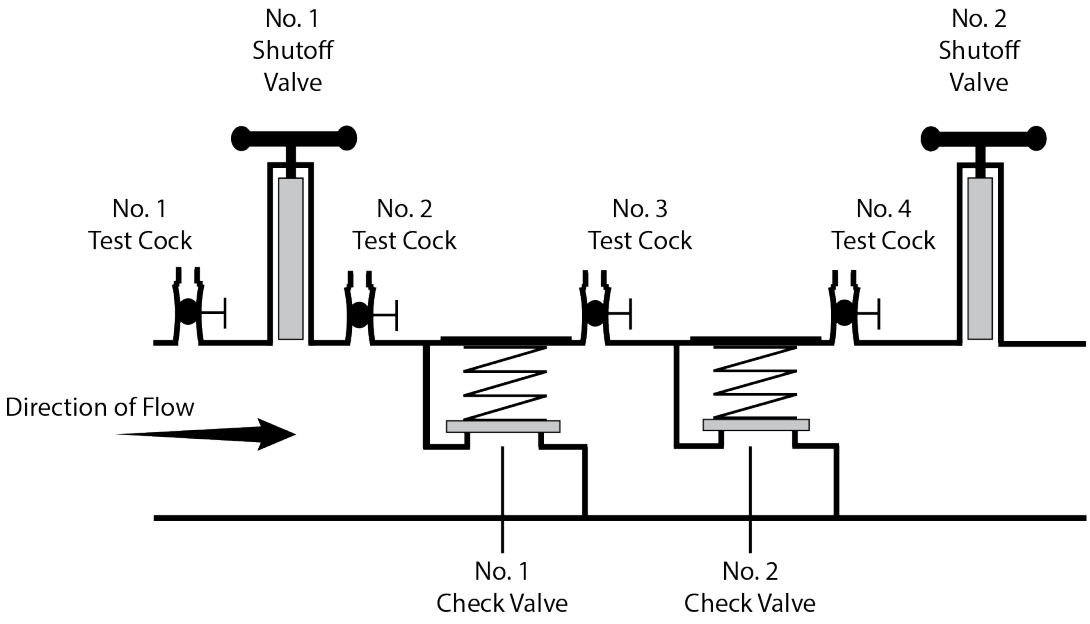
Double check detector backflow prevention assembly – type II [2]



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

Appendix C

Diagram 3
Double check valve backflow prevention assembly[3]

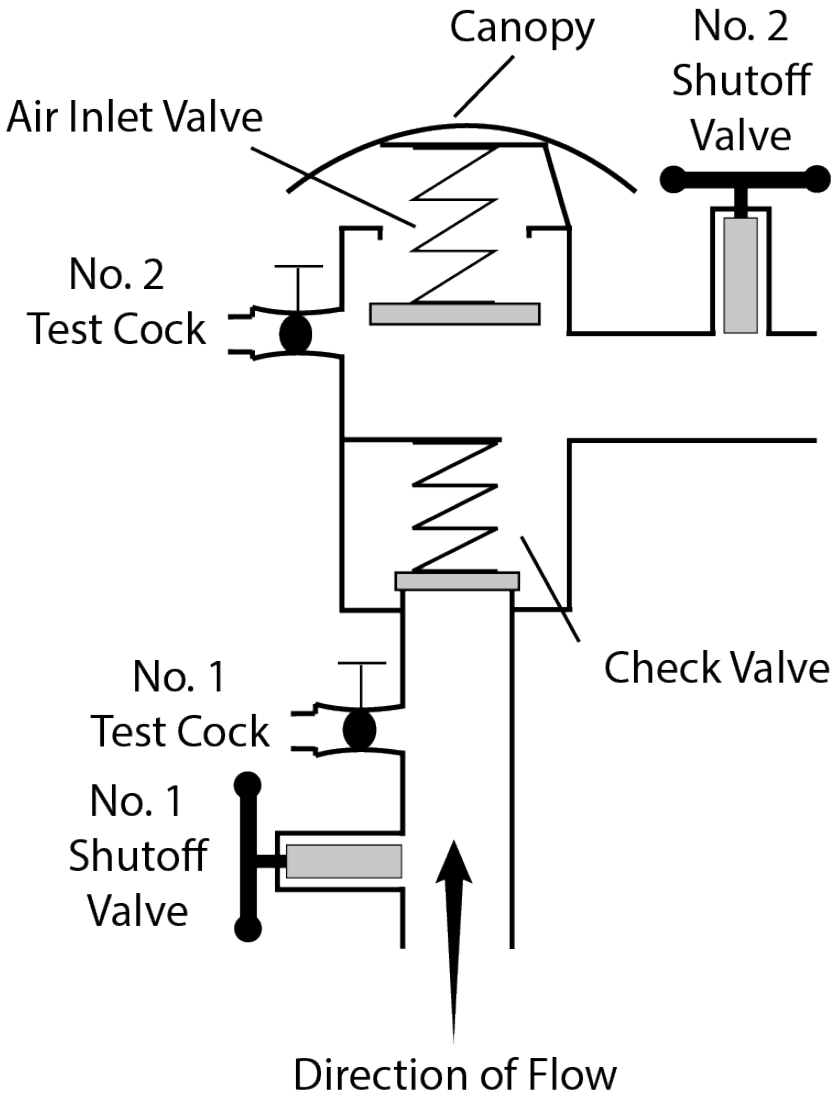


[3] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 4

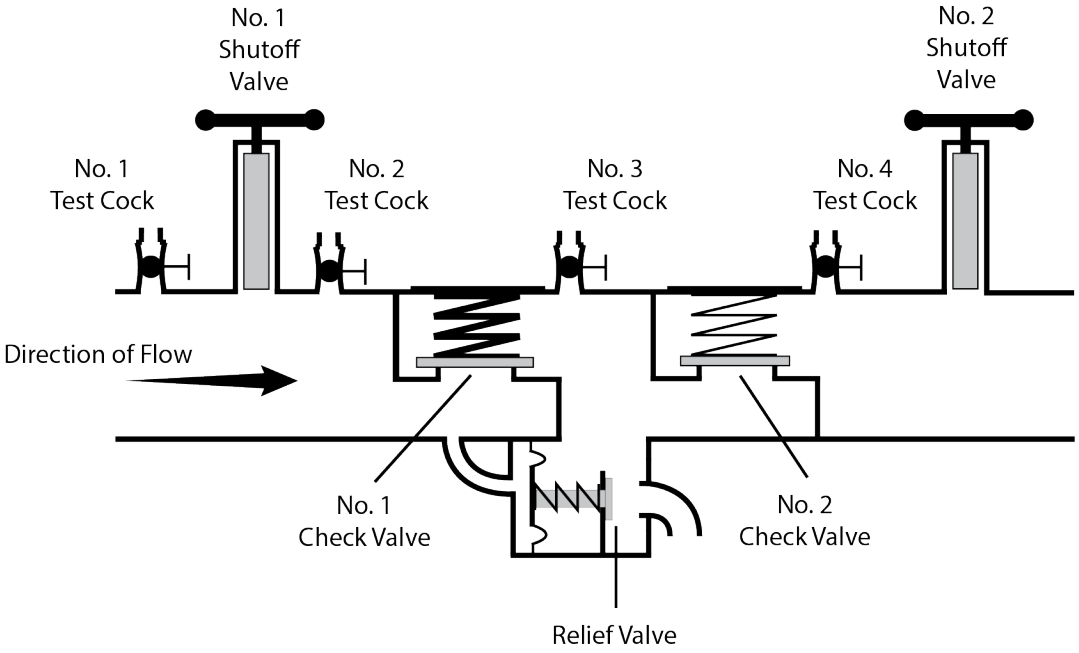
Pressure vacuum breaker backsiphonage prevention assembly [4]



