CROSS-CONNECTION CONTROL POLICY

BIANCHI ESTATES WATER SYSTEM

(PLACER CWA – BIANCHI ESTATES CA3110040)

PCWA

CROSS-CONNECTION CONTROL POLICY

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The need to prevent cross-connections with auxiliary water supplies or contaminant sources was identified over 100 years ago. The ability to cause illness and disease by unprotected cross-connections has been well established. The risk posed by backflow can be mitigated through preventive and corrective measures. Preventative measures include the installation of backflow prevention devices and assemblies. Cross-Connection Control programs seek out and correct cross-connections within the distribution system and within individual service connections. There are currently no estimates of the frequency of occurrence of cross-connections or backflow events in a typical system. However, most cross-connections occur beyond the customer service connection, within residential, commercial, institutional, or industrial plumbing systems, making identification and estimation of the number of cross-connections difficult.

To comply with section 3.1.4 of the State Water Resources Control Board (SWRCB) Cross-Connection Control Policy Handbook (CCCPH) release on July 1, 2024, each public water system (PWS) must submit a written Cross-Connection Control (CCC) Plan to the State Water Board for review. 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 systems (PWS) drinking water distribution system will not be subject to the backflow of liquids, gases, or other substances. The CCCPH will replace Title 17 regulations on cross-connection control and backflow prevention and must be in place for each water system by July 1, 2025.

The six elements of PWS responsibility and scope of program in Title 17, section 7584 will be expanded to ten elements and details provided on existing elements. The current six elements within Title 17 are summarized as:

1. Operating Rules or Ordinances
2. Cross-Connection Control Program Coordinator
3. Hazard Assessments
4. Backflow Prevention
5. Certified Backflow Prevention Assembly Testers and Certified Cross-Connection Control Specialists
6. Backflow Prevention Assembly Testing

The four elements added are summarized as:

7. Recordkeeping
8. Backflow Incident Response, Reporting, and Notification
9. Public Outreach and Education
10. Local Entity Coordination

Public Water System Information

Public Water System Name:	**Placer CWA – Bianchi Estates**
Public Water System Number:	**CA3110040**
Number of Single-family Residential Service Connections:	**39**
Number of Multi-family Residential Service Connections:	**0**
Number of Commercial Service Connections:	**0**
Number of Industrial Service Connections:	**0**
Number of Agricultural Irrigation Service Connections:	**0**
Number of Landscape Irrigation Service Connections:	**0**
Water System Ownership Type:	**Public**

Cross-Connection Control Summary

Total Service Connections:	**39**
Service Connections with Hazard Assessments Completed:	**9**
Percent of Hazard Assessments Completed:	**23%**
Total Backflow Prevention Assemblies in System:	**9**

Element 1

Adoption of Operating Rules and Ordinances

Legal Authority Type:	**Board Resolution**
Location:	**Personnel and Administrative Manual Chapter 4: Rules, Regulations, Rates, and Charges Governing the Distribution and Use of Water (Rules and Regulations); Article 6: Miscellaneous Provisions; Section 40600**
Date Legal Authority was Adopted:	**June 5th 2025 - PCWA adopted changes to it's own Rules and Regulations addressing the CCCPH and PCWA Policy.**

Refer to Appendix A for Chapter 4; Article 6; Section 40600

Purpose of Placer County Water Agency's Cross-Connection Control Handbook

The purpose of the Agency's cross connection control handbook is to:

1. Protect the public water supply against contamination through cross connections by isolating sources of contamination within a water user's premises.
2. Eliminate existing connections between drinking water systems and other sources of water that are not approved as safe and potable for human consumption.
3. Eliminate cross connections between drinking water and sources of contamination. Prevent future cross connections.

It is unlawful for any person, firm or corporation at any time to make or maintain or cause to be made or maintained, temporarily or permanently, for any period of time whatsoever, any cross-connection between plumbing pipes and/or water fixtures being served with potable water by the Agency and any other source of water supply or to maintain any sanitary fixture or other appurtenances or fixtures which, by reason of their construction, may cause or allow backflow of water or other substances into the water supply system of the Agency and/or the service of water pipes or fixtures of any consumer of the Agency.

Definitions Pertaining to Cross Connection Control

Airgap (AG) Separation: A physical break between a supply pipe and a receiving vessel. The airgap shall be at least double the diameter of the supply pipe measured vertically above the top rim of the vessel, in no case less than one inch.

Approved Backflow Prevention Device: Devices which have passed laboratory and field evaluation tests performed by a recognized testing organization which has demonstrated their competency to perform such tests to the California Department of Public Health. A list of approved backflow prevention devices can be obtained from the Agency Customer Service Department or Engineering Division.

Auxiliary Supply: The definition is broad and places the emphasis on the cross-connection control specialist to document the premises hazards. Equipped or can be equipped can reasonably pose a hazard to the PWS if not properly protected against backflow. Compliance with the plumbing code requirements may provide sufficient protection to the PWS as determined by the cross-connection control specialist.

High Hazard Cross-Connection and Low Hazard Cross-Connection: These new terms were chosen to provide consistency in the industry to describe a threshold where the materials entering the PWS can pose a risk to public health and where more protective backflow prevention assemblies will be required.

AWWA Standard: An official standard developed and approved by the American Water Works Association (AWWA).

Backflow: A flow condition, caused by a differential in pressure, that causes the flow of water or other liquids, gases, mixtures or substances into the distributing pipes of a potable supply of water from any source or sources other than a potable water supply source. Back siphoning and back pressure are causes of backflow.

Contamination: A 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.

Cross Connection: Any unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and any source or system containing unapproved water or substance that is not or cannot be approved as safe, wholesome, and potable. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices, or other devices through which backflow could occur, shall be considered cross connections.

Double Check (DC) Valve Assembly: An assembly of at least two independently acting check valves including flange, full port resilient wedge shut-off valves on each side of the check valve assembly, and test cocks available for testing to check the water tightness of each check valve.

Double Check Detector Assembly (DCDA): An assembly of at least two independently acting check valves including flange, full port resilient wedge shut-off valves on each side of the check valve assembly, and test cocks available for testing to check the water tightness of each check valve. The double check assembly shall have a 3/4" X 5/8" detector meter (reading in cubic feet) installed around the valves (standard drawing S206)

Health Agency (State): The State of California of Public Health, or Placer County Department of Environmental Health with respect to a small water system.

Local Health Agency: The Placer County Environmental Health Department.

Person: The term "person" means an individual, corporation, company, association, partnership, municipality, public utility, or other public body or institution.

Premises: The term "premises" means any and all areas on a water user's property which are served or have the potential to be served by the public water system.

Public Water System: The term "public water system" means a system for the provision of piped water to the public for human consumption that has fifteen or more service connections or regularly serves an average of 25 individuals daily at least 60 days of the year.

Reclaimed Water: The term "reclaimed water" means a wastewater which, as a result of treatment, is suitable for uses other than potable use.

Reduced Pressure Principle Device: The term "reduce pressure principle backflow prevention device" means a device incorporating two or more check valve and an automatically operation differential relief valve located between the two checks, a flanged, full port resilient wedge shut-off valve on each side of the check valve assembly and equipped with necessary test cocks for testing.

Reduced Pressure Principle Detector Assembly: The term "reduce pressure principle backflow prevention device" means a device incorporating two or more check valve and an automatically operation differential relief valve located between the two checks, a flanged, full port resilient wedge shut-off valve on each side of the check valve assembly and equipped with necessary test cocks for testing. The reduced pressure principle backflow device shall have a 3/4" X 5/8" detector meter (reading in cubic feet) installed around the valves.

Service Connection: The point of connection of a user's piping to the water supplier's facilities.

Water Supplier: The person who owns or operates the water supply system.

Water Supply: Any water supply whose potability is regulated by a State or local health agency.

Water User: Any person obtaining water from a water supply system.

Element 2

Cross-Connection Control Program Coordinator

A cross-connection control program coordinator is required by the CCCPH to ensure that the program is consistently maintained by at least one designated person, which should help to ensure continued application and adherence to an approved program, as well as providing a point of contact between the State Water Board and the Public Water System.

Employee or Contractor:	**Employee**
Name:	**LaRoy Jones**
Title:	**Distribution Operations Supervisor**
Phone Number:	**Office: 530-823-4887** **Direct: 530-823-4954**
Email Address:	**ljones@pcwa.net**
Work Address:	**185 Ferguson Road** **Auburn, CA 95603**
Coordinator Qualifications:	**-SWRCB-DDW Grade 5 Distribution Operator License #9940** **-Cross-Connection Control Program Specialist #02376** **-Backflow Prevention Assembly General Tester #14512**

Element 3

Hazard Assessments

Hazard assessments, also known as cross-connection control surveys, are the primary means by which a PWS will identify any cross-connections and associated hazards in the PWS. A hazard assessment is necessary for a PWS to engage in adequate backflow prevention and cross-connection elimination – without an assessment the PWS would not know what to protect against.[1]

Hazard assessments, as they relate to cross-connection control, refer to an evaluation of a user premise ***(Refer to Appendix B – Assessment Form and Questionnaire)*** to determine if there are actual or potential cross-connections and the associated degree of hazard to public health. Hazard assessments are often performed through a survey which typically includes, but is not limited to, a physical inspection of a user premise, a review of water use practices, and a review of plumbing plans.[2] Although some hazard assessments may take place by physically visiting a specific location, in-person assessments are not required. A PWS may use administrative tools to determine likely hazards and needed protection, such as census data or permitting records.

The CCCPH creates the requirement for PWSs to perform initial hazard assessments and establishes some minimum considerations for the assessments. The minimums are included to help PWSs better understand the expectations of the assessments and to create a baseline to ensure that the assessments are adequate for identifying potential hazards.

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:[3]

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.

[1] SWRCB-DDW Cross-Connection Control Policy Handbook Staff Report (December 19, 2023), page 14
[2] SWRCB-DDW Cross-Connection Control Policy Handbook Staff Report (December 19, 2023), page 18
[3] SWRCB-DDW Cross-Connection Control Policy Handbook, page 19

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. The hazard assessment must determine whether an existing BPA, if any, provides adequate protection based on the degree of hazard. 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. A community water system must perform a hazard assessment under the following criteria:[4]

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
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.

The list below identifies premises that are considered "high-hazard" cross-connections 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(+)

[4] SWRCB-DDW Cross-Connection Control Policy Handbook, page 19, 20

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).[5]

[5] SWRCB-DDW Cross-Connection Control Policy Handbook, Appendix D

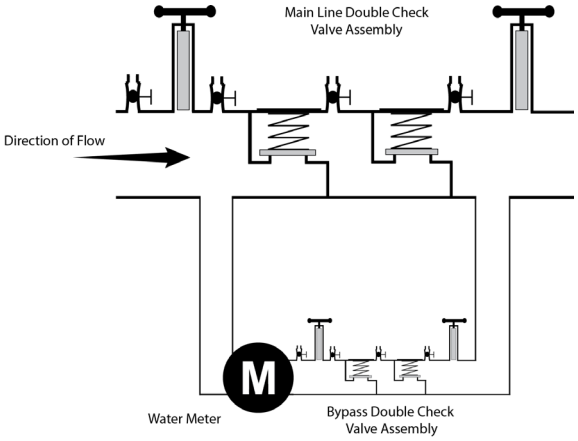
Element 4

Backflow Prevention

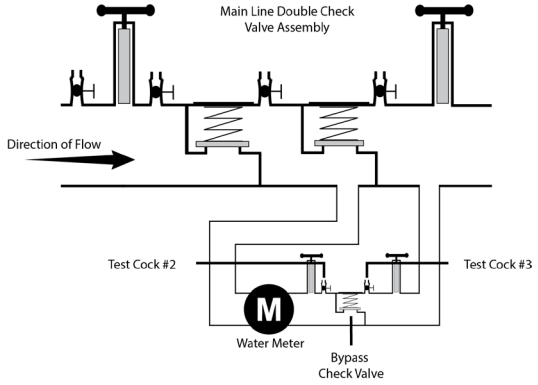
A public water system must ensure its distribution system is protected from backflow from identified hazards through the proper installation, continued operation, and field testing ***(Refer to Appendix C – Backflow Prevention Assembly Testing Procedure)*** of an approved backflow prevention assembly (BPA). The BPA 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 conducted pursuant to CCCPH section 3.2.1.

The diagrams below are examples of backflow prevention assemblies:

Double Check Detector Backflow Prevention Assembly[6]

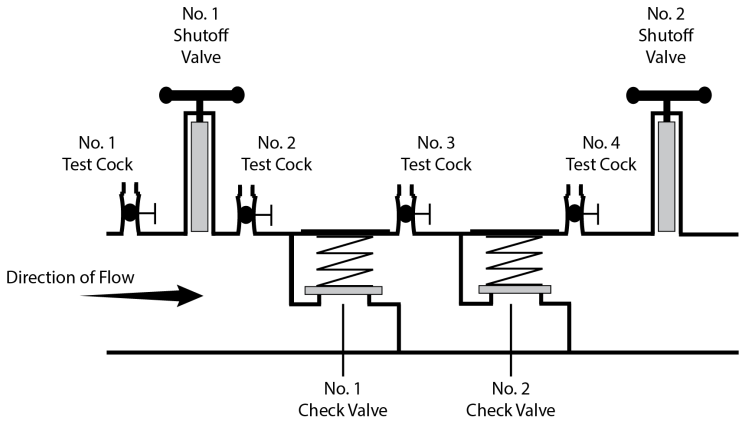


Double check detector backflow prevention assembly – type II[7]

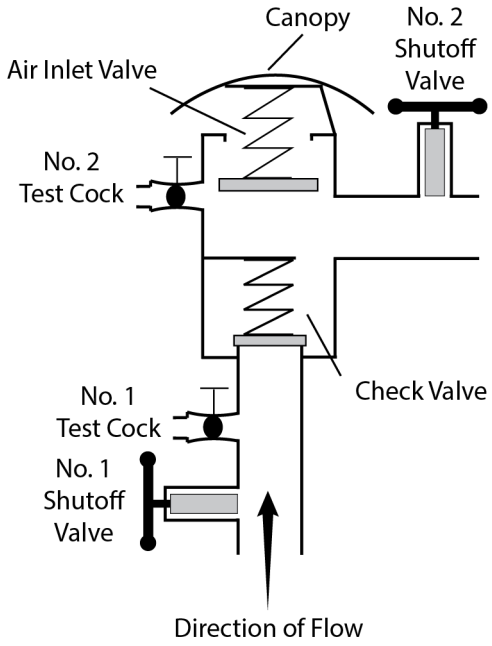


[6] © 2023 University of Southern California.
[7] © 2023 University of Southern California.

Double check valve backflow prevention assembly[8]

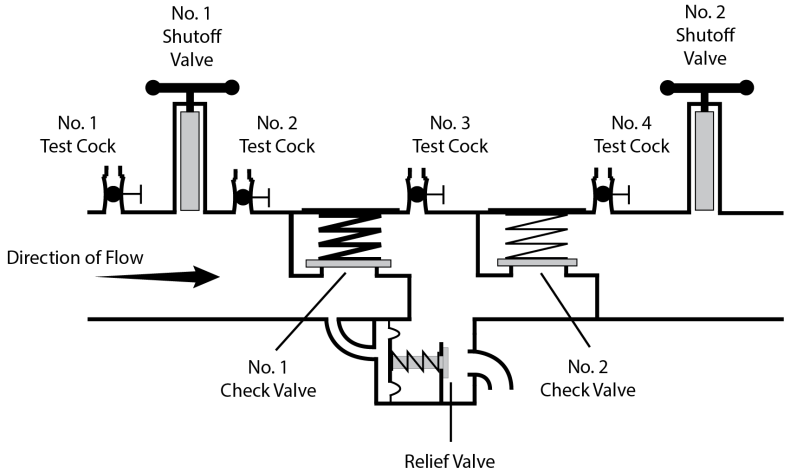


Pressure vacuum breaker back siphonage prevention assembly[9]

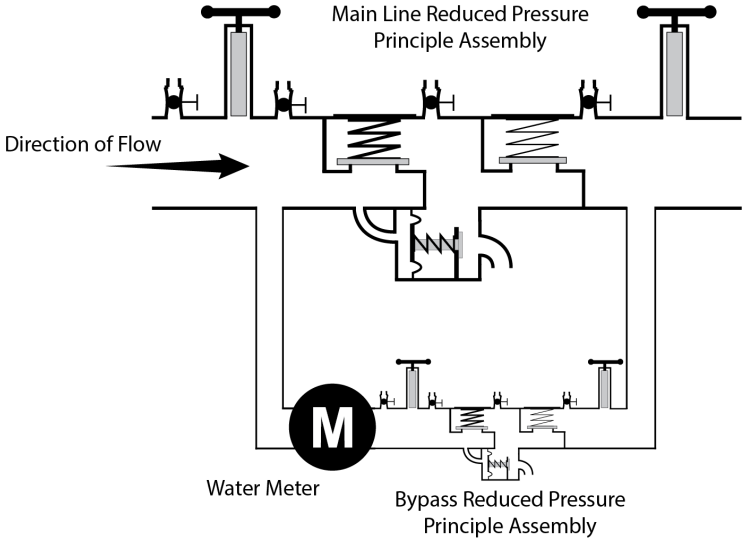


[8] © 2023 University of Southern California.
[9] © 2023 University of Southern California.

Reduced pressure principle backflow prevention assembly[10]

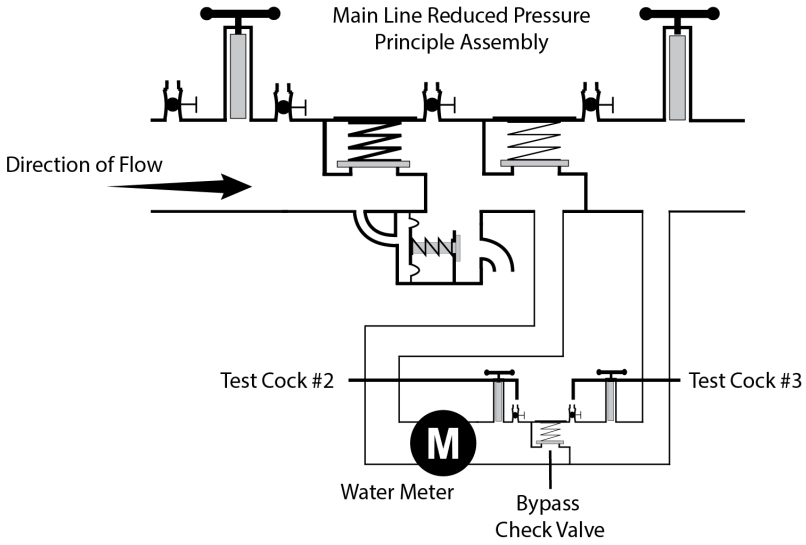


Reduced pressure principle detector backflow prevention assembly[11]

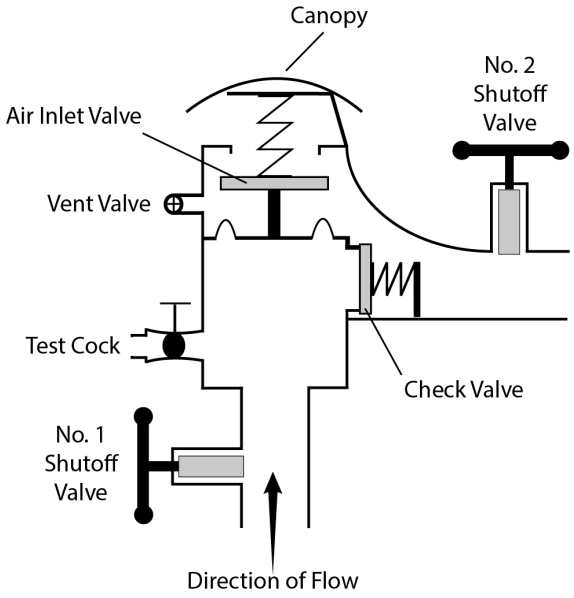


[10] © 2023 University of Southern California.
[11] © 2023 University of Southern California.

Reduced pressure principle detector backflow prevention assembly – type II[12]



Spill-resistant pressure vacuum breaker back-siphonage prevention assembly[13]



[12] © 2023 University of Southern California.
[13] © 2023 University of Southern California.

Type of Protection Required

The type of protection that shall be provided to prevent backflow into the water supply shall be in accordance with Table 1. The type of protective device that may be required, listed in an increasing level of protection, includes: Reduced Pressure Principle Device (RP), and Air Gap (AG). The water user may choose a higher level of protection than required by the Agency. The minimum types of backflow protection required to protect the water supply at the user's water connection to premises with varying degrees of hazard are given in Table 1. Situations not covered in Table 1 shall be evaluated on a case-by-case basis and the appropriate backflow protection shall be determined by the Agency. The Agency reserves the right to install a more stringent device than listed if, in its judgment, the particular circumstances of that water user require a higher degree of backflow protection.

Table 1: Hazard Criteria and Appropriate Types of Backflow Protection

Hazard	Required Level of Protection
Auxiliary Water Supplies A. Auxiliary supply that is interconnected with a piping system connected to the public water system (PWS) B. Auxiliary supply that is not interconnected with a piping system connected to the PWS	Air gap separation (AG) Reduced pressure principle (RP)
Fire Protection Systems A. Fire protection system interconnected with a piping system connected to the PWS and an onsite auxiliary water supply for fire fighting B. Fire protection system supplied by the PWS with an interconnection to onsite storage facilities and pumps, or combined fire and industrial water C. Fire protection system using chemical additives	Air gap separation (AG) Reduced pressure principle (RP) Reduced pressure principle (RP)
Marina or port facilities A. Residential B. Nonresidential	Reduced pressure principle (RP) Reduced pressure principle (RP)
Premises with multiple service connections to the PWS	Reduced pressure principle (RP)

Table 1: Hazard Criteria and Appropriate Types of Backflow Protection (Cont.)

Recycled Water A. Recycled water supply system that is: i. Interconnected to a piping system ii. Not interconnected to a piping system B. Recycled water supply system used only for landscape irrigation in an approved dual-plumbed use area established pursuant to sections 60313 through 60316, which is used for: i. Individually owned residential units ii. Sites other than individually owned residential units	 Air gap separation (AG) Reduced pressure principle (RP) Reduced pressure principle (RP) Reduced pressure principle (RP)
Gray-Water (see gray-water definition in Section 14876 of the California Water Code) A. System that produces or collects and distributes gray-water, and is i. Interconnected to a piping system connected to the PWS ii. Not interconnected to a piping system connected to the PWS	 Air gap separation (AG) Reduced pressure principle (RP)
Sewage and Hazardous or Potentially Hazardous Substances: A. Waste water treatment processes, handling and/or pumping equipment interconnected to a piping system connected to the PWS. B. Waste water treatment processes, handling and/or pumping equipment not interconnected to a piping system connected to the PWS. C. Protection is required for a single family residence that has a sewage lift pump. D. Premises handling a substance in any manner in which the substance may enter a piping system connected to the PWS. E. Recreational vehicle dump station that is not interconnected to a piping system connected to PWS. F. Piped irrigation system interconnected to a piping system connected to the PWS, into which fertilizers, herbicides, or pesticides are, or intended to be, injected into the irrigation water.	 Air gap separation (AG) Reduced pressure principle (RP) Reduced pressure principle (RP) Air gap separation (AG) Reduced pressure principle (RP) Reduced pressure principle (RP)

Table 1: Hazard Criteria and Appropriate Types of Backflow Protection (Cont.)

G. Piping system conveying a fluid not from an unapproved water supply (canal water) that is: i. Interconnected to a piping system to the PWS. ii. Not interconnected to a piping system	Air gap separation (AG) Reduced pressure principle (RP)
Roadway right-of-way irrigation system interconnected to a piping system connected to the PWS, and there is no potential for back pressure	Pressure vacuum breaker (PVB)
Water storage facility not under control of PWS	Air gap separation (AG)
All commercial buildings	Reduced pressure principle (RP)

When installing backflow protection, certain criteria must be followed to ensure proper separation of hazards from the public water system. The following is taken out of the CCCPH guidelines:

1. **AG's**
    a. 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.
    b. 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.
    c. The PWS must ensure that the AG specified in CCCPH section 3.3.1 (a) has been installed.
    d. Any new air gap installation at a user's service connection must be reviewed and approved by the State Water Board prior to installation.

2. **RP's**
    a. 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.
    b. A RP 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.

3. **DC's**
    a. 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.
    b. A 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.

4. **PVB's or SVB's**
    a. PVB or SVB must be installed a minimum of twelve inches above all downstream piping and outlets.
    b. 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.

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. Each BPA and air gap separation must be accessible for field testing, inspection, and maintenance.[14]

Approved Devices

Only backflow prevention devices (BPD) that are listed in the most current edition of the State approved list shall be acceptable for installation by a water user connected to the Agency's potable water system.

Installation

Backflow prevention devices shall be installed as prescribed in this cross-connection control handbook. Location of the devices shall be no farther than 3 feet from the water user's meter. In cold climates, the device may be located immediately inside the building being served. In all cases, the device shall be located before the first branch line leading off the service line. If the device is located inside the structure, the device and the customers system shall be open for inspection at all reasonable times to authorized representatives of the Agency to determine if cross-connection hazards exist. The Agency shall have the final authority in determining the location of a backflow prevention device.

[14] SWRCB-DDW Cross-Connection Control Policy Handbook, page 24

Element 5

Backflow Prevention Assembly Testers
and Cross-Connection Control Specialists

Backflow assembly testers and cross-connection control specialists must have certification
from an organization recognized by the State Water Board by **July 1, 2025**

PCWA Employees	
Name:	**LaRoy Jones**
Title:	**Distribution Operations Supervisor**
Qualifications:	**-SWRCB-DDW Grade 5 Distribution Operator License #9940** **-Cross-Connection Control Program Specialist #02376** **-Backflow Prevention Assembly General Tester #14512**
Name:	**Clinton Alexander**
Title:	**Distribution Operator III**
Qualifications:	**-SWRCB-DDW Grade 5 Distribution Operator License #23117** **-Cross-Connection Control Program Specialist #02322** **-Backflow Prevention Assembly General Tester #11602**
Name:	**Cody Coleman**
Title:	**Distribution Operator III**
Qualifications:	**-SWRCB-DDW Grade 5 Distribution Operator License #35387** **-Cross-Connection Control Program Specialist #02323** **-Backflow Prevention Assembly General Tester #14402**
Name:	**Mike Sayers**
Title:	**Distribution Operator II**
Qualifications:	**-SWRCB-DDW Grade 3 Distribution Operator License #53456** **-Cross-Connection Control Program Specialist #03817** **-Backflow Prevention Assembly General Tester #20152**

Private Testers	
Name:	**Maintained by: BSI Online**
Website:	HOME - BSI Online
Address:	**12609 South Laramie Ave. Alsip, IL 60803**
General Information:	**BSI Online has revolutionized cross-connection control data management with specialized backflow management software and services. Their innovative approach automates key aspects of PCWA's backflow program, including tracking testers, data cleanse and implementation, issuing reminders/notices, and producing compliance reports. By streamlining these processes, BSI significantly reduces the time and resources needed to manage our backflow prevention program. BSI's solution not only boosts data accuracy and increased compliance tracking but also promotes improved communication amongst stakeholders, ultimately guaranteeing safer water, protected by backflow preventers.**

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Element 6

Backflow Prevention Assembly Testing

Background

Field Testing and Repair of Backflow Prevention Assemblies and Airgap Inspections

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.

