



APPENDIX F

PICO WATER DISTRICT CROSS-CONNECTION CONTROL PROGRAM

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1.0 Responsibility and Scope of Program.

The Pico Water District (“District”) adopts this Program to protect the public drinking water supply from contamination stemming from residential, commercial, industrial, or institutional Water Users within the distribution system and will be in accordance with the California Code of Regulations.¹ Through cross-connections, existing onsite plumbing arrangements or certain water-related activities could contribute to an actual or potentially hazardous situation for the District’s public water system. Due to how common complex onsite plumbing systems are and the general lack of knowledge of cross-connection hazards associated with typical water use, the District will focus on backflow prevention to isolate Users’ private systems and related facilities that could create hazards to the public water supply. Once a User’s onsite hazard is identified, the District may require the customer to install a backflow prevention assembly as close as practical to the User’s connection, in the manner specified in this Program.

Under California’s Safe Drinking Water Act, the State Water Resources Control Board (“State Water Board”) has exercised its authority to establish enforceable standards applicable to California public water systems, including those for backflow protection and cross-connection control.² Any person who owns and operates a public water system, such as the District, must ensure that the distribution system will not be subject to backflow under normal operating conditions.³

1 Cal. Code Regs. Title 17, section 7583-7605, “Prevention of Contamination by Backflow and Cross-Connections.”

2 Cal Health & Saf. Code, div. 104, pt. 12, ch. 4, section 116270 et seq.; Gov. Code, tit. 2, div. 3, pt. 1, ch. 3.5, section 11340 et seq.

3 California Health & Saf. Code, section 116555(a)(2).

The California Code of Regulations requires that each public water system have a cross-connection control program that includes these elements:

- (a) Operating rules or ordinances to implement the cross-connection program.
- (b) Surveys to identify water user premises where cross connections exist or are likely to occur.
- (c) Backflow protection by the water user at all connections where a cross-connection hazard has been identified.
- (d) The provision of at least one person trained in cross-connection control to carry out the program.
- (e) The establishment of a procedure or system for testing backflow prevention assemblies.
- (f) The maintenance of records of locations, tests, and repairs of backflow prevention assemblies.⁴

The District is committed to maintaining and upholding the standards set forth by the California Division of Drinking Water Title 17 regulations,⁵ the Uniform Plumbing Code, and the Manual of Cross-Connection Control by the USC Foundation for Cross-Connection Control and Hydraulic Research, as set forth in this Program.

2.0 Definitions.

In addition to the definitions in Section 4010.1 of the Health and Safety Code, the following terms are defined for the purpose of this Chapter:

- (a) "Approved Water Supply" means a water supply whose potability is regulated by the State Water Board or by a local health agency, as may be applicable.
- (b) "Auxiliary Water Supply" means any water supply other than that received from a public water system that is either used or equipped to be used as a water supply and is located on the premises of, or available to, a water user. Backflow prevention is generally mandatory for any Auxiliary Water Supply.
- (c) "Air-gap Separation" ("AG") means a physical, vertical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressurized receiving vessel.

⁴ Cal. Code Regs Title 27, section 7584.

⁵ Cal. Code Regs. Title 17, section 7583-7605, "Prevention of Contamination by Backflow and Cross-Connections."

(d) "AWWA Standard" means an official standard developed and approved by the American Water Works Association (AWWA).

(e) "Backflow" Backflow means the undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into a public water system's distribution system or approved water supply. Backflow is possible in two situations, backsiphonage and backpressure. Backsiphonage occurs when there is a sudden reduction in the water pressure in the distribution system. For example, during firefighting or when a water main breaks, water flow can be reversed. This can create a suction effect drawing the non-potable substance into the potable water system. Backpressure is created when the pressure in non-potable system—such as in a recirculation system containing soap, acid, or antifreeze —exceeds that in the potable system pressure. This can force the potable water to reverse its direction of flow through the cross-connection, therefore allowing non-potable substances to enter the potable water system.

(f) "Cross connection" means an unprotected actual or potential connection between a water system used to supply water for drinking purposes and any source or system containing unapproved water or a substance that is not or cannot be approved as safe, wholesome, and potable. Cross connections can include including piping systems connected to the public water system and located on the premises of a water user or available to the water user, along with any source or distribution system containing liquid, gas, or other substances not from an approved water supply. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices, or other devices through which backflow could occur, shall be considered to be cross-connections.

(g) "District" means the Pico Water District.

(h) "Double Check Valve Assembly" ("DC") means an assembly of at least two independently acting check valves including tightly closing shut-off valves on each side of the check valve assembly and test cocks available for testing the watertightness of each check valve.

(j) "Recycled Water" means wastewater which, because of treatment, is suitable for uses other than potable use.

