

CROSS-CONNECTION CONTROL PLAN

JUNE 2025

PREPARED FOR:
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Introduction

The City of La Verne, established in 1887 and incorporated in 1906, is located in the foothills of the San Gabriel and Pomona Valleys and is approximately 32 miles east of Los Angeles. It is bordered by the cities of San Dimas, Pomona, Claremont, as well as portions of unincorporated Los Angeles County.

The City encompasses approximately 5,478 acres (8.56 square miles). Land use within the City includes residential, commercial, industrial, and open space designations. The City provides potable water supply for domestic, irrigation, and fire protection services to all users. The City sources most of their water supply from local groundwater, but since 1972, the City has begun importing water to meet the growing demand resulting from population growth. Local groundwater is sourced from the Pomona, Ganesha, and Live Oak Basins, while imported water is supplied through the Three Valleys Municipal Water District.

As of the end of 2024, the City of La Verne serves a total of 8,611 active service connections. (We could add in more detail and provide the # of connections per categorizes

Purpose

The purpose of the Cross-Connection Control Policy Handbook (CCCPH) is to protect the public health of those served by the City of La Verne by:

- Effectively minimizing the risk of contamination in the public water distribution system; and
- Effectively limiting the City's legal liability exposure related to backflow of any contaminants stemming from the customer's plumbing system and then affecting other customers.

Compliance Statement

The City of La Verne's Cross-Connection Control Plan (CCCP) has been developed to fully comply with the standards outlined in the California State Water Resources Control Board (SWRCB)'s Cross-Connection Control Policy Handbook (CCCPH). The program outlines the implementation procedures, personnel responsibilities, timeframes, and documentation protocols required to identify and mitigate cross-connection hazards. All program components, including hazard assessments, backflow prevention, incident response, public education, and coordination with local agencies, are managed under the oversight of a designated Cross-Connection Control Specialist and documented through a digital tracking system.





Operating Rules or Ordinances/Resolution

Under the City's Chapter 13.12 – Water Service Regulations of the La Verne Municipal Code, there are three sections related to backflow prevention and cross-connection control. These sections are:

Section 13.12.180 – Backflow Prevention – Approval – Installation

Section 13.12.190 – Bypass Connections

Section 13.12.200 – Shut-Off Valves

The City of La Verne acknowledges the requirement under Section 3.1.3(a)(1) of the CCCPH to have legal authority to take corrective actions when customers fail to comply with cross-connection control requirements, including installation, inspection, field testing, or maintenance of backflow prevention assemblies.

At the time of CCCP submission (before July 2025), the City is in the process of drafting a formal resolution to be presented to the City Council for adoption. This resolution will authorize the City to take corrective actions, including discontinuing water service or performing backflow-related work at the customer's expense, to protect the public water system from contamination or backflow incidents.

The City anticipates the resolution will be adopted in FY 2025–2026, in August 2025. Once the resolution is integrated into the La Verne Municipal Code, the City will provide documentation of its adoption to the State Water Resources Control Board upon approval. This step ensures that the City will fully comply with the CCCPH's legal authority requirement before the July 1, 2026 implementation deadline for associated enforcement provisions. The attached resolution (Appendix A) is scheduled for City council consideration on August 4, 2025 and once adopted, it will allow the City to have the authority to take corrective actions as stated within the cross connection control program.

Cross-Connection Control Program Coordinator

The following tasks will be performed by or under the direction of the City's Cross-Connection Control Program Coordinator (CCCPC):

- Developing and implementing the Program
- Establishing general policy direction and risk management decisions
- Reviewing and approving all Hazard Assessments
- Reporting, tracking, and other administrative duty oversight

The certified Specialist, or their designee, shall be able to be contacted within 1 hour in the event of a cross-connection incident.

As an alternative, or when no staff or employees are properly qualified, the City may retain a certified Specialist on contract to provide the necessary expertise and services.





Contact Details

The following designated individual is recognized as the current Cross-Connection Control Program Coordinator (CCCPC) and is employed by the City to manage the City’s CCCP. Ryan Ciotti and Ralph Hernandez have both passed their backflow courses and are signed up to take his CCC Specialist exam during FY2025-2026.

Name of CCCPC	Ryan Ciotti
Telephone Number	909-596-8749
Email Address	rciotti@cityoflaverne.org

The following identifies the current authorized designees employed by the City:

Name of Designee	Ralph Hernandez
Telephone Number	909-596-8741
Email Address	rhernandez@cityoflaverne.org

The City’s CCCP was reviewed by Tara Robinson (CA/NV AWWA CCCS #01808).

Hazard Assessments

The City of La Verne will conduct an initial hazard assessment of the user premises to evaluate any potential of hazardous backflow into the water system. The hazard assessment pursuant to CCCPH Section 3.1 must consider:

- The existence of cross-connections;
- The types and use of materials handled or potentially present on the user’s property;
- The complexity and accessibility of the piping system;
- Availability of additional water sources, pumping systems, or pressure systems;
- Conditions within the distribution system that could heighten the risk of a backflow event (such as variations in hydraulic gradients caused by main breaks or periods of high-water demand, or multiple service connections that could create flow-through situations);
- Accessibility to the user’s property;
- Any prior backflow incidents at the user’s location;
- The requirements and details outlined in the CCCPH.

Each hazard assessment must categorize the risk to the City’s distribution system as high, low, or none. It should also assess whether the current BPA offers sufficient protection according to the





identified hazard level. Some examples of high hazard cross-connection activities are found in Appendix C.

Hazard assessments conducted before the CCCPH adoption can be considered initial assessments, as long as they comply with CCCPH guidelines and are reviewed by the City of La Verne in the Cross-Connection Control Plan, as specified in CCCPH Section 3.1.4.

After the initial hazard assessment described above, the City of La Verne must conduct a hazard assessment based on the following criteria:

- a user premises changes account holder (excluding single-family residences);
- a user premises is newly or re-connected to the City’s water system;
- evidence exists of changes in the activities or materials on a customer’s premises;
- backflow from a user’s premises occurs;
- the State Water Board requests a hazard assessment of a customer’s premises;
- the City concludes an existing hazard assessment may no longer accurately represent the degree of hazard; and
- periodically (pursuant to CCCPH Section 3.1.4.).

A follow-up hazard assessment must be conducted if any changes are made to the water distribution system that could lead to a cross-connection, or if any backflow incidents occur. A cross-connection control specialist must review or carry out each initial and follow-up hazard assessment. They must provide a written finding confirming that, in their professional judgment based on cross-connection control principles, the City’s hazard assessment accurately identified all hazards, assessed the appropriate hazard levels, and recommended the necessary backflow protection.