1. BPAs must be field tested at least annually. If determined that there is an increased risk to the water system, the PWS can require more frequent testing.
2. Air-gap separations must be visually inspected at least annually to determine compliance.
3. PWS must receive passing field tests before providing continuous service to a water user with a newly installed BPA.
4. 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.
5. 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.
6. 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 confirmation of a passing BPA field test from a backflow prevention assembly tester and the assembly is protecting the PWS.[15]

Responsibility for Inspection, Testing and Repairs

The owners of any premises on which, or on account of which, backflow prevention assemblies are installed, shall have the responsibility of having devices tested by a person with a certification for backflow prevention assembly testing from the American Water Works Association or other authority acceptable to the Agency. The water user shall employ, at their own expense, a certified backflow prevention assembly tester to conduct the inspection and test within the time period specified in the mailed testing noticed sent by the Agency.

[15] SWRCB-DDW Cross-Connection Control Policy Handbook, page 24, 25

Frequency of Inspection and Testing

Inspections and testing of backflow prevention assemblies shall be conducted:

1. At the time of installation
2. Annually after installation, or more frequently as required
3. After any repair, reinstallation, relocation, or re-plumbing of the BPA
4. After a backflow incident

The Agency will notify the water user by mail when annual testing of the backflow prevention assemblies is needed. The Agency reserves the right to require a more frequent testing interval than annually if necessary. Additional information on required testing or frequency of testing can be found on PCWA's Improvement Standards found on the PCWA website.

Field Testing of Backflow Prevention Assemblies and Airgap Inspections

The Agency requires that all backflow prevention assemblies will be tested in accordance with AWWA-approved test procedures as specified by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research in the most current edition of the *Manual of Cross-Connection Control* "Field Test Procedures". Any proposal to use an alternative test procedure must be approved by the Agency. A detailed overview of the testing procedures used by Agency backflow prevention assembly testers is attached for reference in Appendix B. A visual inspection by Agency staff is conducted annually for each air gap in the system. These air gaps are held to requirements outlined in ASME A112.1.2-2012(R2017).

After the completion of the BPA testing by the Agency or independent tester, a backflow prevention assembly test report shall be filed with the Agency. This filing is completed online through Backflow Solutions, Inc. Online, the Agency's automated tracking system, discussed further in "Recordkeeping" below. A physical copy of the online backflow prevention assembly test report is included for reference in Appendix B. To monitor tests, tester integrity, and appropriate protection within the system, the Agency administers an audit program. The Agency reserves the right to reject reports from testers not consistent with the parameters of the audit. The Agency must receive passing field tests before activating and providing service to a water user with a newly installed BPA.

Repair or Replacement of Backflow Prevention Assemblies

If a backflow test is completed and the tested BPA fails testing, the agency shall notify the water user by mail the status of the inspection findings and a list of all corrective actions to be taken. A period of 30 days shall be given to complete all corrective actions required, which can include repair, replacement, or installation of a new BPA, and a passing test report submitted within the 30-day extension of their original test month. A second notice will be given to the water user 1 week before the required corrective actions are due. If no action is taken within 30 days of the initial notification, the Agency may terminate water service to the affected water user until the required corrective actions are completed.

Water Service Shutoff or Discontinuance

Conditions or water uses that create a basis for water service termination shall include, but are not limited to, the following items:

- Refusal to install a required backflow prevention device; Refusal to test a backflow prevention device;
- Refusal to repair a faulty backflow prevention device; Refusal to replace a faulty backflow prevention device;
- Direct or indirect connection between the public water system and a sewer line;
- 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 system; or
- A situation which presents an immediate health hazard to the public water system.

When the Agency encounters water uses that represent a clear and immediate hazard to the potable water supply that cannot be immediately abated, the Agency shall institute the procedure for discontinuing the water service per Section 41005 of the Agency's Rules and Regulations.

*****Reference Appendix C for the Backflow Prevention Assembly Testing Procedures*****

Element 7

Recordkeeping

Background

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.
11. Any public outreach or education materials issued as required in CCCPH section 3.1.3.(a)(9) for the previous three calendar years.
12. All information in the subsection must be available to the State Water Board upon request.[16]

Location of Records:	**The records are kept as follows:** **1. Hazards assessments are kept in the PCWA ERP system; specifically, in the Spry Point software program that Customer Services manages.** **2. All BPA and associated information is kept by BSI Inc. and in their database. The information is owned by PCWA and immediately producible by BSI for PCWA.** **3. AG installation is kept in PCWA-DWO records and as part of the hazards assessment data in Spry Point.** **4. Results of BPA testing, AG inspections, field testing data with all the associated required information and the certification of the assembly tester is in the BSI database.** **5. All repair data is in the BSI database.** **6. Cross-connection tests, user supervisor designations and any follow-up to incidents is in Spry Point** **7. The Agency does not use contracted hazards assessment contractors, but if it ever does, this information with be held in the Agency's Questys database where all contracts are stored.**

[16] SWRCB-DDW Cross-Connection Control Policy Handbook, page 33

Location of Records (Cont.):	**8. Current CCCP is held in the PCWA-DWO W: drive on the general business server.** **9. Public outreach material is either live on the Agency's website or held within the Agency's Customer Service Department M: Drive on the Agency's general business server.**
Records Retention Schedule:	**Date of completion + 7 years. Exceeds the SWRCB-DDW requirement of 3 years.**

Element 8

Backflow Incident Response and Notification

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:

1. Consideration of complaints or reports of changes in water quality as possible incidents of backflow.
2. Water quality sampling and pressure recording.
3. Documentation of the investigation.
4. Response and follow-up activities.

Please reference Appendix D for the Backflow Incident Response Procedure*

Backflow Incident Notification

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.

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 of the Cross-Connection Control Policy Handbook.

Please reference Appendix E for the Backflow Incident Notification Procedure*

Element 9

Public Outreach and Education

Background

Many customers perceive no risk and believe cross-connection control programs are unnecessary. Experts involved in cross-connection control believe that public education is the most effective means of bringing customers into compliance (Lee et al, 2003). Efforts to educate the public have not been previously required and are a new requirement of the CCCPH. The purpose of adding this requirement is to help educate staff, customers, and the community on the importance of a cross-connection control program. The CCCPH proposes various methods that PWS's can implement to comply with this requirement. Additionally, PWS's can propose and submit alternative means of conducting public outreach and education in the cross-connection control plan submitted to the State Water Board.[17]

Each PWS must include how it intends to engage in public outreach and perform backflow prevention assembly and cross-connection control program education to the water system users. The PWS should include the following in the educational format:

1. General summary of the regulations or why BPA's are required and why a cross-connection control program is required.
2. What and how cross-connections are and how they occur.
    a. Fact sheet
    b. Key points
3. How a device and cross-control program protect the water system.
4. Educational documentation on types of devices.
5. Medium used to convey message.

Residential:	**The public is provided with a variety of different educational opportunities regarding our program such as public outreach events like career days, tours of Agency facilities, reading about the cross-connection control program on our website, and being provided with the Agency's Cross-Connection Control brochure during a hazard assessment or upon request. PCWA also created a video that is hosted on the website that**

[17] SWRCB-DDW Cross-Connection Control Policy Handbook Staff Report (December 19, 2023), page 16

Residential (Cont.):	**dives into cross-connection hazards people should be aware of. Customers that sign up to receive drinking water service will also be provided with a handout with information about cross-connection control and the importance of its awareness.**
Commercial/Industrial:	**All the options available to the residential customers are relevant to the commercial and industrial customers, but staff will also dive deeper into the theory of cross-connection control and the hazards that exist when they perform the hazard assessment on the property.**
PCWA Staff:	**Placer County Water Agency will provide annual training to discuss cross-connection control. The information to be discussed in the training will be: What a cross-connection is, Cross-Connection Control Policy Handbook, backflow devices and why we use them.**

Please reference Appendix F for Public Outreach and Education Examples

Element 10

Local Entity Coordination

Background

Coordination between PWSs and local entities involved in cross-connection control (e.g., building officials, plumbing officials, etc.) can be critical, especially when responding to a backflow incident. This subpart includes examples of actions that would benefit from local entity coordination, and examples of local entities that a PWS may need to coordinate with. Not all local entity examples will be applicable to all PWSs, but when applicable, coordination is important. An example may be coordinating with county agencies to verify that all BPAs are tested by a certified tester every year, or coordinating with law enforcement during a backflow incident if the owner of the user premises causing the backflow incident is uncooperative with the PWS. It is not the PWS's responsibility to make sure that the local entities cooperate with the PWS, but it will often be the

PWS's responsibility to attempt coordination, whether the local entity is cooperative or not. The best time to coordinate is before things go wrong, so routine coordination with some local entities may be necessary. It will be the PWS's responsibility to determine procedures for local coordination, and include those procedures in its Cross-Connection Control Plan.[18]

Placer County Water Agency takes cross-connection very seriously and strives to safeguard its water systems and ensure public health. The program PCWA runs focuses on awareness with multiple entities and considers the vast size of its service area while coordinating with other stakeholders. These stakeholder groups include: city fire departments/fire districts and CalFire, city police departments, city public works departments, Placer County Sheriff's Department, California State Highway Patrol, local backflow testers and contractors, Placer County Building Department, Placer County Environmental Health, local school districts, intertie partners (Nevada Irrigation District, San Juan Water, City of Roseville), BSI, Inc., and private residents.

Hazard Assessment Coordination

It is the responsibility of the cross-connection control supervisor to establish the Agency's authority with protecting the water systems and inform residential, commercial, industrial, and agricultural customers of the authority that the Agency has to enforce its policy. PCWA feels it is an extension of the customer base and strives to work alongside them by educating them in water quality and source protection strategies. Stewardship is part of the Agency's mission statement and logo. Water system safety and management takes a team effort. PCWA's mission is to build that relationship with the residents and business owners of Placer County. Hazard Assessments provide a forum to educate and create awareness regarding back flow and cross-connection issues.

Appropriate Protection

PCWA's Engineering division works closely with all local jurisdictions to not only provide standard designs relating to cross-connection, but it also maintains a robust Geographical Information System (GIS) department that is continually improving how we track and monitor system development. The Engineering division also coordinates directly with the Drinking Water Operations Division and takes a collaborative approach when determining the appropriate backflow prevention assembly required when questions from design groups and local contractors request information.

Placer County Water Agency currently employs certified backflow assembly testers but also works directly with BSI Inc. to maintain a current list of properly certified backflow assembly testers. These testers were invited to participate in an open forum discussion, at the Agency, detailing out the program and expectations placed on every single one of them. This collaborative approach

[18] SWRCB-DDW Cross-Connection Control Policy Handbook Staff Report (December 19, 2023), page 16

provides residents and business owners with multiple options when the annual tests are due and access to technical knowledge with a simple phone call. This list proves invaluable when maintaining customer education and policy expectations.

Coordination for Backflow Incidents

PCWA is fortunate enough to not only have cross-connection control specialists and certified backflow assembly testers on staff, but it also employs a Water Quality Supervisor who works directly with and for the residents and business owners. Through a coordinated effort, the Drinking Water Operations team works closely with Placer County Environmental Health officials, law enforcement, and local/State and County fire departments when problems arise.

PCWA also uses an Interactive Voice Response (IVR) automated calling software to alert residents and business owners of cross-connection and backflow events. In the event of a larger scale issue, PCWA can also rely on Placer County and their notification system to reach more people in a shorter period. This system allows PCWA management staff to focus on the details of the event so they can better coordinate with the SWRCB-DDW office and officials.

Please reference Appendix G for the Local Entity Coordination Document and Contact Information

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Appendix

Appendix A: Rules and Regulations

Appendix B: Hazard Assessment Form and Questionnaire

Appendix C: Backflow Prevention Assembly Testing Procedure

Appendix D: Backflow Incident Response Procedure and Form

Appendix E: Backflow Incident Notification Procedure and Form

Appendix F: Public Outreach and Education Document

Appendix G: Local Entity Coordination Document and Contact Information

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Appendix A

Rules and Regulations

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PLACER COUNTY WATER AGENCY

PERSONNEL AND ADMINISTRATIVE MANUAL

CHAPTER 4

RULES, REGULATIONS, RATES AND CHARGES
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Article 6: Miscellaneous Provisions

Sec. 40600 **HAZARD ASSESSMENTS AND** CERTIFICATION OF CROSS CONNECTION CONTROL (BACKFLOW). All treated water customers with either a secondary water source on their property or that show a potential to create a backflow/back-siphonage situation, determined by an Agency performed hazard assessment to the distribution system, shall be required to comply with the regulations set forth in the latest revision of California's Cross-Connection Control Policy Handbook as defined in California's Health and Safety Code (CHSC, section 116275 (h)) and Placer County Water Agency's Cross-Connection Control Policy relating to Cross-Connections. The primary objective of the Cross-Connection Control Policy Handbook (CCCPH) and Placer County Water Agency's Cross-Connection Control Policy is the protection of public health through the establishment of standards intended to ensure the Agency's public water systems (PWS) drinking water distribution system will not be subject to the backflow of liquids, gases, or other substances. 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 cross-connections.

Industrial, commercial, agricultural, residential, or other properties that are connected to the public water system and have or show a potential of having backflow or back-siphonage are required to have a hazard assessment performed. This hazard assessment must be conducted by a certified cross-connection control specialist approved by Placer County Water Agency. Sites that have a cross-connection or a potential to have a cross-connection are required to have an initial evaluation and periodic re-evaluation. The use of an approved backflow prevention assembly (BPA) ensures that the appropriate performance evaluation of the assembly was conducted. It is important and required by the CCCPH and PCWA policy to select and properly install an approved BPA that can protect the distribution system from the hazard(s) identified. BPA's are required to have an annual certification confirming a properly functioning backflow control device to protect the Agency's water system. The Agency's requirements for such devices and procedures for installation and testing are detailed in its Improvement Standards. The Agency's charge for inspecting and testing is set forth in Section 40900. To

cover the Agency's cost of complying with this mandate the monthly charge per cross connection assembly device is set forth in Section 40901.

Sec. 40601 CERTIFICATION OF TREATED WATER SOURCE (CONSTRUCTED CONVEYANCE). All untreated water customers, who are not also treated water customers, are required by state law to provide proof of a state approved source of potable water for domestic purposes as a condition of continued untreated water service.

a) Operable regulations. The Federal Safe Drinking Water Act, administered by the Federal Environmental Protection Agency and the California Division of Drinking Water, and the regulations issued under that Act, now require the Agency to identify the purpose for which untreated water delivered through its ditches and canals is used and to prevent the use of untreated water for domestic purposes. Domestic purposes are defined as drinking, bathing, cooking or oral hygiene.

b) Certification of Treated Water Source. Upon written request by the Agency an untreated water customer shall provide the Agency with a written certification of such information as the Agency considers necessary to determine that all persons who reside on land served with untreated water have an adequate supply of water suitable for domestic purposes.

An untreated water customer that does not obtain treated water service from a privately owned well or spring, or from a state-licensed treated water purveyor, shall be required to provide written proof, on a quarterly basis, of water delivery from a bottled water service or water hauler approved by the California Division of Drinking Water. The Agency shall provide a list of such approved water haulers and bottled water services at the time it requests such proof.

Failure to provide the Agency with certification of an approved treated water source, in writing, within 30 days of receipt of Agency's request therefore shall be deemed a violation by the customer of the Agency's rules and regulations governing untreated water service and shall be grounds for termination of such water service.

For customers who must provide quarterly proof of water delivery, the Agency will assess a monthly charge as set forth in Section 40902 to cover the cost of complying with this mandate.

Sec. 40602 CONSTRUCTION WATER. Treated and untreated construction water is provided on a temporary basis for dust control, fill compaction and other construction activities; and to test plumbing on new construction or in connection with a real estate transaction, which may include inspection of a residence or commercial property. Service is provided through a meter or other acceptable measuring device. The Agency's charge to establish Construction Water Service is set forth in Section 40903. The Agency also requires a refundable deposit for a hydrant meter and will bill for the treated and untreated water usage at the Construction Water commodity rates set forth in Schedule 2 (Treated Construction Water), 4 (Metered Irrigation Commodity Rate), and 5 (Untreated Water Fixed Charges).

If an Air Gap is not present at a hydrant meter, a backflow prevention device is required and must be tested by PCWA staff, as set forth in Sec. 40900, prior to any construction water use.

Sec. 40603 COMMON TRENCHING. The installation of water mains in a common trench shall be permitted only upon the approval of the General Manager.

Sec. 40604 CONTAMINATION OF AGENCY WATER. No trash, garbage, refuse, sewage, petroleum, bacteriological, chemical, water from industrial process or animal matter from any source shall be placed in or allowed to be emptied into any Agency facility or conveyance system. Roadway drainage should not be allowed to flow into the canal.

Sec. 40605 GROUND WIRE ATTACHMENTS. The Agency is not responsible for providing an electrical ground through water service equipment. Customers shall not attach any ground wiring to plumbing which is or may be connected to Agency service equipment.

Sec. 40606 METER ACCESSIBILITY. It is the customer's responsibility to ensure accessibility to the meter at all times. When a meter cannot be read because of an obstruction, the customer will be notified and shall correct the condition(s). Failure to remove the obstruction within 7 days after notification shall result

in remediation of the problem by Agency crews, to be billed to the customer on a time and materials basis, or termination of service. Notwithstanding a 7-day notification, the Agency reserves the right to take immediate actions to remove obstructions if it becomes necessary to gain access to the meter box or Agency shut off valve contained in the meter box.

Sec. 40607 PRESSURE CONDITIONS. State regulations require the Agency to maintain a minimum of 20 psi in its pipelines at all times. Due to the terrain within the Agency's service area, pressure in its pipelines at some locations may approach the required minimum while in other locations it may exceed 100 psi. All customers shall be required to accept such conditions of pressure and service as are provided by the distribution system at their meter. The Agency shall not be liable for damages as a result of high or low pressure. Pressure regulators or booster pumps may be necessary to reduce pressures to Uniform Building Code requirements or increase pressures to desired levels. These devices are the sole responsibility of the customer.

Sec. 40608 PUBLIC ACCESS TO AGENCY RESERVOIRS IN THE WESTERN WATER SYSTEM. To protect the public and employee safety, the following activities are prohibited in Western Water System reservoirs: Hunting, powered boating/watercraft, and swimming. Such activity shall constitute a trespass.

Sec. 40609 RESALE OF WATER. No customer other than a public utility purchasing water for resale, or for whom water is an elemental component of their production, such as a beverage company, shall resell any portion of the water delivered to them or to which they may be entitled without approval of the Agency. The Agency may allow the resale of General Irrigation untreated water deliveries from a single agency delivery point, used to serve a mutual water association, a HOA, or for accounts that may have existing private agreements. The Agency does not provide legal or financial advice on private matters, including the formation of a resale arrangement or adherence to any private agreements.

Sec. 40610 RIGHT OF ENTRY BY AGENCY EMPLOYEES. Representatives of the Agency shall have the right of ingress and egress to the customers' premises at reasonable hours for any purpose reasonably connected with the furnishing of water service.

AGENCY ACCESS. It is the customer's responsibility to provide safe access to the Agency's facilities within customer's property at all reasonable times, and in any event of emergency. When access to an Agency facility is restricted due to safety concerns or because of an obstruction, the customer will be notified and shall correct the condition(s). Failure to remove the obstruction within 7 days after notification shall result in remediation of the problem by Agency crews, to be billed to the customer on a time and materials basis, and/or termination of service, at the Agency's sole discretion. Notwithstanding a 7-day notification, the Agency reserves the right to take immediate steps to remove restrictions or obstructions to Agency facilities.

Sec. 40611 STREET WORK. All persons who open, grade, excavate, fill, or do other street work shall give at least seven days written notice to the Agency when it is necessary to remove, raise, lower, or otherwise displace any water main, services, or other water system property that may interfere with such street work. Contractors or other persons performing such work will be liable for damage to Agency water properties. If the adjustment of the water system is to be done by the Agency, the person requesting the changes will be required to deposit with the Agency a sum of money equal to the estimate of the cost of adjusting the water system.

Sec. 40612 USE OF AGENCY RIGHT-OF-WAY. Trees, vines, or other crops shall not be planted on Agency property without the permission of the Agency. The Agency canal rights-of-way shall not be obstructed by fences, structures, or other objects without permission of the Agency. No bridge, crossing, pipe, or other structures shall be placed in any Agency canal without permission of the Agency. The Agency shall not be responsible for maintaining any canal crossings used by others. The maintenance of such canal crossings shall be the responsibility of those using the crossing. If such canal crossings are not properly maintained by others, the Agency may remove them after proper notice to all concerned. The Agency maintains its canal/pipe easements for its own operation and maintenance purposes and will place fallen trees/limbs/debris within the Agency's canal/pipe easements back on the property of origin. Vegetation management for other purposes, including managing fire risks, is the responsibility of the property owner.

Sec. 40613 ENCROACHMENT PERMITS.

a) If an improvement is proposed to be constructed or installed which crosses over or is within the Agency's right-of-way or easement, the property owner or the property owner's agent (Applicant) shall apply for an Encroachment Permit by contacting the Agency's Real Property Program Manager, who will furnish the Applicant with an application. The application shall be completed and signed by the Applicant and shall be accompanied with a design plan detailing the proposed encroachment in relation to the Agency's Facility, easement, and/or right-of-way. An application for an Encroachment Permit may be approved or denied at the Agency's sole discretion.

b) Should an application be approved, the Agency will prepare a cost estimate for staff time associated with the review of the design plan and issuance of the Encroachment Permit and will deliver the cost estimate to the Applicant.

c) Before an Encroachment Permit is prepared, the Applicant shall make a cash deposit to the Agency in the amount detailed in the cost estimate. Any amount of the cash deposit remaining upon issuance of the Encroachment Permit shall be refunded to the Applicant. Should the amount of the cash deposit become depleted prior to the issuance of the Encroachment Permit, the Agency may require an additional deposit to be paid by the Applicant before proceeding with any further work.

d) When the Encroachment Permit has been prepared and delivered for signature, it shall be signed by the property owner and notarized by a Notary Public and returned to the Real Property Program Manager. The Real Property Program Manager will then record the Encroachment Permit at the Placer County Recorder's Office. Upon recordation of the Encroachment Permit, the property owner shall become a Permittee and subject to the conditions and restrictions detailed in the Encroachment Permit.

e) Unless otherwise specified in the Encroachment Permit, all authorized improvements shall be at the Permittee's sole expense, built to current Agency Improvement Standards and shall remain under the sole ownership of the Permittee.

f) An Encroachment Permit shall in no instance be construed as a grant of a permanent right, and if the Agency determines at a future date that the encroachment in fact interferes with its operations, the encroachment shall be removed by the Permittee and the Agency's Facility and right-of-way restored to their original condition at the sole expense of the Permittee.

g) Unpermitted Encroachments. No improvement which crosses over or is within an Agency right-of-way is permitted to be constructed or installed without first obtaining an Encroachment Permit as detailed above. If an encroachment is found to be unpermitted, the property owner shall be notified and shall correct the condition(s). Failure to remove the obstruction within 14 days after notification shall result in remediation of the problem by Agency crews, to be billed to the customer on a time and materials basis, and/or termination of service, at the Agency's sole discretion in accordance with Section 40610, 40612, 40920, 41005. Notwithstanding a 14-day notification, the Agency reserves the right to take immediate steps to address unpermitted encroachments.

Sec. 40614 IMPROVEMENTS WITHIN PUBLIC RIGHT-OF-WAY. If an improvement is proposed to be constructed or installed within a public street or right-of-way where there is an existing Agency facility, the plans for the proposed improvement shall be subject to the review and approval of the Agency for the protection of the public health and operations of the water system. At the Agency's discretion, the applicant of the proposed improvement may be required to make a deposit for and/or pay for the cost for staff time associated with such review.

