

Quail Ridge Domestic Water Improvement District
Backflow Ordinance
Backflow Prevention and Cross-Connection Control Program

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Introduction

This backflow prevention and cross-connection control program, in accordance with Arizona Administrative Code R18-4-215 and Ordinances, describes the procedures that will be utilized to protect the potable water supply of Quail Ridge water system from the possibility of contamination or pollutants which could backflow into the public water system.

Procedures that will assist in the control or elimination of existing cross-connections, actual or potential, between the consumer's internal potable water system and non-potable water systems, plumbing fixtures and industrial piping systems are addressed. In addition, Quail Ridge backflow and cross-connection control program outlines maintenance procedures to be practiced after the initial installation and identification process is complete.

Definitions and Terms

The below listed definitions and terms used in connections with this backflow prevention and cross-connection control program are defined in Manual of Cross-Connection Control, Ninth Edition, University of Southern California Foundation for Cross Connection Control and Hydraulic Research.

Air-gap separation: a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An “approved air-gap separation” shall be at least double the diameter of the supply pipe measured vertically above the overflow rim of the vessel-in no case less than 1 inch (2.54 cm).

Approved: a water supply that has been approved by the health agency having jurisdiction

Backflow: the undesirable reversal of flow of water or mixtures of water and other liquids, gases or other substances into the distribution pipes of the potable supply of water from any source or sources

Backflow Prevention Assembly-Approved: An assembly that has been investigated and approved by the regulatory agency having jurisdiction. The approval of backflow prevention assemblies by the regulator agency should be on the basis of a favorable laboratory and field evaluation report by an approved testing laboratory

Backflow Prevention Assembly-Type: Any effective assembly used to prevent backflow into a potable water system. The type of assembly used should be based on the degree of hazard either existing or potential.

Backflow Prevention Assembly Tester- Certified: A person who has proven his/her competency to the satisfaction of the regulatory agency having jurisdiction. Each person who is certified to make competent tests or to repair , overhaul and make reports on backflow prevention assemblies shall be conversant with applicable laws, rules, and regulations and have had experience in plumbing or pipe fitting or have other equivalent qualifications in the opinion of the regulatory agency having jurisdiction.

Backpressure: Any elevation of pressure in the downstream piping system (by pump , elevation of piping, or steam and/or air pressure) above the supply pressure at the point of consideration which would cause, or tend to cause, a reversal of the normal direction of flow through the backflow prevention assembly.

Backsiphonage: A form of backflow due to a reduction in system pressure, which causes a negative or sub-atmospheric pressure to exist at a site in the water system.

Check Valve-Approved: A check valve that is drip-tight in the normal direction of flow when the inlet pressure is at least one (1) PSI and the outlet pressure is zero.

Consumer: the owner or operator of a private water system having a service from a public potable water system

Contamination: impairment of the quality of the water which creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids or waste.

Cross-Connection: Any unprotected actual or potential connection of structural arrangement between a public or a consumer's potable water system and any other source or system through which it is possible to introduce into any part of the potable system any used water, industrial fluid, gas or substance other than the intended potable water with which the system is supplied. By-pass arrangements, jumper connections, removable sections, swivel or change-over devices and other temporary or permanent devices through which or because of which "backflow" can or may occur are considered to be cross-connections.

Cross –Connection-Point of: The specific point or location in a public or a consumer's potable water system where a cross-connection exists

Double Check Valve Assembly: A specifically designed assembly of two independently acting, approved check valves, including tightly closing shut-off valves attached at each end of the assembly and fitted with properly located test cocks. This assembly shall only be used to protect against a non-health hazard

Double Check-Detector Check Valve Assembly: A specially designed assembly composed of a line-size approved double check valve assembly with a specific bypass water meter and a meter-sized approved double check valve assembly. The meter shall register accurately for only very low rates of flow and shall show a registration of all rates of flow. This assembly shall only be used to protect against a non-health hazard.

