REDWAY COMMUNITY SERVICES DISTRICT

CROSS-CONNECTION CONTROL PROGRAM HANDBOOK

MAY 21ST 2024

REDWAY
COMMUNITY SERVICES DISTRICT

Table of Contents

REDWAY
COMMUNITY SERVICES DISTRICT

DEFINITIONS / ACRONYMS AND GENERAL REQUIREMENTS

Definitions

The following definitions apply to the terms in the RSDC – CCCPH:

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

"AMI" means automated meter infrastructure. Smart Meter, Electronic Meter

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

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

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

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

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

"BPA" means Backflow Prevention Assembly.

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

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

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

“District Boundary” Is a boundary established by a local agency formation commission or organization, established within the county where services are served, and may not serve outside the District Boundary.

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

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

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

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

“General Tester” means a person who is certified/licensed through an approved organization that is accepted by the local water purveyor and is capable of performing routine tests on approved backflow devices.

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

“**High hazard cross-connection**” means a cross-connection that poses a threat to the potability or safety of the public water supply. Materials entering the public water supply through a high hazard cross-connection are contaminants or health hazards.
“NCBPA” means North Coast Backflow Prevention Association

“PWS” means Public Water Supply.

“RP” or Reduced Pressure Principle Backflow Prevention Assembly means an assembly with an independently acting internally-loaded check valve and an independently-acting loaded air inlet valve located on the discharge side of the check valve; with test cocks and tightly closing shutoff valves located at each end of the assembly that enable accurate field testing of the assembly. This type of assembly may only be used for protection from back siphonage and is not to be used to protect from back pressure.

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

Diagram 6, Appendix C.

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

"**Swivel-Ell**" means a reduced pressure principle backflow prevention assembly combined with a changeover piping configuration (swivel-ell connection) designed and constructed for recycled water/no-potable switchover situations within a Services District.

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

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

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

Legal Authority

The Redway Community Services District has operating rules, By-laws, and regulations established for enforcement throughout the District. The Redway CSD's Water Ordinance No.6 establishing these rules, rates and regulations for water service was established May 17th, 2017.

HAZARD ASSESSMENT AND REQUIRED BPA PROTECTION

There was an initial hazard assessment and survey done in 2020. We have just completed a second survey and hazard assessment in September 2024.The Redway Community Services District's Cross Connection Control Specialist conducts an overall annual survey throughout the District Boundary in Redway CA. The District always maintains a Licensed General Tester throughout the year as well. The Redway Community Services District owns and operates a (SWTF) "Surface Water Treatment Facility" as well as a (WWTF). "Wastewater Treatment Facility" The District utilizes (SCADA), "Supervisory Control and Data Acquisition", as well as an (AMI) "Automated Meter Infrastructure". With these tools available to our District we can easily conduct an annual survey.
As well as the high hazard priority BFA's which are at our sewer lift stations and the Wastewater Treatment Plant. All new applicants will go through the hazard assessment, which includes new businesses, and residential tenants. The assessment of the degree of hazard is conducted by the Districts CCC Specialist, and the District Specialist decides whether it is a high, or a low hazard. There are three types of assemblies that are allowed in our Distribution System. For Very high hazards, to high the District allows Reduced Pressure Principle Backflow Prevention Assemblies, and Air Gap's. for medium to high, the District allows Double Check Valve Assemblies.

For High Hazard Fire Protection Systems, as well as Low Hazard Fire Protection Systems, the District requires DC Assemblies. For high hazard fire protection systems that utilize a chemical addition require DC or DCDA. For existing systems that do not meet section 3.2.2 (e)(3) in the CE-EPA-CCCPH, or cannot install DC protection within ten years, the Redway CSD will write a

plan for the installation of the appropriate BPA for said user. Once the plan has been written by the District's Specialist, the user has no less than one year to execute.

This page left intentionally blank

CHAPTER 1 – PROGRAM OVERVIEW

1.0 Contact Information Redway CSD

The Redway CSD Cross Connection Control Program Contacts are as Follows.