The timeline for initial hazard assessments is provided in the table below:

Initial Assessment Task	Schedule
Assessment of City Facilities	Within 60 days
Assessment of all new connections	At time of application for water service
Identification and assessment of high-hazard premises which are listed on Appendix C of the CCCPH	Within 5 years
Identification and assessment of hazardous premises supplemental to Appendix C of the CCCPH	Within 7 years
Identification of residential connections with special plumbing facilities and/or water use on the premises	On a continuous basis





The timeline for subsequent hazard re-assessments is provided in the table below:

Initial Assessment Task	Schedule
Any services with Reduced Pressure (RP) or Air Gap (AG) installed for premises containment	If evidence exists of changes in the activities or materials on a user’s premises, if a user changes account holder, excluding residential, or if backflow from a user’s premises occurs (survey)
Commercial services protected with less than a RP for premises containment	Every 5 years and upon change in use or ownership (survey)
Residential services protected with less than a RP for premises containment	Every 4-5 years (survey)
Residential services with no known special plumbing or water use on the premises	Upon change in use, ownership, or plumbing system (questionnaire)

In addition to conducting a hazard assessment as required under Section 3.2.1 of the CCCPH, the City of La Verne will complete a Field Site Application Survey for each service connection or premises where a potential or actual cross-connection hazard is identified. This survey will document specific on-site conditions regarding field test assembly, field site information, types of installation and applicant information. The survey will be used to support and verify the findings of the hazard assessment and to guide the selection and placement of appropriate backflow prevention methods. The completed survey will be retained as part of the City’s cross-connection control records and updated as site conditions change. The completed application survey must be submitted, the field site deemed acceptable, prior to the installation of the subject BPA.

User Supervisor

Per the CCCPH Article 2, the SWRBC and City may, at their discretion, require a customer 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. The User Supervisor will be responsible for the avoidance of cross-connections during the installation, operation and maintenance of the customer’s pipelines and equipment.

Site Supervisor

The Site Supervisor represents the owner, tenant, or property manager as a liaison to the City. The Site Supervisor must have the authority to carry out any requirements of the City. It is recommended that the Site Supervisor be an employee who is permanently stationed at the use site. At a minimum, the Site Supervisor must make frequent visits to the site.

The Site Supervisor will be trained on the fluids used and backflow protection for the premise, must inform the City of changes in piping, and maintain current contact information on file with the City. The designated Site Supervisor must attend a Site Supervisor Certification Workshop, provided by the City and:

- Are responsible for the operation, maintenance, and prevention of potential cross connections to the potable water system
- Must be present at all hazard assessments and cross-connection control surveys





- Must inform the City of any cross-connection incidents
- Are expected to know the provisions contained in the SWRBC's CCCPH
- Are expected to know the basic concepts of backflow and cross-connection prevention, and emergency response procedures
- Are responsible for training personnel at the site on the proper protection of the potable water system

Backflow Prevention

The City of La Verne is responsible for preventing or managing actual and potential cross-connections by implementing approved backflow prevention assemblies (BPAs) or AGs, in accordance with the guidelines set forth in Article 3 of the State Water Resources Control Board's *Cross-Connection Control Policy Handbook: Standards and Principles for California's Public Water Systems* (CCCPH).

The City of La Verne utilizes the USC Foundation for Cross-Connection Control to approve all backflow prevention assemblies. Each device undergoes and successfully completes both laboratory and field evaluations as part of the USC Foundation's Approval Program. Approved backflow prevention assemblies remain valid for three years, after which they must be renewed.

BPAs must remain unaltered and unchanged after receiving approval from the USC Foundation for Cross-Connection Control. The City of La Verne must require BPA testers to inform them if any water user or City of La Verne-owned BPA has been modified.

Backflow Protection Required

The City of La Verne must protect its distribution system from backflow by ensuring that approved BPA are properly installed, maintained, and field-tested by qualified personnel. When a double check valve (DC) is required or referenced in the CCCPH, a double check detector assembly (DCDA or DCDA-II) may be used if appropriate. Similarly, if a RP assembly is required, a reduced pressure detector assembly (RPDA or RPDA-II) may be substituted if suitable. The BPA installed must provide a level of protection that matches the degree of hazard at the user premises, as determined by a hazard assessment conducted in accordance with CCCPH Section 3.2.1.

Unless otherwise specified, the City of La Verne must use an AG or RP for premises containment to protect against high-hazard cross-connections. With State Water Board approval, the City may implement an alternative containment method in place of an AG if it does not increase public health risks. Internal protection may also be accepted when premises containment is not feasible, provided it is approved by the State.

All customers requiring backflow prevention must ensure that the required premises containment meets the following conditions:

- The backflow prevention assembly must be purchased and installed by the customer (at the customer's expense) immediately downstream of the water meter, in full compliance with the City's standards.





- The assembly must be properly maintained, tested, and inspected in accordance with the City's requirements outlined in this plan.

The City recognizes the Fire Department's authority over fire protection systems and will not override its decisions unless a customer's fire protection system is specifically designed to accommodate the pressure drop associated with a RP device. Since fire protection systems are approved and regulated by the Fire Department, any modifications to these systems fall outside the City's jurisdiction. However, in the interest of public health and water quality protection, the City will strongly advise customers against adding chemicals to their fire protection systems.

A swivel-ell may be temporarily used instead of an AG to provide potable water to areas typically served with tertiary recycled water, but only if specific conditions are met. These include approval by the State Water Board, inclusion in the City's CCCP, compliance with design standards in Appendix D, and annual inspections to verify continued compliance. The RP assembly used with the swivel-ell must be field-tested and confirmed to function correctly. A visual inspection must be done immediately upon switchover to potable water, with a field test completed within 72 hours and at least once every 12 weeks.

Additionally, there must be a legally binding agreement between the City and the recycled water supplier that requires notifying the State Water Board of all switchovers within 24 hours, supervision of each switchover by a trained City representative, and submission of a compliance report within seven days if requested. Currently, the City does not use recycled water.

Within ten years of CCCPH adoption, the City of La Verne must ensure that all fire protection systems have at least DC-level backflow protection. Fire systems with high-hazard conditions, such as chemical additives or auxiliary water supplies, must have RP-level protection. If an existing fire system cannot comply or install the required protection within the ten-year timeframe, the City may propose an alternative date or method in its CCCP. For low-hazard fire systems on residential premises, a BPA is not required if certain conditions are met: the premises has only one service connection, the fire line is isolated from the domestic system, a single standard water meter measures all flow, materials used are certified to NSF/ANSI Standard 61, and the fire system is looped and connected to routinely used fixtures to prevent water stagnation.

The City will conduct comprehensive assessments of its facilities to identify and mitigate potential cross-connection risks. All facilities producing, treating, storing, or distributing drinking water must have proper internal protection from cross-connections to ensure that all drinking water produced and delivered to customers is protected from cross-connections. These safeguards are essential to ensuring that all drinking water produced and delivered to customers remains free from contamination and fully compliant with regulatory standards.

Backflow Prevention Installation Criteria

Backflow protection devices must be installed according to the specific guidelines in CCCPH Article 3 Section 3.3.2. For AGs, the receiving water container must be positioned at the service connection unless the City of La Verne approves an alternative location. Piping between the service connection and discharge point must remain above grade and be accessible for inspection unless otherwise approved. The City of La Verne must verify that AGs comply with CCCPH section 3.3.1(a), and any new AG installation requires approval from the State Water Board before installation.





Reduced pressure principle assemblies (RP) must be installed between twelve and thirty-six inches above grade unless the City of La Verne grants an exception. Double check valves (DC) installed or replaced after CCCPH adoption must comply with CCCPH section 3.3.2(b). Below-ground installation is only allowed if no alternative exists and is approved by the City of La Verne.