Hazard-Degree of: The evaluation of conditions within a system which can be classified as either a pollutional (non-health) or a contamination (health) hazard

Hazard- Health: An actual or potential threat of contamination of a physical or toxic nature to the public potable water system or the consumer's potable water system that would be a danger to health.

Hazard-Plumbing: An internal or plumbing type cross-connection in a consumer's potable water system that may be either a pollutional or a contamination type hazard.

Hazard-Pollutional: An actual or potential threat to the physical properties of the water system or the potability of the public or the consumer's potable water system but which would not constitute a health or system hazards, as defined. The maximum degree or intensity of pollution to which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

Hazard-System: An actual or potential threat of severe danger to the physical properties of the public or the consumer's potable water system or of a pollution or contamination which would have a protracted effect on the quality of the potable water in the system.

Laboratory-Approved Testing: The Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California or another laboratory having equivalent capabilities for both the laboratory and field evaluation of the assemblies

Pollution: An impairment of the quality of the water to a degree which does not create a hazard to the public health but which does adversely and unreasonably affect the aesthetic qualities of such waters for domestic use.

Service Connection: The terminal end of a service connection from the public potable water system i.e. where the water purveyor may lose jurisdictions and sanitary control over the water at its point of delivery to the consumer's water system. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter.

Water-Potable: Water from any source which has been investigated by the health agency having jurisdiction, and which has been approved for human consumption.

Water- Purveyor: The public or private owner or operator of the potable water system supplying an approved water supply to the public.

Closed System Warning

Backflow devices installed on closed systems with water heaters may cause excessive pressure increases due to thermal water expansion and/or water hammer downstream of the backflow device.

Excessive pressure increase may cause damage or failure to water heaters which may be hazardous.

The customer or contractor should install adequate thermal expansion devices to prevent possible excessive pressure increases within water heaters.

Program Procedures

Implementation of the Quail Ridge Backflow and Cross-Connection Control program begins with **identification of potential cross-connection sites**. This identification process may be achieved by review of system records for non-residential customers or residential customers with an auxiliary water supply and drive-by inspections of properties. Facilities which usually require installation of backflow prevention devices include, but are not limited to:

1. Commercial properties
2. Medical, rescue or urgent care facilities for humans or animals
3. Wells or auxiliary water supplies
4. Pressurized septic systems
5. Reclaimed water
6. Previous Cross Connection
7. Livestock
8. Trailer parks, apartments
9. Irrigation systems

On-site inspections will be made available to the customer by the company. Such inspections will ideally be conducted by a certified tester for determination of the extent of hazards present and type of backflow prevention device required at each site found during the identification phase of the program. See pages 10-12 for an example of on-site inspection report forms.

Customers will be notified via U.S. mail for various purposes in the implementation of the backflow prevention and cross-connection control program. Specifically customers may receive notice of survey to be conducted, notice of survey results and requirements to install and test the specified backflow device on their property. Customers will also be educated thermal expansion and the requirements to provide Quail Ridge with certification of the device testing conducted by an individual who holds a valid general tester certificate issued by a certifying authority approved by the Arizona Department of Environmental Quality (“ADEQ”). Customers who do not comply with the initial request will be sent a

second notice and a final disconnection notice (A.A.C. R18-4-215 E1) if necessary. See pages 13-18 for examples of customer letters.

Quail Ridge will **provide customer information and assistance** in complying with this program via the customer service center. Questions may also be directed toward the local operations superintendent, customer brochures or a reference to the Manual of Cross-Connection Control, 9th Edition, will be provided to the customer upon request.

Tracking of annual testing and certification of properly functioning backflow prevention equipment will be conducted through the customer information system (“CIS”) and records maintained at the Quail Ridge administration office. Annual notices will be forwarded 30-60 day prior to the anniversary of the original installation to customers. Second and Final notices will be mailed as needed.

A survey shall be conducted for all new meter installations in order to determine whether a potential or actual cross-connection exists on the premises. If such a connection is found, then installation and testing of an appropriate backflow device shall be required.