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Appendix B

Hazard Assessment Form

Hazard Assessment Questionnaire

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ADDRESS:_____

DATE:_____

SEVICE REQUEST #:_____

LID #:_____

METER #:_____

HAZARD ASSESSMENT FORM

SECTION 1

REASON FOR HAZARD ASSESSMENT: (Check One)

INITIAL ASSESSMENT SUBSEQUENT ASSESSMENT

IF SUBSEQUENT, REASON FOR ASSESSMENT: (Check One)

- User premises changes account holder, excluding single-family residences
- User premises is newly or re-connected to the PWS
- Evidence exists of changes in the activities or materials on a user's premises
- Backflow user's premises occurred
- Periodically, as identified in the PWS's Cross-Connection Control Plan required pursuant to CCCPH section 3.1.4
- State Water Board request (Date of request from the DDW: _____; By_____)
- Water system has concluded that an existing hazard may no longer accurately represent the degree of hazard

SECTION 2

WATER USE: Domestic, Commercial, Industrial, Irrigation	TYPE OF MATERIALS HANDLED ON PREMISES:	DEGREE OF HAZARD: **If High or Low Hazard Exists, State Type in Next Section			CROSS CONNECTION TYPE:		ARE THERE DISTRIBUTION SYSTEM CONDITIONS THAT INCREASE LIKELIHOOD OF BACKFLOW EVENT?	WILL AN APPROVED BPA PROVIDE ADEQUATE PROTECTION BASED ON THE DEGREE OF HAZARD?		WERE THERE ANY PREVIOUS BACKFLOW INCIDENTS THAT THE WATER SYSTEM IS AWARE OF? **If yes, provide date of incident and attach back-up documentation
		HIGH	LOW	NONE	DIRECT	INDIRECT		YES	NO	
1										
2										
3										
4										
5										

Is there access to an auxiliary water supply, pumping system or pressure system on the premises? (explain)

What is the degree of piping system complexity and accessibility? (explain)

SECTION 3

DETAILS OF PROTECTION REQUIRED

(If a degree of hazard was found and a cross-connection was discovered)

	MAKE	MODEL	SIZE / TYPE	SERIAL #	CORRECTIONS NEEDED	INSTALLATION COMMENTS
1						
2						
3						
4						
5						

SECTION 4

CERTIFICATION BY AUTHORIZED CROSS-CONNECTION CONTROL SPECIALIST

I certify that the above cross-connection hazard assessment findings are accurate and true based off my training and knowledge of the premises and the hazards present during this assessment. (Signature Required)

- Cross-Connection Hazard Assessment Conducted by a Certified Cross-Connection Control Specialist Recognized by the SWRCB-DDW:

_____ _____ ____/____/____ _____ (____)____-_____

CCC Specialists Name (Print) | Certification # | Cert. Expiration Date | Signature | Phone Number

- Cross-Connection Hazard Assessment Witnessed by:

_____ _____ _____ ____/____/____

Facility Owner/Representative Name (Print) | Title/Relationship to Facility | Signature | Date of Assessment

Note:

1. Use the **Hazard Criteria and Appropriate Type of Backflow Protection** table to help you perform your assessment.
2. Use the **High Hazard Cross-Connection** document to identifies premises that require backflow protection provided by an air gap or a reduced pressure principle backflow prevention assembly

HAZARD ASSESSMENT QUESTIONNAIRE

SECTION 1 General Information
1. Hazard Assessment Date:
2. CCC Specialist Performing Assessment:
3. CCC Specialist Certification Number:
4. Type of Facility:
5. Name of Facility:
6. Address of Facility: _____ _____
7. Facility Owner/Representative:
8. Phone Number of Owner or Representative:
9. Did Facility Owner/Representative Participate in Assessment? Yes No

SECTION 2 Facility Information
1. Business Activity of the Facility:
2. BPA Required at the Meter of Facility:
3. Type and Number of Cross-Connections within the Facility:

Do the Service Connections Exist within Facility? *(Check Appropriate Connections)*			Number of Each Type at the Facility	Type of Protection Required/Installed Based on Hazards that Exist
Domestic	Yes	No		
Fire	Yes	No		
Irrigation	Yes	No		

4. Does the Facility have any Auxiliary Water Supplies? Yes No
(If Yes; fill out information below)

Type of Auxiliary Supply Observed at Facility? *(Check Appropriate Supply)*	Number of Each Type at the Facility	Type of Protection Required/Installed Based on Hazards that Exist
Well		
Storage		
Write In:		

SECTION 2 (Continued)

Facility Information

5. Is the Auxiliary Water Supply an Approved Source? Yes No
6. Is the Auxiliary Water Supply Connected to PCWA System? Yes No
7. Are there Hazardous Materials on the Premises? Yes No

Type of Hazardous Material	Is Hazardous Material Connected to the Internal Water System?		Does the Hazardous Material have a BPA Installed? *And if so*, What Type of Device is Present?		
	Yes	No	Yes	No	
	Yes	No	Yes	No	
	Yes	No	Yes	No	
	Yes	No	Yes	No	
	Yes	No	Yes	No	

8. Are There Any Special Uses or Equipment that Need Water at All Times?
(Please Explain)

SECTION 3 Systems Check List That May Require a BPA		
Heating/Cooling Systems		
1. Air Conditioners	Yes	No
2. Boilers	Yes	No
3. Chillers	Yes	No
4. Cold Storage	Yes	No
5. Cooling Towers	Yes	No
6. Heat Exchangers	Yes	No
7. Hydronic Heat	Yes	No
8. Refrigeration	Yes	No
9. Solar Panels	Yes	No
10. Water Cooled Condenser	Yes	No
11. Water Cooled Equipment	Yes	No
Industrial Fluids/Pressure Systems		
1. Booster Pumps	Yes	No
2. Circulating Pumps	Yes	No
3. Hydraulic Lines	Yes	No
4. Hydro-Pneumatic Systems	Yes	No
5. Priming Lines	Yes	No
6. Steam Lines	Yes	No
Chemical Injection/Feeder Systems		
1. Corrosion/Scale Inhibitors	Yes	No
2. Algae/Micro-Organism Biocides	Yes	No
3. Soaps	Yes	No
4. Softeners	Yes	No
5. Acids	Yes	No
6. Bases	Yes	No
7. Solvents	Yes	No
Irrigation Systems		
1. Chemical/Fertilizer Injection	Yes	No
2. Booster Pumps	Yes	No
3. Separate Service Connection	Yes	No
Laboratory Facilities/Systems		
Explain with Detail -		

SECTION 3 (Continued) Systems Check List That May Require a BPA		
Kitchen Systems		
1. Coffee Urns	Yes	No
2. Dishwasher	Yes	No
3. Double Boiler	Yes	No
4. Garbage Disposal	Yes	No
5. Grease Trap	Yes	No
6. Pressure Cooker	Yes	No
7. Steam Tap	Yes	No
Miscellaneous Systems		
1. Laundry/Dry Cleaning	Yes	No
2. Ornamental Fountains	Yes	No
3. Ponds	Yes	No
4. Nursery Facilities	Yes	No
5. Reclaimed Water Systems	Yes	No
Storm Water/Sewer Systems		
1. Pumps	Yes	No
2. Water Operated Sump Ejectors	Yes	No
3. Trailer Flushing/Washing Stations	Yes	No
4. Holding Tanks	Yes	No
5. Flush Valve Toilets/Urinals	Yes	No
Swimming Pool/Spa Systems		
1. Chemical Injection/Additives	Yes	No
2. Low Level Refill	Yes	No
3. Non-Potable Water Supplies	Yes	No

SECTION 4 Fire Protection Systems		
1. Is there a Fire Protection System that is Connected to the PWS? *(If Yes, Continue; If No, Stop)*	Yes	No
2. Class 1 – 2 and Special Conditions	Yes	No
3. Hazardous Substances on Premises	Yes	No
4. Complex Piping Configuration	Yes	No
5. Unapproved Auxiliary Water Supply Available	Yes	No
6. Fire System Connected to an Auxiliary Supply	Yes	No

SECTION 4 (Continued) Fire Protection Systems		
7. Connected to Elevated Storage Tank	Yes	No
8. Connected to a Private Reservoir	Yes	No
9. Hazardous Substance within Fire System Piping or Impound	Yes	No
10. Inter-Connected to Another Public Water System	Yes	No

SECTION 5

Questionnaire Comments

1. Include Any Notes or Add Detail Not Covered in the Other Sections:

_____

_____

_____

_____

_____

_____

_____

_____

_____

SECTION 6 Finding and Corrective Actions	
Deficiency	Corrective Action Required
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.

SECTION 7

Certification By Authorized Cross-Connection Control Specialist

I certify that the above cross-connection hazard assessment questionnaire findings are accurate and true based off my training and knowledge of the premises and the hazards present during this assessment. (Signature Required)

- ***Cross-Connection Hazard Assessment Questionnaire Conducted by a Certified Cross-Connection Control Specialist Recognized by the SWRCB-DDW:***

CCC Specialist Name *(Print)*: _____

CCC Specialist Certification Number: _____

CCC Specialist Certification Number Expiration Date: _____

CCC Specialist Signature: _____

I certify that the PCWA representative listed above performed the cross-connection hazard assessment questionnaire and understand the direction provided by the PCWA representative in relation to how it applies to the Agency's cross-connection policy and the rules stated within.

- ***Cross-Connection Hazard Assessment Questionnaire Witnessed by*** *(If Available)*:

Facility Owner/Representative Name *(Print)*: _____

Title/Relationship to Facility: _____

Signature: _____

Date: _____

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Appendix C

Backflow Prevention Assembly Testing Procedure

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Cross Connection Control

BPA-DC-SOP

Testing Procedures

Procedure No.:	**BPA-DC-SOP**
Process or Equipment:	**Double Check Valve BPA**
Procedure:	**Testing Procedures**
Typical Completion Frequency:	**Annually**
Original Release Date:	**2025**
Revision Date:	**Apr-25**
Related SOPs:	**BPA-RP-SOP**
Reference Documents:	**USCFCCCHR Manual of Cross Connection Control**
Routine Equipment Required:	
Special Equipment Required:	**Backflow Field Test Kit**
Prerequisite Training Required:	**Backflow Prevention Assembly General Tester (BPAT) Certification**
Description:	Test #1: Tightness of No.1 Check Valve Test #2: Tightness of No.2 Check Valve

Cross Connection Control

BPA-DC-SOP

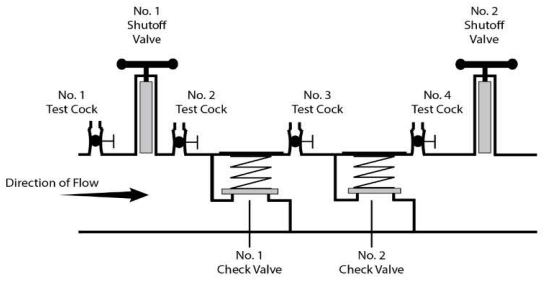
Testing Procedures

Action	Notes/Photos

Background

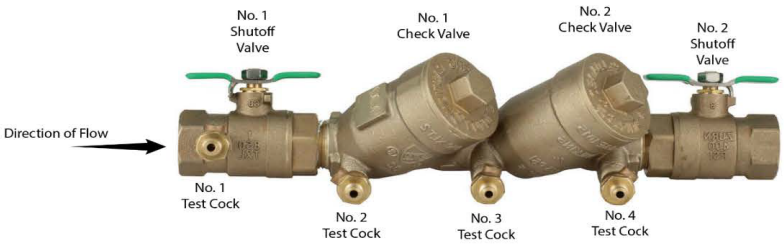
The diagram to the top right shows the general configuration of a double check valve backflow preventer assembly (DC). The labeled components of the BPA will be referenced in the following steps and actions to complete tests to verify the operation and tightness of the check valves. The photo on the bottom right shows a real example of the locations of each of the components discussed in the diagram above.

Double check valve backflow prevention assembly

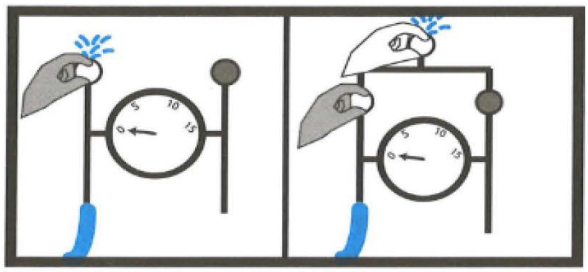


Double check valve backflow prevention assembly

ZURN WILKINS 950XLT2



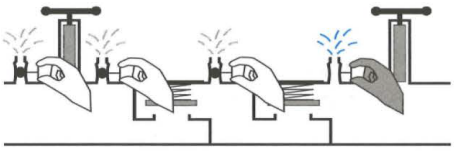
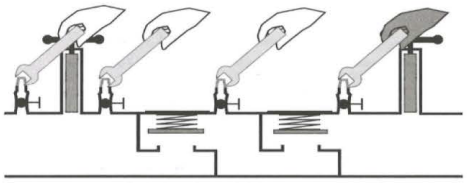
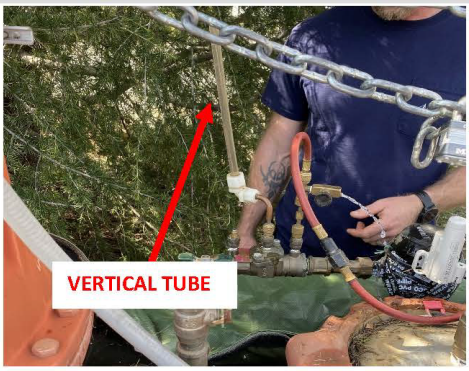
Each step of the SOP is shown using a five needle valve backflow kit, but can be completed using a two or three needle valve backflow kit as well. The illustration box on the right will be inserted for each step of the field test procedures where the needle valves are operated for the two or three valve kits.

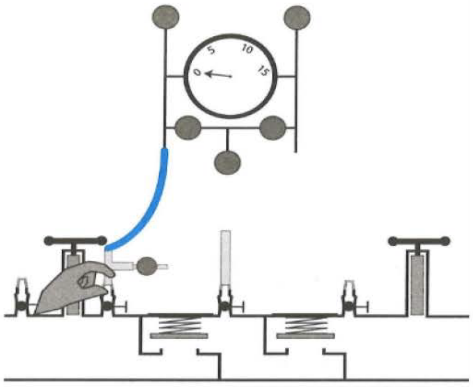
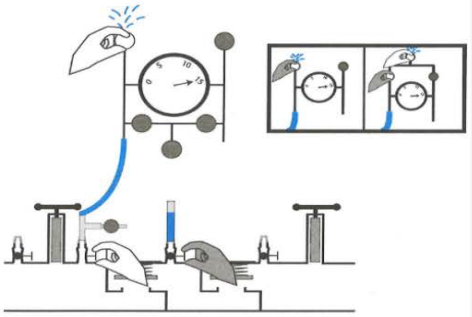
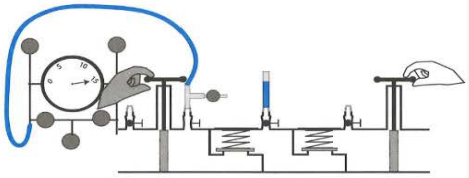


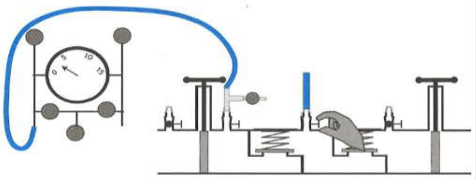
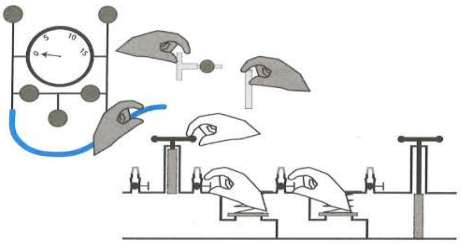
Cross Connection Control

BPA-DC-SOP

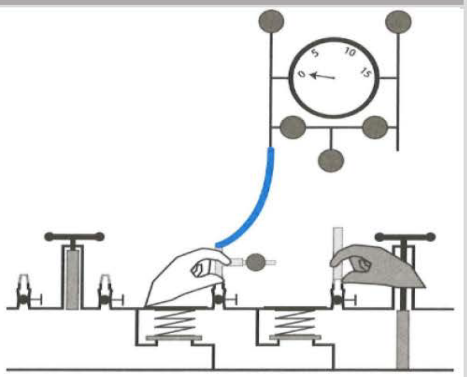
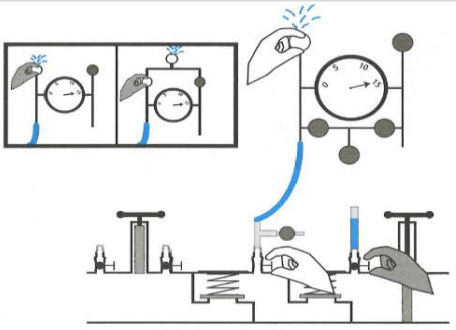
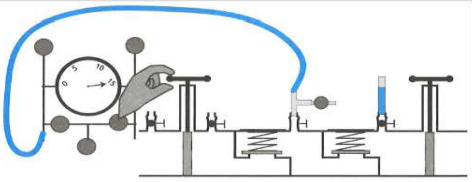
Testing Procedures

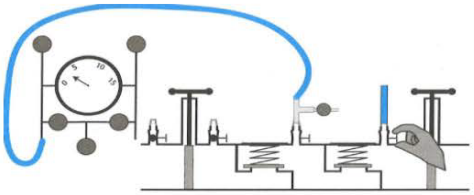
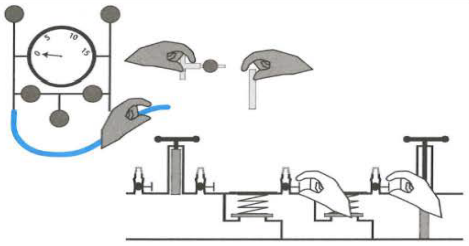
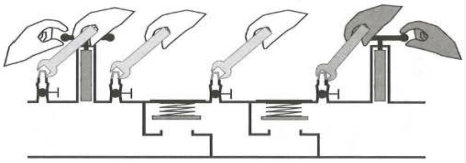
Test Preparation	
a.	Verify the location and confirm the type of BPA on site. Record the Customer information and Assembly information on the Backflow Prevention Assembly Test Report.
b.	Verify the BPA has all required components for the field test procedure (i.e. upstream and downstream shutoff valves, open and closed shutoff valves, and properly located test cocks).
c.	Notify the water user/property owner of the upcoming backflow test, and the temporary disruption of their water service.
d.	Ensure that the field kit is calibrated.
Test #1: Tightness of No.1 Check Valve	
a.	Bleed water through test cocks to eliminate foreign material by opening and closing each test cock. 
b.	Install appropriate fittings to test cocks. *NOTE: Some assemblies are equipped with the adapter fittings, which fit the field test kit hoses as an integral part of the test cocks.* 
c.	If test cock No. 3 is not at the highest point of the check valve body, then a vertical tube or pipe must be installed on test cock No. 3 so that it rises to the top of the check valve body. See image to the right for example of vertical tube assembly used by PCWA. 

d.	Attach bleed-off valve arrangement to test cock No. 2 and the hose from the high side of the field test kit to the bleed-off valve.	
e.	Open the test cock No. 2 and bleed all air from the field test kit by opening the high side bleed needle valve, then close the high side bleed needle valve. Open test cock No. 3 to fill the test cock No. 3 (or tube, if attached) so that the water level is above the top of the body, then close test cock No. 3.	
f.	Close No. 2 shutoff valve, the field test kit must be maintained at the same elevation as the water at test cock No. 3, then close No. 1 shutoff valve.	

g.	Slowly open test cock No. 3. After the reading stabilizes and water stops running out of test cock No. 3, or is no more than a drip, the reading indicated on the field test kit is the differential pressure across check valve No. 1 and should be recorded on the Test report under the Check Valve #1 item, "____ PSID". The value of the static differential pressure across check valve No. 1 must be at least 1.0 psid. • If there is continuous discharge of water from test cock No. 3 or if the water level at test cock No. 3 recedes, this could be an indication of a leaking shutoff valve and should be marked on the Test Report in the comments that one of the shutoff valves may be leaking.	
h.	Close all test cocks, open shutoff valve No. 1, and remove all test equipment.	

Test #2: Tightness of No. 2 Check Valve

a.	Attach bleed-off valve arrangement to test cock No. 3 and hose from the high side of the field test kit to the bleed off valve. If test cock No. 4 is not at the highest point of the check valve body, then a vertical tube or pipe must be installed on test cock No. 4 so that it rises to the top of the check valve body.	
b.	Open the test cock No. 3 and bleed all air from the field test kit by opening the high side bleed needle valve, and then closing the high side bleed needle valve open test cock No. 4 to fill the test cock No. 4 (or tube if attached) so that the water level is above the check valve body, then close test cock No. 4.	
c.	The field test kit must be maintained at the same elevation as the water at test cock No. 4. Close No. 1 shutoff valve.	

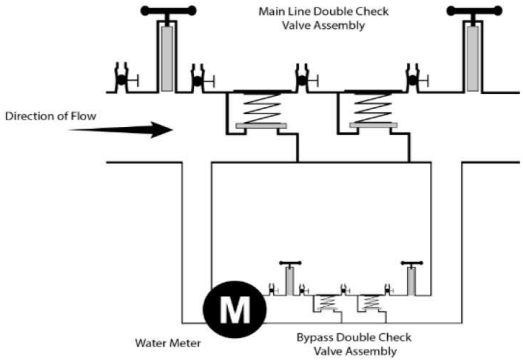
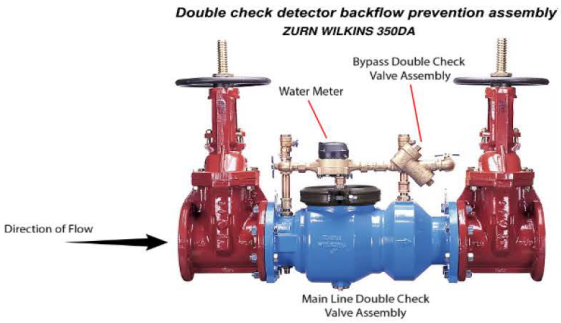
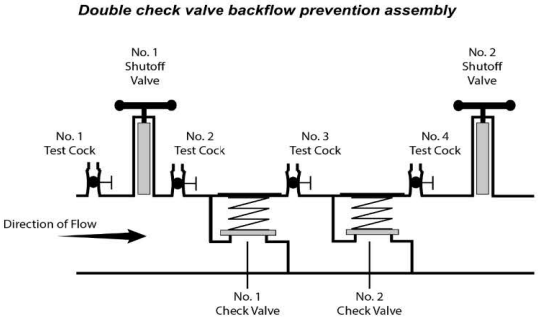
d.	Slowly open test cock No. 4. After the reading stabilizes and water stops running out of test cock No. 4, or is no more than a drip, the reading indicated on the field test kit is the differential pressure across check valve No. 2 and should be recorded on the Test report under the Check Valve #2 item, "____ PSID". The value of the static differential pressure across check valve No. 2 must be at least 1.0 psid. • If there is continuous discharge of water from test cock No. 4 or if the water level at test cock No. 4 recedes, this could be an indication of a leaking shutoff valve and should be marked on the Test Report in the comments that one of the shutoff valves may be leaking.	
e.	Close all test cocks, remove all test equipment.	
f.	Remove fittings. Open shutoff valve No. 1, then slowly open shutoff valve No. 2.	

Cross Connection Control

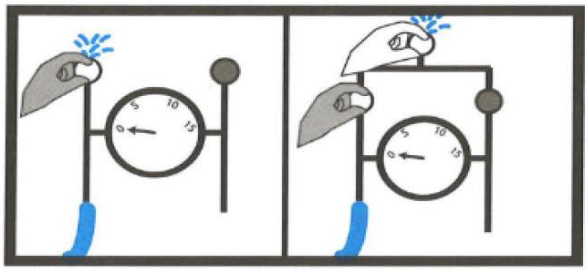
BPA-DCDA-SOP

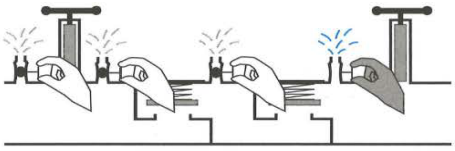
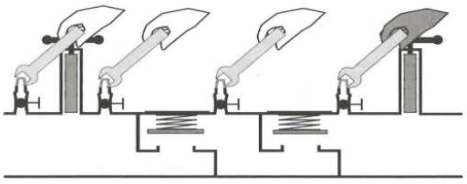
Testing Procedures

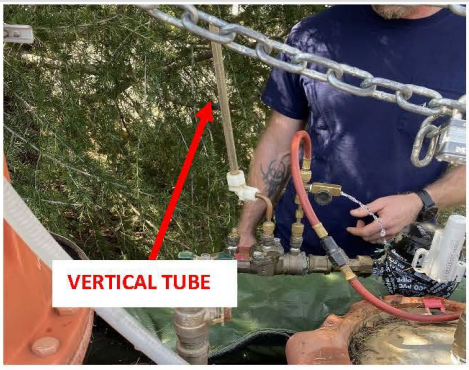
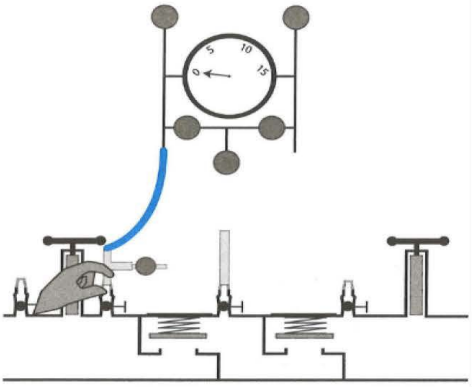
Procedure No.:	**BPA-DCDA-SOP**
Process or Equipment:	**Double Check Valve Detector BPA**
Procedure:	**Testing Procedures**
Typical Completion Frequency:	**Annually**
Original Release Date:	**2025**
Revision Date:	**May-25**
Related SOPs:	**BPA-DC-SOP**
Reference Documents:	**USCFCCCHR Manual of Cross Connection Control**
Routine Equipment Required:	
Special Equipment Required:	**Backflow Field Test Kit**
Prerequisite Training Required:	**Backflow Prevention Assembly General Tester (BPAT) Certification**
Description:	Test #1: Bypass Tightness of No.1 Check Valve Test #2: Bypass Tightness of No.2 Check Valve Test #1A: Main-line Tightness of No.1 Check Valve Test #2A: Main-line Tightness of No.2 Check Valve

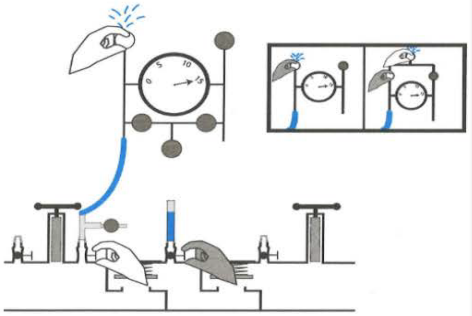
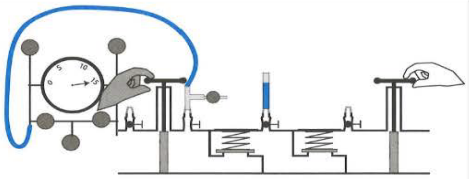
Action	Notes/Photos
Background	
The diagram to the top right shows the general configuration of a double check valve detector backflow preventer assembly (DCDA). Tests will be completed to verify the operation and tightness of the check valves for both the main-line and bypass lines of the BPA.	
The photo on the bottom right shows a real example of the locations of each of the components discussed in the diagram above. It should be noted that this configuration is a detector assembly, which is a BPA with a bypass assembly. These bypass assemblies are typically identical to the main-line BPA, and are tested similar to the main-line, with several additional steps to isolate both runs.	
The diagram to the right shows the general configuration of an individual double check valve backflow preventer assembly (DC). The labeled components of the BPA will be referenced in the following steps and actions to complete tests to verify the operation and tightness of the check valves.	