(k) "Reduced Pressure Principle Backflow Prevention Device ("RP") is a backflow preventer incorporating not less than two check valves, an automatically operated differential relief valve located between the two check valves, a tightly closing shut-off valve on each side of the check valve assembly, and test cocks.

(l) "Test cocks" means a cock or valve through which a sample of a fluid may be drawn from a vessel or chamber for examination or test.

(m) "User 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 isolated from uses of the approved water supply using a backflow prevention assembly.

(n) "Water User" or "User" is any person who is authorized to receive water from a public water System, including the District.

3.0 Evaluation of Hazard.

The District shall evaluate the degree of potential for backflow into its public water supply system, which may be created as a result of conditions existing on a User's premises. The District, however, shall not be responsible for abatement of cross-connections which may exist within a User's premises.

The evaluation should consider:

- (a) The existence of cross connections;
- (b) The nature of materials handled on the property or likely to be on the premises;
- (c) The probability of a backflow occurring, the degree of piping system complexity and the potential for piping system modification.

Special consideration shall be given to the premises of the following types of Water Users:

- (i) Premises where substances harmful to health are handled under pressure in a manner which could permit their entry into the public water system. This includes chemical or biological process water from public water supplies which have deteriorated in sanitary quality.
- (ii) Premises having an auxiliary water supply unless the auxiliary supply is accepted as an additional source by the District and is approved by the Health Agency.
- (iii) Premises that have internal cross-connections that are not abated to the satisfaction of the District or the Health Agency.
- (iv) Premises where cross-connections are likely to occur and entry is restricted so that cross-connection inspections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connections do not exist.
- (v) Premises having a repeated history of cross-connections being established or re-established.

Where the Water User is engaged in the handling of especially dangerous or corrosive liquids or industrial or process waters, the District may require the Water User to eliminate certain plumbing or piping connections as an additional precaution and as a protection to the backflow prevention devices.

4.0 User Supervisor.

The District may, at its discretion, require an industrial Water User to designate a supervisor when the Water User's premises has a multi-piping system that conveys various types of fluids, some of which may be hazardous and where changes in the piping system are frequently made. The User's supervisor shall be responsible for the avoidance of cross-connections during the installation, operation and maintenance of the Water User's pipelines and equipment. The User's supervisor will be trained on the fluids used and backflow protection for the premises, must inform the District of changes in piping, and must maintain current contact information on file with the District; and

The District will include training and qualification requirements for User supervisors, will identify the entity that will provide the User supervisor training, and will note the frequency of any necessary recurring training. The training will adequately address the types of hazards and concerns found at the specific User premises.

5.0 Approval of Backflow Preventers.

Backflow preventers required by this Program shall have passed laboratory and field evaluation tests performed by a recognized testing organization which has demonstrated its competency to perform such tests to the District or to the Health Agency.

6.0 Construction of Backflow Preventers.

Backflow prevention assemblies must not be modified from the specifications provided in the Cross-Connection Control Policy Handbook ("CCCPH").⁶ Water Users must require backflow prevention assembly testers to notify the District if a backflow preventer has been modified.⁷

(a) Air-Gap Separation. The District will ensure that each AG meets the requirements in section 603.3.1 of the 2019 California Plumbing Code. An AG shall be at least double the diameter of the supply pipe, measured vertically from the flood rim of the receiving vessel to the supply pipe. In no case shall this separation be less than one inch.

(b) Double Check Valve Assembly. A DC assembly shall conform to the

6 CCCPH section 3.3.1 (b).

7 Specifically, any modification to take the assembly outside of CCCPH section 3.3.1(b) approval requires notification and possible remediation.

applicable AWWA standard noted in the below footnote.⁸

(c) Reduced Pressure Principle Backflow Prevention Device. A RP shall conform to the AWWA Standard noted in the below footnote.⁹

7.0 Installation of Backflow Preventers.

(a) Air-Gap Separation. An AG assembly shall be located as close as practical to the User's connection and all piping between the User's connection and the receiving tank shall be accessible for visual inspection unless approved in writing by the District. The receiving water container must be located on the Water User's premise at the water user's service connection unless the District approves an alternate location in writing.

(b) Double Check Valve Assembly. A DC assembly shall be located as close as practical to the User's connection and shall be installed above grade, if possible, and in a manner where it is readily accessible for testing and maintenance. DC assemblies installed or replaced after the adoption must be installed according to the Water Resource Board's Cross-Connection Control Policy Handbook.¹⁰ Below ground installation can be considered for approval by the District if it determines no alternative options are available. A DC must have a minimum side clearance of twelve inches.