Site Survey Data Sheet

2										
3										
4										
5										

***Detailing of Protection**

	MAKE	MODEL	SIZE	SERIAL #	COMMENTS
1					
2					
3					
4					
5					

****Detailing of Hazards**

1	
2	
3	
4	
5	

Code References

1	
2	
3	
4	
5	

Conclusion:

Type of Protection Required:

Domestic	
Irrigation	
Fire	

Degree of hazard

Low – Non-hazardous to human health

High - Hazardous to human health

Cross-connection

Direct – Subject to backpressure

Indirect – Subject to backsiphonage

Protection

Approved – An assembly or device approved by the USC FCCCHR

Adequate – Assembly or device is adequate enough to protect from backflow

AAC	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
AG	Air Gap
AVB	Atmospheric Vacuum Breaker
DCA	Double Check Backflow Assembly
DWR	Arizona Department of Water Resources
EPA	U.S. Environmental Protection Agency
PVB	Pressure Vacuum Breaker
RPA	Reduce Pressure Backflow Assembly
RP	Reduce Pressure Backflow Assembly
UPC	Uniform Plumbing Code
USC	University of Southern California
FCCCHR	Foundation for Cross-Connection Control & Hydraulic Research

Date

Name

Address

City, State, Zip

Re: Survey Notice

_____ will be conducting on-site surveys during the week of
<date> in order to determine which customer facilities may have a potential for backflow and

cross-connection. If your property has limited access or you wish a specific date or time for this survey please contact :

If a site survey cannot be performed for any reason, it will be necessary for _____ to require protection assuming the highest degree of hazard exists.

Arizona Administrative Code R18-4-215 requires mandatory installation and periodic testing of backflow prevention assemblies where it is determined that a backflow incident may occur.

If you do not presently have an approved backflow prevention assembly meeting the system's requirements and it is determined that a backflow prevention assembly is required for the protection of the public potable water system, you are required to install an approved backflow prevention assembly, at your own expense, at your service connection. In all cases, the type of backflow prevention assembly must be approved by _____ but it must be purchased, installed, maintained and periodically tested by you at your expense. Your cooperation in assisting us in this program is appreciated.

Sincerely

Date

Name

Address

City, State, Zip

Re: Notice to Install and test Backflow Prevention Assembly: <Service Location>

Recently an on-site inspection was performed at the above referenced service address. Based on this inspection and in accordance with Federal and State law your facilities/residence fall under

the guidelines requiring a backflow prevention device. As a result, you are required to install and have tested the following approved backflow prevention assembly:

<backflow device detail>

Each assembly shall be tested after installation, relocation, or repair by persons who hold a valid “general” tester certification issued by the California-Nevada American Water Works Association Section, the Arizona State Environmental Technical Training Center, or other certifying authority approved by the Arizona Department of Environmental Quality. Enclosed is a list of local certified testers. Failure to install and test a backflow prevention assembly may result in the disconnection of your water service.

Backflow prevention assemblies are to be purchased, installed, maintained and periodically tested at the customer’s expense. The enclosed test report for must be completed and returned to be above address by <date>. Thereafter, _____ will provide you with the test report forms at least thirty (30) days prior to the next required test. At that time, it will be your responsibility to again have the assembly tested by a certified general tester.

If you need additional information please contact :

Sincerely

Date

Name

Address

City, State, Zip

Re: Notice to Customers Requiring Backflow Assemblies: Thermal Expansion

With the installation of backflow prevention assemblies on the supply line to your facilities, a condition may arise upon the installation of a check valve, pressure reducing valve or other backflow prevention assemblies know as thermal expansion. Thermal expansion is the pressure increase that occurs on a plumbing system every time a water heater is activated to recover the temperature lost through the usage of hot water.

When a backflow prevention assembly is installed, a closed piping system is created from the public water supply. This eliminates back-siphoning of possibly contaminated water into the

public water mains thereby isolating dangerously high pressure created by thermal expansion during the periods of water heater recovery cycles.