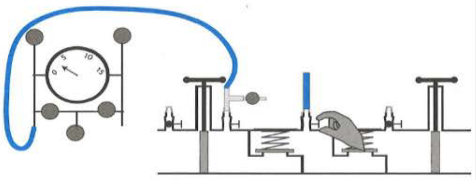
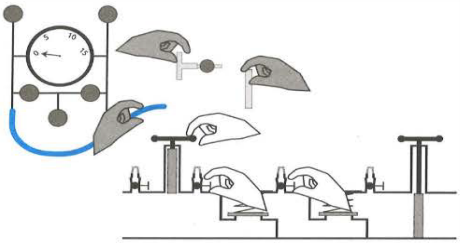
Each step of the SOP is shown using a five needle valve backflow kit, but can be completed using a two or three needle valve backflow kit as well. The illustration box on the right will be inserted for each step of the field test procedures where the needle valves are operated for the two or three valve kits.



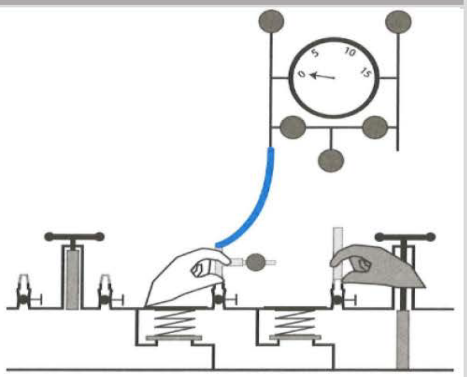
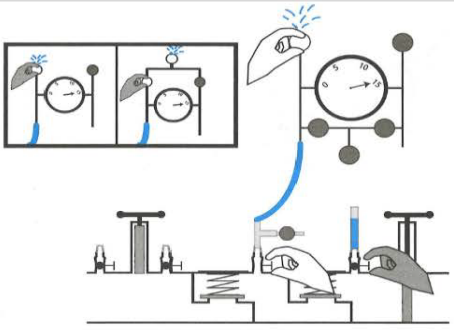
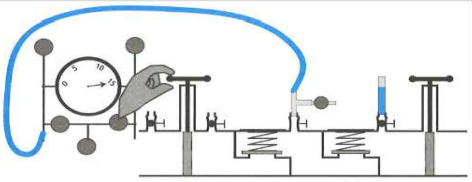
Test Preparation	
a.	Verify the location and confirm the type of BPA on site. Record the Customer information and Assembly information on the Backflow Prevention Assembly Test Report.
b.	Verify the BPA has all required components for the field test procedure (i.e. upstream and downstream shutoff valves, open and closed shutoff valves, and properly located test cocks).
c.	Notify the water user/property owner of the upcoming backflow test, and the temporary disruption of their water service.
d.	Ensure that the field kit is calibrated.
Test #1: Bypass Tightness of No.1 Check Valve	
a.	Bleed water through test cocks to eliminate foreign material by opening and closing each test cock. 
b.	Install appropriate fittings to test cocks. *NOTE: Some assemblies are equipped with the adapter fittings, which fit the field test kit hoses as an integral part of the test cocks.* 

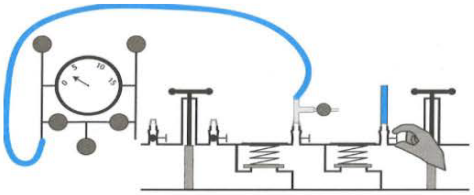
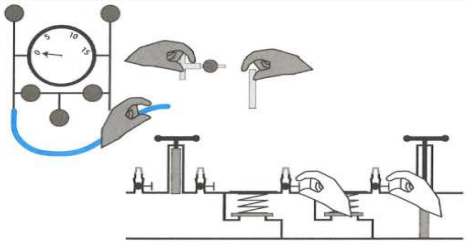
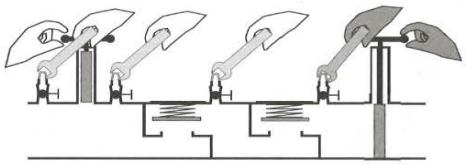
c.	If test cock No. 3 is not at the highest point of the check valve body, then a vertical tube or pipe must be installed on test cock No. 3 so that it rises to the top of the check valve body. See image to the right for example of vertical tube assembly used by PCWA.	
d.	Attach bleed-off valve arrangement to test cock No. 2 and the hose from the high side of the field test kit to the bleed-off valve.	

e.	Open the test cock No. 2 and bleed all air from the field test kit by opening the high side bleed needle valve, then close the high side bleed needle valve. Open test cock No. 3 to fill the test cock No. 3 (or tube, if attached) so that the water level is above the top of the body, then close test cock No. 3.	
f.	Close No. 2 shutoff valve, the field test kit must be maintained at the same elevation as the water at test cock No. 3, then close No. 1 shutoff valve.	

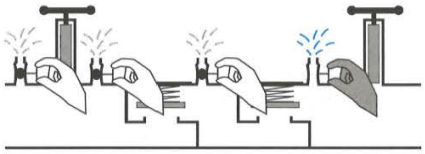
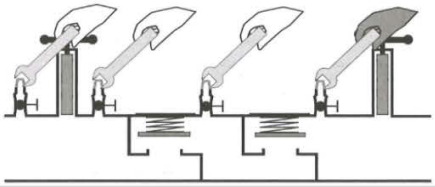
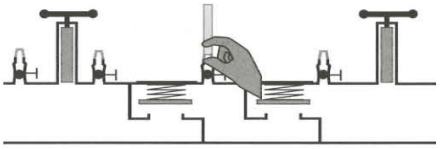
g.	Slowly open test cock No. 3. After the reading stabilizes and water stops running out of test cock No. 3, or is no more than a drip, the reading indicated on the field test kit is the differential pressure across check valve No. 1 and should be recorded on the Test report under the Check Valve #1 B/P Assembly item, "____ PSID". The value of the static differential pressure across check valve No. 1 must be at least 1.0 psid. • If there is continuous discharge of water from test cock No. 3 or if the water level at test cock No. 3 recedes, this could be an indication of a leaking shutoff valve and should be marked on the Test Report in the comments that one of the shutoff valves may be leaking on the bypass line.	
h.	Close all test cocks, open shutoff valve No. 1, and remove all test equipment.	

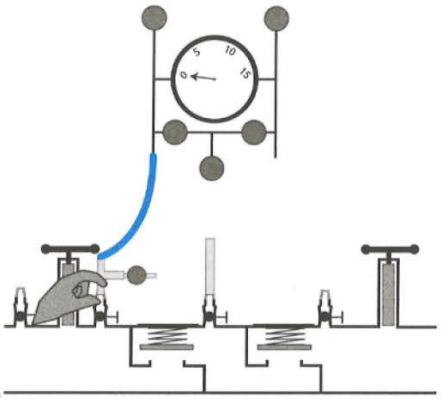
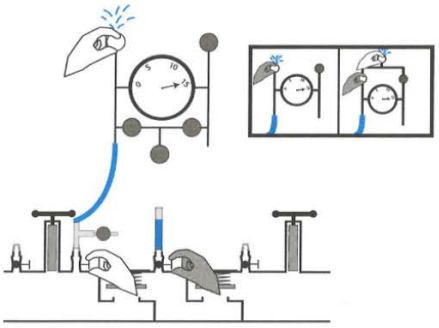
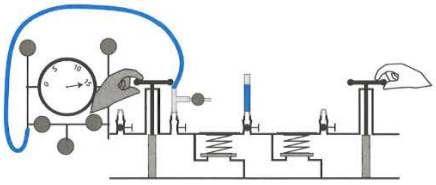
Test #2: Bypass Tightness of No. 2 Check Valve

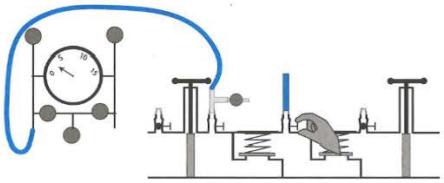
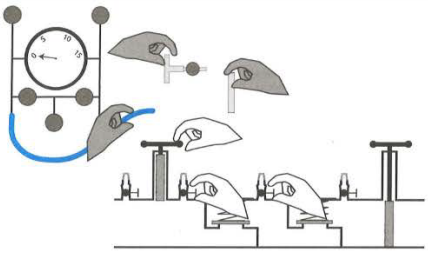
a.	Attach bleed-off valve arrangement to test cock No. 3 and hose from the high side of the field test kit to the bleed off valve. If test cock No. 4 is not at the highest point of the check valve body, then a vertical tube or pipe must be installed on test cock No. 4 so that it rises to the top of the check valve body.	
b.	Open the test cock No. 3 and bleed all air from the field test kit by opening the high side bleed needle valve, and then closing the high side bleed needle valve. Open test cock No. 4 to fill the test cock No. 4 (or tube if attached) so that the water level is above the check valve body, then close test cock No. 4.	
c.	The field test kit must be maintained at the same elevation as the water at test cock No. 4. Close No. 1 shutoff valve.	

d.	Slowly open test cock No. 4. After the reading stabilizes and water stops running out of test cock No. 4, or is no more than a drip, the reading indicated on the field test kit is the differential pressure across check valve No. 2 and should be recorded on the Test report under the Check Valve #2 B/P Assembly item, "____ PSID". The value of the static differential pressure across check valve No. 2 must be at least 1.0 psid. • If there is continuous discharge of water from test cock No. 4 or if the water level at test cock No. 4 recedes, this could be an indication of a leaking shutoff valve and should be marked on the Test Report in the comments that one of the shutoff valves may be leaking on the bypass line	
e.	Close all test cocks, remove all test equipment.	
f.	Remove fittings. Maintain the shutoff valve No. 2 on the bypass assembly in the closed position.	

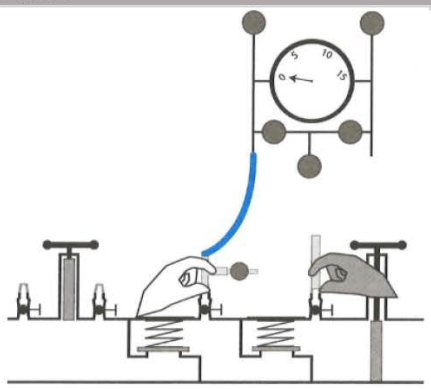
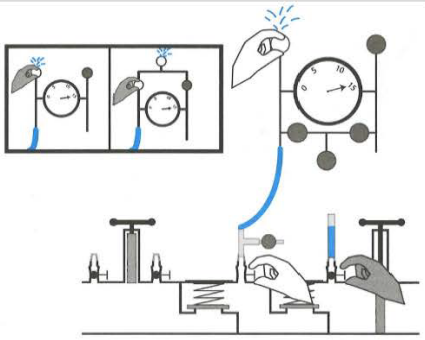
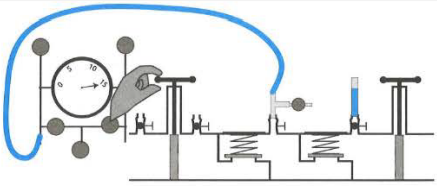
Test #1A: Main-Line Tightness of No.1 Check Valve

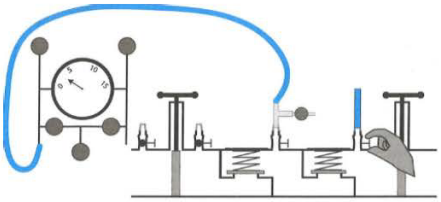
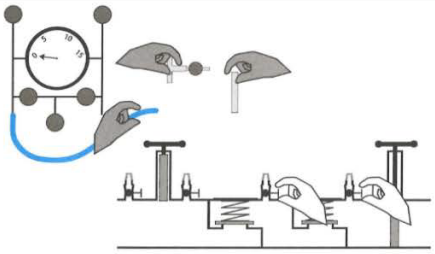
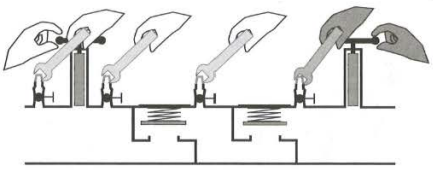
a.	Bleed water through test cocks to eliminate foreign material by opening and closing each test cock.	
b.	Install appropriate fittings to test cocks. *NOTE: Some assemblies are equipped with the adapter fittings, which fit the field test kit hoses as an integral part of the test cocks.*	
c.	If test cock No. 3 is not at the highest point of the check valve body, then a vertical tube or pipe must be installed on test cock No. 3 so that it rises to the top of the check valve body.	

d.	Attach bleed-off valve arrangement to test cock No. 2 and the hose from the high side of the field test kit to the bleed-off valve.	
e.	Open the test cock No. 2 and bleed all air from the field test kit by opening the high side bleed needle valve, then close the high side bleed needle valve. Open test cock No. 3 to fill the test cock No. 3 (or tube, if attached) so that the water level is above the top of the body, then close test cock No. 3.	
f.	Close No. 2 shutoff valve, the field test kit must be maintained at the same elevation as the water at test cock No. 3, then close No. 1 shutoff valve.	

g.	Slowly open test cock No. 3. After the reading stabilizes and water stops running out of test cock No. 3, or is no more than a drip, the reading indicated on the field test kit is the differential pressure across check valve No. 1 and should be recorded on the Test report under the Check Valve #1 item, "____ PSID". The value of the static differential pressure across check valve No. 1 must be at least 1.0 psid. • If there is continuous discharge of water from test cock No. 3 or if the water level at test cock No. 3 recedes, this could be an indication of a leaking shutoff valve and should be marked on the Test Report in the comments that one of the shutoff valves may be leaking.	
h.	Close all test cocks, open shutoff valve No. 1, and remove all test equipment.	

Test #2A: Main-Line Tightness of No. 2 Check Valve

a.	Attach bleed-off valve arrangement to test cock No. 3 and hose from the high side of the field test kit to the bleed off valve. If test cock No. 4 is not at the highest point of the check valve body, then a vertical tube or pipe must be installed on test cock No. 4 so that it rises to the top of the check valve body.	
b.	Open the test cock No. 3 and bleed all air from the field test kit by opening the high side bleed needle valve, and then closing the high side bleed needle valve. Open test cock No. 4 to fill the test cock No. 4 (or tube if attached) so that the water level is above the check valve body, then close test cock No. 4.	
c.	The field test kit must be maintained at the same elevation as the water at test cock No. 4. Close No. 1 shutoff valve.	

d.	Slowly open test cock No. 4. After the reading stabilizes and water stops running out of test cock No. 4, or is no more than a drip, the reading indicated on the field test kit is the differential pressure across check valve No. 2 and should be recorded on the Test report under the Check Valve #2 item, "____ PSID". The value of the static differential pressure across check valve No. 2 must be at least 1.0 psid. • If there is continuous discharge of water from test cock No. 4 or if the water level at test cock No. 4 recedes, this could be an indication of a leaking shutoff valve and should be marked on the Test Report in the comments that one of the shutoff valves may be leaking.	
e.	Close all test cocks, remove all test equipment.	
f.	Remove fittings. Open shutoff valve No. 1, then slowly open shutoff valve No. 2.	
g.	Open all shutoff valves of the DCDA.	

Cross Connection Control

BPA-RP-SOP

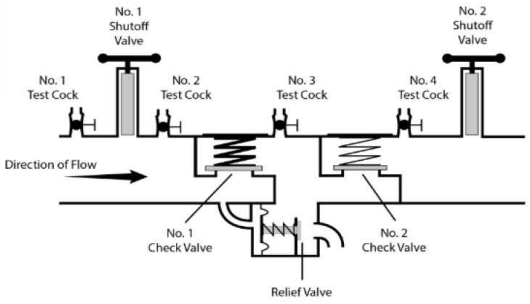
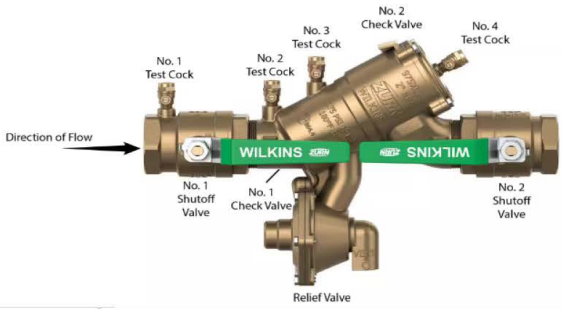
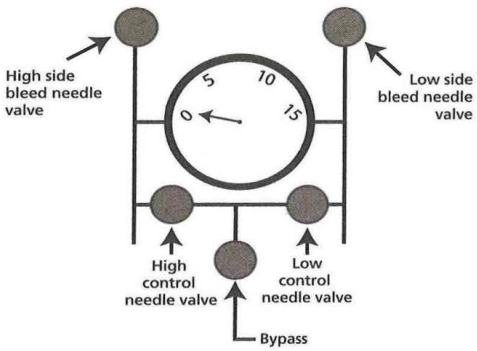
Testing Procedures

Procedure No.:	**BPA-RP-SOP**
Process or Equipment:	**Reduced Pressure Principle BPA**
Procedure:	**Testing Procedures**
Typical Completion Frequency:	**Annually**
Original Release Date:	**2025**
Revision Date:	**Apr-25**
Related SOPs:	**BPA-DC-SOP**
Reference Documents:	**USCFCCCHR Manual of Cross Connection Control**
Routine Equipment Required:	
Special Equipment Required:	**Five Needle Valve Backflow Field Test Kit**
Prerequisite Training Required:	**Backflow Prevention Assembly General Tester (BPAT) Certification**
Description:	Test #1: Relief Valve Opening Point Test #2: Tightness of No.2 Check Valve Test #3: Tightness of No.1 Check Valve

Cross Connection Control

BPA-RP-SOP

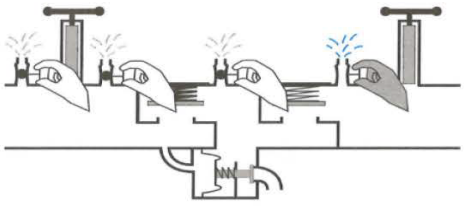
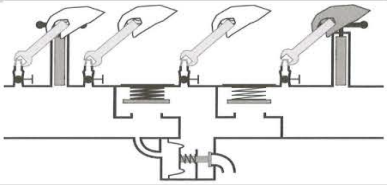
Testing Procedures

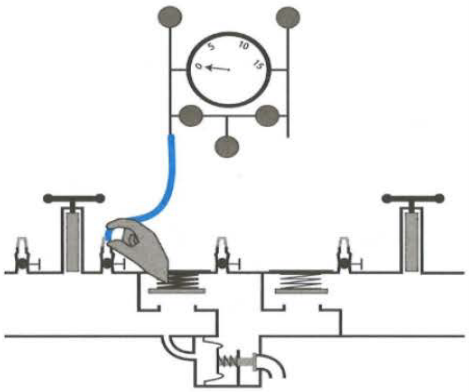
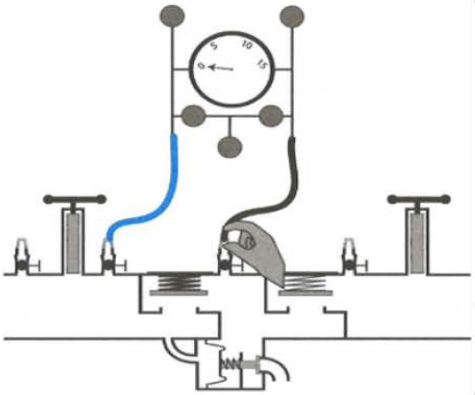
Action	Notes/Photos
Background	
The diagram to the right shows the general configuration of a reduced pressure principle backflow prevention assembly (RP). The labeled components of the BPA will be referenced in the following steps and actions to complete tests to verify the operation of the differential pressure relief valve and tightness of the check valves.	***Reduced pressure principle backflow prevention assembly*** 
The photo on the right shows a real example of the locations of each of the components discussed in the diagram above	***Reduced pressure principle backflow prevention assembly*** ***ZURN WILKINS 775XL3*** 
A five needle valve Backflow Field Test Kit is needed for the following testing procedures. A diagram showing the necessary configuration for a five needle valve Backflow Field Test Kit shown on the right .	Five Valve 

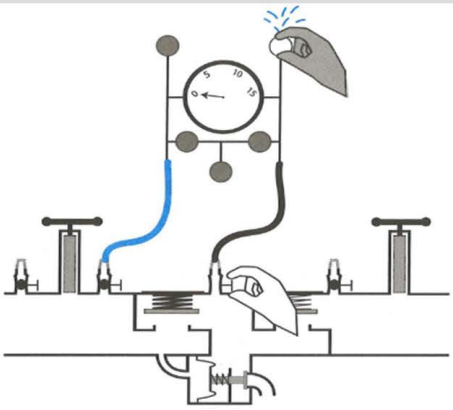
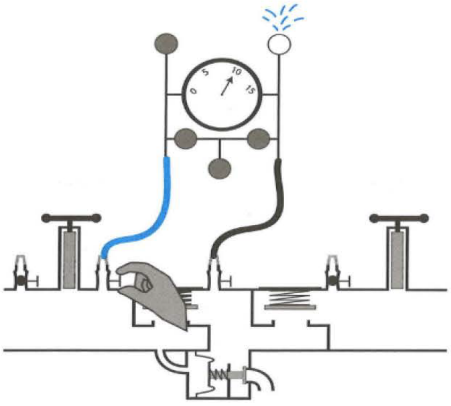
Cross Connection Control

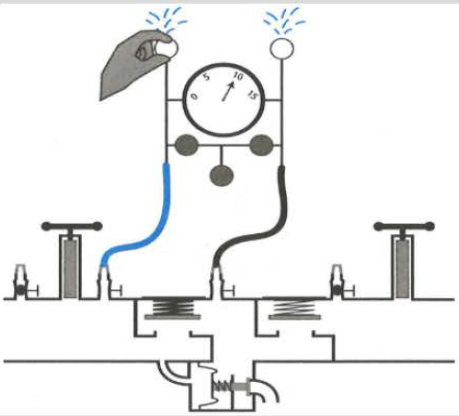
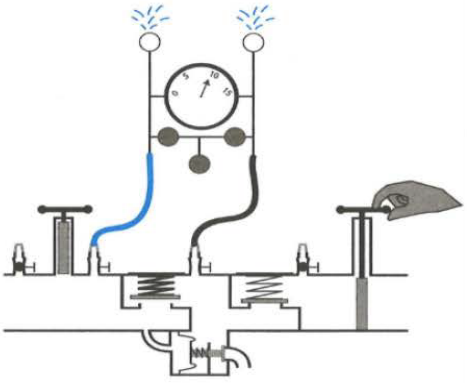
BPA-RP-SOP

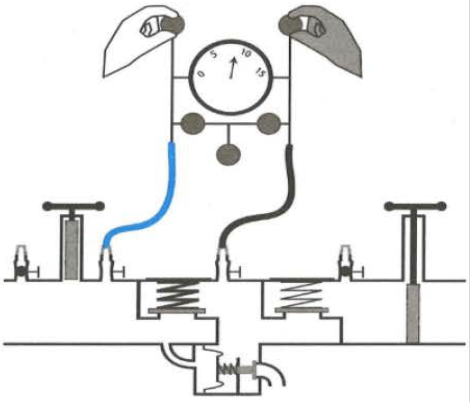
Testing Procedures

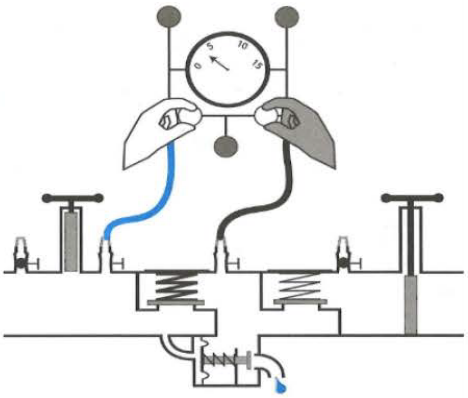
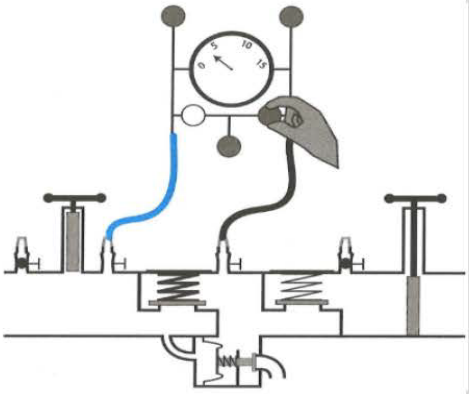
Test Preparation	
a.	Verify the location and confirm the type of BPA on site. Record the Customer information and Assembly information on the Backflow Prevention Assembly Test Report.
b.	Verify the BPA has all required components for the field test procedure (i.e. upstream and downstream shutoff valves, open and closed shutoff valves, and properly located test cocks).
c.	Notify the water user/property owner of the upcoming backflow test, and the temporary disruption of their water service.
d.	Ensure that the field kit has been calibrated within the last year.
Test #1: Relief Valve Opening Point	
a.	Bleed water through test cocks to eliminate foreign material. Open No. 4 test cock to establish flow through the unit, then open test cock No. 3, No. 2 (open No. 2 test cock slowly), and No. 1. Then close test cocks No. 1, No. 2, No. 3, and No. 4. Be careful not to activate the differential pressure relief valve while bleeding the test cocks. 
b.	Install appropriate fittings to test cocks. *NOTE: Some assemblies are equipped with the adapter fittings, which fit the field test kit hoses as an integral part of the test cocks.* 

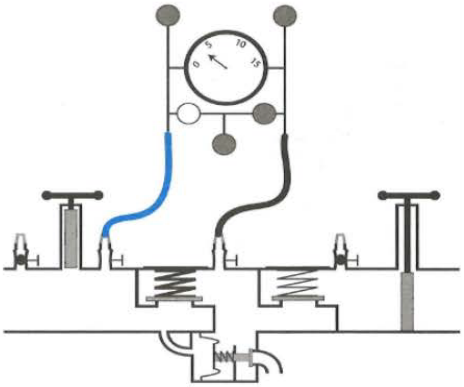
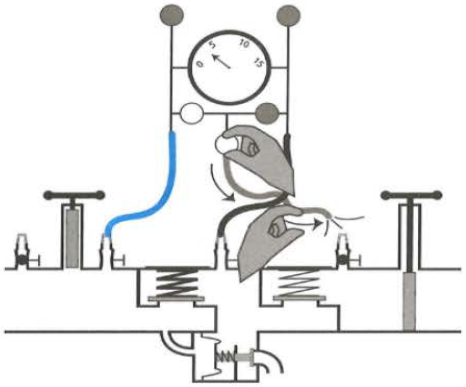
c.	Attach hose from the high side of the field test kit to the No. 2 test cock. *NOTE: Some types of test cocks are opened when the hose from the field test kit is attached. If the BPA contains this type of test cock, follow the steps below:* *1. Attach hose from the low side of the field test kit to the No. 3 test cock, and then bleed all air from the low side of the field test kit by opening the low side bleed needle valve.* *2. Maintain the low side bleed needle valve in the open position, then attach hose from the high side of the field test kit to the No. 2 test cock. Open the high side bleed needle valve to bleed all air from the high side of the field test kit.* *3. Omit step d through step g, and proceed to step h.*	
d.	Attach hose from the low side of the field test kit to the No. 3 test cock.	