[4] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 5
Reduced pressure principle backflow prevention assembly [5]

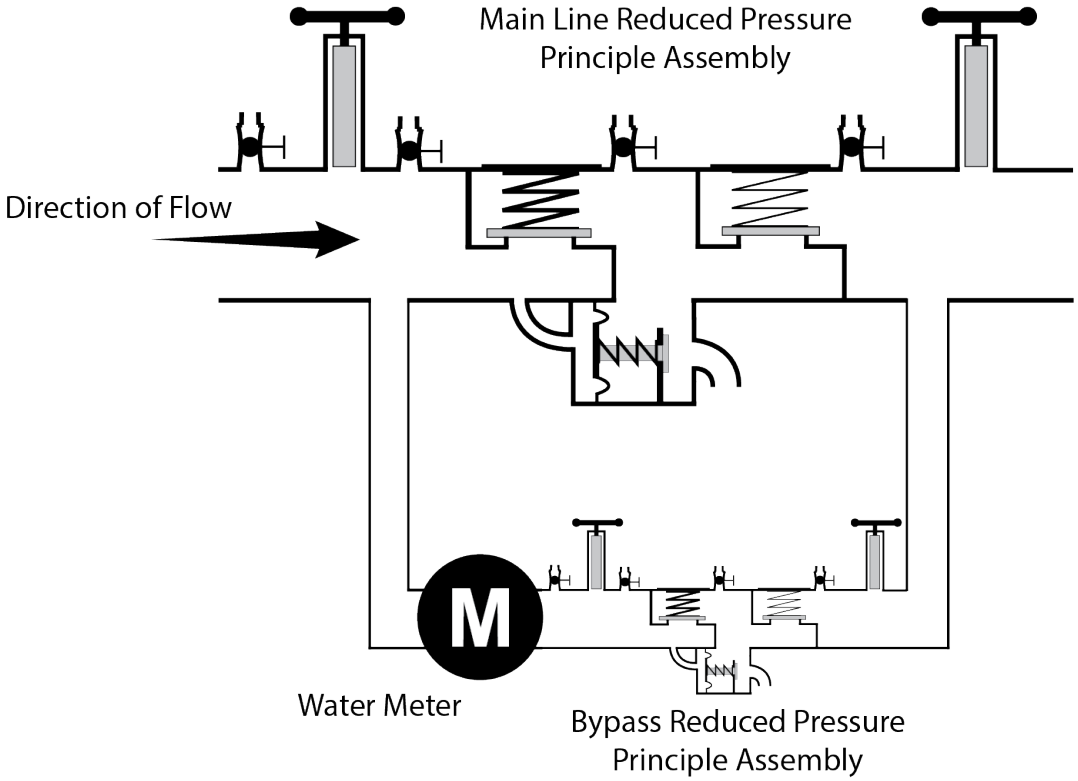


[5] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 6

Reduced pressure principle detector backflow prevention assembly [6]

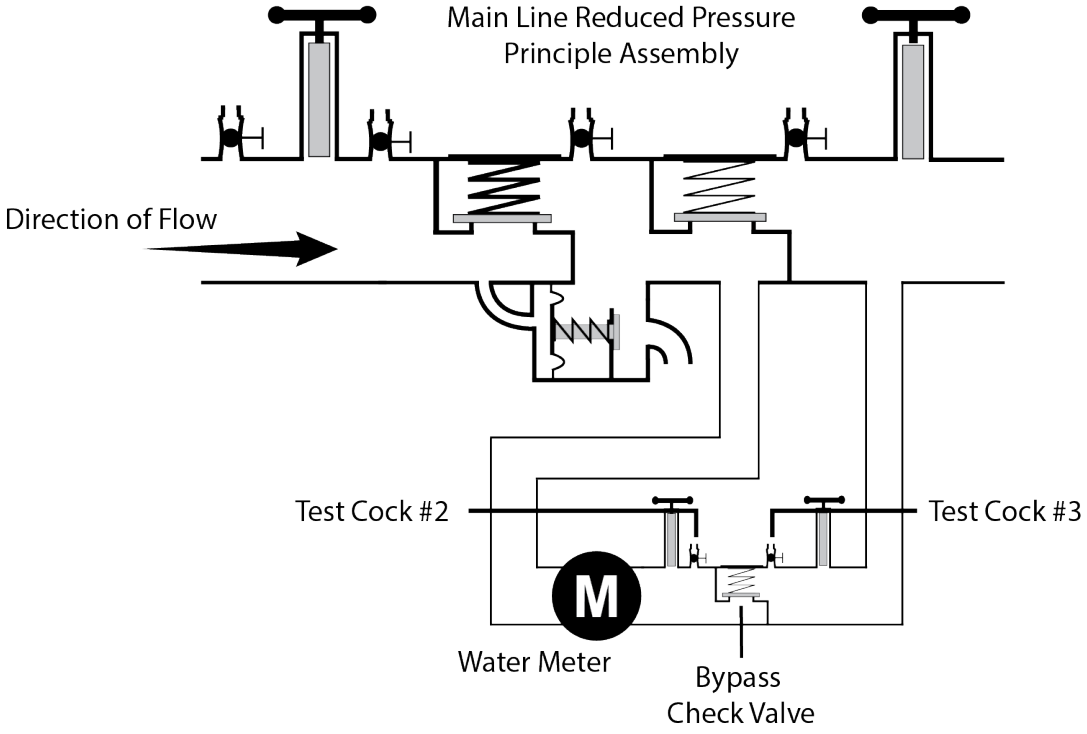


[6] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 7

Reduced pressure principle detector backflow prevention assembly – type II [7]

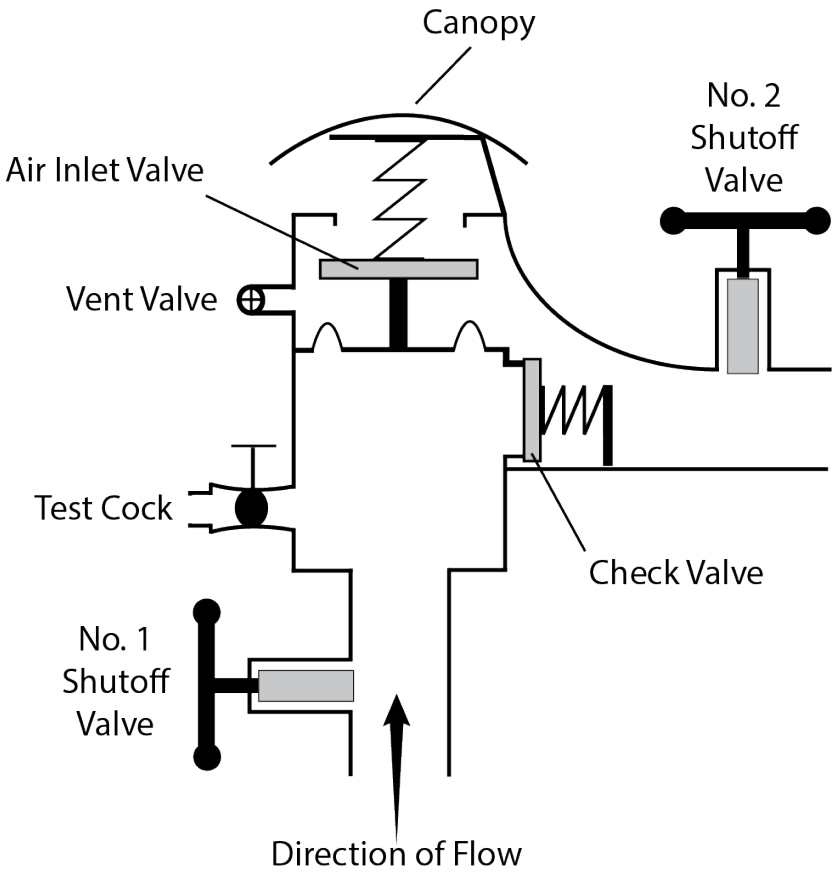


[7] © 2023 University of Southern California. Used with permission

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.