GM/Operations Manager, Cody Cox E. cody@redwaycsd.org P. (707) 923.3101

Cross Connection Control Specialist/Coordinator, Cody Cox 3101 Certification # *AWWA 02037*.

General Tester, Eric Moore, E. eric@redwaycsd.org P. (707) 923.3101 Certification # *North Coast Backflow Prevention Association*

Office Manager, Glenn Gradin E. glenn@redwaycsd.org P. (707) 923.3101

RCSD Office *P.* (707) 923-3101 *A.* 3168 Redwood Dr. Redway CA. 95560 *Website*. Redwaycsd.org

1.1 Purpose

The purpose of this Cross Connection Control Program is to protect the public by isolating the Redway CSD's potable water distribution system from the other systems from which contamination could occur as a result of unauthorized or accidental cross connections; and provide for the maintenance of a continuing program which will systematically and effectively prevent such unauthorized or accidental cross connections.

1.2 Applicability

The Redway Community Services District complies with the CA-EPA-CCCPH Standards and Principles for California's Public Water Systems as defined in California Health and Safety Code **(CHSC section 116275 (h)).** Compliance with the CA-EPA-CCCPH is mandatory for the Redway Community Services District

The Redway Community Services District maintains a licensed General Tester by either the North Coast Backflow Prevention Association (NCBPA) or the American Water Works Association, (AWWA). The Redway CSD also maintains a Cross Connection Control Specialist/Coordinator so that the CCCP is administered correctly on an annual, Quarterly, and monthly basis with its 700+ connections regardless of the minimum 3000 connection requirement which dictates the need for a District Specialist according to

the State of CA, EPA. Redway CSD tests the Backflow devices throughout the township of Redway on a yearly basis.

Prior to the CA-EPA-CCCPH, The Redway CSD conformed to the standards established by the American Water Works Association (AWWA), as set forth in its publication entitled: A.W.W.A.C506-78 Standards for Reduced Pressure Principle, and Double Check backflow prevention devices. A “Certificate of Approval” issued by an approved testing laboratory, certifying full compliance with AWWA Standards. Additional language found in the previous Redway CSD CCCP for procedures for field testing backflow preventers was taken directly from USC’s 9th and then 10th edition Manual of Cross-Connection Control.

1.3 California Safe Drinking Water Act

In 2014, the State Water Resources Control Board assumed responsibility for the drinking water, and financial programs throughout the State, prior to that it was CA-DHS. On October 6, 2017, Assembly Bill 1671 (AB 1671) was approved and filed with the Secretary of State (see Appendix A). AB 1671 amended California’s SDWA through the establishment of CHSC sections 116407 and 116555.5. AB 1671 also amended section 116810 of the CHSC, which is briefly discussed in Appendix G.

On October 2nd, 2019, Assembly Bill 1180 (AB 1180) was approved and filed with the Secretary of State. AB 1180 Amended Section 116407 of the CHSC and added section 13521.1 to the water code. AB 1180 requires that the CA-EPA-CCCPH include provisions of the swivel or change over device (swivel-ell).

1.4 The California EPA’s Cross Connection Control Policy Handbook Adoption

The California Environmental Protection Agency completed development of the Cross Connection Control Policy Handbook for standards and principles for California’s Public Water Systems. In this document for the Redway Community Services District, it will be referred to as the CA-EPA-CCCPH. The State Water Resources Control Board adopted the CA-EPA-CCCPH on December 19th, 2023, and went into effect on July 1st, 2024. The Redway Community Services District adopted the CA-EPA-CCCP on 6-19-2024 after an initial hazard/survey assessment had been completed. Upon the effective date of the CA-EPA-CCCPH, the previous cross-connection control standards become inoperative, and are repealed 90 days later, unless the State Water Board determines not to repeal a specific existing regulation.

A PWS must implement a cross-connection control program that complies with the standards adopted by the State Water Board. The development of the CA-EPA-CCCPH included consultation with stakeholders, including state and local agencies, on an array of subjects related to cross-connection control, consistent with the statutory mandate, as well as consideration of input from other stakeholders and the general public in a February 20, 2020, workshop.