Pressure vacuum breakers (PVB) and spill-resistant vacuum breakers (SVB) must be installed at least twelve inches above all downstream piping and outlets. SVBs cannot be used for premises containment, while PVBs are only permitted for roadway irrigation systems where there is no risk of backpressure.

RPs and DCs installed after CCCPH adoption must have at least twelve inches of side clearance, with twenty-four inches required on the test cock side unless the City of La Verne approves otherwise. Backflow protection devices should be located as close as possible to the service connection unless an alternative location is approved. If internal protection is used instead of premises containment, the City of La Verne must have access to ensure compliance with installation, testing, and inspection requirements. All BPAs and AGs must be accessible for field testing, inspection, and maintenance.

The timeline for installing backflow preventers, when required based on the hazard assessment, is provided in the table below:

Type of Service	Schedule
New connections with cross-connection hazards	Before service is initiated
Existing connections with Appendix D-type hazards (of the CCCPH) and other high cross-connection hazards	60 days after notification
Existing connections with other than Appendix D of CCCPH or high cross-connection hazards	90 days after notification
Existing fire protection systems not using chemicals	10 years after adoption of plan

The City of La Verne may allow additional time for installing a backflow preventer on an existing connection upon customer request, provided a written exemption is approved by the City.





Certified Backflow Prevention Assembly Testers and Cross-Connection Control Specialists

The City of La Verne must verify that each BPA required is field-tested by a certified individual from a State Water Board-recognized organization. The City of La Verne will keep on updated list of certified backflow testers who have been pre-approved to perform backflow assembly testing. This list will be reviewed and updated annually or as needed and will be provided to customers with their annual testing notices. Testers must follow the guidelines outlined in the CCCPH and meet all City requirements. Additionally, tester certification requires the submission of valid, up-to-date certification as a backflow prevention assembly tester, along with calibration and accuracy test results for backflow test kits. The City reserves final approval over all submitted documentation.

The City of La Verne's Coordinator may suspend or revoke the approval of a backflow tester or company from the list of approved testers if they fail to comply with the City's CCCP, policies, and regulations; engage in dishonest business practices; lose valid tester certification; or perform installation, repairs, or testing of backflow assemblies negligently. Noncompliance with these requirements may result in removal from the approved testers list.

Additionally, the City of La Verne's Coordinator will report any instances of fraud, gross negligence, or incompetence by a backflow tester to the certifying entity and other relevant agencies or authorities.

Quality Assurance

All backflow preventer inspection/test report forms will be reviewed by the City within 30 days of receipt. The City shall provide follow-up on backflow assemblies or test reports that are found to be deficient. At the City's discretion, the City of La Verne's Coordinator may require additional tests on backflow assemblies previously tested by a backflow tester.

Backflow Prevention Assembly Testing

The City of La Verne must ensure all BPAs in their CCCP are field-tested after installation, repair, depressurization for winterizing, or relocation. Certified testers must perform these tests. Customers are responsible for hiring a City-approved certified tester, at their own expense, to perform these inspections. Extensions for submitting test reports may be requested from the City. If a device is found defective, it must be repaired or replaced within 30 days to avoid service disconnection and associated fees outlined in the Resolution.

BPAs must be tested at least annually, though more frequent testing may be required for high-risk sites. Air-gap separations must undergo an annual visual inspection by certified testers or cross-connection control specialists.

Newly installed BPAs must pass a field test before continuous service is provided. All non-testable backflow preventers must still be tested and maintained in accordance with the California Plumbing Code. BPAs that fail testing must be repaired or replaced within 30 days unless an extension is granted under the Cross-Connection Control Plan. Testers must report backflow incidents or unprotected cross-connections within 24 hours. If an incident is confirmed, the City of La Verne must





investigate, discontinue service, and only restore it after receiving confirmation of a passing BPA test ensuring proper protection.

Approved Test Procedures: The City of La Verne mandates that all assemblies used will be tested following the approved procedures outlined in CCCPH Article 4.

Customer Notification - Device Testing: Each backflow prevention device must be inspected and tested at least annually. The City will notify each affected water user when it is time for the backflow prevention device installed on their service connection to be tested. This written notice shall give the water user thirty (30) days to have the device tested and will include the necessary field test form to be completed and submitted to the City. If the City has not received a passing test report within the designated timeframe (thirty days), a second and final notice letter will be sent. Enforcement policies will be applied if a passing test report has not been received.

Backflow Assembly Test Reports: Backflow testers must submit completed test reports to the City of La Verne before the due date specified in the annual testing notice. Test results must be submitted electronically within five (5) calendar days of the test date. Failing test results must be submitted within 24 hours of the test date.

Repairs: Any assembly that does not pass routine testing must be repaired or replaced within thirty (30) days of the initial test. If repairs or replacement cannot be completed within this timeframe, the customer must notify the City. The City will evaluate the risk the failed assembly poses to the water supply and may discontinue water service if required.

Repairs to backflow prevention assemblies must use only Original Equipment Manufacturer (OEM) parts. If OEM parts are unavailable, an approved backflow prevention assembly must be installed as a replacement.

Frequency of Inspection and Testing: Inspection and testing of backflow preventers will be performed:

- At the time of installation;
- Annually after installation;
- After repair, reinstallation, permanent relocation, or re-plumbing;
- Any time the assembly is found to not be in good repair; and
- After a backflow incident

All air gap separations must be inspected annually and after any modifications to the installation when used for premises containment.

The City may mandate more frequent inspections and/or testing of a backflow preventer if it protects against a high-health hazard or consistently fails annual tests or inspections.

The City is responsible for inspecting and testing all backflow preventers and air gaps owned by the City.

Enforcement: To enforce the ordinance, it may be necessary to suspend water service to the premises or premises under common control. If water service is terminated, the Local Health Agency may be notified.





If the City determines that service termination is too challenging or may pose a health risk, it may arrange for a contractor to complete the required repairs, replacements, or installations, and charge the customer for the cost of these services along with an administrative penalty. The customer will receive written notification detailing the corrective actions to be taken and the timeline for completion. If the customer does not take action, the work will proceed as planned.

Recordkeeping

The City of La Verne must maintain specific records and ensure they are available to the SWRCB upon request. These records include:

- The two latest hazard assessments for each user site.
- Detailed records of BPA, including type, size, manufacturer, model, installation date, location, serial number, account number, customer of record, repair history, and highest threat potential hazard from which the BPA is protecting the water system. These must be accessible for review by the SWRCB upon request.
- Records for each AG installation, including location, associated hazard, owner, and as-built plans.
- Testing records for all assemblies, including test results from BPA testing, AG inspections, and swivel-ell tests, along with tester names, test/repair dates, and certification numbers. As required by Title 17, these records must be retained for the lifetime of the assemblies. Additionally, any BPA repairs, replacements, or relocations must be documented and kept for the same duration.
- Records of the most recent cross-connection tests, such as shutdown or dye tests.
- If a site supervisor was designated, then their contact information for the user supervisor and water user must be recorded, as well as any applicable training and qualifications as described by CCCPH Section 3.2.2(f)
- Descriptions and follow-up actions related to all backflow incidents.
- Contact information and qualifications of any designated user supervisor, if applicable.
- Copies of any contracts related to the cross-connection control program.
- The current Cross-Connection Control Plan.
- Public outreach and education materials issued in the past three years.