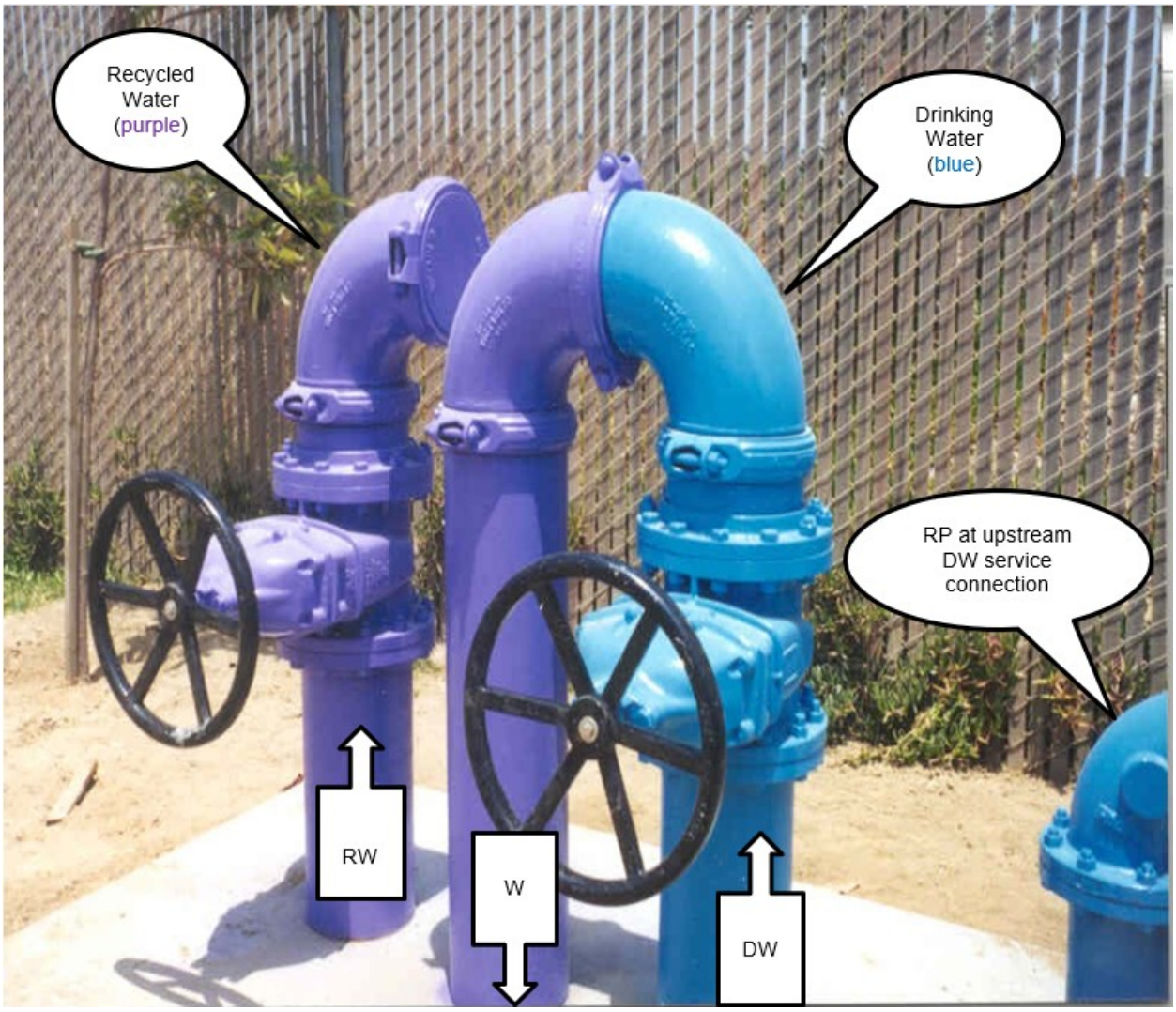
F. The swivel-ell must:

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)

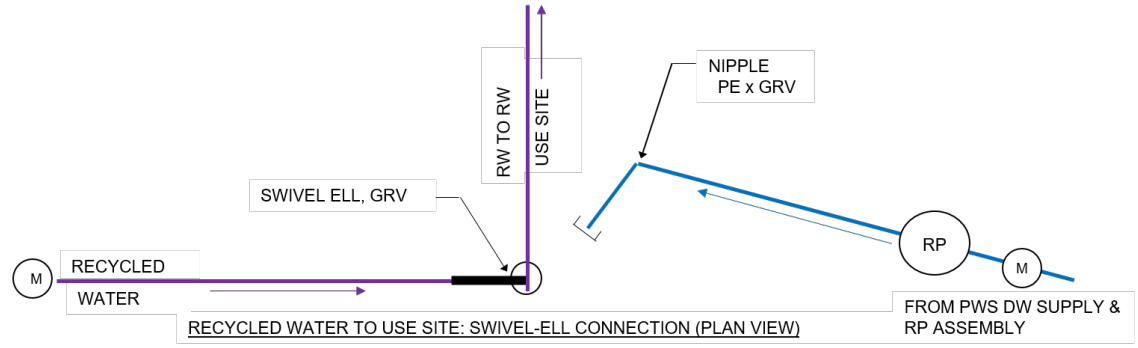
RP = Reduced pressure principle backflow prevention assembly
RW = Tertiary-treated recycled water originating from wastewater treatment facility
DW = Drinking water originating from a public water system
W = Water (tertiary recycled water **or** drinking water) to use site. As pictured, configured for 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-Ell Pictorial (also see Plan View Schematics)

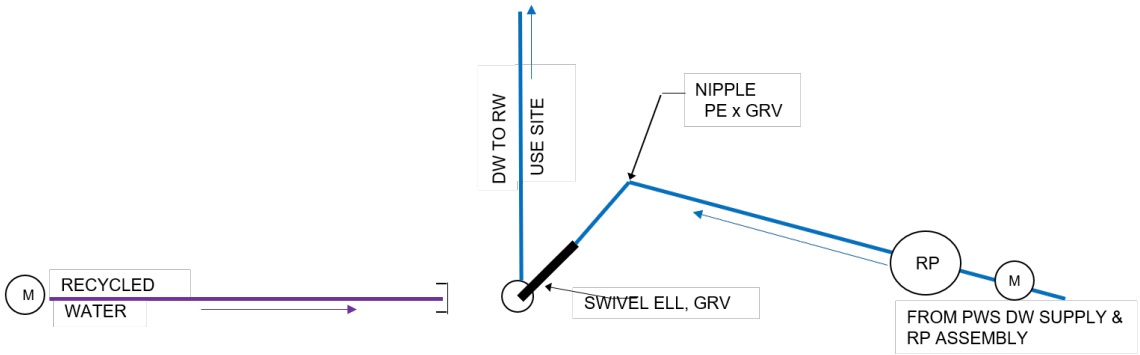


Note: The RP, a required component of an acceptable swivel-ell, is not shown in the picture.

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



RECYCLED WATER TO USE SITE: SWIVEL-ELL CONNECTION (PLAN VIEW)



POTABLE WATER TO USE SITE: SWIVEL-ELL CONNECTION (PLAN VIEW)

This page intentionally left blank

Appendix D

High Hazard Premises

This page intentionally left blank

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

This page intentionally left blank

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.

This page intentionally left blank

Appendix F

Example Backflow Incident Reporting Form

This page intentionally left blank

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

This page intentionally left blank

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 assembly[1] (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

[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.

of buildings in California and includes the 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 Board[3] 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

---

[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.

