
8. CROSS-CONNECTION CONTROL

8.01 Purpose

The purpose of this program is: (1) to protect the public water supply against actual or potential contamination through cross connections by isolating sources of contamination that may occur within a water user's premises because of some undiscovered or unauthorized cross connection on the premises; (2) to eliminate existing connections between drinking water systems and other sources of water that are not approved as safe and potable for human consumption; (3) to eliminate cross connections between drinking water and sources of contamination; (4) to prevent the making of cross connections in the future.

These regulations are adopted pursuant to the State of California Administrative Code, Title 17-Public Health entitled "Regulations Relating to 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 water by the District 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 District and/or the service of water pipes or fixtures of any consumer of the District.

8.02 Definitions

- A. District: The Northstar Community Services District
- B. Air-Gap (AG) Separation: The term "air-gap separation" means a physical break between a supply pipe and a receiving vessel. The air-gap shall be at least double the diameter of the supply pipe measured vertically above the top rim of the vessel, in no case less than one inch.
- C. Approved Backflow Prevention Device: The term "Approved backflow prevention device" shall mean devices which have passed laboratory and field evaluation test performed by a recognized testing organization which has demonstrated their competency to perform such tests to the California Department of Health Services. A list of approved backflow prevention devices can be obtained from the District Fire Department.
- D. Approved Water Supply: the term "approved water supply" means any water supply whose potability is regulated by a State or local health agency.
- E. Auxiliary Supply: The term "auxiliary supply" means any water supply on or available to the premises other than the approved water supply.

- F. AWWA Standard: The term: “AWWA Standard” means an official standard developed and approved by the American Water Works Association (AWWA).
- G. Backflow: The term “backflow” shall mean a flow condition, caused by a differential in pressure that causes the flow of water or other liquids, gases, mixtures or substances into the distributing pipes of a potable supply of water from any source or sources other than an approved water supply source. Backsiphonage is one cause of backflow. Back pressure is the other cause.
- H. Contamination: The term “contamination” means 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.
- I. Cross Connection: The term “cross connection” means 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.
- J. Double Check (DC) Valve Assembly: The term “double check valve assembly” means an assembly of at least two independently acting check valves including flanged, 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.
- K. Double Check Detector Assembly (DCDA): the term “double check detector assembly” means an assembly of at least two independently acting check valves including flanged, 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 (NCSD Drawing SA0007).
- L. Health District: The term “Health District” means the California Department of Health Services, or the county with respect to a small water system.
- M. Local Health District: The term “local health agency” means the Placer County Environmental Health Department.
- N. Person: The term “person” means an individual, corporation, company, association, partnership, municipality, public utility, or other public body or institution.
- O. 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.
- P. 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 out of the year.

- Q. Reclaimed Water: The term “reclaimed water” means a wastewater which, as a result of treatment, is suitable for uses other than potable use.
- R. Reduced Pressure Principle Device: The term “reduced pressure principle backflow prevention device” means a device incorporating two or more check valves and an automatically operating 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.
- S. Reduced Pressure Principle Detector Assembly – The term “reduced pressure principle backflow prevention device” means a device incorporating two or more check valves and an automatically operating 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 equipment with necessary test cocks for testing. The reduced pressure principle backflow device shall have a 5/8" x 3/4" detector meter (reading in gallons) installed around the valves (NCSD Drawing SA007).
- T. Service Connection: The term “service connection” refers to the point of connection of a user’s piping to the water supplier’s facilities.
- U. Water Supplier: The term “water supplier” means the person who owns or operates the approved water supply system.
- V. Water User: The term “water user” means any person obtaining water from an approved water supply system.

8.03 Responsibility

- A. Under the rules of Title 17 relating to cross-connection, the District has primary responsibility to prevent water from unapproved sources, or any other substances, from entering the District’s water system.
- B. The District is primarily responsible for the prevention of contamination and pollution of the District’s water system. Such responsibility begins at the point of origin of the District’s water supply and includes adequate treatment facilities and water mains, and ends at the point of service (meter) to the water user’s water system. The District shall insure adequate backflow and backsiphonage protection is maintained on the water user’s system directly connected to the District’s system.
- C. The water user shall have the prime responsibility of preventing contaminants and pollutants from his water system from entering the District’s water system as required by this policy and the California Department of Health Services.
- D. The District shall not be responsible for any loss or damage directly or indirectly resulting from or caused by any improper or negligent installation, operation, use,

repair, or maintenance of, or interfering with, any approved backflow prevention assembly, required by this policy, by any water user or any other person.