CHAPTER 2 – BACKGROUND ON BACKFLOW PROTECTION AND CROSS-CONNECTION CONTROL

2.1 What is a Cross-Connection?

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

Backflow is the undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into PWS's distribution system or approved water supply. The presence of a cross-connection represents a location in a distribution system through which backflow of contaminants or pollutants can occur. Backflow occurs when a non-potable source is at a greater pressure than the potable water distribution system. Backflow can occur from either back-siphonage or backpressure. Back-siphonage occurs when a non-potable source enters the drinking water supply due to negative (i.e., sub-atmospheric) distribution system pressure. Backpressure occurs when the pressure from a non-potable source exceeds the pressure in the potable water distribution system.

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

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

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

supply may be conveniently extended below the liquid surface by means of a hose or auxiliary piping. A submerged inlet may be created in numerous ways, and its detection may be difficult.

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

2.2 Applicability of the Redway CSD Cross Connection Control Program

A public water system (PWS) must comply with the requirements of the CA-EPA-CCCPH

The Redway Community Services District's Cross Connection Control Program provides the basis for regulating the use and the management of our Cross Connection Control Program. Activities or uses outside of the scope of the Redway CSD that are not related to us as a PWS, are not regulated by the RCSD CCCP.

CHAPTER 3 - STANDARD FOR BACKFLOW PROTECTION AND CROSS CONNECTION CONTROL

BACKFLOW PREVENTION ASSEMBLIES

3.3.1 Standards for Types of Backflow Protection

(a) Redway CSD must ensure that each AG used for its Cross-Connection Control Program meets the minimum requirements for Air Gaps for Generally used Plumbing Fixtures, page 4 of the American Society of Mechanical Engineers (ASME) A112.1.2-2012(R2017)

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

(1) Standards found in Chapter 10 of the Manual of Cross-Connection Control, Tenth Edition, published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research; or

(2) certification requirements for BPAs in the Standards of ASSE International current as of 2022 that include ASSE 1015-2021 for the DC, ASSE 1048-2021 for the DCDA & DCDA-II, ASSE 1013-2021 for the RP, and ASSE 1047-2021 for the RPDA.

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

3.3.2 Installation Requirements for Backflow Protection

(a) For AGs, the following is required:

(1) The receiving water container must be located on the water user's premises at the water user's service connection unless an alternate location has been approved by the District.

(2) all piping between the water user's service connection and the discharge location of the receiving water container must be above finished grade and be accessible for visual inspection unless an alternative piping configuration is approved by the District.

(3) the Redway CSD must ensure that the AG specified in CA-EPA-CCCPH section 3.3.1 (a) has been installed; and

(4) any new air gap installation at a user's service connection must be reviewed and approved by the State Water Board prior to installation.

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

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

(d) A RP or DC installed after the adoption of the CCCPH must have a minimum side clearance of twelve inches, except that a minimum side clearance of twenty-four inches must be provided on the side of the assembly that contains the test cocks. The District may approve alternate clearances providing that there is adequate clearance for field testing and maintenance.
(e) 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 Redway CSD. If internal protection is provided in lieu of premises containment, the District 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.

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

3.3.3 Field Testing and Repair of Backflow Prevention Assemblies Air Gap/Non testable Devices Inspection

(a) The Redway CSD ensures 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. This can be achieved by the Redway CSD's maintained in-house General tester. If the user would prefer someone else to perform a test, installation, or repair, this person must be a certified general tester, certified through either NCBPA, or the AWWA as a General Tester.

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

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

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

(e) Redway CSD ensures 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.25

(f) Redway CSD requires backflow prevention assembly testers to notify the District as soon as possible within 24 hours if a backflow incident or an unprotected cross-connection is observed at the BPA or prior to the user premises during field testing. PWS must immediately conduct an investigation and discontinue service to the user premises if a backflow incident is confirmed, and

water service must not be restored to that user premises until the District receives a confirmation of a passing BPA field test from a backflow prevention assembly tester and the assembly is protecting the Water Distribution System.