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. (Wat. Code section 13578(b)(1). The final report[4] 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

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

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 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 B

Jurisdictional Boundaries of Coastside CWD

Figure 1-1. Jurisdictional Boundaries of Coastside CWD

Appendix C

Ordinance

Not included with this submittal. To be included with Final.

Appendix D

Cross-Connection Control Survey Form Template

Cross Connection Control Survey Form

Date of Survey _____

Name of Surveyor _____

Coastside County Water District
766 Main Street, Half Moon Bay, CA 94019
www.coastsidewater.org | (650) 726-4405

Service Address	
Water Customer	
Billing Address	
Meter Number ID	
Type of Business(s)	
Contact Name	
Phone Number	
Contact Email	

APN	
Property Owner	
Mailing Address	
Contact Name	
Phone Number	
Contact Email	

Alternate Water Supply On-Site					
	Groundwater/Well	**Recycled Water**	**Grey Water**	**Surface Water**	**Other**
Description					

Service Connection - Existing Protection						
Service Type	**Meter Size**	**RP**	**DC**	**AG**	**None**	**Comments**
Domestic						
Fire						
Irrigation						
Portable						

Service Connection - Required Protection						
Service Type	**Meter Size**	**RP**	**DC**	**AG**	**None**	**Comments**
Domestic						
Fire						
Irrigation						
Portable						

Scheduled Compliance Date	

This space provided to plot property, water service location and backflow device location.

Appendix E

Cross-Connection Control Program Organization Chart

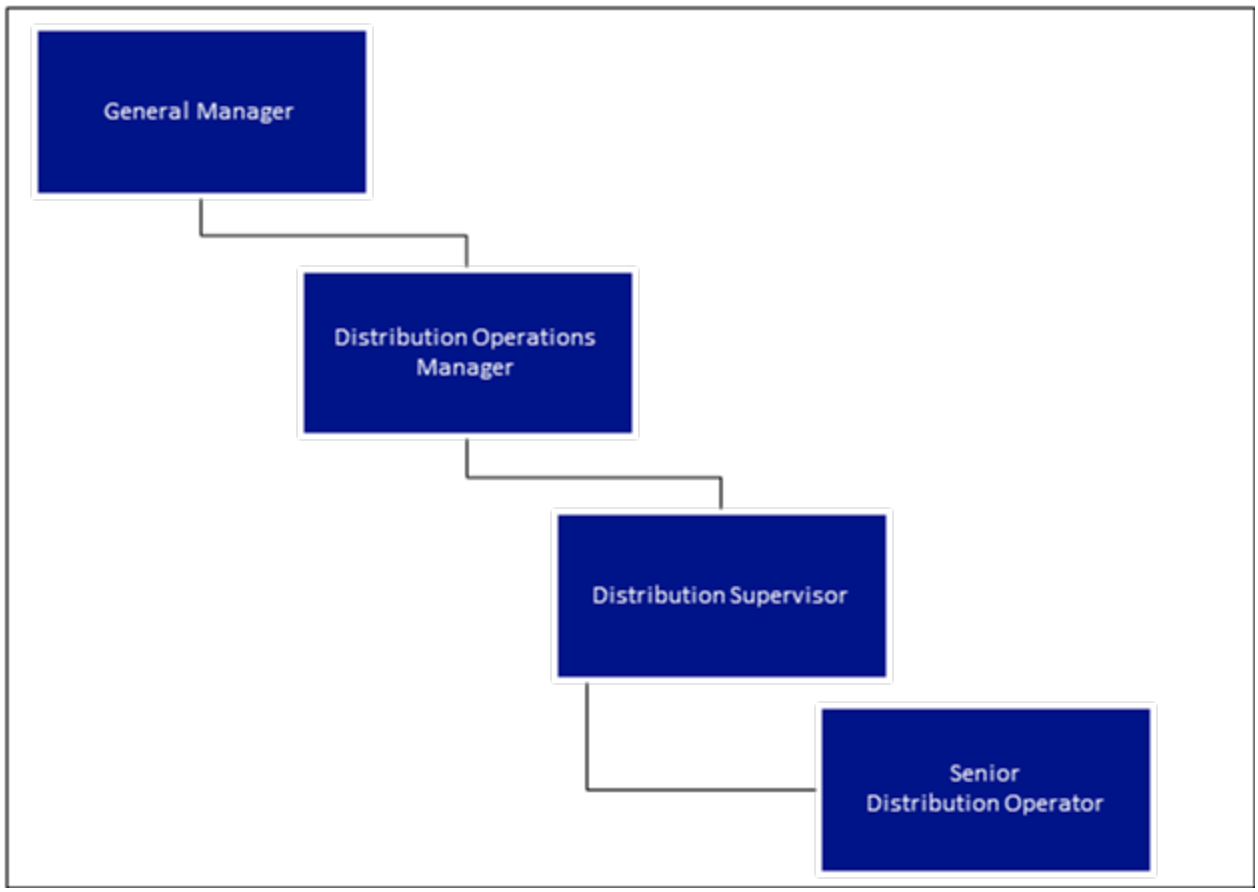


Figure 3-1. Cross Connection Control Program Organization Chart

Appendix F

Backflow Prevention Assembly Test Report

BACKFLOW PREVENTION ASSEMBLY TEST REPORT

Coastside County Water District

Assembly ID						
Acct Number		Meter		Test Report Due:		
Service Address				Schedule Code		
				Assembly Info	(Replacement/Correction)	
Assy Location				SN ☐		
Tap Number		Protection		Mfr ☐		
Contact Name		Ph		Type ☐		
Map Page		#2		Size ☐		
				Model ☐		
				Install Date		
				Permit Num		
☐ Confinement	☐ Freeze Protection	Hazard Type		Haz. Level		

Line pressure at time of test: _____ **REPORT OF TEST RESULTS** ☐ Approved BFP

	Check Valve #1	Check Valve #2	Relief Valve	PVB/SVB	Shut Off Valves	#1	#2
Initial Test	☐ Held at _____ PSID	☐ Held at _____ PSID	☐ Opened at _____ PSID	☐ Air Inlet Opened at _____ PSID			
Pass	☐ Closed Tight	☐ Closed Tight		☐ Did not Open	Closed Tight	☐	☐
Fail	☐ Leaked	☐ Leaked	☐ Did Not Open	☐ Check Held at _____ PSID	Leaked	☐	☐
				☐ Leaked			
REPAIR	☐ CLEANED	☐ CLEANED	☐ CLEANED	☐ CLEANED	CLEANED	☐	☐
	REPLACED	REPLACED	REPLACED	REPLACED	REPLACED	☐	☐
	☐ Disc	☐ Disc	☐ Disc	☐ Air Inlet Disc	REPAIR	☐	☐
	☐ Spring	☐ Spring	☐ Spring	☐ Airl Inlet Spring			
	☐ Guide	☐ Guide	☐ Diaphragm	☐ Check Disc			
	☐ Seat	☐ Seat	☐ Seat	☐ Check Spring			
	☐ O-Ring(s)	☐ O-Ring(s)	☐ O-Ring(s)	☐ Float			
	☐ Module	☐ Module	☐ Module	☐ Diaphragm			
	☐ Rubber Kit	☐ Rubber Kit	☐ Rubber Kit	☐ Rubber Kit			
	☐ _____	☐ _____	☐ _____	☐ _____	Other	☐	☐

Other/Notes: _____ ☐ USC 10th Edit.