- E. The water user shall bear all costs for the installation of pumps or renovation of existing water user piping, as a result of any decreases in line pressure attributed to the upgrading of existing backflow prevention assemblies or the installation of approved backflow prevention assemblies.
- F. The District shall not be held responsible for any losses or damages incurred by the water user as a result of upgrading existing backflow prevention assemblies or the installation of approved backflow prevention assemblies.

8.04 Protection Requirements

General Provisions - Unprotected cross connections with the public water supply are prohibited.

Whenever backflow protection has been found necessary, the District will require the water user to install an approved backflow prevention device by and at his expense for continued service, or before a new service will be granted.

Wherever backflow protection has been found necessary on a water supply line entering a water user's premises, then any and all water supply lines from the District's mains entering such premises, buildings, or structures shall be protected by an approved backflow prevention device. The type of device to be installed will be in accordance with the requirements of this program.

Where Protection is Required - Each service connection from the District's water system for supplying water to premises having an auxiliary water supply shall be protected against backflow of water from the premises into the public water system unless the auxiliary water supply is accepted as an additional approved water supply by the District having jurisdiction.

Each service connection from the District's water system for supplying water to any premises on which any substance is handled in such fashion as may allow its entry into the water system shall be protected against backflow of the water from the premises into the public system. This shall include the handling of process waters and waters originating from the District's water system which have been subjected to deterioration in sanitary quality.

Backflow prevention devices shall be installed on the service connection to any premises having (a) internal cross connections that cannot be permanently corrected and controlled to the satisfaction of the District or state and local health department, or (b) intricate plumbing and piping arrangements or where entry to all portions of the premises is not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether or not cross connections exist.

Type of Protection Required - The type of protection that shall be provided to prevent backflow into the approved 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: Double Check Valve Assembly (DC), Reduced Pressure Principle Device (RP), and Air Gap (AG). The water user may choose a higher level of protection than required by the District. The minimum types of backflow protection required to protect that approved water supply, at the user's water connection to premises with varying degrees of hazard are given in Table 1.

Situations that are not covered in Table 1 shall be evaluated on a case-by-case basis and the appropriate backflow protection shall be determined by the District. The District reserves the right to install a more stringent device than listed if, in its sole judgment, the particular circumstances of that water user require a higher degree of backflow protection.

Requirements Abbreviations - Tables 1 uses the given abbreviations for these types of devices: Air Gap Separation = AG; Reduced Pressure Principle Device = RP; Double Check Valve Assembly = DC; Double Check Detector Assembly = DCDA; and Reduced Pressure Principle Detector Assembly = RPDA.

| <u>Water Use</u> | <u>Device</u> |
|---|---------------|
| 1. Beauty Salons | DC |
| 2. Board and Care Facilities, Skilled Nursing Facilities | DC |
| 3. Buildings – Commercial / Industrial Multi-story over 50' in elevation above street level to ground floor. | DC |
| 4. Canneries, Packing Houses, and Reduction Plants | RP |
| 5. Car Wash | RP |
| 6. Chemical processing or Storage Facilities | RP |
| 7. Chemically Contaminated Water Systems | RP |
| 8. Dairies and Cold Storage Plants | DC |
| 9. Dye Works | RP |
| 10. Fire Systems – Class 1 and 2 | DC |
| 11. Film Processing Laboratories | RP |
| 12. Fire Systems – Class 3, 4, 5, and 6, as defined in California Department of Health Services Manual of Cross Connection Control. | |
| A. Class 3 and 4 | DCDA |
| B. Class 5 and 6 | AG/RPDA |
| 13. Food Processing Plants | DC |