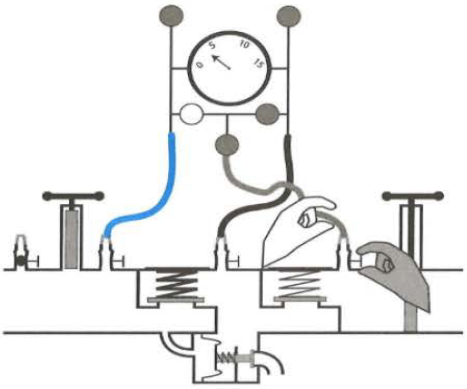
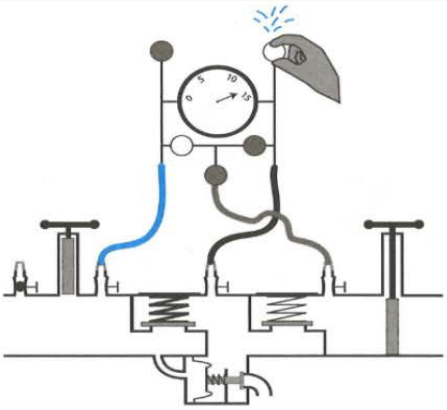
e.	Slowly open test cock No. 3 and then bleed all air from the low side of the field test kit by opening the low side bleed needle valve.	
f.	Maintain the low side bleed needle valve in the open position and slowly open test cock No. 2 fully to pressurize the field test kit.	

g.	Open the high side bleed needle valve to bleed all air from the high side of the field test kit.	
h.	Close No. 2 shutoff valve.	

i.	Close the high side bleed needle valve. After the field test kit reading has reached the upper end of the scale, slowly close the low side bleed needle valve. • If the reading remains above the differential pressure relief valve opening point, (i.e., relief valve does not discharge) then observe the reading. This is the apparent differential pressure across the No. 1 check valve. Note on the Test Report under the Check Valve #1 item, "____ PSID". During Tests No. 1, No. 2, and No. 3 of this SOP the field test kit is on-line showing the differential pressure across the No. 1 check valve. Proceed to step j. • If the reading drops to the low end of the scale and the differential pressure relief valve discharges continuously, then the No. 1 check valve is leaking, and should be recorded as such. Mark on the Test Report under the Check Valve #1 item that No. 1 check valve is leaking. Tests No. 1, No. 2, and No. 3 may not be completed.	

j.	Open the high side control needle valve approximately one turn, and then slowly open the low side control needle valve no more then one-quarter turn to bypass water from the No. 2 test cock to the No. 3 test cock. Observe the differential pressure reading as it slowly drops to the relief valve opening point. Record this opening point value when the first discharge of water is detected on the Test Report under the Relief Valve item, "Opened at ____ PSID" • If the low side control needle valve is opened one-quarter turn and the reading does not decrease to the relief valve opening point, then indicate on the Test Report in the comments that the No. 2 shutoff valve is leaking. • If the differential pressure reading drops to zero, and the differential pressure relief valve does not discharge any water, record that the differential pressure relief valve did not open on the Test Report in the comments, and proceed to step k.	
k.	Close the low side control needle valve.	

l.	Maintain the existing testing conditions and continue the testing procedures with Test #2 below.
Test #2: Tightness of No. 2 Check Valve	
a.	Maintain the No. 2 shutoff valve in the closed position, and the high side control needle valve in the open position (from Test No. 1). 
b.	Bleed all of the air through the bypass hose by opening the bypass control needle valve. Close the bypass control needle valve only. 

c.	Attach the bypass hose from the field test kit to the No. 4 test cock, then fully open the No. 4 test cock.	
d.	Open low side bleed needle valve. Once the reading reaches a value above the apparent No. 1 check valve differential pressure reading, slowly close the low side bleed needle valve.	

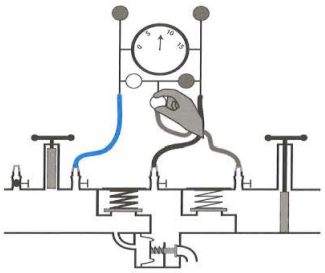
Open the bypass control needle valve.

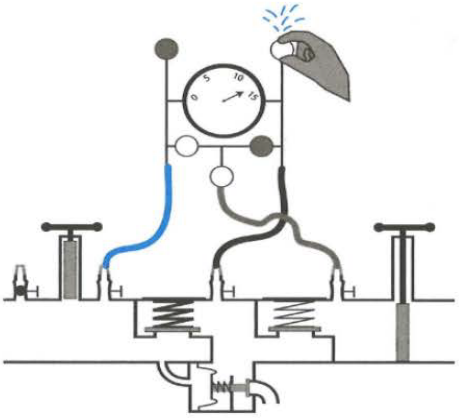
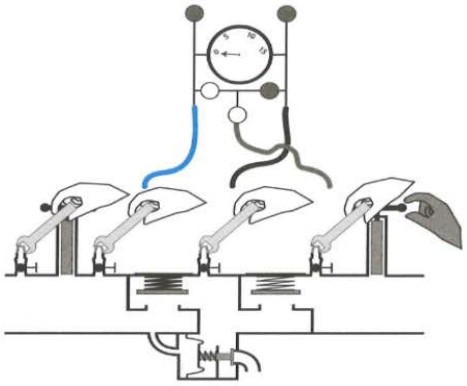
• If the differential pressure reading remains steady, then mark on the Test Report under the Check Valve #2 item that No. 2 check valve is closed tight. Go to Test #3.

• If the differential pressure reading decreases, but stabilizes above the relief valve opening point, mark on the Test Report under the Check Valve #2 item that No. 2 check valve is closed tight. Go to Test #3.

• If the differential pressure reading falls to the relief valve opening point, open the low side bleed needle valve until the reading reaches a value above the apparent No. 1 check valve
- If the differential pressure reading settles above the relief valve opening point (relief valve does not open), mark on the Test Report under the Check Valve #2 item that No. 2 check valve is closed tight. Go to Test #3.
- If the differential pressure reading falls to the relief valve opening point again, then mark on the Test Report under the Check Valve #2 item that No. 2 check valve is leaking. Test #3 cannot be completed. Close all test cocks, slowly open shutoff valve No. 2, and remove all test equipment and fittings.

e. • If the differential pressure reading falls to zero and the relief valve did not open (as recorded in Test #1, step j), open the low side bleed needle valve until the reading reaches a value above the apparent No. 1 check valve reading, then slowly close the low side bleed needle valve.
- If the differential pressure reading settles at a value above zero (0.0 psid) and relief valve does not open, mark on the Test Report under the Check Valve #2 item that No. 2 check valve is closed tight. Go to Test #3.
- If the differential pressure reading falls to zero (0.0 psid) again and relief valve does not open, then mark on the Test Report under the Check Valve #2 item that No. 2 check valve is leaking. Test #3 cannot be completed. Close all test cocks, slowly open shutoff valve No. 2, and removal all test equipment and fittings.



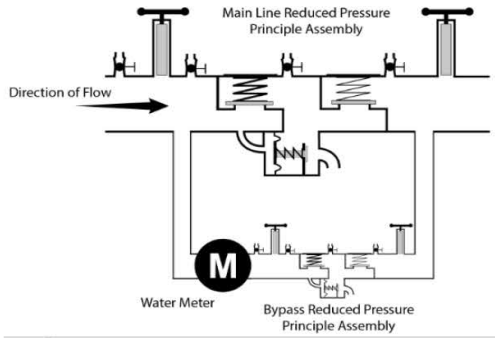
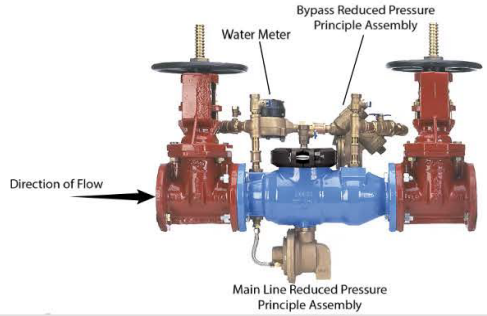
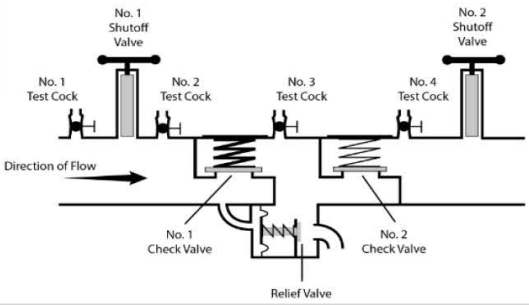
f.	Maintain the existing testing conditions and continue the testing procedures with Test #3 below.
Test #3: Tightness of No. 1 Check Valve	
a.	Note that this task is typically done with the bypass hose connected to No. 4 test cock as in step e of Test #2 (high side control needle valve and bypass control needle valve remaining open), open the low side bleed needle valve on the field test kit until the reading reaches a value above the apparent No. 1 check valve differential pressure. Slowly close the low side bleed needle valve. After the reading settles, the differential pressure reading indicated (reading is not falling on the field test kit) is the actual static (i.e., no flow) differential pressure across check valve No. 1 and should be recorded on the Test report under the Check Valve #1 item, "____ PSID". If the value recorded is greater then both the relief valve opening point, and at least 5.0 psid, mark on the Test Report under the Check Valve #1 item that No. 1 check valve is closed tight. 
b.	Close all test cocks, slowly open shutoff valve No. 2, and remove all test equipment and fittings. 

Cross Connection Control

BPA-RPDA-SOP

Testing Procedures

Procedure No.:	**BPA-RPDA-SOP**
Process or Equipment:	**Reduced Pressure Principle Detector BPA**
Procedure:	**Testing Procedures**
Typical Completion Frequency:	**Annually**
Original Release Date:	**2025**
Revision Date:	**May-25**
Related SOPs:	**BPA-RP-SOP**
Reference Documents:	**USCFCCCHR Manual of Cross Connection Control**
Routine Equipment Required:	
Special Equipment Required:	**Five Needle Valve Backflow Field Test Kit**
Prerequisite Training Required:	**Backflow Prevention Assembly General Tester (BPAT) Certification**
Description:	Test #1: Main-line Relief Valve Opening Point Test #2: Main-line Tightness of No.2 Check Valve Test #3: Main-line Tightness of No.1 Check Valve Test #1A: Bypass Relief Valve Opening Point Test #2A: Bypass Tightness of No.2 Check Valve Test #3A: Bypass Tightness of No.1 Check Valve

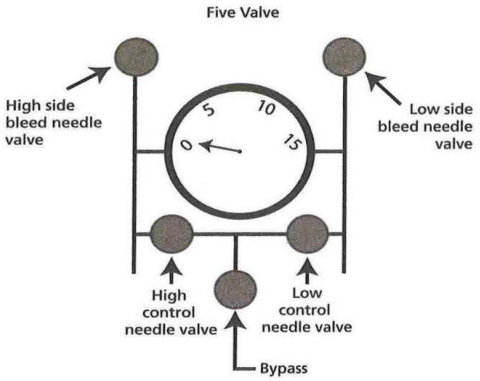
Action	Notes/Photos
Background	
The diagram to the right shows the general configuration of a reduced pressure principle detector backflow prevention assembly (RPDA). The labeled components of the BPA will be referenced in the following steps and actions to complete tests to verify the operation of the differential pressure relief valve and tightness of the check valves for both the main-line and bypass lines of the BPA.	 ***Reduced pressure principle detector backflow prevention assembly*** ***ZURN WILKINS 375DA***
The photo on the right shows a real example of the locations of each of the components discussed in the diagram above. It should be noted that this configuration is a detector assembly, which is a BPA with a bypass assembly. These bypass assemblies are typically identical to the main-line BPA, and are tested similar to the main-line, with several additional steps to isolate both runs.	
The diagram to the right shows the general configuration of a reduced pressure principle backflow prevention assembly (RP). The labeled components of the BPA will be referenced in the following tests. Note that the terms main-line and bypass will be utilized to identify which flow path is being tested.	***Reduced pressure principle backflow prevention assembly*** 

Cross Connection Control

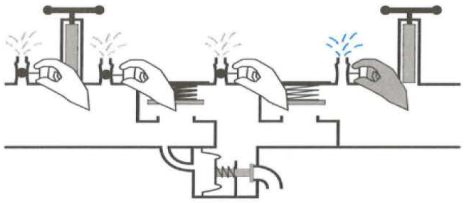
BPA-RPDA-SOP

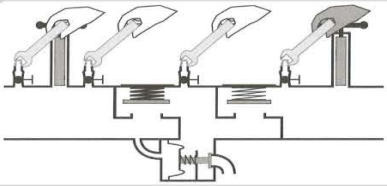
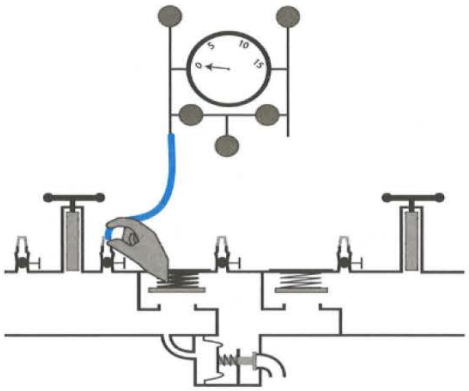
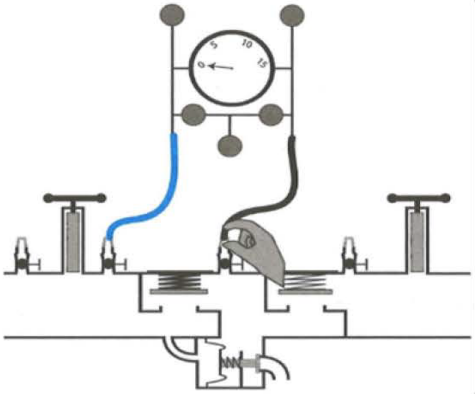
Testing Procedures

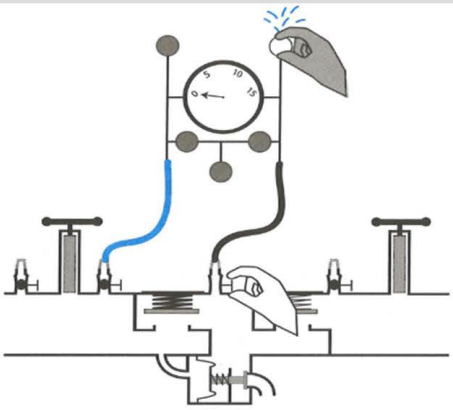
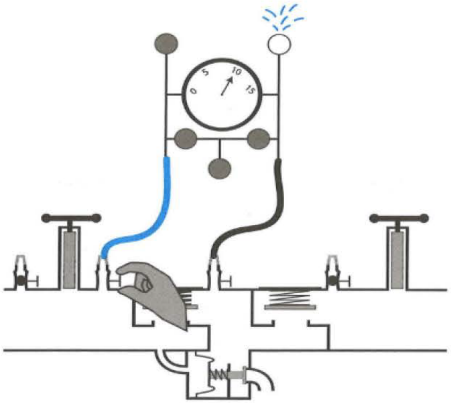
A five needle valve Backflow Field Test Kit is needed for the following testing procedures. A diagram showing the necessary configuration for a five needle valve Backflow Field Test Kit shown on the right .

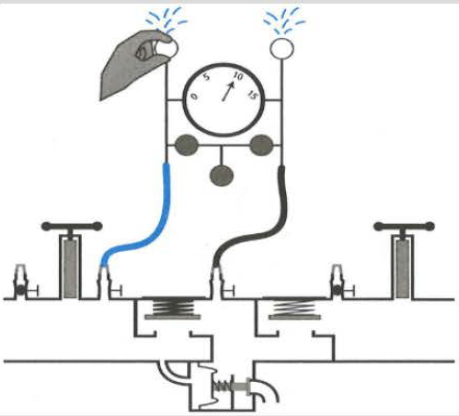
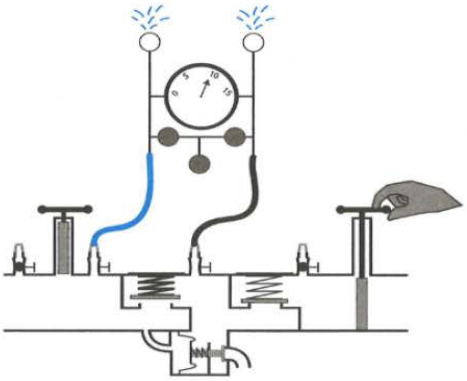


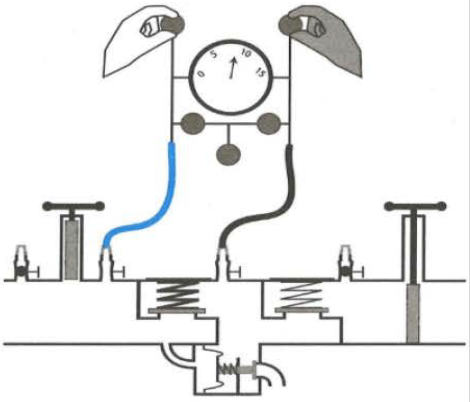
Test Preparation	
a.	Verify the location and confirm the type of BPA on site. Record the Customer information and Assembly information on the Backflow Prevention Assembly Test Report.
b.	Verify the BPA has all required components for the field test procedure (i.e. upstream and downstream shutoff valves, open and closed shutoff valves, and properly located test cocks).
c.	Notify the water user/property owner of the upcoming backflow test, and the temporary disruption of their water service.
d.	Ensure that the field kit has been calibrated within the last year.
e.	Conduct the testing of the RPDA by first testing the mainline assembly, then proceeding with the testing of the bypass assembly. Close the No. 2 shutoff valve of the **Bypass** assembly before beginning test #1.

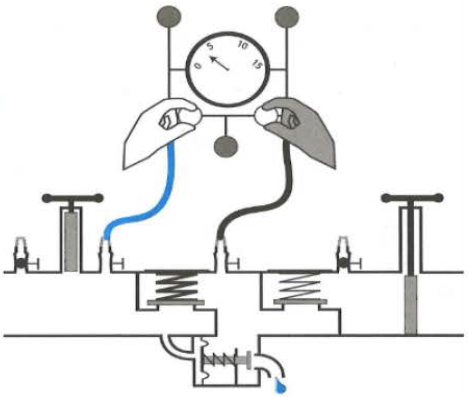
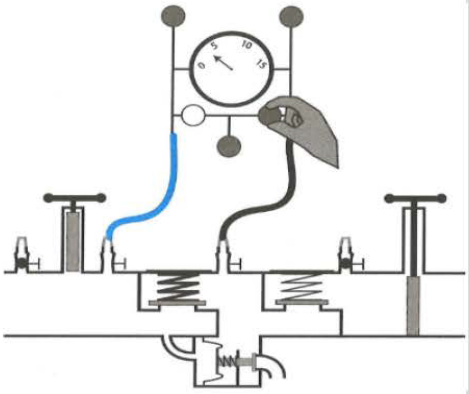
Test #1: Main-line Relief Valve Opening Point		
a.	Bleed water through test cocks to eliminate foreign material. Open No. 4 test cock to establish flow through the unit, then open test cock No. 3, No. 2 (open No. 2 test cock slowly), and No. 1. Then close test cocks No. 1, No. 2, No. 3, and No. 4. Be careful not to activate the differential pressure relief valve while bleeding the test cocks.	

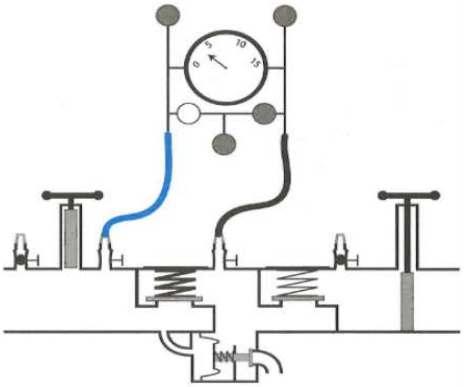
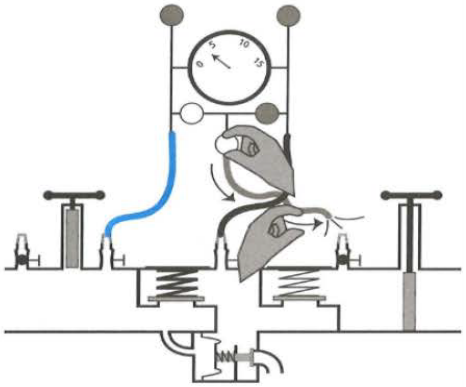
b.	Install appropriate fittings to test cocks. *NOTE: Some assemblies are equipped with the adapter fittings, which fit the field test kit hoses as an integral part of the test cocks.*	
c.	Attach hose from the high side of the field test kit to the No. 2 test cock. *NOTE: Some types of test cocks are opened when the hose from the field test kit is attached. If the BPA contains this type of test cock, follow the steps below:* *1. Attach hose from the low side of the field test kit to the No. 3 test cock, and then bleed all air from the low side of the field test kit by opening the low side bleed needle valve.* *2. Maintain the low side bleed needle valve in the open position, then attach hose from the high side of the field test kit to the No. 2 test cock. Open the high side bleed needle valve to bleed all air from the high side of the field test kit.* *3. Omit step d through step g, and proceed to step h.*	
d.	Attach hose from the low side of the field test kit to the No. 3 test cock.	

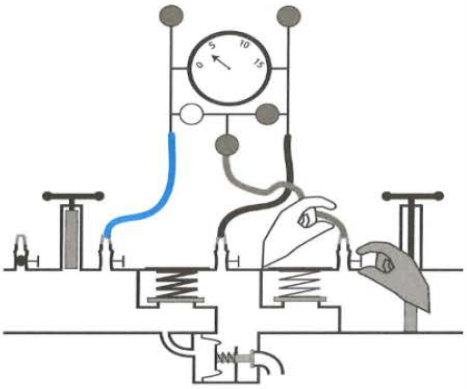
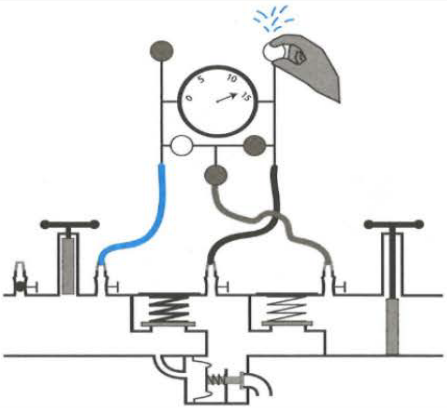
e.	Slowly open test cock No. 3 and then bleed all air from the low side of the field test kit by opening the low side bleed needle valve.	
f.	Maintain the low side bleed needle valve in the open position and slowly open test cock No. 2 fully to pressurize the field test kit.	

g.	Open the high side bleed needle valve to bleed all air from the high side of the field test kit.	
h.	Close No. 2 shutoff valve.	

i.	Close the high side bleed needle valve. After the field test kit reading has reached the upper end of the scale, slowly close the low side bleed needle valve. • If the reading remains above the differential pressure relief valve opening point, (i.e., relief valve does not discharge) then observe the reading. This is the apparent differential pressure across the No. 1 check valve. Note on the Test Report under the Check Valve #1 item, "____ PSID". During Tests No. 1, No. 2, and No. 3 of this SOP the field test kit is on-line showing the differential pressure across the No. 1 check valve. Proceed to step j. • If the reading drops to the low end of the scale and the differential pressure relief valve discharges continuously, then the No. 1 check valve is leaking, and should be recorded as such. Mark on the Test Report under the Check Valve #1 item that No. 1 check valve is leaking. Tests No. 1, No. 2, and No. 3 may not be completed.	

j.	Open the high side control needle valve approximately one turn, and then slowly open the low side control needle valve no more then one-quarter turn to bypass water from the No. 2 test cock to the No. 3 test cock. Observe the differential pressure reading as it slowly drops to the relief valve opening point. Record this opening point value when the first discharge of water is detected on the Test Report under the Relief Valve item, "Opened at ____ PSID" • If the low side control needle valve is opened one-quarter turn and the reading does not decrease to the relief valve opening point, then indicate on the Test Report in the comments that the No. 2 shutoff valve is leaking. • If the differential pressure reading drops to zero, and the differential pressure relief valve does not discharge any water, record that the differential pressure relief valve did not open on the Test Report in the comments, and proceed to step k.	
k.	Close the low side control needle valve.	

l.	Maintain the existing testing conditions and continue the testing procedures with Test #2 below.
Test #2: Main-line Tightness of No. 2 Check Valve	
a.	Maintain the No. 2 shutoff valve in the closed position, and the high side control needle valve in the open position (from Test No. 1). 
b.	Bleed all of the air through the bypass hose by opening the bypass control needle valve. Close the bypass control needle valve only. 

c.	Attach the bypass hose from the field test kit to the No. 4 test cock, then fully open the No. 4 test cock.	
d.	Open low side bleed needle valve. Once the reading reaches a value above the apparent No. 1 check valve differential pressure reading, slowly close the low side bleed needle valve.	

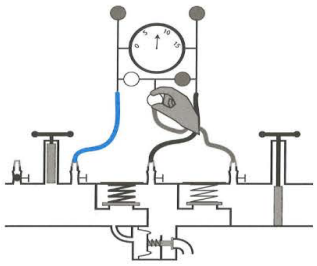
Open the bypass control needle valve.

• If the differential pressure reading remains steady, then mark on the Test Report under the Check Valve #2 item that No. 2 check valve is closed tight. Go to Test #3.

• If the differential pressure reading decreases, but stabilizes above the relief valve opening point, mark on the Test Report under the Check Valve #2 item that No. 2 check valve is closed tight. Go to Test #3.