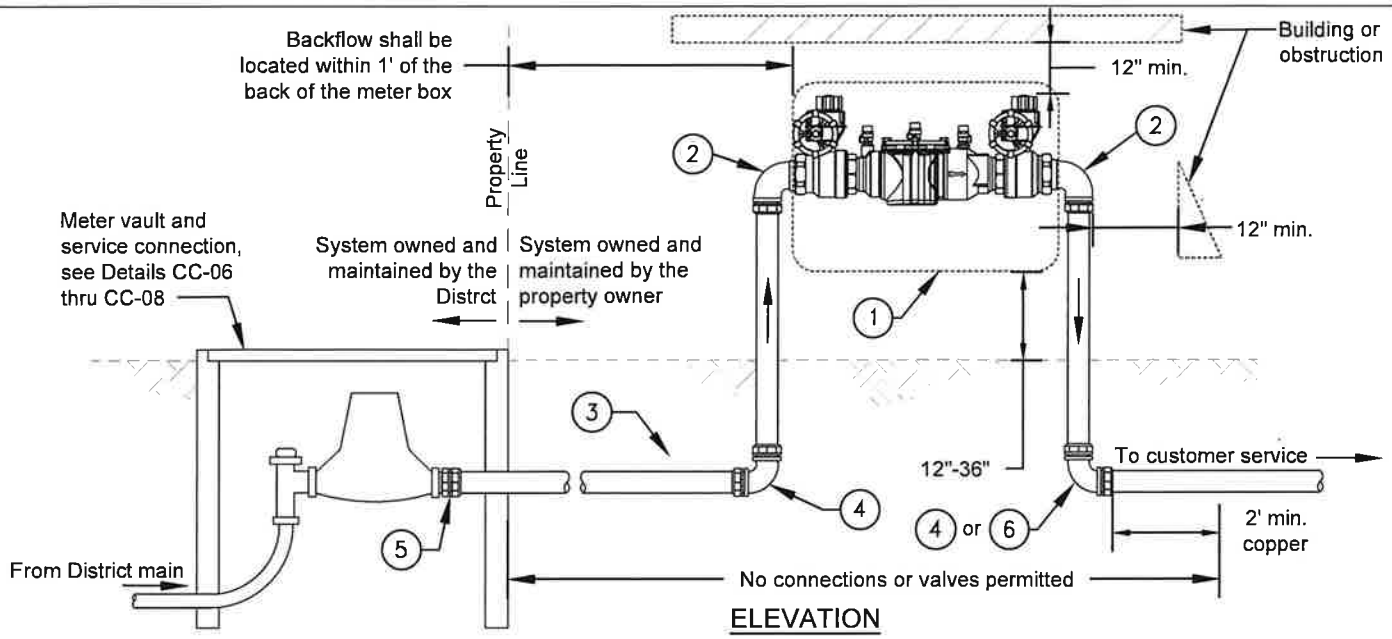
Final Test	_____ PSID	_____ PSID	☐ Opened at	Air Inlet _____ PSID	Closed Tight	☐ ☐
	☐ Closed Tight	☐ Closed Tight	_____ PSID	CK Valve _____ PSID	**Pass**	☐

THE ABOVE REPORT IS CERTIFIED TO BE TRUE: 1A

Initial Test By	Certificate	Date:	Gauge Num	Time In	Time Out	Company	Phone
Final Test By							
Repair By							

Appendix G

Backflow Prevention Assembly Standard Drawings



LEGEND

(1) U.S.C. approved double check/reduced pressure backflow assembly. Assembly shall be "Lead Free" and the entire assembly including isolation valve and test cocks shall be provided as a complete unit.

(2) Brass 90° bends, Mueller H-15531N.

(3) Utility sand shall be placed 2" below and 6" above copper line. Backfill and compact remaining section per applicable District details and specifications.

(4) Mueller 110 compression connection H-15526N.

(5) For ⅝", ¾", and 1" customer services, use Mueller 110 compression connection H-10871N. For 1½" and 2" services, use brass meter flange (low lead) with Mueller 110 compression connection H-10129N.

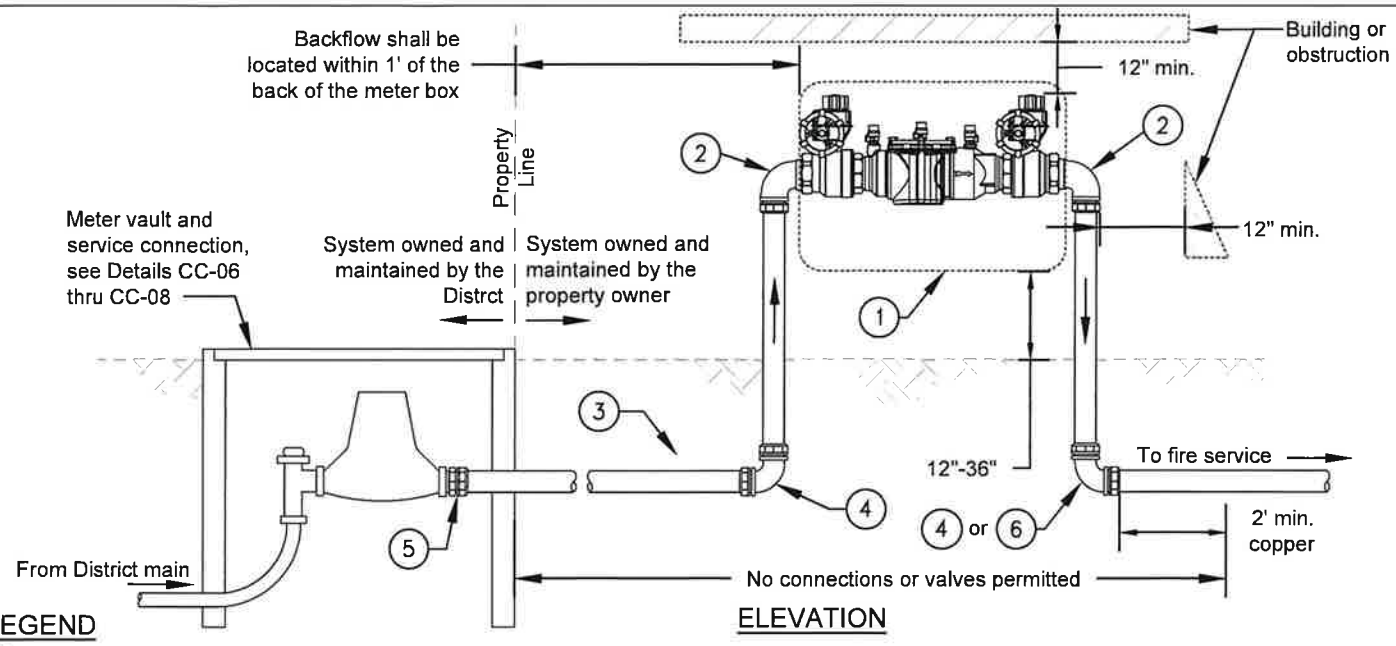
(6) Mueller 110 compression connection H-15533N on the customer's side, if applicable.

REQUIREMENTS

1. A backflow prevention assembly must be installed on service connections that have auxilary water supply, a cross-connection, or a risk of backflow, contamination, or cross-connection. The type of backflow assembly required shall be determined by the District.
2. All backflow assemblies shall be installed on the customer's property adjacent to the meter. Pressure reducing valves on the District pipelines will not be permitted.
3. Contractor shall furnish all labor, equipment, and material to connect water service to the customer line.
4. Installation as required by the District's backflow requirements, the California State Water Resources Control Board's Cross-Connection Control Policy Handbook, California Plumbing Code, and Title 22 of the California Code of Regulations.
5. Installation shall comply with the latest plumbing codes and applicable local agency requirements. Check with local building department if a permit is required.
6. Vertical installations are allowed with District approval prior to design and installation.
7. Backflow prevention assembly may be protected by an enclosure that provides the minimum clearance around the assembly, as directed by the District.
8. Backflow prevention assembly shall be tested and certified by a District-approved tester prior to being put in service and shall not be modified following approval.
9. Maintain a minimum side clearance of 12" on all sides of the assembly and a minimum of 24" on the side of the assembly that contains the test cocks. Assembly must be accessible for testing and maintenance. Location shall be approved by the District prior to installation.