Backflow Incident Response, Reporting, and Notifications

Backflow Incident Response Plan

The City's Backflow Incident Response Plan, located as Appendix E, is incorporated into the City's emergency response program, as mandated by CCCPH Article 5. The Backflow Incident Response Plan indicates the procedures that will be used for investigating and responding to suspected or actual backflow incidents in accordance with Article 5 of the CCCPH.

Backflow Incident Reporting & Notification

The City will notify the SWRCB and local health agencies of any known or suspected incident of backflow within 24 hours of determination. If required by the SWRCB, the City shall issue a Tier 1 public notification pursuant to CCR, Title 22, Section 64463.1.

If required by the SWRCB, the City shall submit, by a date specified by the SWRCB, a written incident report describing the details and affected area of the backflow incident, the actions taken by the City in response to the backflow incident, and the follow up actions to prevent future backflow incidents. The written report shall contain the requested information in CCCPH Appendix B, which has been extracted and included as the City of La Verne's Appendix F.

Public Outreach and Education

The City of La Verne will provide public education materials to its customers, either with water bills or through other distribution methods. Educational materials will include brochures, pamphlets, or emails. For residential customers, these materials will explain potential cross-connection risks within homes and recommend appropriate backflow prevention devices homeowners should install to help protect the public water supply. The program will highlight the customer's role in safeguarding water quality.

Local Entity Coordination

The City of La Verne will coordinate with all relevant local entities involved in cross-connection control and public health protection to ensure hazard assessments are conducted, appropriate backflow protection is in place, and assistance is provided for investigating backflow incidents.

Additionally, the City will distribute copies of its CCCP to applicable entities and notify the appropriate agencies of any policy or procedural changes that may affect them.





**Appendix A:
La Verne Resolution No. 25-XX**





Appendix B: Acronyms and Abbreviations



Acronyms and Abbreviations

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

<i>Acronym or Abbreviation</i>	<i>Meaning</i>
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



Appendix C: High Hazard Premises (Appendix D of SWRCB's CCCPH)



Appendix D

High Hazard Premises

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APPENDIX D

HIGH HAZARD CROSS-CONNECTION CONTROL PREMISES

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

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

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

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

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

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

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



Appendix C: High Hazard Premises

(Appendix D of SWRCB's CCCPH)



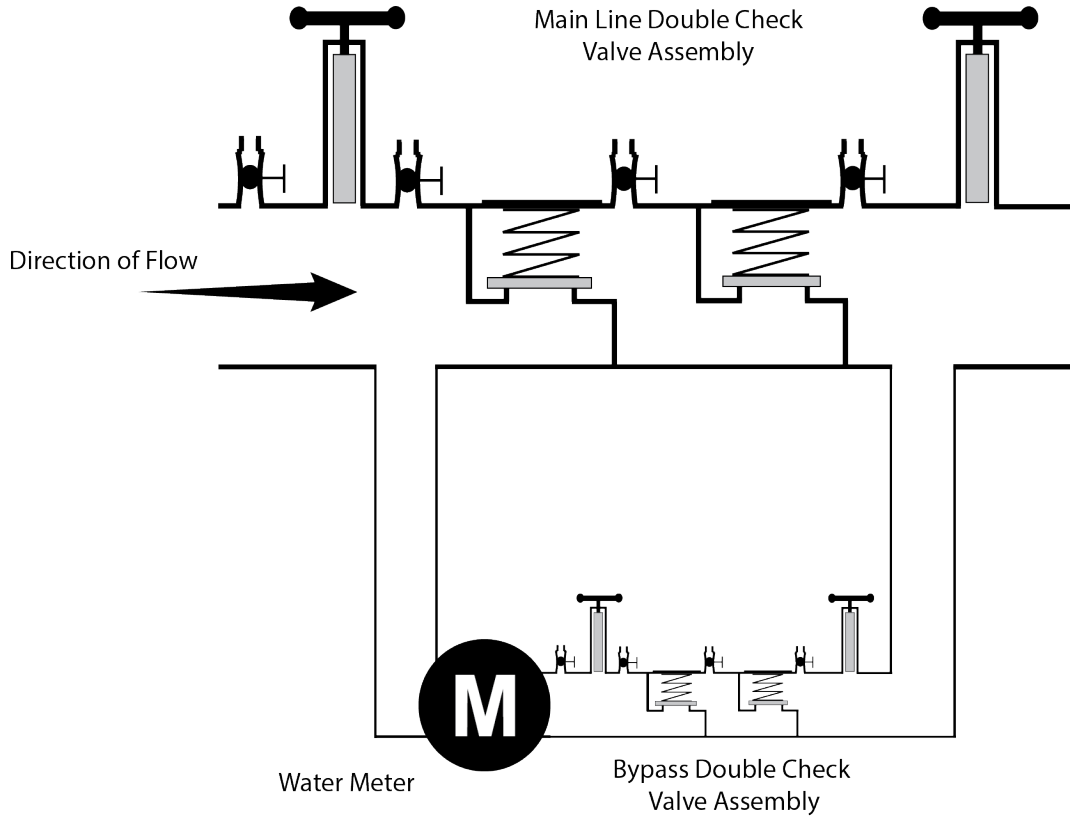
Appendix C

Backflow Prevention Assembly Diagrams

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Appendix C

Diagram 1
Double check detector backflow prevention assembly¹

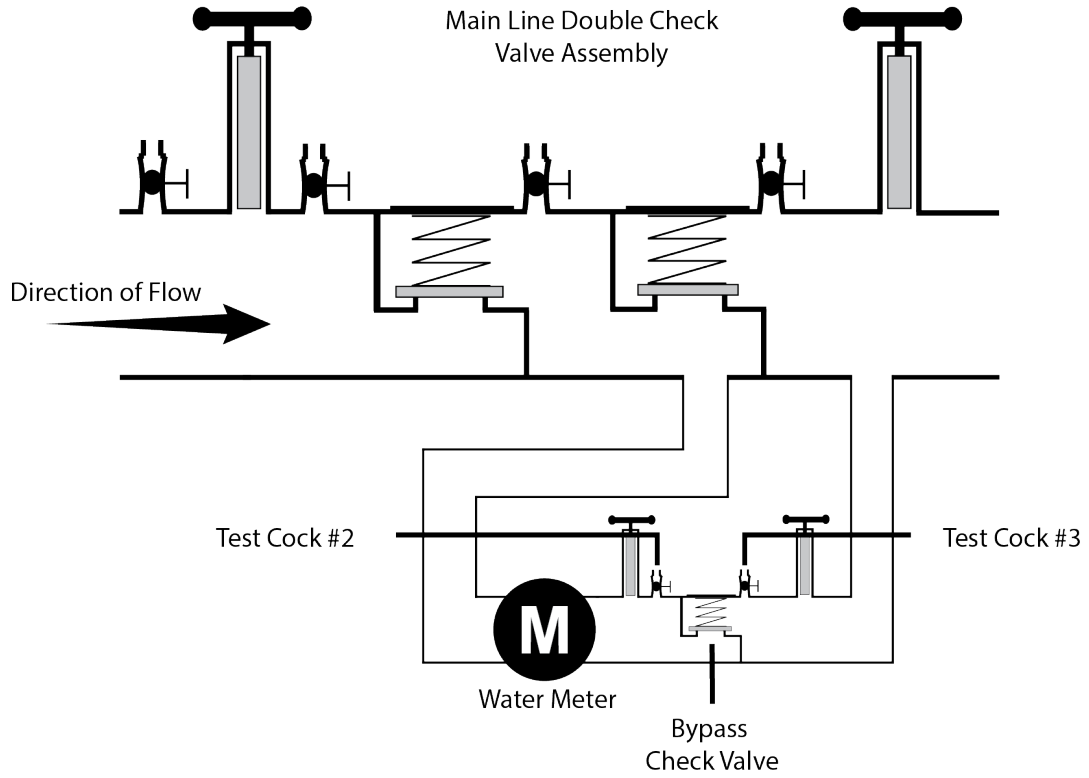


¹ © 2023 University of Southern California. Used with permission.