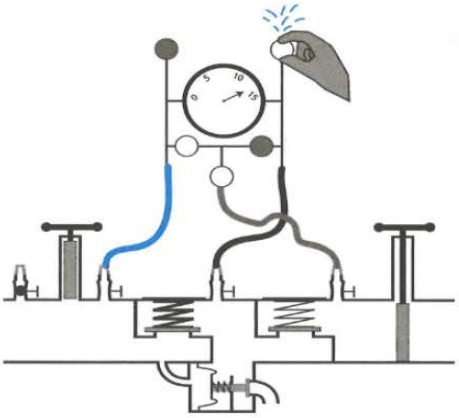
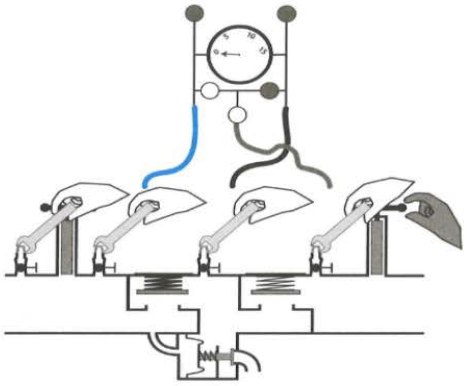
• If the differential pressure reading falls to the relief valve opening point, open the low side bleed needle valve until the reading reaches a value above the apparent No. 1 check valve
- If the differential pressure reading settles above the relief valve opening point (relief valve does not open), mark on the Test Report under the Check Valve #2 item that No. 2 check valve is closed tight. Go to Test #3.
- If the differential pressure reading falls to the relief valve opening point again, then mark on the Test Report under the Check Valve #2 item that No. 2 check valve is leaking. Test #3 cannot be completed. Close all test cocks, slowly open shutoff valve No. 2, and remove all test equipment and fittings.

e. • If the differential pressure reading falls to zero and the relief valve did not open (as recorded in Test #1, step j), open the low side bleed needle valve until the reading reaches a value above the apparent No. 1 check valve reading, then slowly close the low side bleed needle valve.
- If the differential pressure reading settles at a value above zero (0.0 psid) and relief valve does not open, mark on the Test Report under the Check Valve #2 item that No. 2 check valve is closed tight. Go to Test #3.
- If the differential pressure reading falls to zero (0.0 psid) again and relief valve does not open, then mark on the Test Report under the Check Valve #2 item that No. 2 check valve is leaking. Test #3 cannot be completed. Close all test cocks, slowly open shutoff valve No. 2, and removal all test equipment and fittings.

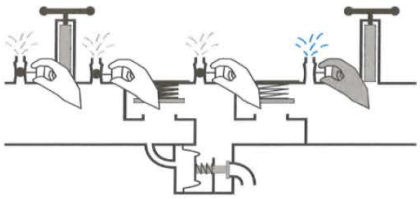
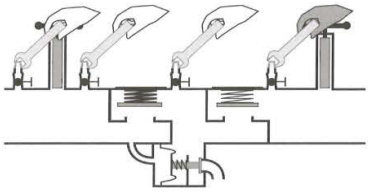
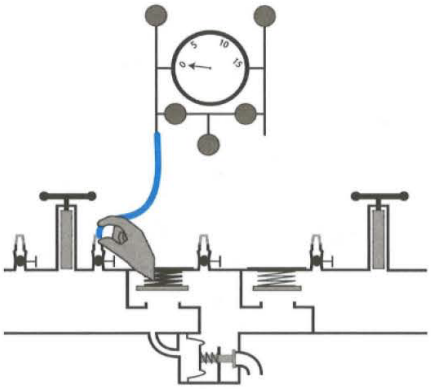


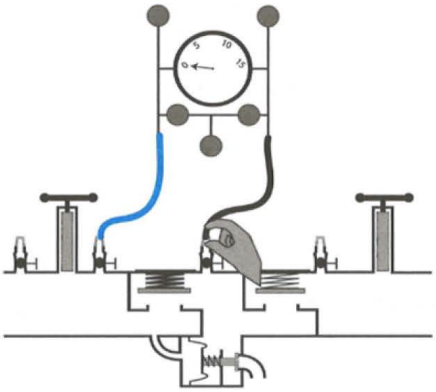
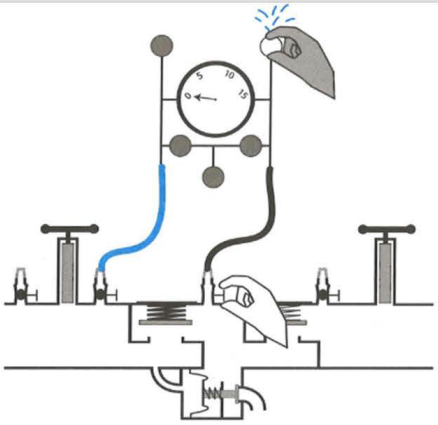
f.	Maintain the existing testing conditions and continue the testing procedures with Test #3 below.

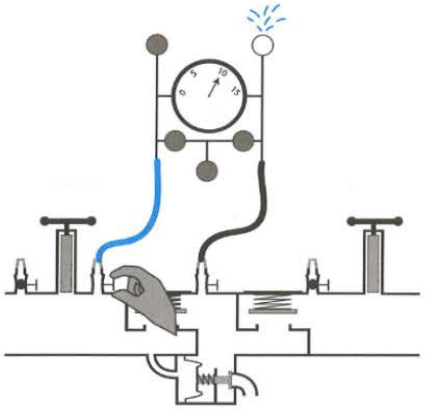
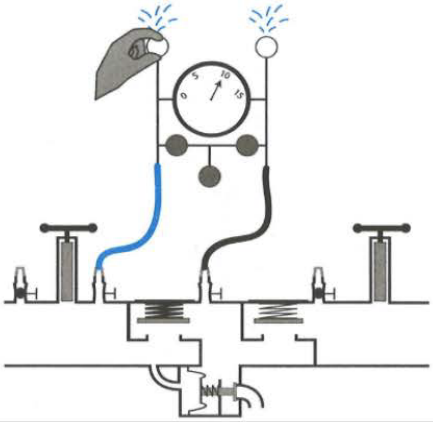
Test #3: Main-line Tightness of No. 1 Check Valve

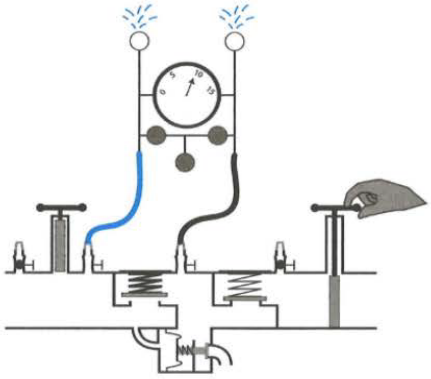
a.	Note that this task is typically done with the bypass hose connected to No. 4 test cock as in step e of Test #2 (high side control needle valve and bypass control needle valve remaining open), open the low side bleed needle valve on the field test kit until the reading reaches a value above the apparent No. 1 check valve differential pressure. Slowly close the low side bleed needle valve. After the reading settles, the differential pressure reading indicated (reading is not falling on the field test kit) is the actual static (i.e., no flow) differential pressure across check valve No. 1 and should be recorded on the Test report under the Check Valve #1 item, "____ PSID". If the value recorded is greater then both the relief valve opening point, and at least 5.0 psid, mark on the Test Report under the Check Valve #1 item that No. 1 check valve is closed tight.	
b.	Close all test cocks, maintain the shutoff valve No. 2 on the mainline assembly in the closed position, and remove all test equipment and fittings from the main-line.	

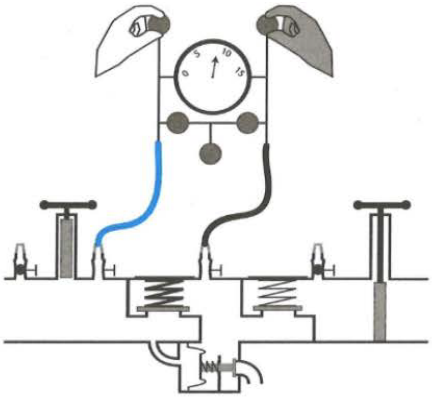
Test #1A: Bypass Relief Valve Opening Point

a.	Bleed water through test cocks to eliminate foreign material. Open No. 4 test cock to establish flow through the unit, then open test cock No. 3, No. 2 (open No. 2 test cock slowly), and No. 1. Then close test cocks No. 1, No. 2, No. 3, and No. 4. Be careful not to activate the differential pressure relief valve while bleeding the test cocks.	
b.	Install appropriate fittings to test cocks. *NOTE: Some assemblies are equipped with the adapter fittings, which fit the field test kit hoses as an integral part of the test cocks.*	
c.	Attach hose from the high side of the field test kit to the No. 2 test cock. *NOTE: Some types of test cocks are opened when the hose from the field test kit is attached. If the BPA contains this type of test cock, follow the steps below:* *1. Attach hose from the low side of the field test kit to the No. 3 test cock, and then bleed all air from the low side of the field test kit by opening the low side bleed needle valve.* *2. Maintain the low side bleed needle valve in the open position, then attach hose from the high side of the field test kit to the No. 2 test cock. Open the high side bleed needle valve to bleed all air from the high side of the field test kit.* *3. Omit step d through step g, and proceed to step h.*	

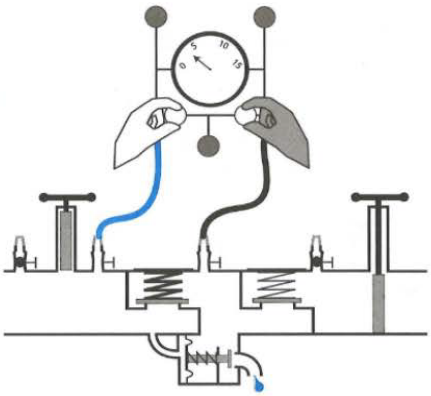
d.	Attach hose from the low side of the field test kit to the No. 3 test cock.	
e.	Slowly open test cock No. 3 and then bleed all air from the low side of the field test kit by opening the low side bleed needle valve.	

f.	Maintain the low side bleed needle valve in the open position and slowly open test cock No. 2 fully to pressurize the field test kit.	
g.	Open the high side bleed needle valve to bleed all air from the high side of the field test kit.	

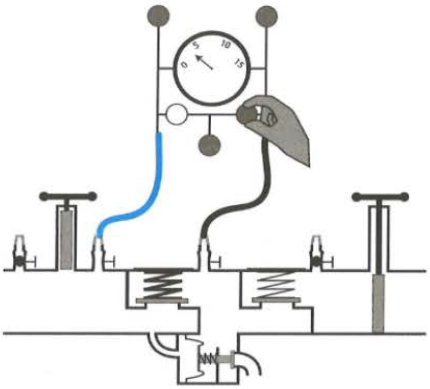
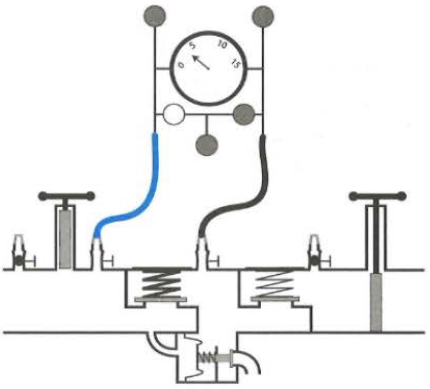
h.	Close No. 2 shutoff valve.	

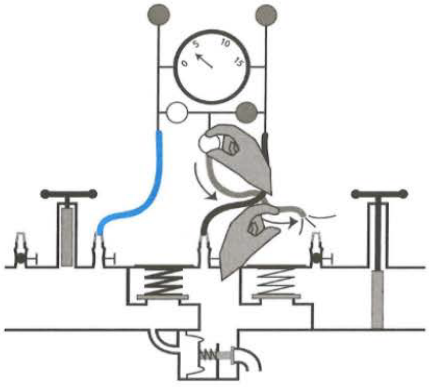
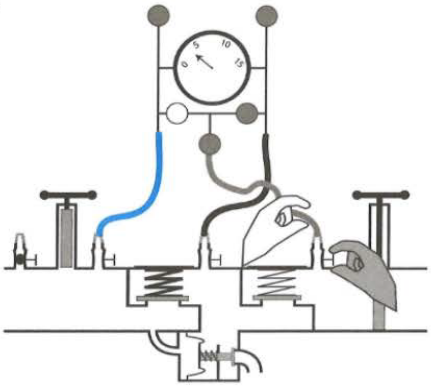
i.	Close the high side bleed needle valve. After the field test kit reading has reached the upper end of the scale, slowly close the low side bleed needle valve. • If the reading remains above the differential pressure relief valve opening point, (i.e., relief valve does not discharge) then observe the reading. This is the apparent differential pressure across the No. 1 check valve. Note on the Test Report under the Check Valve #1 B/P Assembly item, "____ PSID". During Tests No. 1A, No. 2A, and No. 3A of this SOP the field test kit is on-line showing the differential pressure across the No. 1 check valve. Proceed to step j. • If the reading drops to the low end of the scale and the differential pressure relief valve discharges continuously, then the No. 1 check valve is leaking, and should be recorded as such. Mark on the Test Report under the Check Valve #1 B/P Assembly item that No. 1 check valve is leaking. Tests No. 1A, No. 2A, and No. 3A may not be completed.	

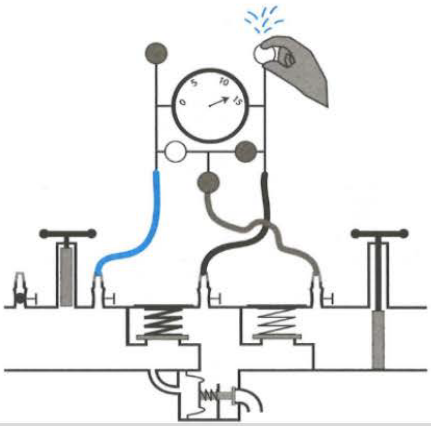
Open the high side control needle valve approximately one turn, and then slowly open the low side control needle valve no more then one-quarter turn to bypass water from the No. 2 test cock to the No. 3 test cock. Observe the differential pressure reading as it slowly drops to the relief valve opening point. Record this opening point value when the first discharge of water is detected on the Test Report under the Relief Valve B/P Assembly item, "Opened at ____ PSID"



j. • If the low side control needle valve is opened one-quarter turn and the reading does not decrease to the relief valve opening point, then indicate on the Test Report in the comments that the No. 2 shutoff valve is leaking on the bypass assembly.
• If the differential pressure reading drops to zero, and the differential pressure relief valve does not discharge any water, record that the differential pressure relief valve did not open on the Test Report in the comments, and proceed to step k.

k.	Close the low side control needle valve.	
l.	Maintain the existing testing conditions and continue the testing procedures with Test #2A below.	
Test #2A: Bypass Tightness of No. 2 Check Valve		
a.	Maintain the No. 2 shutoff valve in the closed position, and the high side control needle valve in the open position (from Test No. 1).	

b.	Bleed all of the air through the bypass hose by opening the bypass control needle valve. Close the bypass control needle valve only.	
c.	Attach the bypass hose from the field test kit to the No. 4 test cock, then fully open the No. 4 test cock.	

d.	Open low side bleed needle valve. Once the reading reaches a value above the apparent No. 1 check valve differential pressure reading, slowly close the low side bleed needle valve.	

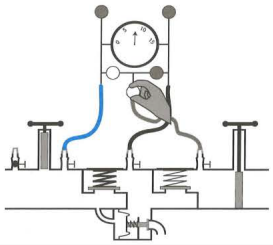
Open the bypass control needle valve.

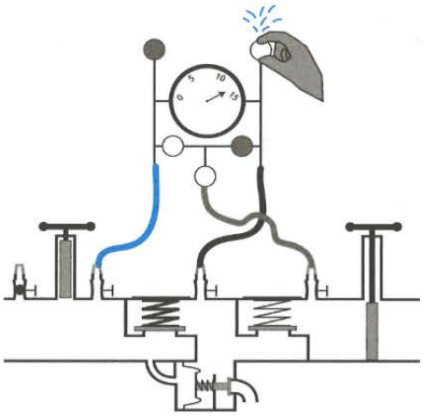
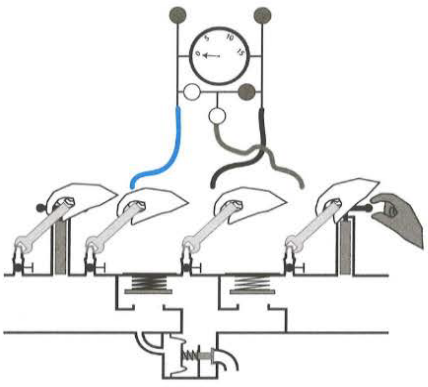
• If the differential pressure reading remains steady, then mark on the Test Report under the Check Valve #2 B/P Assembly item that No. 2 check valve is closed tight. Go to Test #3A.

• If the differential pressure reading decreases, but stabilizes above the relief valve opening point, mark on the Test Report under the Check Valve #2 B/P Assembly item that No. 2 check valve is closed tight. Go to Test #3A.

• If the differential pressure reading falls to the relief valve opening point, open the low side bleed needle valve until the reading reaches a value above the apparent No. 1 check valve
- If the differential pressure reading settles above the relief valve opening point (relief valve does not open), mark on the Test Report under the Check Valve #2 B/P Assembly item that No. 2 check valve is closed tight. Go to Test #3A.
- If the differential pressure reading falls to the relief valve opening point again, then mark on the Test Report under the Check Valve #2 B/P Assembly item that No. 2 check valve is leaking. Test #3A cannot be completed. Close all test cocks, slowly open shutoff valve No. 2, and remove all test equipment and fittings.

e. • If the differential pressure reading falls to zero and the relief valve did not open (as recorded in Test #1, step j), open the low side bleed needle valve until the reading reaches a value above the apparent No. 1 check valve reading, then slowly close the low side bleed needle valve.
- If the differential pressure reading settles at a value above zero (0.0 psid) and relief valve does not open, mark on the Test Report under the Check Valve #2 B/P Assembly item that No. 2 check valve is closed tight. Go to Test #3A.
- If the differential pressure reading falls to zero (0.0 psid) again and relief valve does not open, then mark on the Test Report under the Check Valve #2 B/P Assembly item that No. 2 check valve is leaking. Test #3A cannot be completed. Close all test cocks, slowly open shutoff valve No. 2, and removal all test equipment and fittings.



f.	Maintain the existing testing conditions and continue the testing procedures with Test #3A below.
Test #3A: Bypass Tightness of No. 1 Check Valve	
a.	Note that this task is typically done with the bypass hose connected to No. 4 test cock as in step e of Test #2A (high side control needle valve and bypass control needle valve remaining open), open the low side bleed needle valve on the field test kit until the reading reaches a value above the apparent No. 1 check valve differential pressure. Slowly close the low side bleed needle valve. After the reading settles, the differential pressure reading indicated (reading is not falling on the field test kit) is the actual static (i.e., no flow) differential pressure across check valve No. 1 and should be recorded on the Test report under the Check Valve #1 B/P Assembly item, "____ PSID". If the value recorded is greater then both the relief valve opening point, and at least 5.0 psid, mark on the Test Report under the Check Valve #1 item that No. 1 check valve is closed tight. 
b.	Close all test cocks, slowly open shutoff valve No. 2, and remove all test equipment and fittings. 

c.	Open all shutoff valves of the entire RPDA assembly.

Cross Connection Control

BPA-PVB-SOP

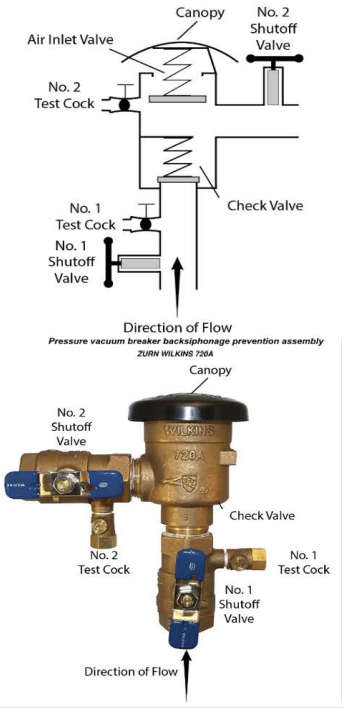
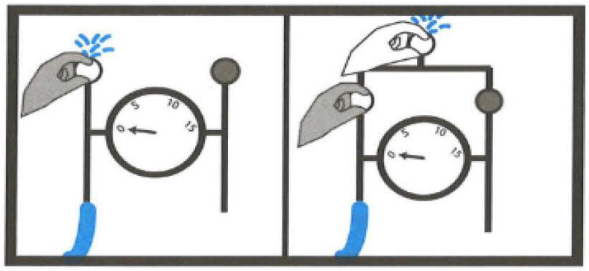
Testing Procedures

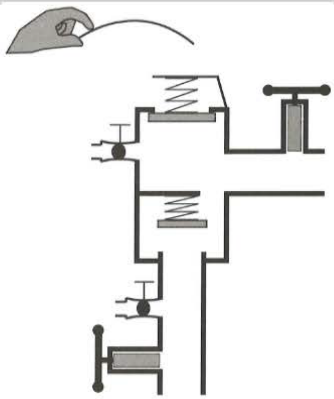
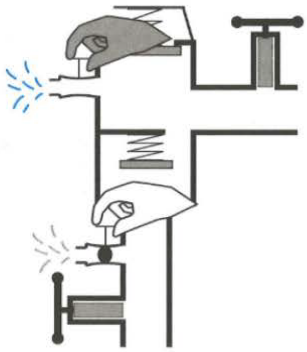
Procedure No.:	**BPA-PVB-SOP**
Process or Equipment:	**Pressure Vacuum Breaker BPA**
Procedure:	**Testing Procedures**
Typical Completion Frequency:	**Annually**
Original Release Date:	**2025**
Revision Date:	**May-25**
Related SOPs:	**BPA-SVB-SOP**
Reference Documents:	**USCFCCCHR Manual of Cross Connection Control**
Routine Equipment Required:	
Special Equipment Required:	**Backflow Field Test Kit**
Prerequisite Training Required:	**Backflow Prevention Assembly General Tester (BPAT) Certification**
Description:	Test #1: Air Inlet Valve Opening Point Test #2: Tightness of Check Valve

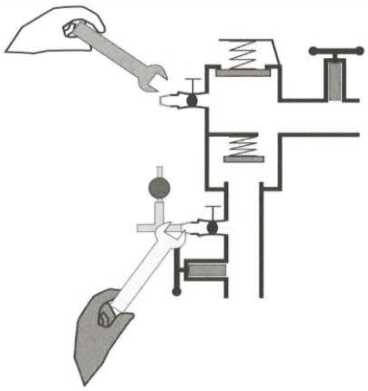
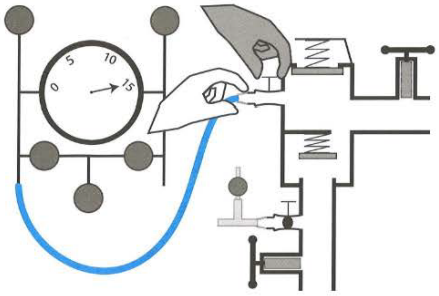
Cross Connection Control

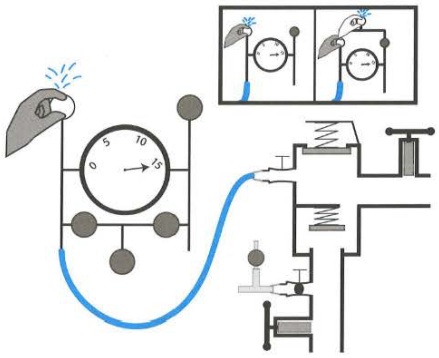
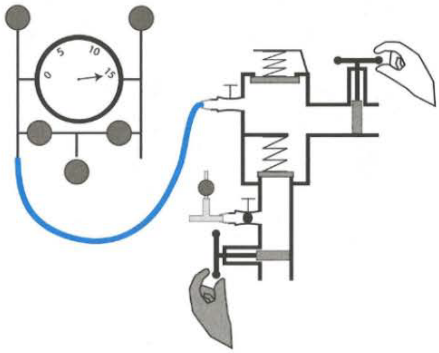
BPA-PVB-SOP

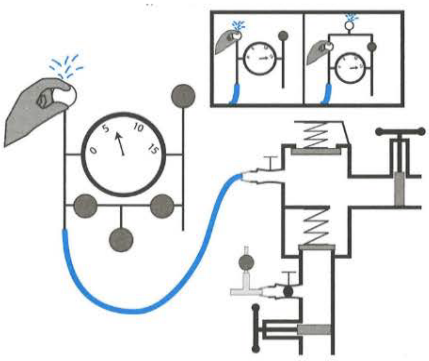
Testing Procedures

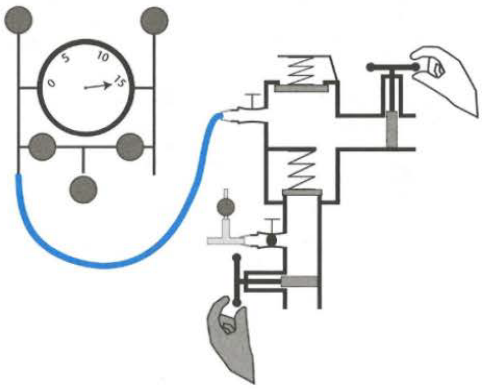
Action	Notes/Photos
Background	
The diagram to the top right shows the general configuration of a Pressure Vacuum Breaker (PVB). The labeled components of the BPA will be referenced in the following steps and actions to complete tests to verify the operation and tightness of the check valve and air inlet valve opening point. The photo on the bottom right shows a real example of the locations of each of the components discussed in the diagram above.	
Each step of the SOP is shown using a five needle valve backflow kit, but can be completed using a two or three needle valve backflow kit as well. The illustration box on the right will be inserted for each step of the field test procedures where the needle valves are operated for the two or three valve kits.	