REDUCED PRESSURE OR DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY (UP TO 2")

COASTSIDE COUNTY WATER DISTRICT	COASTSIDE COUNTY WATER DISTRICT 766 MAIN STREET HALF MOON BAY, CA	Approved by: Mary Rogren, General Manager	STD. NO. CC-18



ELEVATION

LEGEND

(1) U.S.C. approved double check/reduced pressure backflow assembly. Assembly shall be "Lead Free" and the entire assembly including isolation valve and test cocks shall be provided as a complete unit. Double check valve assemblies shall be AMES Series LF2000B-FP or approved equal. Reduced pressure backflow assemblies shall be AMES Series LF4000B-FP or approved equal.

(2) Brass 90° bends, Mueller H-15531N.

(3) Utility sand shall be placed 2" below and 6" above copper line. Backfill and compact remaining section per applicable District details and specifications.

(4) Mueller 110 compression connection H-15526N.

(5) For ⅝", ¾", and 1" customer services, use Mueller 110 compression connection H-10871N. For 1½" and 2" services, use brass meter flange (low lead) with Mueller 110 compression connection H-10129N.

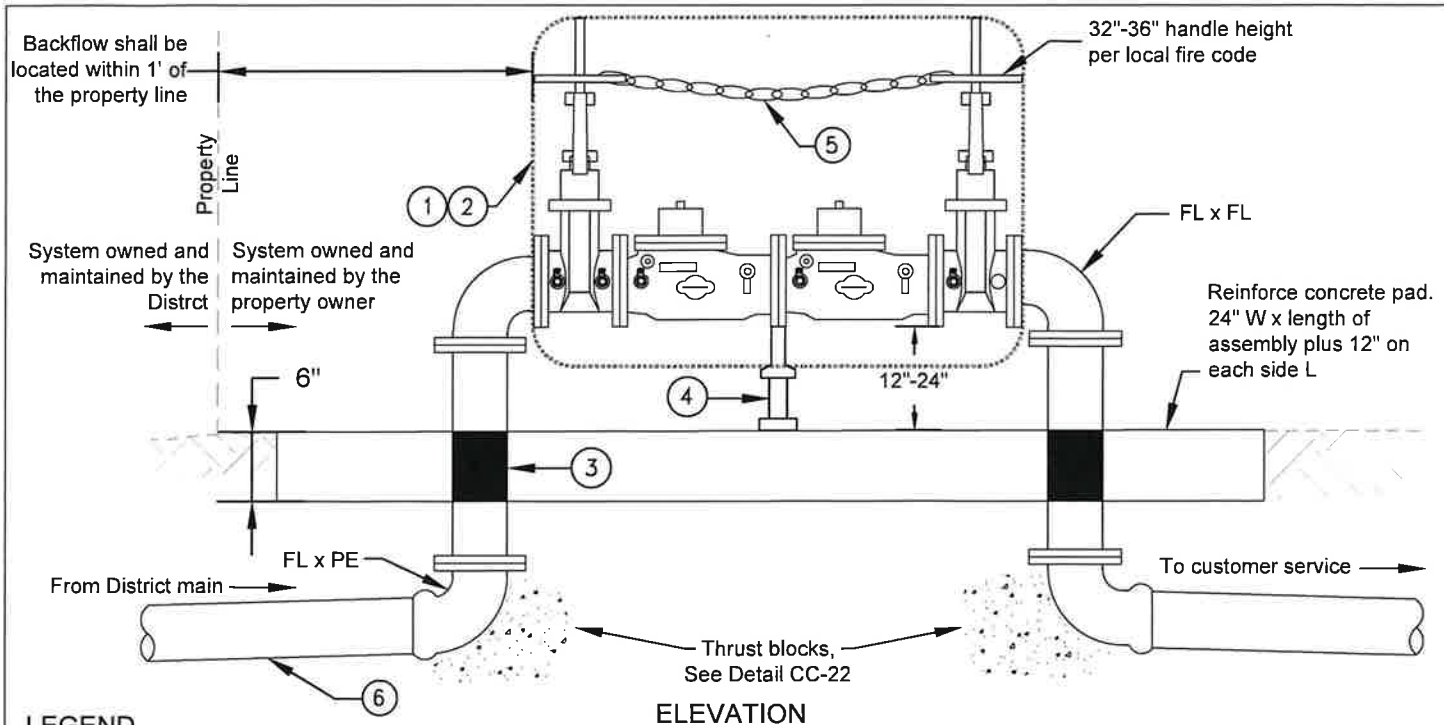
(6) Mueller 110 compression connection H-15533N on the customer's side, if applicable.

REQUIREMENTS

1. A backflow prevention assembly must be installed on all fire service connections. The type of backflow assembly required shall be determined by the District.
2. All backflow assemblies shall be installed on the customer's property adjacent to the meter. Pressure reducing valves on the District pipelines will not be permitted.
3. Contractor shall furnish all labor, equipment, and material to connect water service to the customer line.
4. Installation as required by the District's backflow requirements, the California State Water Resources Control Board's Cross-Connection Control Policy Handbook, California Plumbing Code, and Title 22 of the California Code of Regulations.
5. Installation shall comply with the latest plumbing codes and applicable local agency requirements. Check with local building department if a permit is required.
6. Vertical installations are allowed with District approval prior to design and installation.
7. Backflow prevention assembly may be protected by an enclosure that provides the minimum clearance around the assembly, as directed by the District.
8. Backflow prevention assembly shall be tested and certified by a District-approved tester prior to being put in service and shall not be modified following approval.
9. Maintain a minimum side clearance of 12" on all sides of the assembly and a minimum of 24" on the side of the assembly that contains the test cocks. Assembly must be accessible for testing and maintenance. Location shall be approved by the District prior to installation.
10. Tying into the fire sprinkler bell shall meet local fire department requirements.
11. After completion of successful testing of the assembly, the handles shall be removed and stored in the fire sprinkler spare head box.

FIRE SERVICE REDUCED PRESSURE OR DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY (UP TO 2")

COASTSIDE COUNTY WATER DISTRICT	COASTSIDE COUNTY WATER DISTRICT 766 MAIN STREET HALF MOON BAY, CA	Approved by: Mary Rogren, General Manager	STD. NO. CC-18A



ELEVATION

LEGEND

(1) U.S.C. approved double check/reduced pressure backflow assembly. Assembly shall be "Lead Free" and the entire assembly including isolation valve and test cocks shall be provided as a complete unit.

(2) OS&Y shutoff valves as required by the local fire department.

(3) CALPICO VI-10 protective tape or equal.

(4) Backflow prevention assemblies 8" and larger shall be supported by galvanized adjustable pipe support, Grinell Fig. 264, Elcen Fid 40, or approved equal. Support shall be galvanized after fabrication.

(5) ½" stainless steel chain with minimum slack.

(6) Pipe, backfill, and compaction per applicable District details and specifications.