Appendix C

Diagram 2

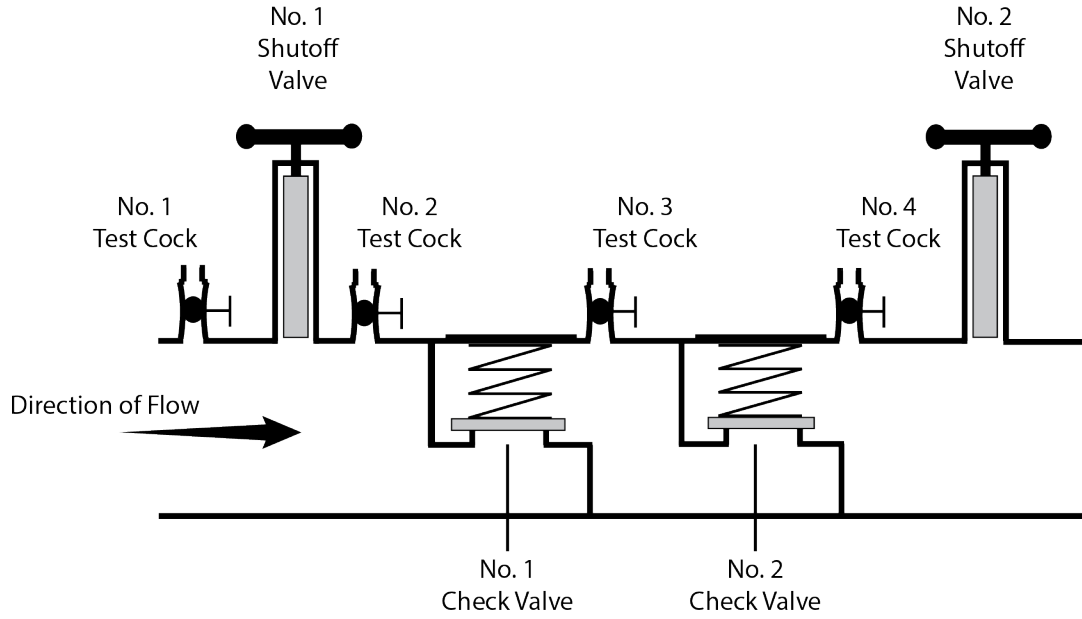
*Double check detector backflow prevention assembly – type II*²