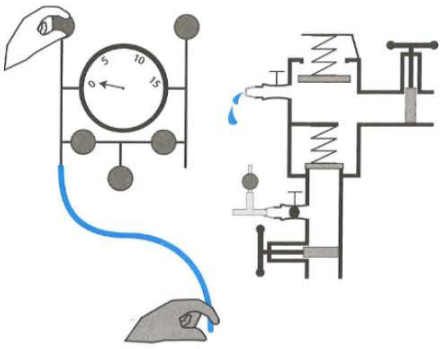
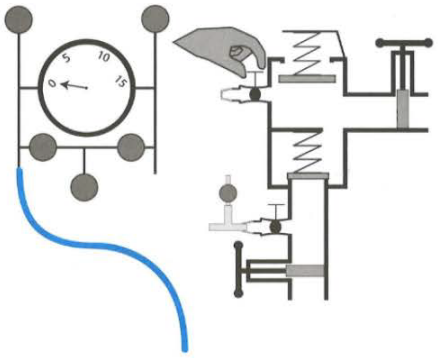
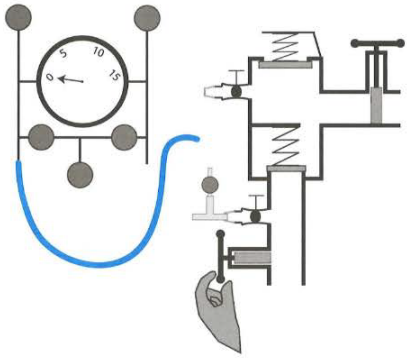
Test Preparation	
a.	Verify the location and confirm the type of BPA on site. Record the Customer information and Assembly information on the Backflow Prevention Assembly Test Report.
b.	Verify the BPA has all required components for the field test procedure (i.e. upstream and downstream shutoff valves, open and closed shutoff valves, and properly located test cocks).
c.	Notify the water user/property owner of the upcoming backflow test, and the temporary disruption of their water service.
d.	Ensure that the field kit is calibrated.
Test #1: Air Inlet Valve Opening Point	
a.	Remove air inlet valve canopy. 
b.	Bleed water through test cocks to eliminate foreign material. Open test cock No. 1, then close; open test cock No. 2, then close. 

c.	Install appropriate fittings to test cocks. Install bleed-off valve arrangement to test cock No. 1.	
d.	Attach the high side hose of the field test kit to test cock No. 2, open test cock No. 2.	

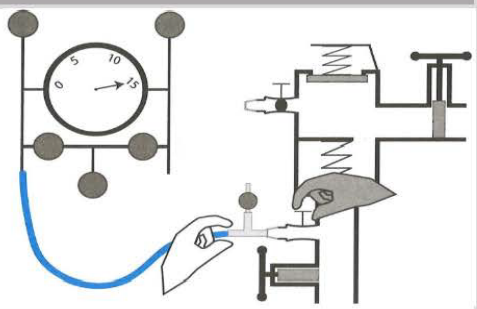
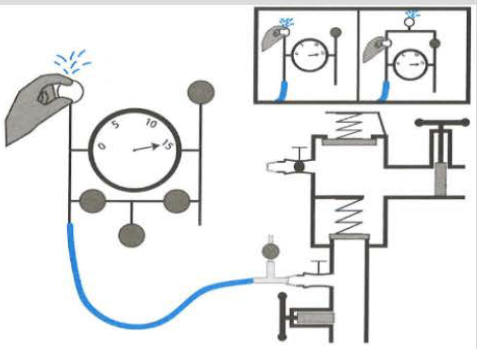
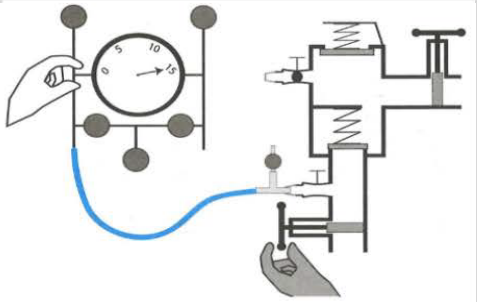
e.	Bleed air from the field test kit by opening the high side bleed needle valve. Close the high side bleed needle valve.	
f.	Close No. 2 shutoff valve. The field test kit must be maintained at the same level as the air inlet valve being tested. Close No. 1 shutoff valve. If the reading on the test kit begins to decrease, prepare to record the reading when the air inlet opens.	

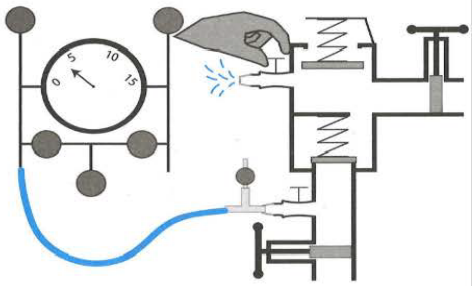
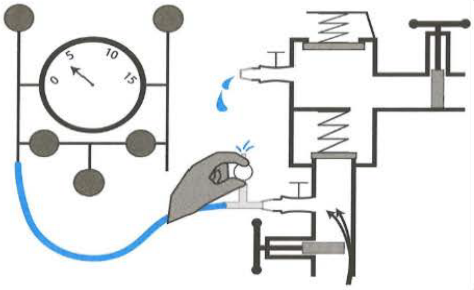
g.	Slowly open the high side bleed needle valve no more than one-quarter turn, being careful not to drop the differential pressure reading on the field test kit too fast (If reading is decreased too quickly, reading can not be recorded accurately). - The differential pressure reading on the field test kit when the air inlet valve opens should be recorded on the Test Report under the PVC/SVB Air inlet item, "Opened at ____ PSID". The value when the air inlet valve opens must be at least 1.0 psi above atmospheric pressure. Proceed to step h. - If the reading on the field test kit will not drop to the air inlet valve opening point with the high side bleed needle valve open one-quarter turn, proceed to step g-1. - If the reading drops to 0.0 psid and the air inlet does not open, check the box on the Test Report next to the PVC/SVB Air inlet item, "Did Not Open". Close the high side bleed needle valve and close test cock No. 2. Remove the high side hose from rest cock No. 2 and proceed to step j.	

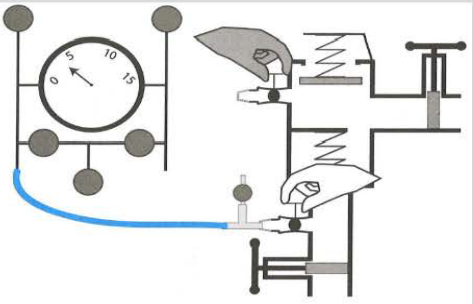
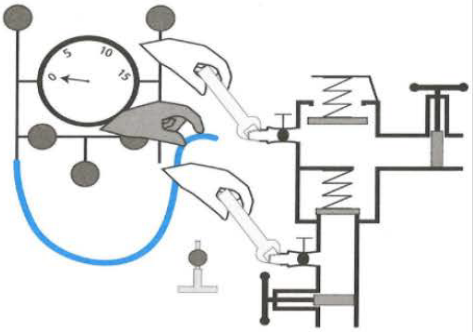
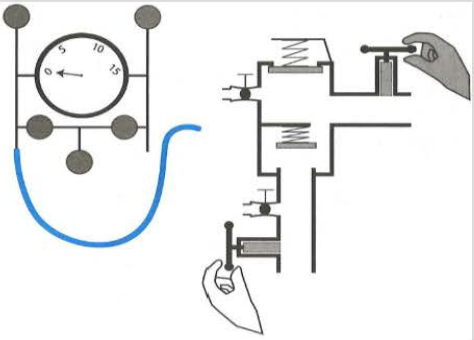
g-1.	If the reading on the field test kit will not drop to the air inlet valve opening point with the high side bleed needle valve open one-quarter turn, it is likely that the No. 1 shutoff valve is leaking. Close the high side bleed needle valve. Verify that the No. 1 shutoff valve is closed. Open high side bleed needle valve one-quarter turn, and should the leak persist, the leak must be diverted so that the air inlet valve can be tested. Close the high side bleed needle valve, then open the No. 1 test cock slowly to divert the leakage from the No. 1 shutoff valve, monitoring the field test kit while this is done. Once the leakage has been diverted through the No. 1 test cock, slowly open the high side bleed needle valve no more than one-quarter turn, being careful not to drop the differential pressure reading on the field test kit too fast. - If the reading begins to decrease, record the differential pressure reading on the field test kit when the air inlet valve opens. Close the high side bleed needle valve and remove the high side hose from the test cock No. 2 to drain water from the body. Observe that the inlet opens to the fully open position. Close both test cocks and proceed to step j. - If the reading drops to 0.0 psid and the air inlet does not open, record that the air inlet valve did not open. Close both test cocks. Close the high side needle valve then proceed to step j. - If the reading on the field test kit will not drop to the air inlet valve opening point with the high side bleed needle valve open one-quarter turn the No. 1 shutoff valve leak exceeds the limit of the No. 1 test cock and the field test can not be completed until the No. 1 shutoff valve is repaired or replaced. Record on the Test Report under comments that the No. 1 shutoff valve is leaking. Proceed to test #2, step e. 

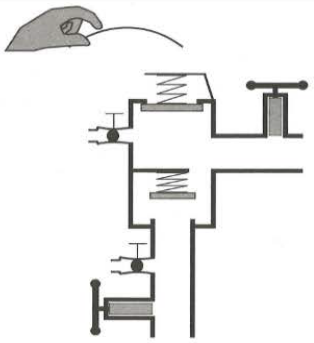
h.	Close the high side bleed needle valve and remove the high side hose from test cock No. 2 to drain water from the body. Observe that the air inlet valve has opened to its fully open position. Record on the Test Report under comments whether or not the air inlet opens to the fully open position.	
i.	Close test cock No. 2.	
j.	Open No. 1 shutoff valve.	

Test #2: Tightness of Check Valve

a.	Attach high side hose of the field kit to the bleed-off valve arrangement on test cock No. 1, slowly open test cock No. 1.	
b.	Bleed all air from the field test kit by opening high side bleed needle valve. Close high side bleed needle valve.	
c.	The field test kit must be maintained at the same level as test cock No. 2. Close No. 1 shutoff valve (No. 2 shutoff valve remains closed from Test No. 1). *NOTE: If the reading on field test kit begins to decrease, continue to step d. This may be caused by a leaking No. 2 shutoff valve, and may not affect the outcome of the field test procedure.*	

d.	Open test cock No. 2. The water in the body will drain out through test cock No. 2. When this flow of water stops or is no more than a drip, and the reading indicated by the field test kit stabilizes, the reading will be the differential pressure across the check valve and should be recorded on the Test Report under the PVC/SVB Check Valve item, "Held at ____ PSID". The value of the static differential pressure across the check valve must be at least 1.0 psid. If water continues to flow out of test cock No. 2, see step d-1.	
d-1.	If water continues to flow out of test cock No. 2 during Test No. 2, this indicates that the No. 1 shutoff valve is leaking. Slowly open the bleed-off valve. - If it is possible to adjust the bleed valve so that the flow of water from test cock No. 2 is no more than a drop, record the reading on the field test kit as the differential pressure across the check valve. Proceed to Step e. If it is not possible to adjust the bleed-off valve so there is a drip from the No. 2 test cock, the No. 1 shutoff valve is leaking too much to continue the test, and should be marked on the Test Report in the comments that the No. 1 shutoff valve is leaking. Proceed to step e.	

e.	Close test cocks No. 1 and No. 2.	
f.	Remove all test equipment and fittings.	
g.	Open No. 1 shutoff valve, then slowly open No. 2 shutoff valve.	

h.	Replace air inlet valve canopy.	

Cross Connection Control

BPA-SVB-SOP

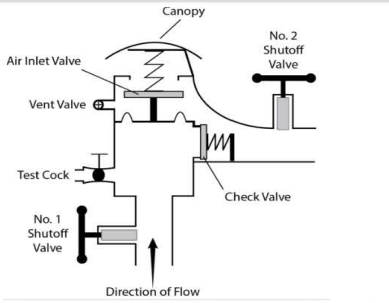
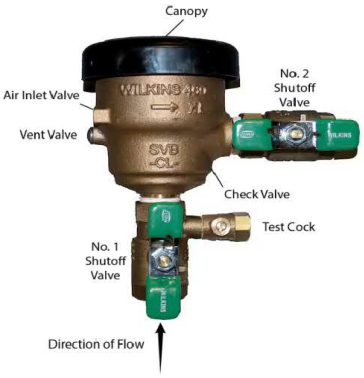
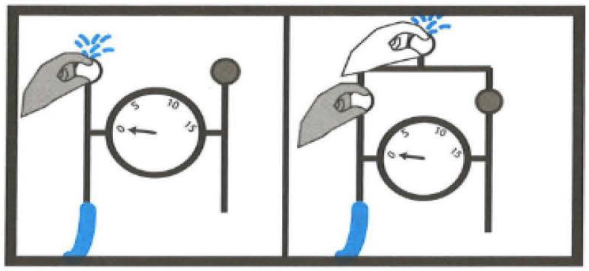
Testing Procedures

Procedure No.:	**BPA-SVB-SOP**
Process or Equipment:	**Spill-resistant Pressure Vacuum Breaker BPA**
Procedure:	**Testing Procedures**
Typical Completion Frequency:	**Annually**
Original Release Date:	**2025**
Revision Date:	**May-25**
Related SOPs:	**BPA-PVB-SOP**
Reference Documents:	**USCFCCCHR Manual of Cross Connection Control**
Routine Equipment Required:	
Special Equipment Required:	**Backflow Field Test Kit**
Prerequisite Training Required:	**Backflow Prevention Assembly General Tester (BPAT) Certification**
Description:	Test #1: Tightness of Check Valve Test #2: Air Inlet Valve Opening Point

Cross Connection Control

BPA-SVB-SOP

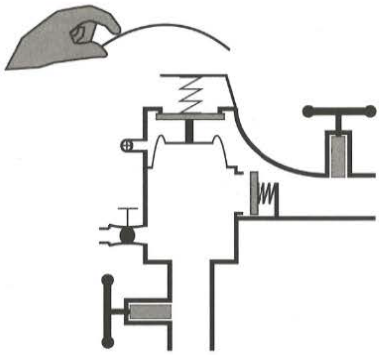
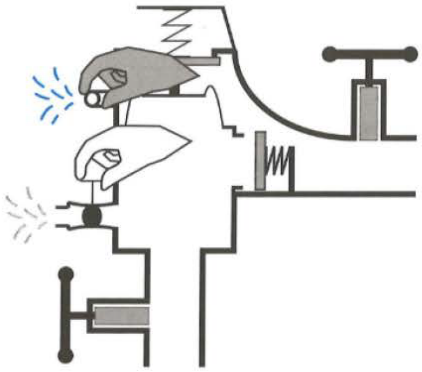
Testing Procedures

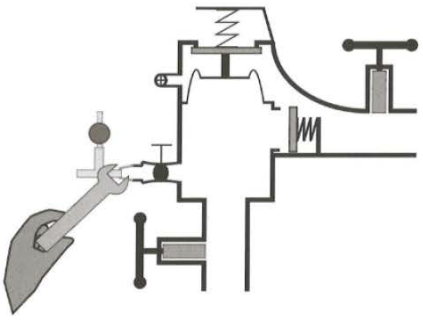
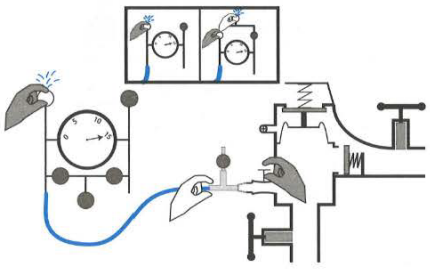
Action	Notes/Photos
Background	
The diagram to the top right shows the general configuration of a Spill-resistant Vacuum Breaker (SVB). The labeled components of the BPA will be referenced in the following steps and actions to complete tests to verify the operation and tightness of the check valve and air inlet valve opening point. The photo on the bottom right shows a real example of the locations of each of the components discussed in the diagram above.	 *Spill-resistant pressure vacuum breaker backsiphonage prevention assembly ZURN WILKINS 460XL* 
Each step of the SOP is shown using a five needle valve backflow kit, but can be completed using a two or three needle valve backflow kit as well. The illustration box on the right will be inserted for each step of the field test procedures where the needle valves are operated for the two or three valve kits.	

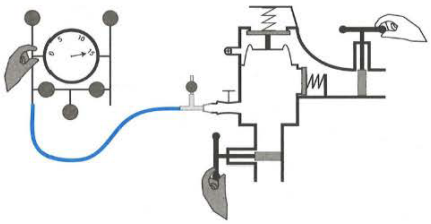
Cross Connection Control

BPA-SVB-SOP

Testing Procedures

Test Preparation	
a.	Verify the location and confirm the type of BPA on site. Record the Customer information and Assembly information on the Backflow Prevention Assembly Test Report.
b.	Verify the BPA has all required components for the field test procedure (i.e. upstream and downstream shutoff valves, open and closed shutoff valves, and properly located test cocks).
c.	Notify the water user/property owner of the upcoming backflow test, and the temporary disruption of their water service.
d.	Ensure that the field kit is calibrated.
Test #1: Tightness of No. 2 Check Valve	
a.	Remove air inlet valve canopy. 
b.	Bleed water through the test cock and valve vent to eliminate foreign material. 

c.	Install appropriate fitting to test cock. Attach bleed-off valve arrangement to test cock.	
d.	Attach the high side hose of the field test kit to the bleed-off valve, open the test cock, and bleed air from the field test kit by opening the high side bleed needle valve. Close the high side bleed needle valve. *Note: To help determine the opening point of the air inlet valve, the area on top of the air inlet valve may be filled with the water discharging from the field test kit.*	

e.	Close No. 2 shutoff valve. The field test kit must be maintained at the same level as the air inlet valve being tested. Close No. 1 shutoff valve. - If the reading on the test kit does not decrease, continue to step f. - If reading on the field test kit begins to decrease and the air inlet valve does not open, the No. 2 shutoff valve is leaking and should be recorded on the Test Report under comments. Continue to step f. - If reading on the field test kit begins to decrease and the air inlet valve opens, continue to step e-1. - If the air inlet valve was continuously discharging upon arrival, continue to step f.	

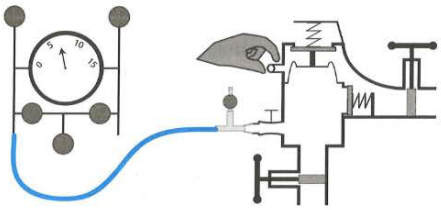
e-1.	If the reading on the field test kit decreases and the air inlet opens during step e, this indicates that the No. 2 shutoff valve is leaking and the check valve is leaking/failing or holding at a value less than the air inlet opening point. - If the reading decreases slowly, prepare to observe the air inlet valve opening point, and record the differential reading on the field test kit when the air inlet opens. Record the No. 2 shutoff valve as leaking on the Test Report under comments. Open the vent valve to lower outlet pressures to atmospheric. When the differential pressure reading indicated by the field kit settles, the reading will be the differential pressure across the check valve, and should be recorded on the Test Report under the PVC/SVB Check Valve item, "Held at ____ PSID". The value of the static differential pressure across the check valve must be at least 1.0 psid. Remove the high side hose from the test cock to drain water from the body. Observe that the air inlet valve has opened to its fully open position. Record whether or not the air inlet opens to the fully open position. Proceed to Test #2, step d. - If the reading on the field test kit decreases so quickly that the air inlet reading can not be accurately recorded, then Test No. 1 can not be completed. No. 2 shutoff valve must be repaired or replaced to determine the opening point of the air inlet valve. Record the No. 2 shutoff valve is leaking on the Test Report under comments. Open the vent valve. When the differential pressure reading indicated by the field test kit settles, the reading will be the differential pressure across the check valve, and should be should be recorded on the Test Report under the PVC/SVB Check Valve item, "Held at ____ PSID". The value of the static differential pressure across the check valve must be at least 1.0 psid. Remove the high side hose from the test cock to drain water from the body. Observe that the air inlet valve has opened to its fully open position. Record on the Test Report under comments whether or not the air inlet opens to the fully open position. Proceed to Test #2, step d.

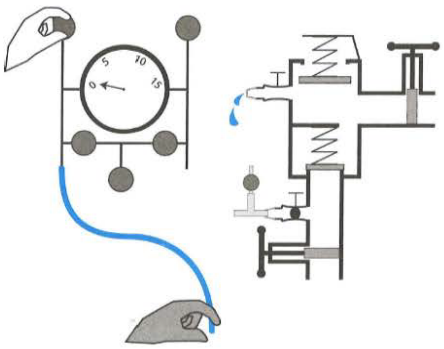
f.

Open the vent valve to lower outlet pressure to atmospheric.

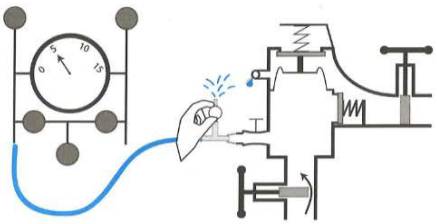
Note: If the vent valve is a machine screw, this may be accomplished by loosening the machine screw, or totally removing the machine screw from the body. Removing the machine screw will lower outlet pressure more quickly. It is recommended to totally remove the machine screw to drain water pressure to atmosphere.

- If the air inlet valve does not open, proceed to step g.
- If the air inlet valve opens, observe the reading and record on the Test Report under the PVC/SVB Air inlet item, "Opened at ____ PSID". The value when the air inlet valve opens must be at least 1.0 psi above atmospheric pressure. Proceed to step g-1.



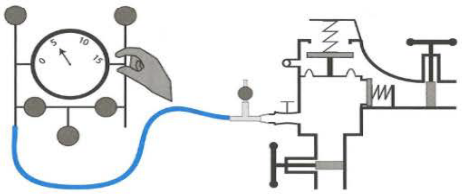
f-1.	If the reading decreases as the vent valve is opened, prepare to observe the air inlet valve opening point, and record the differential reading on the field test kit when the air inlet opens. - If the differential pressure reading indicated by the field test kit settles, and flow of water from the vent valve stops or is no more than a drip, the reading will be the differential pressure across the check valve. This value should be recorded on the Test Report under the PVC/SVB Check Valve item, "Held at ____ PSID". The value of the static differential pressure across the check valve must be at least 1.0 psid. - If the differential pressure reading indicated by the field test kit settles, and water continues to flow from the vent valve, slowly open the bleed-off valve until the flow of water from the vent valve is no more than a drip. Record the reading on the field test kit as the differential pressure across the check valve. This value should be recorded on the Test Report under the PVC/SVB Check Valve item, "Held at ____ PSID". The value of the static differential pressure across the check valve must be at least 1.0 psid. Remove the high side hose from the test cock to drain water from the body. Observe that the air inlet valve has opened to its fully open position. Record on the Test Report under comments whether or not the air inlet opens to the fully open position. Proceed to Test#2, step d.
g.	When the flow of water from the vent valve stops or is no more than a drip and the reading indicated by the field test kit stabilizes, the reading will be the differential pressure across the check valve. This value should be recorded on the Test Report under the PVC/SVB Check Valve item, "Held at ____ PSID". The value of the static differential pressure across the check valve must be at least 1.0 psid. If water continues to flow out of the vent valve, proceed to step g-1. 

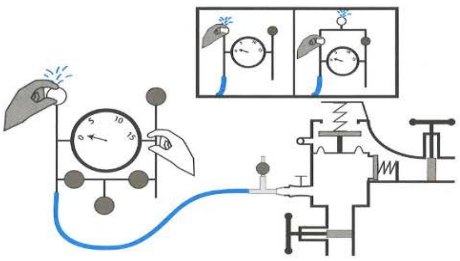
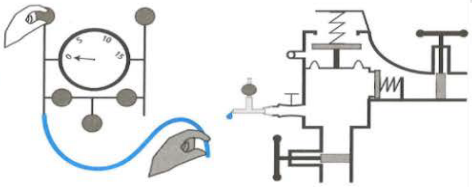
g-1.	If water continues to flow out of the vent valve, this indicates that the No. 1 shutoff valve is leaking and should be noted on the Test Report under comments. Slowly open the bleed-off valve until the flow of water from the vent valve is no more than a drip. Record the reading on the field test kit as the differential pressure across the check valve. This value should be recorded on the Test Report under the PVC/SVB Check Valve item, "Held at ____ PSID". The value of the static differential pressure across the check valve must be at least 1.0 psid. With the bleed-off valve open so that the flow of water from the vent valve is no more than a drip, proceed to Test #2, step b. If it is not possible to adjust the bleed-off valve so there is a drip from the vent valve, the No. 1 shutoff valve is leaking too much to continue the field test, and should be noted on the Test Report under comments. Proceed to Test #2, step d.

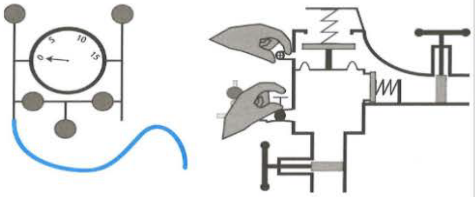
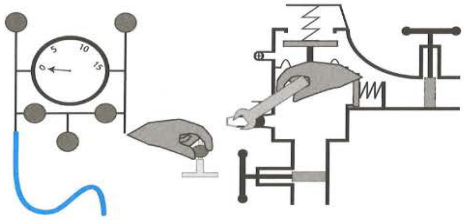
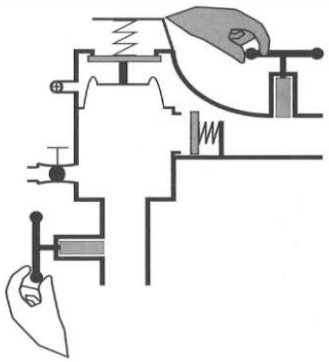


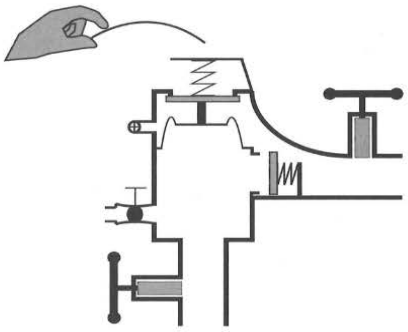
Test #2: Air Inlet Valve Opening Point

a.	The field test kit must be maintained at the same level as the vent valve.



b.	Slowly open the high side bleed needle valve no more than one-quarter turn, being careful not to drop the differential pressure reading on the field test kit too fast (If reading decreases too quickly, the reading can not be recorded accurately). *Note: An indicator that the air inlet valve has opened is when water starts to flow out of the vent valve.* - Record the differential pressure reading on the field test kit when the air inlet valve opens. Proceed to step c. - If the reading drops to 0.0 psid and the air inlet does not open, check the box on the Test Report next to the PVC/SVB Air inlet item, "Did Not Open". Proceed to step d.	
c.	Close the high side bleed needle valve and remove the high side hose from the bleed-off valve to drain water from the body. Observe that the air inlet valve has opened to its fully open position. Record on the Test Report under comments whether or not the air inlet opens to the fully open position.	

d.	Close test cock and vent valve. 
e.	Remove all test equipment and fittings. 
f.	Open No. 1 shutoff valve, then slowly open No. 2 shutoff valve. 

g.	Replace air inlet valve canopy.	