REQUIREMENTS

1. A backflow prevention assembly must be installed on service connections that have auxilary water supply, a cross-connection, or a risk of backflow, contamination, or cross-connection. The type of backflow assembly required shall be determined by the District.
2. Installation as required by the District's backflow requirements, the California State Water Resources Control Board's Cross-Connection Control Policy Handbook, and Title 22 of the California Code of Regulations.
3. Installation shall comply with the latest plumbing codes and applicable local agency requirements. Check with local building department if a permit is required.
4. Vertical installations as well as setters are allowed with District approval prior to design and installation.
5. Backflow prevention assembly may be protected by bollards/guard posts when located near traffic areas, as directed by the District.
6. Backflow prevention assembly may be protected by an enclosure that provides the minimum clearance around the assembly, as directed by the District.
7. Backflow prevention assembly shall be tested and certified by a District-approved tester prior to being put in service and shall not be modified following approval.
8. All backflow assemblies shall be installed on the customer's property. The appropriate easements must be dedicated to the District prior to plan approval.
9. Maintain a minimum side clearance of 12" on all sides of the backflow prevention assembly and a minimum of 24" on the side of the assembly that contains the test cocks. Assembly must be accessible for testing and maintenance. Location shall be approved by the District prior to installation.

REDUCED PRESSURE OR DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY (2.5" AND LARGER)

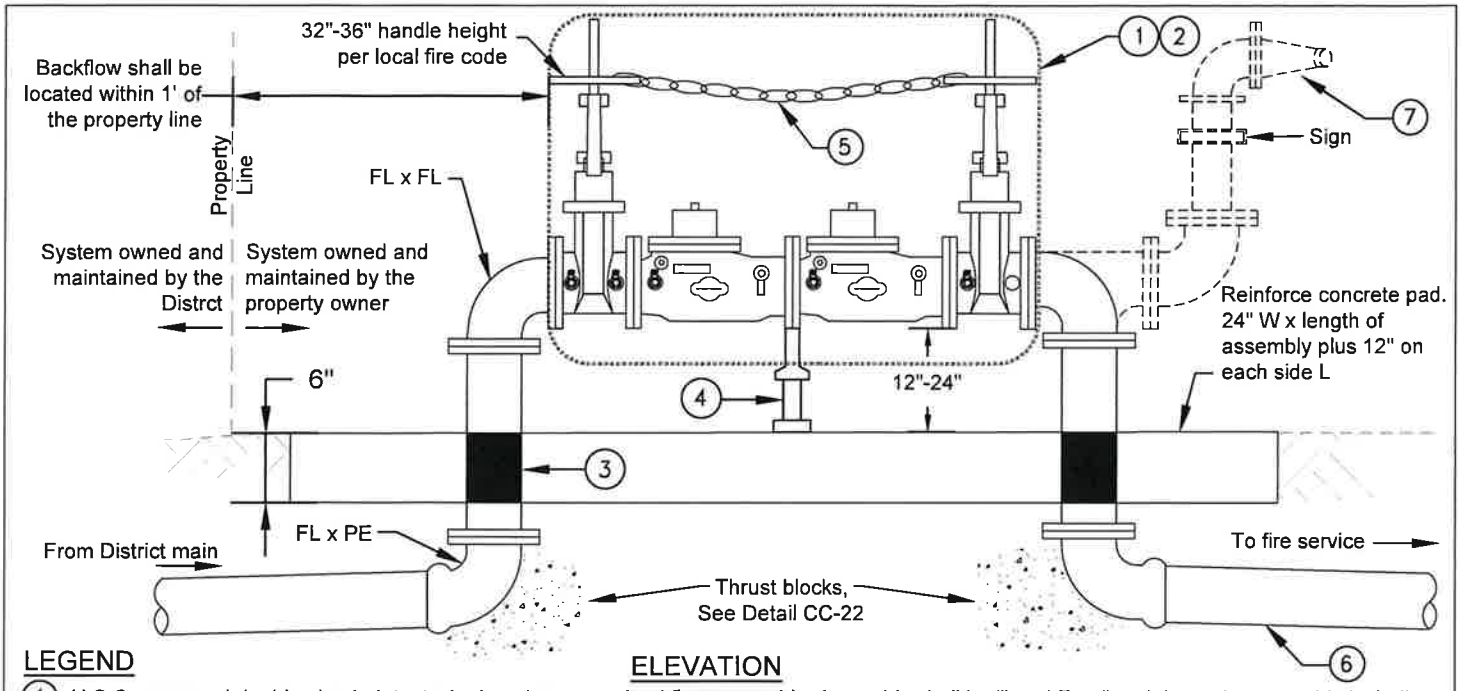
COASTSIDE COUNTY WATER DISTRICT
766 MAIN STREET
HALF MOON BAY, CA

Approved by:

Mary Rogren, General Manager

STD. NO.

CC-20



ELEVATION

LEGEND

1. U.S.C. approved double check detector/reduced pressure backflow assembly. Assembly shall be "Lead Free" and the entire assembly including isolation valve and test cocks shall be provided as a complete unit.
2. OS&Y shutoff valves as required by the local fire department.
3. CALPICO VI-10 protective tape or equal.
4. Backflow prevention assemblies 8" and larger shall be supported by galvanized adjustable pipe support, Grinell Fig. 264, Elcen Fid 40, or approved equal. Support shall be galvanized after fabrication.
5. ½" stainless steel chain with minimum slack.
6. Pipe, backfill, and compaction per applicable District details and specifications.
7. Optional: Siamese fire department connection with individual clapper valves and brass plugs with chains.

REQUIREMENTS

1. A backflow prevention assembly must be installed on all fire service connections. The type of backflow assembly required shall be determined by the District.
2. Installation as required by the District's backflow requirements, the California State Water Resources Control Board's Cross-Connection Control Policy Handbook, and Title 22 of the California Code of Regulations.
3. Installation shall comply with the latest plumbing codes and applicable local agency requirements. Check with local building department if a permit is required.
4. Vertical installations as well as setters are allowed with District approval prior to design and installation.
5. Backflow prevention assembly may be protected by bollards/guard posts when located near traffic areas, as directed by the District.
6. Backflow prevention assembly may be protected by an enclosure that provides the minimum clearance around the assembly, as directed by the District.
7. Backflow prevention assembly shall be tested and certified by a District-approved tester prior to being put in service and shall not be modified following approval.
8. All backflow assemblies shall be installed on the customer's property. The appropriate easements must be dedicated to the District prior to plan approval.
9. Maintain a minimum side clearance of 12" on all sides of the backflow prevention assembly and a minimum of 24" on the side of the assembly that contains the test cocks. Assembly must be accessible for testing and maintenance. Location shall be approved by the District prior to installation.
10. Tying into the fire sprinkler bell shall meet local fire department requirements.

FIRE SERVICE REDUCED PRESSURE OR DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY (2.5" AND LARGER)

COASTSIDE COUNTY WATER DISTRICT
766 MAIN STREET
HALF MOON BAY, CA

Approved by:

Mary Rogren, General Manager

STD. NO.