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

Appendix C

Diagram 3
*Double check valve backflow prevention assembly*³

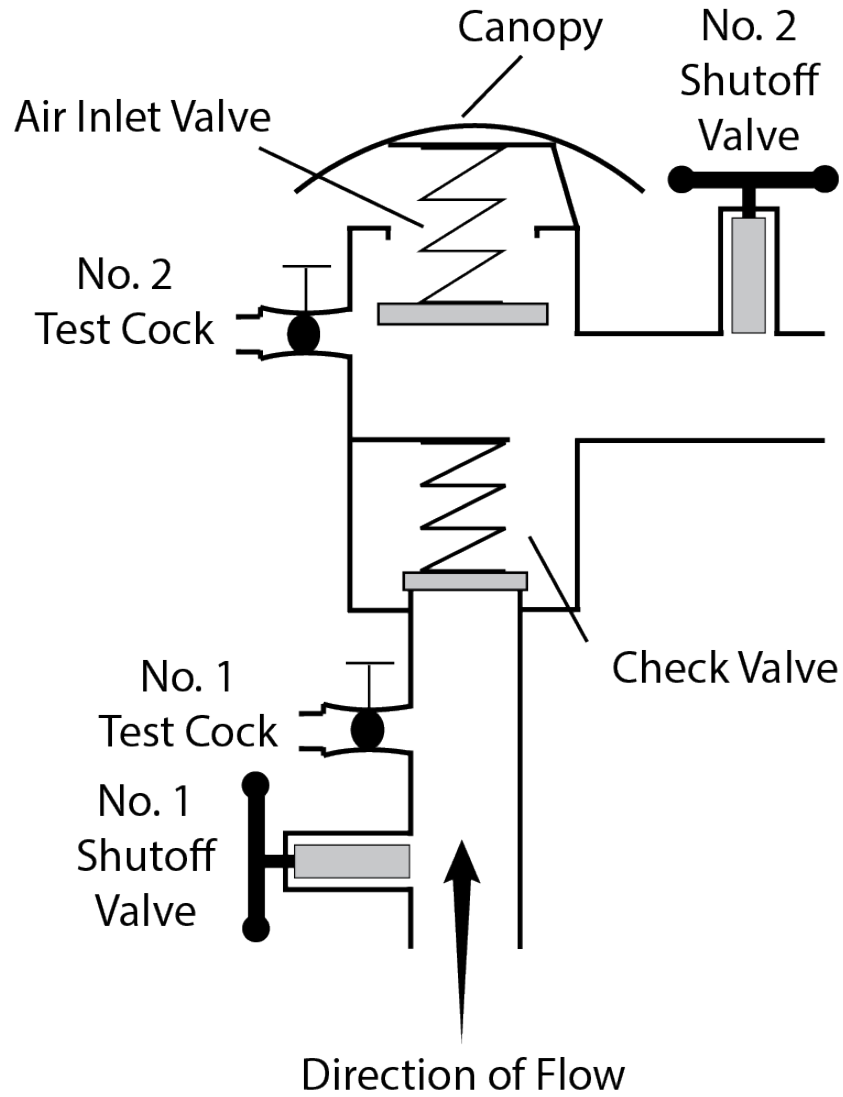


³ © 2023 University of Southern California. Used with permission

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Diagram 4

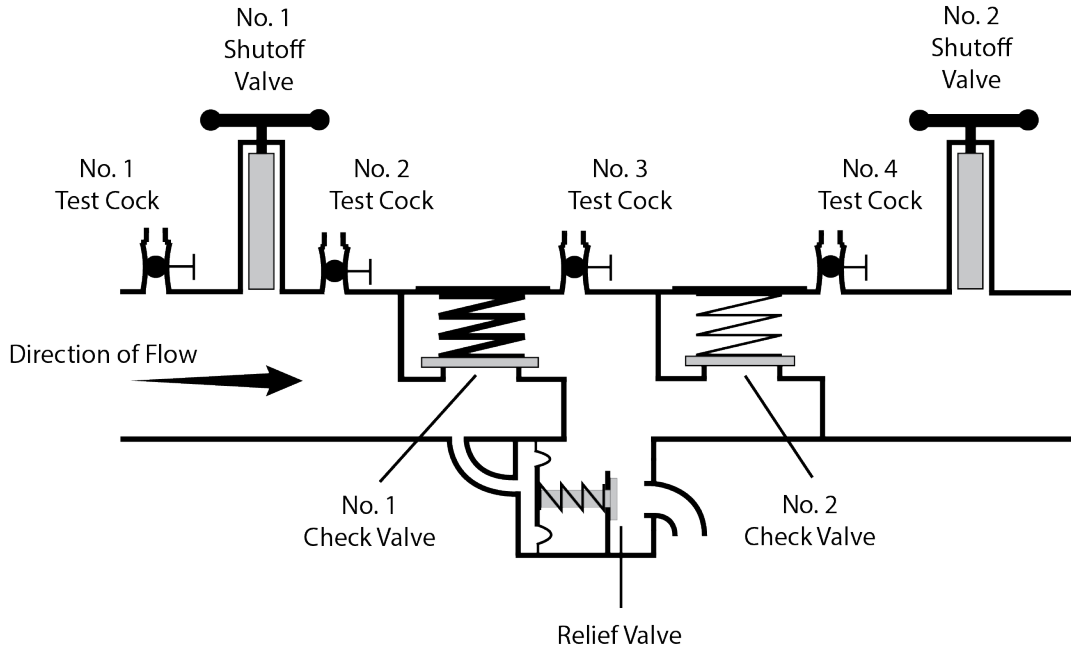
*Pressure vacuum breaker backsiphonage prevention assembly*⁴