| | |
|--|----|
| 14. Hospitals, Sanatoriums | RP |
| 15. Irrigation Services into which fertilizers, herbicides, or pesticides are, or can be, injected or subject to back pressure. | RP |
| 16. Multi-tenant (2 or more) commercial properties | RP |
| 17. Laboratories | RP |
| 18. Laundries, Commercial | DC |
| 19. Medical Buildings, Clinics, or Veterinary Clinics | RP |
| 20. Metal Manufacturing, Cleaning, Processing and Fabricating Plants | RP |
| 21. Mobile Home Parks | DC |
| 22. Mortuaries, Morgues, or Autopsy Facilities | RP |
| 23. Oil and Gas Production, Storage, or Transmission Properties | RP |
| 24. Paper Products Manufacturing Plants | RP |
| 25. Plating Operations | RP |
| 26. Premises with Piped Auxiliary Water Supplies where the approved supply is not physically connected to the auxiliary supply, i.e., canal well, pond | DC |
| 27. Premises with booster pumps on the treated water | DC |
| 28. Premises with Piped Auxiliary Water Supplies where the approved supply is connected physically to the auxiliary supply. | RP |
| 29. Premises with Pumped Sewage | RP |
| 30. Radioactive Materials or Substances | RP |
| 31. Restricted, Classified, or Closed Facilities | RP |
| 32. Restaurants with Automatic Dishwashers or Steam Tables | DC |
| 33. Sand, Gravel, Cement, and Ready Mix Plants | DC |
| 34. Secondary Schools and Colleges (w/o laboratories) | DC |
| 35. Civil Works Facilities | DC |

8.05 Backflow Prevention Devices

Approved Devices - Only backflow prevention devices that have been approved by the District shall be acceptable for installation by a water user connected to the District's potable water system.

The District will provide, upon request, to any affected water user a list of approved backflow prevention devices. The list is available at NCS D's Fire Department.

Installation - Backflow prevention devices shall be installed in a manner prescribed in Section 7603, Title 17 of the California Administrative Code. Location of the devices should be no farther than 3 feet from the water user's meter or, at the property line. The District shall have the final authority in determining the required location of a backflow prevention device.

The following is a description of the installation of backflow devices:

Air-gap (AG) Separation - An AG must be located as close as practical to the water user's connection, and all piping between the user's connection and receiving tank must be entirely visible unless otherwise approved in writing by the District.

Reduced Pressure (RP) Principle Backflow Prevention Assembly - An RP must be located no farther than 3 feet from the water user's meter. This type of assembly must be installed at least twelve inches and not more than thirty-six inches above grade (measured from the lowest point of the assembly), and must have adequate side and top clearance to allow access for testing and maintenance. A minimum side and top clearance of twelve inches should be allowed.

Double Check Valve Assembly (DC) - The approved double check valve assembly shall be located no more than 3 feet from the water user's connection and shall be installed above grade, if possible, and in a manner where it is readily accessible for testing and maintenance. If a double check valve assembly is installed below grade, it must be installed in a vault such that there is a minimum of twelve inches (12") between the bottom of the vault and the bottom of the assembly, so that the top of the assembly is no more than a maximum of eight inches (8") below grade, so there is a minimum of twelve inches (12") of clearance between the side of the assembly with the test cocks and the side of the vault, and so there is a minimum of twelve inches (12") clearance between the other side of the assembly and the side of the vault. Special consideration must be given to double check valve assemblies of the "Y" type. These assemblies must be installed on their "side" with the test cocks in a vertical position so that either check valve may be removed for service without removing the assembly. Vaults which do not have an integrated bottom must be placed on a three inch (3") layer of gravel.

Testing and Maintenance - The owners of any premises on which, or an account of which, backflow prevention devices are installed, shall have the devices tested by a person who has demonstrated their competency in testing of these devices to the District. Backflow prevention devices must be tested at least annually and immediately after installation, relocation or repair. The District may require a more frequent testing schedule if it is

determined to be necessary. No device shall be placed back in service unless it is functioning as required. A report in a form acceptable to the District shall be filed with the District Fire Department each time a device is tested, relocated, or repaired. These devices shall be serviced, overhauled, or replaced whenever they are found to be defective and all costs of testing, repair, and maintenance shall be borne by the water user.

The District will supply affected water users with a list of persons acceptable to the District to test backflow prevention devices. The District will notify affected customers by mail when annual testing of a device is needed and also supply users with the necessary forms which must be filled out each time a device is tested or repaired.

Removal - Approval must be obtained from the District before a backflow prevention device is removed, relocated, or replaced.

- A. Removal: The use of a device may be discontinued and the device removed from service upon presentation of sufficient evidence to the District to verify that a hazard no longer exists or is not likely to be created in the future;
- B. Relocation: A device may be relocated following confirmation by the District that the relocation shall continue to provide the required protection and satisfy installation requirements. A retest shall be required following the relocation of the device;
- C. Repair: A device may be removed for repair, provided the water use is either discontinued until repair is completed and the device is returned to service, or the service connection is equipped with other backflow protection approved by the District. A retest shall be required following the repair of the device;
- D. Replacement: A device may be removed and replaced provided the water use is discontinued until the replacement device is installed. All replacement devices must be approved by the District and must be commensurate with the degree of hazard involved.