(c) Reduced Pressure Principle Backflow Prevention Device. An RP device shall be located as close as practical to the User's connection and shall be installed a minimum of twelve inches above grade and not more than thirty-six inches above grade, measured from the bottom of the device, and it should have a minimum of twelve inches side clearance.

Plans for backflow preventer installation must be approved by the District prior to installation. The Water User shall bear all costs of installation.

8.0 Type of Protection Required.

The type of protection that Water Users shall provide to prevent backflow into the District's public water supply system shall be commensurate with the degree of hazard that exists on each Water User's premises. The types of protective device that may be required (listed in an increasing level of protection) include DC, RP, and AG devices. The Water User may choose a higher level of protection than required by the District. Table 1 provides the minimum types of backflow protection required to protect the public water supply, given

⁸ American Water Works Association Standard C506 78 (R83) adopted on January 28, 1978 for Double Check Valve Type Backflow Preventive Devices, which is herein incorporated by reference, available at <https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/39330463>.

⁹ *Id.*

¹⁰ CCCPH section 3.3.2(b).

various degrees of hazard. The District will make a case-by-case determination on backflow protection for Water User situations that Table 1 does not cover.

TABLE 1
TYPE OF BACKFLOW PROTECTION REQUIRED

<i>Degree of Hazard</i>	<i>Minimum Type of Backflow Prevention</i>
(a) <u>Sewage and Hazardous Substances</u>	
(1) Premises where the public water system is used to supplement the recycled water supply.	AG
(2) Premises where there are wastewater pumping and/or treatment plants and there is no interconnection with the potable water system. This does not include a single-family residence that has a sewage lift pump. A RP be provided in lieu of an AG if approved by the health agency and District.	AG
(3) Premises where recycled water is used and there is no interconnection with the potable water system. A RP may be provided in lieu of an AG if approved by the health agency and District.	AG
(4) Premises where hazardous substances are handled in any manner in which the substances may enter the potable water system. This does not include a single-family residence that has a sewage lift pump. A RP may be provided in lieu of an AG if approved by the health agency and District.	AG
(5) Premises where there are irrigation systems into which fertilizers, herbicides, or pesticides are, or can be, injected.	RP
(b) <u>Auxiliary Water Supplies</u>	
(1) Premises where there is an unapproved auxiliary water supply which is interconnected with the public water system. An RP or DC may be provided in lieu of an AG if approved by the health agency and District.	AG

- (2) Premises where there is an unapproved auxiliary water supply and there are no interconnections with the public water system. A DC maybe provided in lieu of an RP if approved by the Health Agency and District. RP
- (c) Fire Protection Systems
- (1) Premises where the fire system is directly supplied from the public water system and there is an unapproved auxiliary water supply on or to the premises (not interconnected). DC
- (2) Premises where the fire system is supplied from the public water system and interconnected with an unapproved auxiliary water supply. An RP may be provided in lieu of an AG if approved by the Health Agency and District. AG
- (3) Premises where the fire system is supplied from the public water system and where either elevated storage tanks or fire pumps which take suction from private reservoirs or tanks are used. DC
- (d) Dockside Watering Points and Marine Facilities
- (1) Pier hydrants for supplying water to vessels for any purpose. RP
- (2) Premises where there are marine facilities. RP
- (e) Premises where entry is restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that do not exist. RP
- (f) Premises where there is a repeated history of cross-connections being established or re-established. RP

9.0 Testing and Maintenance of Backflow Preventers.

(a) The District will ensure that all Water Users field test their respective backflow prevention assemblies installed pursuant to this Program following installation, repair, or relocation. The District must be provided with passing field tests before providing service to a Water User with a newly installed, repaired, or relocated backflow prevention assembly. The District shall assure that adequate maintenance and annual testing results are provided by the Water User to ensure their proper operation. All testing shall be performed at the Water User's expense. Failure of a Water User to conduct required testing, as set forth in this Section 9.0, and/or provide the District with such tests after any required testing has been completed will result in the termination of water service to that Water User's premises until such time as the required testing is completed. The District will provide the Water User with at least fourteen (14) days' prior written notice of the need to conduct such Testing before water service would be terminated.

(b) Backflow preventers shall be tested by persons who have demonstrated their competency in testing of these devices to the District or the State Water Board.

(c) Backflow preventers shall be tested at least annually or more frequently if determined to be necessary by the State Water Board or District.

(d) For Users with a high risk of backflow, the District may require more frequent testing.

(e) Backflow preventers shall be tested immediately after they are installed, relocated or repaired and shall not be placed in service unless they are functioning as required.

(f) The District shall notify the Water User when testing of backflow preventers is needed. The notice shall contain the date by which the test must be completed.

(h) Reports of testing and maintenance shall be maintained by the District for a minimum of three years.