⁴ © 2023 University of Southern California. Used with permission

Appendix C

Diagram 5
Reduced pressure principle backflow prevention assembly⁵

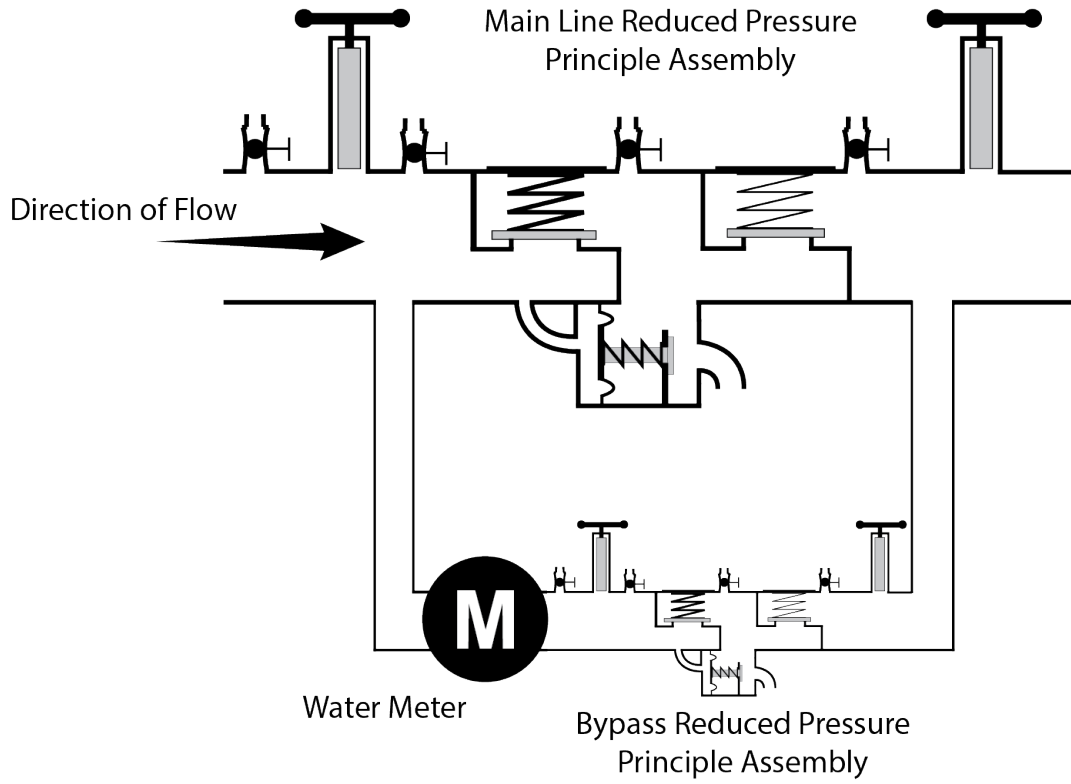


⁵ © 2023 University of Southern California. Used with permission

Appendix C

Diagram 6

Reduced pressure principle detector backflow prevention assembly⁶

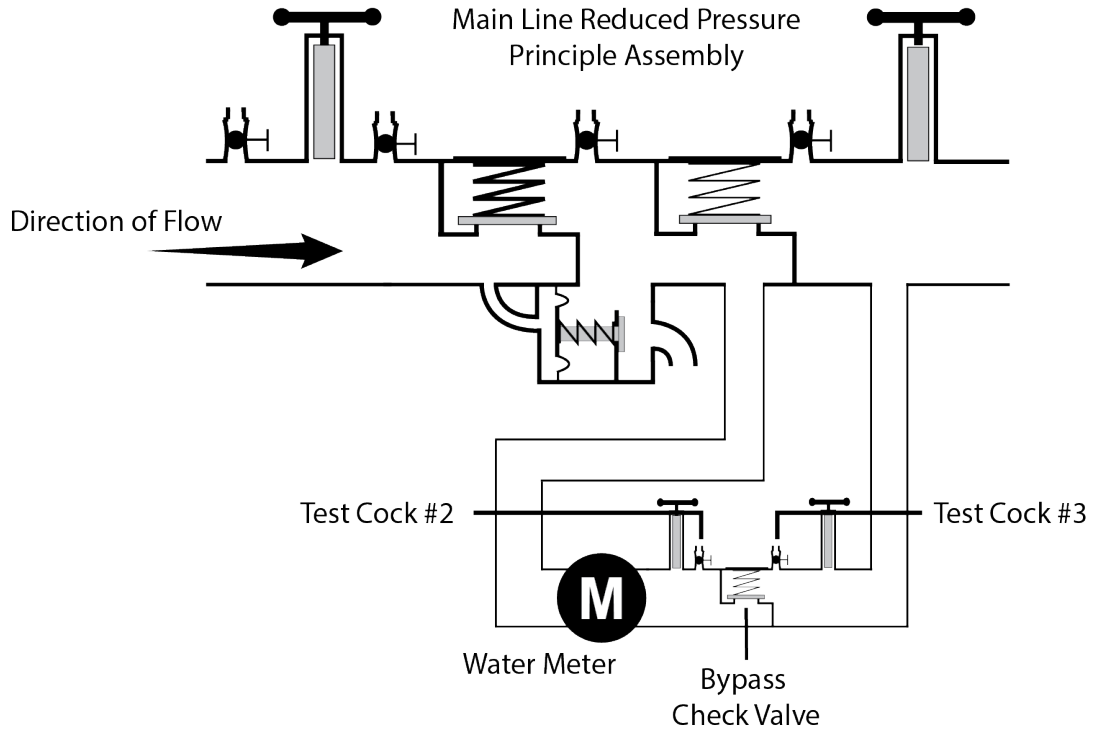


⁶ © 2023 University of Southern California. Used with permission

Appendix C

Diagram 7

Reduced pressure principle detector backflow prevention assembly – type II⁷

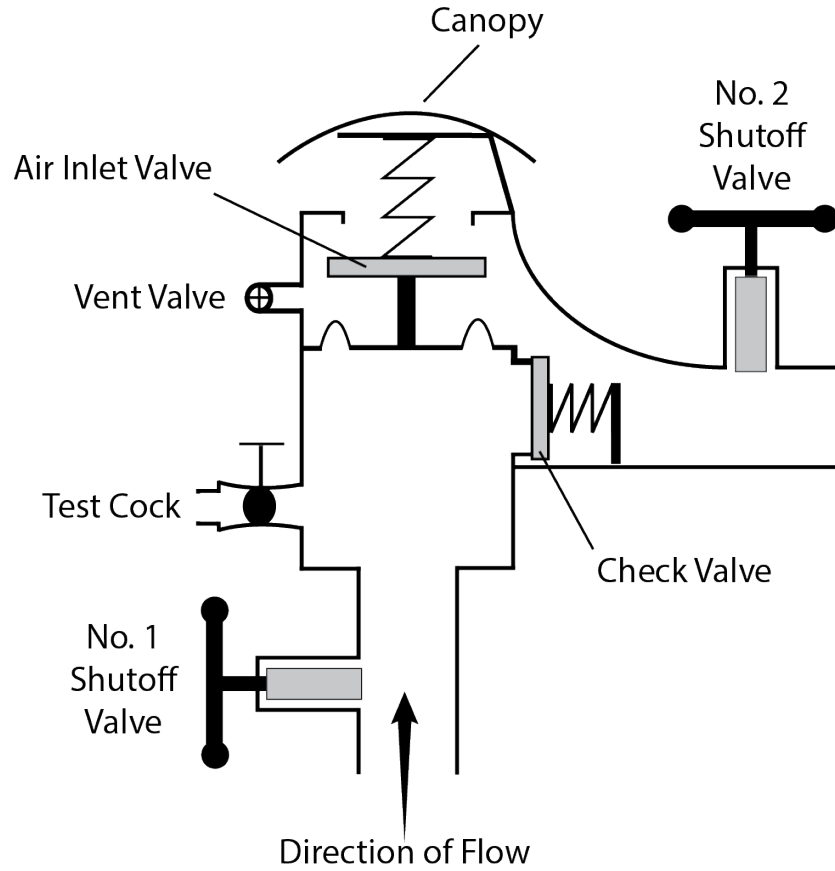


⁷ © 2023 University of Southern California. Used with permission

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Diagram 8

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



⁸ © 2023 University of Southern California. Used with permission

Appendix C

Swivel-ElI 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.

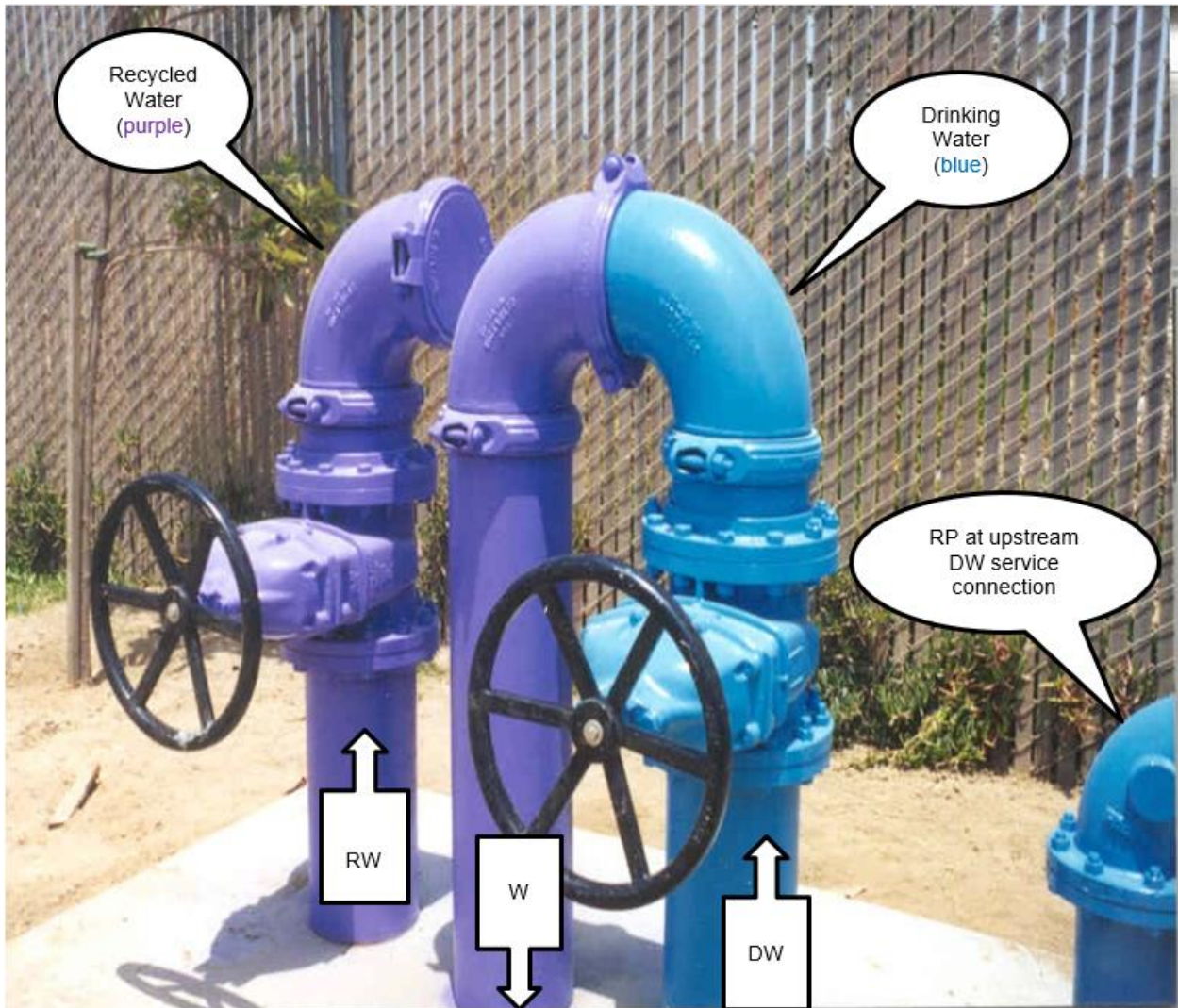
F. The swivel-ell must:

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)