(g) Non-Testable Devices. There are currently no non-testable devices in the District. The process for a non-testable devise such as and AVB, “Atmospheric Vacuum Breaker”, there would be a Notify Identify Inspect Process for the account.

3.3.3 Field Testing and Repair of BPA’s and AG’s

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

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

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

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

(e) Redway CSD ensures 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.

CHAPTER 4 – RECORDKEEPING, BACKFLOW INCIDENT RESPONSE, NOTIFICATION, AND DISTRICT CERTIFICATION.

4.4.1 Recordkeeping

All recordkeeping including performed tests, passes, fails, repairs, and installations, are kept physically on paper file for three years with the Districts General Tester, and are sent to the Districts Specialist/Coordinator and are stored digitally on the Districts secure sever, this also includes all surveys and hazard assessments that are done by the District Specialist that are kept on the District’s server. The District maintains forms for all tests, and surveys.

Listed never destroy documents maintained, and 3-year maintenance of CCCP Documents.

(1) The two most recent hazard assessments for each user premise, conducted pursuant to CCCPH section 3.2.1 (Hazard Assessment). (**Never Destroy Document**) District Server.

(2) for each BPA, the associated hazard or application, location, owner, type, manufacturer and model, size, installation date, and serial number. (**Never Destroy Document**) Stored on District Server.

(3) for each AG installation, the associated hazard or application and the location, owner, and as-built plans of the AG. (**Never Destroy Document**) Stored on District Server.
.

(4) results of all BPA field testing, AG inspection, and swivel-ell inspections and field tests for the (**retain for 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 **(retain for three calendar years)**.

(6) the most current cross-connection tests (e.g. shutdown test, dye test). (**Never Destroy Document**) Stored on District Server.

(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. (**Keep record for 3 years**).

(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. (**Never Destroy Document**)

(10) the current Cross-Connection Control Plan as required in CA-EPA-CCCPH and is revised every other year. **(Never Destroy Document)**

(11) any public outreach or education materials issued as required by CA-EPA-CCCPH section 3.1.3.(a)(9) **(retain for three calendar years).**

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

4.4.2 Backflow Incident Response Procedure

The Redway CSD responds to complaints of water quality throughout the District that same day, we take every complaint very seriously as it could be a potential cross connection somewhere. We also utilize AMI, these are meters in the ground that monitor flows 24/7 throughout the District's Distribution System, we receive a report every morning from all of the meters. At the time of an incident the specialist will review all past water quality samples taken as well as all pressure readings in that part of the Distribution system. **All of these findings are kept on the District secure server, and the State is notified right away.**

The Districts General Tester is also involved in the Backflow incident response procedure. In the event that the backflow incident has been identified as an "actual", and not a "potential" cross connection, then the general tester will confirm that all, or any BPA's upstream 4 connections, as well as downstream four connections, are all operating correctly, and this is achieved by a test. If there are no BPA, the tester will need to go to the nearest BPA and perform a test, as well as take a Chlorine residual at this point. **All data and finding are paper filed by the General Tester and then shared with the District CCCP Coordinator/Specialist and stored in the Districts Secure Database.**

4.4.3 Incident Notification

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

(b) If required by the State Water Board, the PWS must submit, by a date specified by the State Water Board, a written incident report describing the details and affected area of the backflow incident, the actions taken by the PWS in response to the backflow incident, and the follow up actions to prevent future backflow incidents. Refer to Backflow Incident Reporting Form in Appendix F of the CAL-EPA-CCCPH.

4.4.4 Redway CSD Certification Program.

The District maintains a Cross Connection Control Program with a CCC AWWA Certified specialist, and is the program coordinator as well. The District maintains an in-house general tester as well as a backup tester. Certification renewal every three years takes place for both the specialist certification as well as the general tester certification. Certification and renewal results for both the Testers and the Specialist are kept on file with the Districts secure server. Certificates/licensing that are acceptable are ABPA, AWWA and the Northern California Backflow Prevention Association.

If for some reason that there is now available General Tester, or Specialist, the District will hire a contract specialist, or general tester as soon as the District is notified of the vacancy of the tester or specialist.