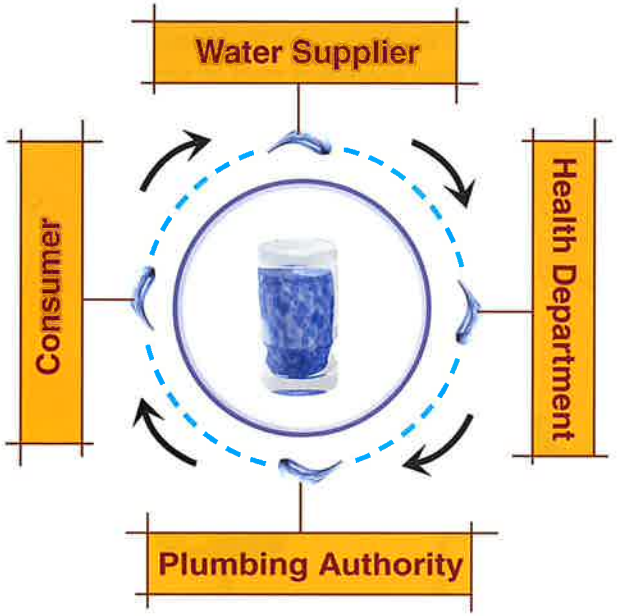
CC-20A

Appendix H

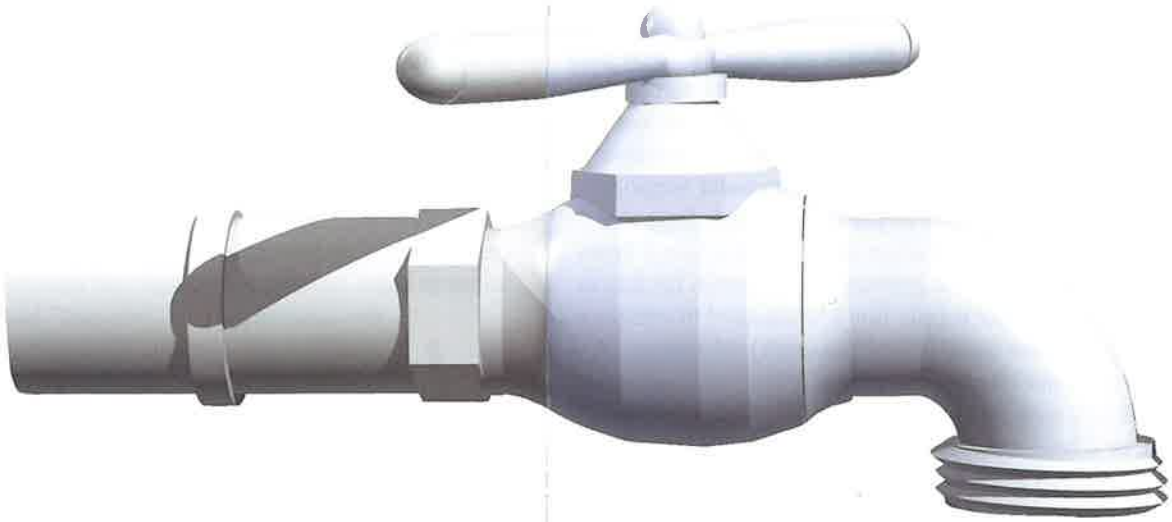
USC Brochure

With cooperation, a comprehensive cross-connection control program keeps a purified water distribution system free from objectionable impurities and health hazards.

Water suppliers across the continent take great pride in the fact that the water they deliver to the consumer is consistently pure and healthful. One reason for this is a comprehensive cross-connection control program which enables the water suppliers to protect the drinking water at any point in the distribution system.



FSC



WORKING TOGETHER FOR SAFE WATER

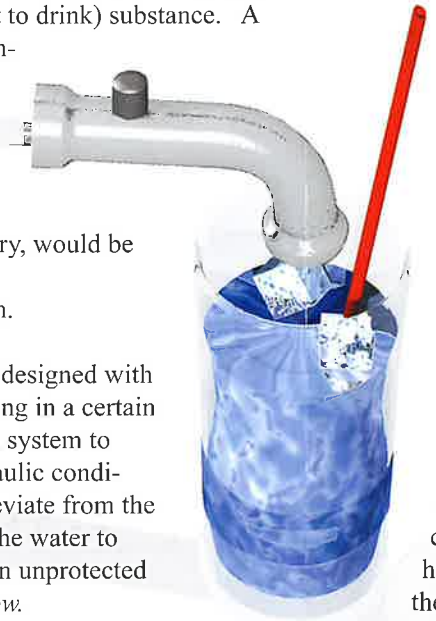
COASTSIDE COUNTY WATER DISTRICT

For More Information Contact:

Coastside County Water District
766 Main Street
Half Moon Bay, CA 94019

(650) 726-4405
backflow@coastsidewater.org

Consumers can expect the water provided to them by their water supplier to be pure and healthful. Water suppliers across the continent spend millions of dollars to purify and treat water before it is delivered to the consumer. However, many consumers are not aware that the water supplier also expends great effort to protect the water from the possibilities of contamination or pollution while it flows through the distribution system. It is possible for this to occur when a water supply line is connected to equipment containing a non-potable (unfit to drink) substance. A make-up water line may be connected to a tank filled with acid, or a hose may drop into a bucket of cleaning solution. These connections, called *Cross-Connections*, whether they are permanent or temporary, would be dangerous if no protective measures were taken.



Water distribution systems are designed with the intention of the water flowing in a certain direction, from the distribution system to the consumer. However, hydraulic conditions within the system may deviate from the "normal" conditions, causing the water to flow in the opposite direction in unprotected systems. This is called *backflow.*

Backflow occurs when the pressure in the distribution system drops, siphoning water from the consumer's system into the distribution system. This would also siphon any substance which may be in contact with the water system through a cross-connection. This type of backflow is called *Backsiphonage* and may occur when there is an unusually high use of water or undersized piping in an area. For example, during fire fighting, or when a main water line breaks, water is "sucked" to the point of high useage, possibly drawing non-potable substances with it, filling the water line with these substances. Backsiphonage may occur through cross-connections such as a hose from a maintenance sink in mop bucket, or a below-the-rim water inlet to a tank containing a toxic solution.

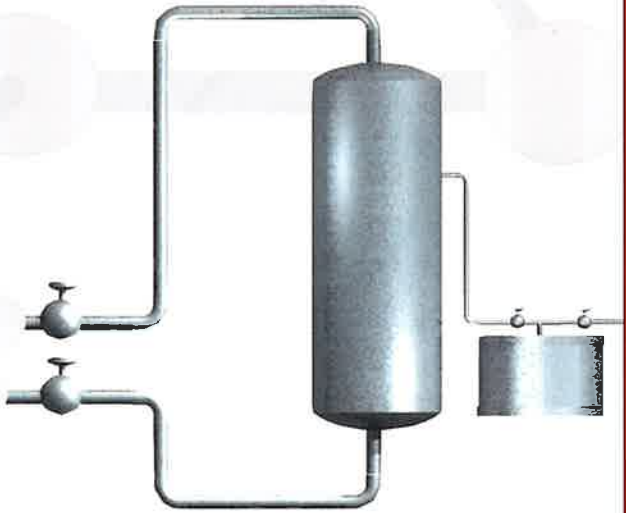
Some water customers have non-potable materials on the premises under pressure. When an unprotected water line is attached to the container or pipes holding the pressurized material, the material may be "pumped" back into the potable water system. This type of backflow is called *backpressure.* Backpressure may occur through a cross-connection such as a make-up water line which is connected to a recirculating system containing soap, acid, antifreeze or any non-potable substance.

Because of these potential dangers to the water consumer it is necessary to control cross-connections. There are several types of mechanical assemblies which serve as *Backflow Preventers.* Different types of backflow preventers are designed to work under backsiphonage or backpressure conditions. Some are acceptable for high hazard conditions while others are only acceptable for low-hazard (or non-health hazard) conditions. Most of these backflow preventers have been tested using stringent specifications in the laboratory and in the field by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. Those which successfully passed the tests have been granted Approval by the Foundation. Approved backflow preventers are extremely dependable.

Federal law requires water suppliers to protect their water systems from contamination or pollution. To do this, water suppliers diligently conduct surveys of various facilities on their systems. Through these surveys the water or health authority (which may be working in conjunction with the water agency) determines which type of backflow protection is necessary to protect the water system.

It is very important that a strong cross-connetion control program be maintained, in order to protect the purity of the drinking water. To accomplish this, the water supplier, health department, plumbing authority and consumer must work together. The water supplier and health department may carry out cross-connection control surveys, not only to determine what may be needed to protect the distribution system from contamination or pollution: but, also to determine what may be needed to protect the water system *internally.*

The consumer, on the other hand, must be aware of cross-connections and prevent them, or protect such connections with the appropriate backflow preventer. These backflow preventers must be tested at least once each year, to ensure that they are performing properly in preventing backflow. When necessary they must be repaired in order to assure proper operation.



WEST YOST

Water. Engineered.