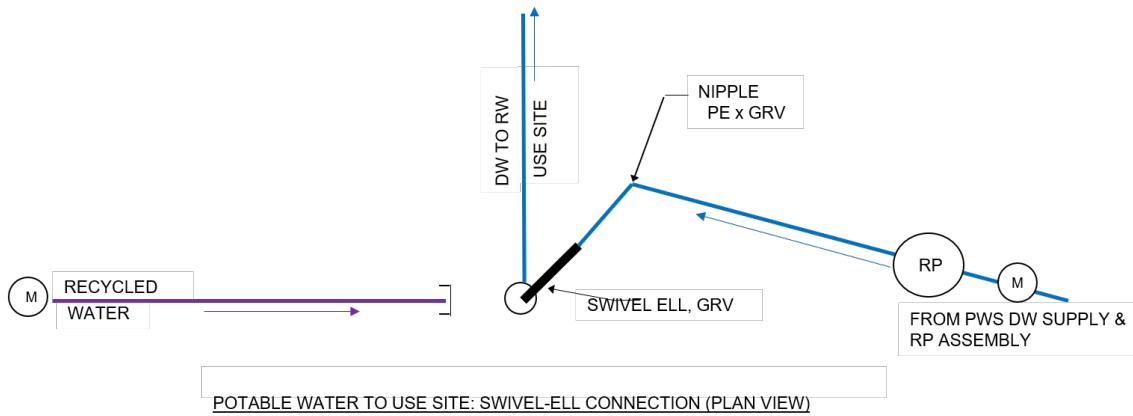
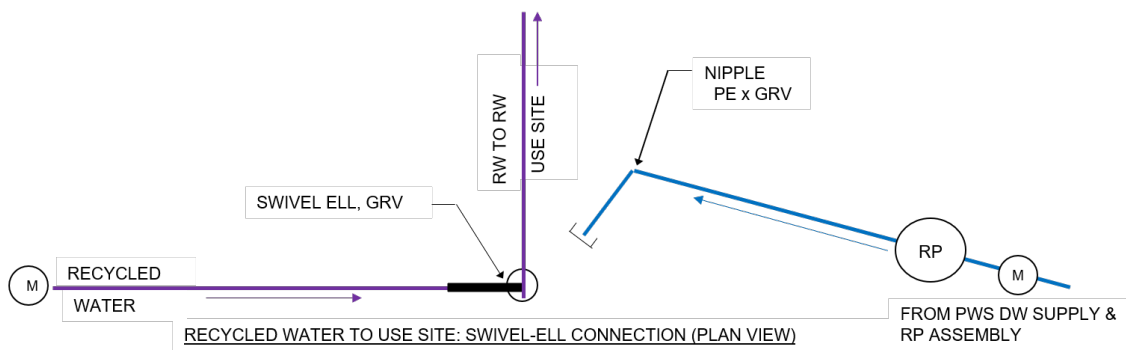
- RP = Reduced pressure principle backflow prevention assembly
- RW = Tertiary-treated recycled water originating from wastewater treatment facility
- DW = Drinking water originating from a public water system
- W = Water (tertiary recycled water or drinking water) to use site. As pictured, configured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





Appendix E: Backflow Incident Response Plan





BACKFLOW INCIDENT RESPONSE PLAN

This Backflow Incident Response Plan should be considered a supplement to the City's Emergency Response Plan.

The City will investigate and respond to suspected backflow incidents including, but not limited to, the following:

- Consideration of complaints or reports of changes in water quality as possible incidents of backflow;
- Water quality sampling and pressure recording; and
- Documentation of the investigation, and any response and follow-up activities.

The City will immediately begin a backflow incident investigation whenever the initial evaluation of a water quality complaint indicates that:

- A backflow incident has occurred (i.e., drinking water supply has been contaminated) or may have occurred; or
- The complaint can't be explained as a "normal" aesthetic problem.

Also, whenever a water main break (or power outage for pumped systems) causes a widespread loss of water pressure in the system (creating backsiphonage conditions), the City will initiate a check of distribution system water quality as a precursor to the need for a backflow incident investigation.

Per the CCCPH the City will notify the SWRCB and local health jurisdiction of any known or suspected incident of backflow **within 24 hours of the determination**. If required by the State Water Board, the City will issue a Tier 1 public notification pursuant to CCR, Title 22, Section 64463.1.

The investigation will be made by or initially led by the City's certified Cross-Connection Control Specialist. The investigation team may include state health (regional) staff, local health personnel and/or local plumbing inspectors.

If required by the State Water Board, the City 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 City in response to the backflow incident, and the follow up actions to prevent future backflow incidents. The Backflow Incident Report Form is included as Appendix F of this Cross-Connection Control Plan.

BACKFLOW INCIDENT RESPONSE PLAN

The following will be used as initial guidance for dealing with backflow incidents:

Customer Notification

As soon as possible, the City will notify customers not to consume or use water. The City will start the notification with the customers nearest in location to the assumed source of contamination.

Where a customer cannot be contacted immediately, the City will place a written notice on the front door handle.

Identification of Source of Contamination

The City will consider the distribution system as a potential source of the contaminant and will not start flushing the distribution system until the source of contamination is identified.

The City will conduct a house-to-house survey to search for the source of contamination and the extent that the contaminant has spread through the distribution system.

Note: a check of water meters may show a return of water (meter running backward) to the distribution system.

When the cross connection responsible for the system contamination is located, the City will discontinue water service to that customer, until the customer completes the corrective action ordered by the City.

Isolation of Contaminated Portion of System

The City will isolate the portions of the system that are suspected of being contaminated by closing isolating valves while ensure that positive water pressure is maintained throughout the system.

Public Health Impacts

The City will seek immediate input from and work with state and local health agencies to accurately communicate and properly mitigate potential health effects resulting from the backflow incident.

Cleaning/Disinfecting the Distribution System

The City will clean the contaminated distribution system consistent with the contaminant(s) identified.

Where both chemical and bacteriological contamination has occurred, the City will disinfect the system after the removal of the chemical contaminant.

Where any bacteriological contamination is suspected, the City will provide field disinfection.

Most chemical or physical contaminants can be flushed from the water distribution system

BACKFLOW INCIDENT RESPONSE PLAN

or customer's plumbing system with adequate flushing velocity. However, this may not be the case in systems where scale and corrosion deposits (e.g., tuberculation on old cast iron mains) provide a restriction to obtaining adequate flushing velocity, or where chemical deposits or bacteriological slimes (biofilm) are present (on which the chemical contaminant may adhere).

When adding any chemical to remove a contaminant from the distribution system, it is essential that the City fully understands the chemistry of the contaminant. Adding the wrong chemical could make the contaminant more toxic to customers and/or more difficult to remove from the distribution system. To disinfect water mains using the "slug" or "continuous flow" method, a field unit should be used for chlorine injection, such as a chemical feed - metering or proportioning pump for sodium hypochlorite. The City should contact the appropriate SWRCB regional office to discuss proposed approaches to contaminant removal and disinfection prior to taking corrective action.

The City may discuss the following, but will not be limited to:

- Consideration of complaints or reports of changes in water quality as possible incidents of backflow;
- Notification of affected population;
- Notification and coordination with other agencies, such as SWRCB, the LAA, and the local health jurisdiction;
- Identification of the source of contamination including water quality sampling and pressure recording;
- Isolation of the source of contamination and the affected area(s);
- Cleaning, flushing, and other measures to mitigate and correct the problem;
- Apply corrective actions to prevent future backflow occurrences; and
- Documentation of the investigation, and any response and follow-up activities.



Appendix F: Backflow Incident Reporting Form



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