User Supervisor - At each premise where it is necessary, in the opinion of the District, a user supervisor shall be designated by and at the expense of the water user. This user supervisor shall be responsible for the monitoring of the backflow prevention devices and for avoidance of cross connections. In the event of contamination or pollution of the drinking water system due to a cross connection on the premises, the District shall be promptly notified by the user supervisor so that appropriate measures may be taken to overcome the contamination. The water user shall inform the District of the user supervisor's identity on, as a minimum, an annual basis and whenever a change occurs.

8.06 Administration Procedures

Water System Survey - The District shall review all requests for new services to determine if backflow protection is needed. Plans and specifications must be submitted to the District upon request for review of possible cross connection hazards as a condition of service for new service connections. If it is determined that a backflow prevention device is necessary to protect the public water system, the required device must be installed.

The District may require an on-premise inspection to evaluate cross connection hazards. The District shall transmit a written notice requesting an inspection appointment to each affected water user. Any water user who cannot or will not allow an on-premise inspection of his piping system shall be required to install the backflow prevention device the District considers necessary.

The District, at its discretion, may require a re-inspection for cross connection hazards of any premise to which it serves water. The District shall transmit a written notice requesting an inspection appointment to each affected water user. Any water user who cannot or will not allow an on-premise inspection of his piping system shall be required to install the backflow prevention device the District considers necessary.

Customer Notification - Device Installation - The District will notify the water user of the survey findings, listing the corrective actions to be taken if any are required. A period of 60 days shall be given to complete all corrective actions required, including installation of backflow prevention devices.

A second notice shall be sent to each water user who does not take the required corrective actions prescribed in the first notice within the 60 day period allowed. The second notice shall give the water user a 2-week period to take the required corrective action. If no action is taken within the 2- week period the District may terminate water service to the affected water user until the required corrective actions are taken.

Customer Notification - Testing and Maintenance - The District shall notify each affected water user when it is time for the backflow prevention device installed on their service connection to be tested. This written notice shall give the water user 30 days to have the device tested and supply the water user with the necessary form to be completed and resubmitted to the District.

A second notice shall be sent to each water user that does not have their backflow prevention device tested as prescribed in the first notice within the 30-day period allowed. The second notice shall give the water user a 2-week period to have their backflow prevention device tested. If no action is taken with the 2-week period, the District may terminate water service to the affected water user until the subject device is tested.

Following the third notice, the District shall have the option (in place of disconnection) of performing the annual test and making minor repairs to the backflow device. The District shall notify the water user of the needed repair and provide a list of qualified backflow specialists who can repair the device. The device must be repaired within 30 days. The water user shall be billed for this service at the current charge out rate.

8.07 Water Service Discontinuance

General - When the District encounters water uses that represent a clear and immediate hazard to the potable water supply that cannot be immediately stopped, the District shall institute the procedure for discontinuing the water service.

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

- A. Refusal to install a required backflow prevention device;
- B. Refusal to test a backflow prevention device;
- C. Refusal to repair a faulty backflow prevention device
- D. Refusal to replace a faulty backflow prevention device
- E. Direct or indirect connection between the public water system and a sewer line;
- F. Unprotected direct or indirect connection between the public water system and a system or equipment containing contaminants;
- G. Unprotected direct or indirect connection between the public water system and an auxiliary water system; or
- H. A situation that presents an immediate health hazard to the public water system.

8.08 List of Approved Backflow Prevention Device Testers

Persons who desire to have their names, company, and phone numbers placed upon the District's list of Approved Backflow Prevention Device Testers shall demonstrate competency in all phases of backflow prevention device testing and repair by submitting certification of the following minimum requirements:

- A. Applicants shall have had at least two (2) years experience in plumbing or pipefitting or equivalent qualifications.
- B. Applicants shall hold a valid Backflow Prevention Device Testers certification from the American Water Works Association (AWWA) California-Nevada Section.
- C. A tester of backflow prevention devices shall furnish evidence, showing availability of necessary tools and equipment to properly test such devices and shall be responsible for the competency and accuracy of all tests and reports prepared.

All fieldwork shall be completed and/or immediately supervised by the individual listed by the District. The District may remove the tester from the approved list at any time for improper testing, repairs and/or reporting.