PLACER COUNTY WATER AGENCY

BACKFLOW PREVENTION ASSEMBLY TEST REPORT

{All test results must be submitted on a PCWA report form – no other form is acceptable. Any incomplete and/or unidentifiable submittals will be returned to the customer for follow-up with the privately-contracted tester}

Customer Information	Last Test:	Location ID:
Service Address:	**Assembly Information**	
Meter Location: ERT ID#	Mfg. / Model	RP ☐
Meter # Meter Size:	Size: / Serial #	DC ☐
Type of Service:	**Bypass Assembly**	PVB ☐
	Mfg. / Model	SVB ☐
	Bypass Meter #	DCDA ☐
	Size / Serial #	RPDA ☐

NEW INSTALLATION: ☐ **ANNUAL TEST:** ☐ **REPLACEMENT INSTALLATION:** ☐

	Reduced Pressure Principle Assembly			PVB/SVB
	Double check Valve Assembly			
	Check Valve #1	**Check Valve #2**	**Relief Valve**	
INITIAL TEST	_____PSID Closed Tight ☐ Leaked ☐	_____PSID Closed Tight ☐ Leaked ☐	Opened at _____PSID Did Not Open ☐	Air Inlet Opened at _____ PSID Did Not Open ☐
	B / P Assembly Held at _____PSID Closed Tight ☐ Leaked ☐	**B / P Assembly** Held at _____PSID Closed Tight ☐ Leaked ☐	**B / P Assembly** Opened at _____PSID Did Not Open ☐	Check Valve Held at _____ PSID Leaked ☐
REPAIRS	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced
FINAL TEST	_____PSID	_____PSID Closed Tight ☐	Opened at _____PSID	Air Inlet _____ PSID
	B / P Assembly Held at _____PSID Closed Tight ☐ Leaked ☐	**B / P Assembly** Held at _____PSID Closed Tight ☐ Leaked ☐	**B / P Assembly** Opened at ____PSID	Check Valve Held at _____PSID

Verified:

☐ **No connections or outlets between device and meter**

☐ **Meter # is same as noted above**

Comments: _____

Return To:
PCWA
144 Ferguson Rd.
P.O. Box 6570
Auburn, CA 95604
530.823.4850
530.823.4897 Fax

THE ABOVE REPORT IS CERTIFIED TO BE TRUE

Initial Test
Date/Time: _____ / _____ **Tester #:** _____ **Tester Phone:** _____ ☐ Pass ☐ Fail
Test by (Signature): _____ **Print Name:** _____

Final Test
Date/Time: _____ / _____ **Tester #:** _____ **Tester Phone #:** _____ ☐ Pass ☐ Fail
Test by (Signature): _____ **Print Name:** _____

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Appendix D

Backflow Incident Response Procedure

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BACKFLOW INCIDENT RESPONSE PROCEDURE

Purpose

The purpose of this standard operating procedure is to establish a logical and repeatable response to backflow incidents, if they occur, within a PCWA water system.

Background

To protect public health, the State Water Resources Control Board developed a Cross-Connection Control Policy Handbook (CCCPH) to help guide the water systems in California in developing a cross-connection control policy. 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.

To comply with section 3.1.4 of the Cross-Connection Control Policy Handbook release on July 1, 2024, each public water system (PWS) must submit a written Cross-Connection Control (CCC) Plan to the State Water Board for review. An incident response procedure must be included in this plan.

What Conditions Cause Backflow?

- Back-Siphonage: Occurs when pressure in the public water system drops below a customer's plumbing system pressure.
- Back-Pressure: Occurs when pressure in a customer's plumbing system rises above the public water supply pressure.

If either of the two conditions exist while there is a cross-connection to a liquid, solid, or gas without proper protection, that contaminant in the connection will be drawn or forced into the water supply.

Backflow incidents can pose a serious threat to public health. Microbial, chemical, or physical contaminants that enter the distribution system through unprotected cross-connections, or through openings in the underground piping system, may cause widespread illness, injury, or worse.

Signs to Look for or that Point you in the Direction of a Backflow Event

- The first signal that something is wrong will most likely come from the customer. Customers may call to express concern about water quality or pressure issues within

their homes. These types of calls are serious, and a swift response and investigation should take place immediately.

- Discolored or Unusual Looking Water – Listen to customer descriptions and look for discolored, cloudy, sheen, foamy, or particles in the water
- Taste and Odor – Listen for trigger words or phrases referencing descriptors like fuel, chemical, medicinal, salty, or gritty. These descriptors are tell-tale signs that something went wrong.
- Low or No Chlorine residual – Contaminants can create chlorine demand and that can point you in the right direction.

Incident Response Actions

- **Assess the Risk – Find the Cause**
  - Life and health safety drive the response. *Notify your supervisor or department manager. If there is immediate danger to yourself or the public call 911 immediately.*
  - The responding operator or water quality specialist needs to use the complaint or his/her own knowledge of the system and geographical area to determine the potential cause. This is an all-hands-on deck issue, and it should be handled as such.
  - Sample the complainant's residence, business, or facility to gather as much field data as possible.
    - Chlorine
    - pH
    - Turbidity
    - Temperature
    - Color
    - Odor

    Record the data and notify the Distribution Operations Supervisor and Water Quality Supervisor of the results and request more sample bottles for laboratory analysis be brought to the site.
  - If the event is large enough to warrant; Initiate PCWA ICS procedures.

- **Identify the Affected Area**
  - It is crucial during the initial response to limit the spread of the contaminant. The response should include isolating the residence, business, or facility from the rest of the water system by closing the BPA valves and the curb stop
  - The water system also needs to be sectioned off to limit the expansion of the event. Water system maps and GIS/Geocortex should be used to efficiently and effectively isolate the affected area and contain it.

- **Communication**
  ***Reminder – Communication in these types of events needs to be well thought out, concise, and consistent.

  With;

  - **Agency Staff**
    - Detailed information regarding the event needs to be logged with date and time for each piece of information learned and/or actions taken.
    - Ensure management is kept informed of milestones and changes to the response plan.
    - Make sure that the Communication Manager is informed of the situation so he/she can begin working with the newspapers and media outlets.
    - You are the incident commander and remain that person until you are relieved by a higher-ranking Agency official.
  - **SWRCB-DDW Staff**
    - It is the responsibility of the Drinking Water Operations Manager or Water Quality Supervisor to inform the Water Board of the situation.
    - Each water system has a *Water Quality Emergency Notification Plan* that contains the phone numbers of the District Engineer and the Associate Sanitary Engineer. This document also contains the contact information for Placer County Environmental Health and Human Services. The ENP also lines out how the public notification can be initiated.
    - If the risk assessment points to the possibility of chemical contamination or microbial contamination, public notification may be warranted.
    - The SWRCB-DDW will help make the decision on whether public notification is warranted or not.
  - **Public**
    - Agency staff will work through the Communication Manager for all communications to the public.
    - Staff will work diligently to support the mission and message that the Communication Manager needs to send.

- **Flush**
  - A flushing plan for the affected area will be developed and followed in accordance with all State and Federal guidelines. *PCWA must adhere to NPDES release constraints and regulations if the release is planned vs. an emergency.* Reference the NPDES documentation and record all appropriate information if required.

- The flushing plan should effectively move any known contaminants to the nearest discharge port without unnecessarily spreading any contamination to unaffected parts of the system.

- **Disinfect**
  - Assuming the flushing has remedied the issues within the affected portion of the distribution system, system integrity must be re-established.
  - Working with SWRCB-DDW staff to have a disinfection plan approved, Agency staff will initiate the disinfection plan and sample according to the time schedule set.

- **Collect Samples**
  - Once the affected portion of the system is brought up to normal operating pressures and the system's integrity is re-established by remediating the contamination point, the water system should collect:
    - Coliform
    - Specific Chemical Spectrum
    - Standard Water Quality Parameters
      - Chlorine
      - pH
      - Turbidity
      - Temperature
      - Color
      - Odor
    - Any other parameters requested by the SWRCB-DDW

- **Follow-up and Lessons Learned**
  - Every event creates an opportunity to review how an event occurred and improve its procedure on dealing with such an event. It is the responsibility of the Agency to review the incident and create action items to improve not only how to prevent this type of thing from happening again, but to also improve the cross-connection control program and policy.
  - It is the Agency's responsibility to protect the water system and the public to whom it serves.

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Appendix E

Backflow Incident Notification Form

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BACKFLOW INCIDENT REPORT AND NOTIFICATION FORM

SWRCB-DDW and PCEH MUST BE NOTIFIED WITHIN THE FIRST 24 HOURS OF THE INCIDENT

Water System Name and System Number (Circle One):

Alta – CA3110024

Monte Vista - CA3110124

Colfax - CA3110006

Weimar - CA3110035

Applegate - CA3110050

Auburn-Bowman - CA3110005

Foothill-Sunset - CA3110025

Bianchi Estates - CA3110040

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 list all sampling parameters tested for:

_____

_____

_____

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 ACTION

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

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. ***Any other relevant supporting documentation or extra sheets used to explain any of the sections in this report.***

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Appendix F

Public Outreach and Education

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Backflow Prevention Program Brochure
(Front Page)

IF YOU HAVE A LEAK / BREAK

There are two ¼-turn valves on each end of the backflow assembly. Normally, the valve closest to the meter will shut off the incoming water and other valve will stop water from siphoning back from the house or business.

If the backflow device is leaking, broken or fails during annual testing, please contact a certified backflow technician to repair or replace the device.

FROST PROTECTION

If the device is exposed to freezing temperatures, protection is required. Frozen water in the backflow device will expand and cause cracks and breaks in the backflow assembly. The break will start leaking water when the pipes start to thaw. You may be without water if you do develop a leak or a break.

The backflow assembly belongs to you and, therefore, is your responsibility to repair, not PCWA.

Local hardware stores have weatherproofing material to wrap the backflow assembly. Be sure to wrap the pipes from the ground up to the backflow and back down to the ground.

A large bag specifically made for the backflow can be purchased to be placed over the backflow during the winter or a box can be built and placed over the backflow device. On firelines, covering must allow access to bypass meters for reading.

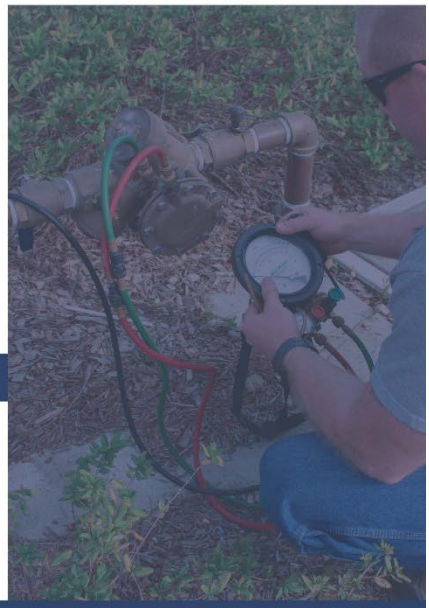
MORE INFORMATION

The following is available upon request: a list of approved backflow prevention devices; specification drawings S206, S207 and S509; a list of certified testers; a copy of PCWA's backflow policy; a blank Agency test form.

This brochure, as well as other printable specifications and drawings, may be accessed from the Backflow Prevention section of the PCWA website.

PCWA
water • energy • stewardship

BACKFLOW PREVENTION PROGRAM



PCWA
(530) 823-4998
backflow@pcwa.net
www.pcwa.net/services/backflow-prevention

A GUIDE TO PREVENTING BACKFLOW

Backflow Prevention Program Brochure
(Back Page)

WHAT IS BACKFLOW?

BACKFLOW is the reversal of the flow of water or mixtures of water and other liquids, gases, or other substances into the treated water supply.

This occurs when the pressure in the distribution system drops, siphoning water from the consumer's system into the distribution system. This type is called "back siphonage."

Some water customers have non-potable materials on their premises under pressure. This type of cross connection can create "back pressure" backflow.

Both are potentially dangerous to our water consumers. To protect the purity of our drinking water, it is very important we, the water supplier, the health department plumbing authority, and the consumer work together.

REQUIREMENTS

In accordance with the requirements of the California's Cross-Connection Control Policy Handbook (CCCPH) as defined in California's Health and Safety Code [CHSC, section 116275 (h)] and Placer County Water Agency's Cross-Connection Policy, a backflow device will be required on the following:

REDUCED PRESSURE PRINCIPLE DEVICE (RP):

- Residences where there is a non-potable, second source of water.
- Any property that has a sewer lift station.
- Any property where substances harmful to health are handled.
- All new and certain existing commercial connections.
- Premises where there are irrigation systems into which fertilizers, herbicides, or pesticides are, or can be, injected, spread, or sprayed.
- Fire hydrant connections for construction water purposes.

DOUBLE CHECK DETECTOR ASSEMBLY (DCDA):

- All Commercial Fire protection systems using class I or II.

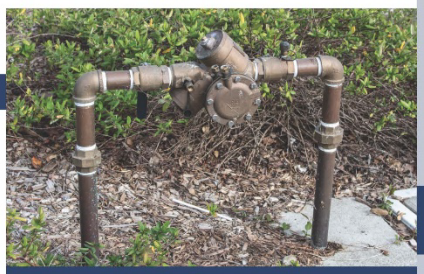
REDUCED PRESSURE PRINCIPLE DETECTOR ASSEMBLY (RPDA):

- All Commercial Fire protection systems using class III, IV, V, or VI.
- Residential Fire protection using class III, IV, V or VI

BACKFLOW DEVICE INSTALLATION

Only those devices approved by PCWA shall be acceptable for installation by a water user connected to the Agency's potable water system.

If you have any questions prior to installing your backflow device, please call our backflow line at (530) 823-4998 and set up a pre-install inspection/ consultation.



INSTALLATION REMINDERS

- Backflow devices will reduce water pressure by at least 10 psi.
- Backflow devices need to be protected from freezing temperatures.
- Provide access to bypass meters for reading on fireline services.

AGENCY RESPONSIBILITY

- To identify hazards that require a backflow device to be installed.
- Perform an inital inspection to ensure the device was installed to meet ageny standards.
- Enforce the Agency's Cross-Connection Control policy as mandated by the State of California.

CUSTOMER RESPONSIBILITY

The backflow device will be owned and maintained by the customer, this includes any leaks or breaks.

INITIAL RESPONSIBILITY:
- Have the proper backflow device installed
- Have backflow device tested by a certified tester and sent to the agency (or request agency test)

ANNUAL RESPONSIBILITY:
- Have the device tested and ensure test report is submitted via our automated backflow tracking system (see below) by your tester before the due date.

APPROVED BACKFLOW PREVENTION DEVICES AND ASSEMBLIES

PCWA has a simplified recommended list of approved devices (DCDA, RPDA, & RP). Most local plumbing supply stores are familiar with device information and requirements.

APPROVED CERTIFIED BACKFLOW TESTERS

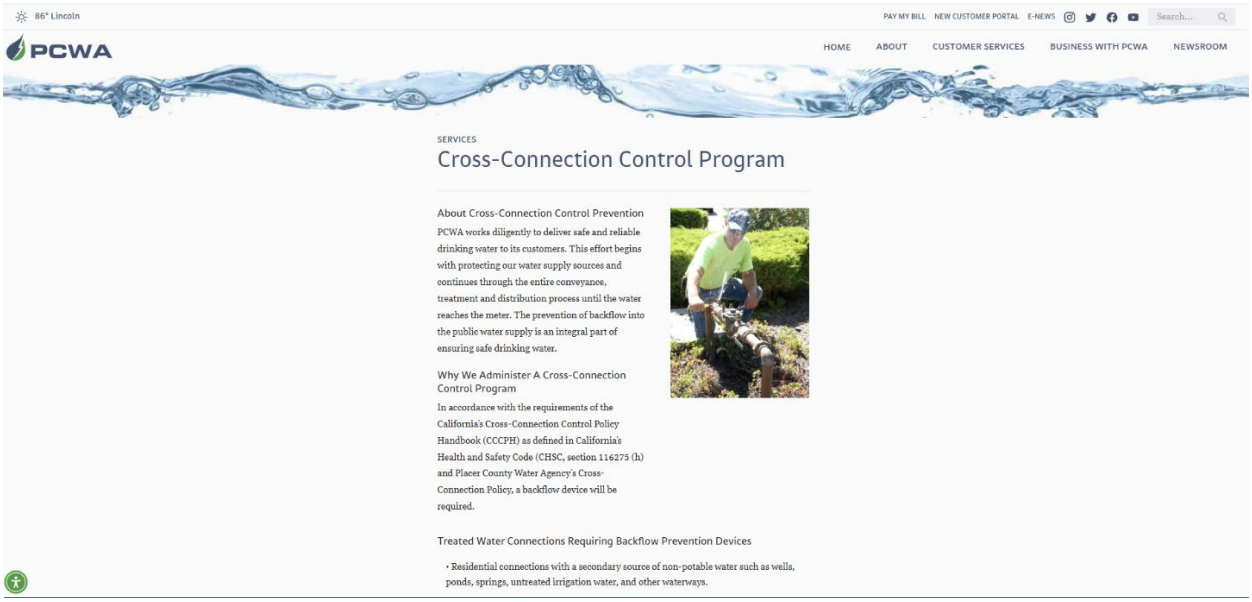
All approved backflow testers must be AWWA certified and submit calibration certificates to BSI Online, PCWA's automated backflow tracking system at:

BSI Online
(888) 966-6050
support@backflow.com
www.bsionline.com

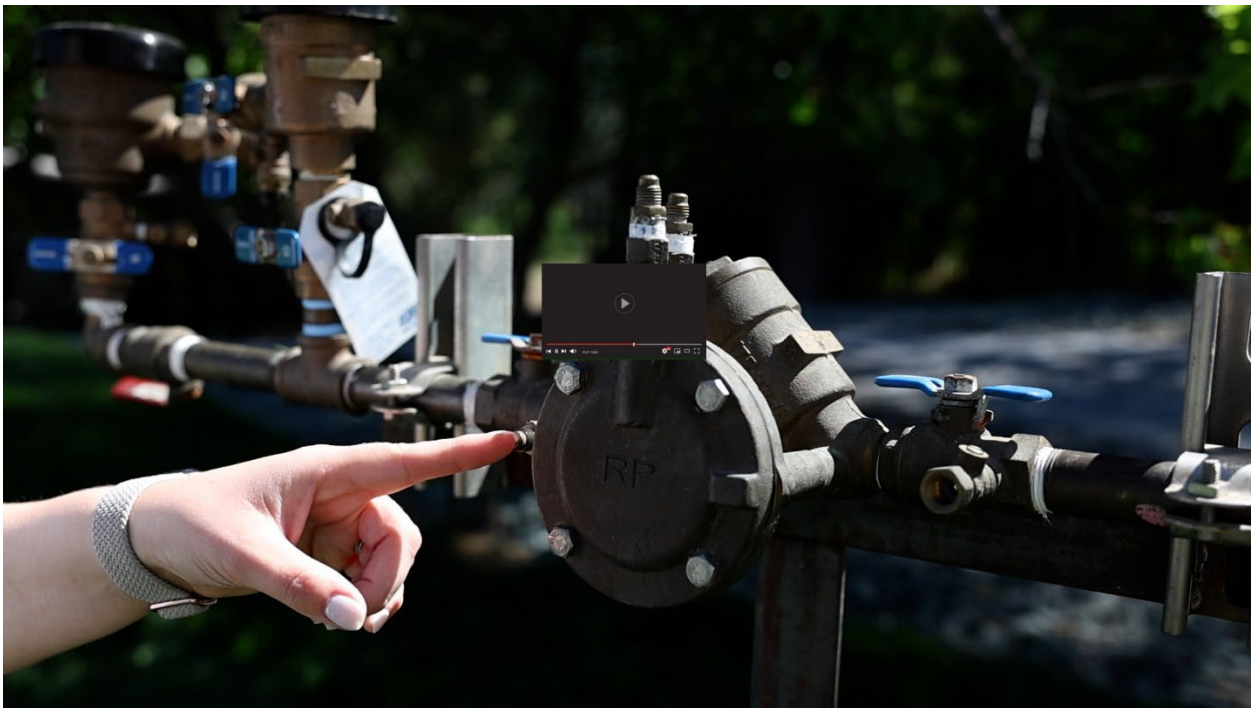
For a list of approved testers, please contact PCWA at (530) 823-4998 or backflow@pcwa.net.

Web Page with Link

www.pcwa.net/services/backflow-prevention
Link: Cross-Connection Control Program | pcwa.net



YouTube Video/Web Page Video



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Appendix G

Local Entity Coordination Document and Contact Information

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PCWA Incident Checklist

Use this checklist to assist with initial emergency response considerations and Incident Command activation.

☐ Gather specific incident information: identify who, what, where, why, and when.

Consider employee safety and well-being:

☐ Personnel Accountability ☐ Immediate Incident Hazards ☐ Food/Water ☐ PPE/Additional Gear

☐ Identify who is monitoring situational changes.

☐ Is there an adequate form of communication for all employees (cell phones, radios, GPS devices)?

☐ Are there any public safety issues?

☐ Will customer notification or outreach be required?

☐ Is there a need to contact outside agencies? *See contact list on reverse page.*

☐ Is there a risk to infrastructure, facilities, or property?

☐ Gather relevant maps and information.

☐ Locate additional or specific emergency response plans (EAP, SPCC, etc.)

☐ Document the timeline of events and Agency actions (Use ICS Form 202 for planning Agency objectives for each operational period, Use ICS Form 214 for logging actions during each operational period)

☐ Consider possible financial implications. Is there a need to track expenditures or set up a WF?

☐ Designate PCWA Incident Commander (Operations Department Head) if initiating Incident Command.

☐ **Send incident overview to the Incident Command email: incidentcommand@pcwa.net**

☐ **Schedule a meeting (Send to incidentcommand@pcwa.net & include Microsoft Teams option)**

Notes:

Emergency Contact Notification List

(All numbers in 530 area code unless listed otherwise)

Emergency Number "911"

Updated: March 2025

Alta Fire Department 389-2676
If no answer, call Zach Haslett (Fire Chief) 389-8244
Alta California Department of Forestry 389-2234
Auburn Police DepartmentNon-Emergency. 823-4234
Auburn Police Department ..... Emergency 823-4222
Auburn Fire Department 823-4211
Placer County Sheriff's Colfax Substation 346-2256
-24-Hr Dispatch 886-5375
Colfax Fire Department 346-6776
Foresthill Fire Department 367-2465
Lincoln Police ..... (916) 645-4040
Lincoln Fire Department ..... (916) 645-4040
Newcastle Fire Department District (Station 41) ..... (916) 663-3323
Rocklin Police ..... (916) 625-5400
Rocklin Fire ..... (916) 625-5300
South Placer Fire District ..... (916) 791-7059
Placer County Sheriff 886-5375/889-7800
-PCSO OES Liaison (Ty Connors) 308-0849
California Highway Patrol:
Newcastle ..... (916) 663-3344
Gold Run 388-9100
Dispatch ..... (916) 861-1300
California Department of Parks & Recreation
Non-emergency: ..... (916) 358-1300
Emergency: ..... (916) 358-1310
CA Water Resources Control Board-Water Quality: . (916) 341-5455
Department of Agriculture Fish & Game Commission 889-7372
Department of Fish & Wildlife
Office of Spill Prevention ..... (800)852-7550
Federal Bureau of Investigation:
Sacramento ..... (916) 746-7000
Folsom Lake Recreation District ..... (916) 988-0205
Placer Co. Ag Commissioner/Joshua Huntsinger 889-7372
Hospital: Auburn Faith Community Hospital 888-4500
Work Comp Clinic:
Kaiser Occupation Health: ..... (916) 784-4100
1600 Eureka Rd, 1st Floor, Roseville
Work Comp Clinic:
Near Site: ..... (916) 780-0110
151 N Sunrise Ave, #1201, Roseville
Work Comp Clinic:
Concentra: ..... (916) 632-9606
2305 Sunset Blvd, Rocklin

Pacific Gas & Electric
Chris Brewster (Central Area Hydro Mngr) ..... C# 906-3584
Brandon Banchio (Wise) ..... 889-3235 C# 401-1312
Colby Miller (Generation Sup. – Drum) ..... C# 913-7471
Mike Robinson (Maint. Supervisor) ..... C# 906-2751
Alta Service Center 389-2202
Wise Powerhouse 889-3282
Drum Powerhouse 389-2115
24 HR Commercial Emergencies 1-800-468-4743
Line Locations:
Andy Nevarrette Mon-Fri.6am-5pm* 401-8761
Report Emergency Outages 1-800-743-5002
Placer County Environmental Health: ..... 745-2300 / or 911
Director's line 745-2341
Placer County Office of Emergency Services: 886-5300
24 Hour Duty Officer 886-5340
Nevada County Environmental Health: 265-1222
Nevada Irrigation District:
Jennifer Hanson-General Manager ..... 273-6185 ext. 5024
Steve Drosser – Maintenance Mngr ..... 273-6185 ext. 1221
Chip Close- Operations Manager ..... 273-6185 ext. 1282
State of California/California Division of Drinking Water:
Ali Rezvani -Sacramento District Senior Engineer ..... (916)449-5681
Main Office # ..... (916)449-5577
U.S. Department of Interior-Bureau of Reclamation:
Drew Lessard ..... (916) 537-7000/(916) 601-5882 (24-hr #)
Department of Water Resources-Division of Safety of Dams
Sharon K. Tapia, Division Manager ..... (916) 565-7800
After work/weekends/holidays call:
Area 4 Engineer Thomas Banks ..... (916) 639-4434
Regional Engineer Tim Jimenez ..... (916) 565-7820
If unable to reach Area Engineer or Regional Engineer contact: Governor's Office of Emergency Services (916)845-8911 C# (916) 761-0892
For dam emergencies that may cause downstream flooding, contact the National Weather Service:
NWS Reno: ..... (775) 673-8109/(775) 673-8105
..... 24 HR (775) 673-8107
NWS Sacramento: ..... (916) 979-3049
Calfire (CDF)-Grass Valley Command Center: ..... 477-0641 Dispatch #
Calfire Unit Headquarters (Auburn): 823-4904
Cal-Trans: ..... (916) 859-7900
Chemtrec: Hazardous Chemical Emergency Spill Info .. 1-800-424-9300
A&P Helicopters ..... 742-4119/ Erik Vandagriff (pilot) 320-8858

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