Continuous stress and strain can shorten the life of the water heater, causing failure of the tank's relief valve, ruptured pipe fittings and collapse of the center flues of gas-fired water heaters. There is also the potential of a water heater explosion due to thermal expansion.

Thermal expansion tanks may be installed in connection with your hot water heater to prevent thermal expansion from becoming a safety hazard. Contact your backflow assembly installer or plumber for more information.

Sincerely

Date

Name

Address

City, State, Zip

**Re: Backflow Prevention Assembly Request
Disconnection Notice <service address>**

Dear <customer name>

On <date of first notice> and <date of second notice> requests for the installation and testing of a backflow prevention assembly for the above noted service location were mailed to you. As of this date, we have not received a completed report for the installation and testing of the assembly as required by Arizona Administrative Code R14-4-215.

Failure to perform the installation and testing of the backflow prevention assembly and provide a satisfactory test report to the Water Department will result in the disconnection of water service

on <disconnection date>. In addition to a satisfactory installation and test report, a reconnection fee plus tax may be applicable.

Disconnection of service is mandated by the water system's backflow and cross-connection control regulation

If you believe you have received this notice in error, please contact :
_____ prior to the disconnection date.

Sincerely

Date

Name
Address
City, State, Zip

Re: <Service Location>
Notice for Periodic Test and Maintenance Report for Backflow Prevention Assembly

Dear <customer name>,

The backflow prevention assembly located at the above referenced service address is due for its periodic test as required by Arizona Administrative Code R18-4-215. Testing shall be performed by persons who hold a valid general tester certification as approved by the Arizona Department of Environmental Quality. All testing costs are to be covered by the customer.

If the test discloses that the assembly is not operating satisfactorily, please have the necessary repairs made and the assembly retested by the certified tester. On completion of a test showing that the assembly is operating satisfactorily, the enclosed test report from should be forwarded to:

The completed report should reach our office on or before: <date>

If you have any questions please contact :

Sincerely.

Certified Backflow Assembly Testers

The

While some Backflow Assembly testers listed below also provide installation services, this list is intended only to assist you in locating Backflow Assembly **Testers** in your area. The below list is comprised of those who have previously provided Quail Ridge the required Backflow Assembly Tester documentation and certification.

You may use any certified Backflow Assembly Tester you wish; however, if you select a Backflow Assembly Tester who is not listed below, your device test certificate **must** be accompanied by a copy of the tester's certification and equipment calibration certificate. Absent such, your test will be invalidated.

The Town of Chino and City of Prescott maintains an updated list on their web sites of local Backflow Assembly Testers.

COMPANY

ADDRESS

PHONE

None

All testers must include a copy of certification and calibration with test results.

Quail Ridge
Cross Connection or Backflow Tariff

PURPOSE:

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The purpose of this tariff is to protect Quail Ridge Water from the possibility of contamination caused by the backflow of contaminants that may be present on the customer's premises by requiring the installation and periodic testing of backflow-prevention assemblies pursuant to the provisions of the Arizona Administrative Code

REQUIREMENTS:

In compliance with the Ordinances of Quail Ridge and Rules of **Arizona Department of Environmental Quality (ADEQ) Rules**, specifically Arizona Administrative Code R18-4-215 and Ordinances relating to backflow prevention:

1. The Water Department may require a customer to pay for and to have installed a backflow prevention assembly if Ordinance applies.
2. A backflow-prevention assembly required to be installed by the customer under Paragraph 1 of this tariff shall comply with the requirements set forth in USC Manual of Cross Connection Control 9th edition.
3. Subject to the provisions of Quail Ridge Backflow Prevention Ordinance, and in accordance with Arizona Administrative Code R18-4-215 the Water Department may terminate service or may deny service to a customer who fails to install a backflow-prevention assembly as required by this tariff
4. The Water Department shall give any existing customer who is required to install a backflow prevention assembly written notice of said requirement. The customer shall be given thirty (30) days from the time such written notice is received in which to comply with this notice. If the customer can show good cause as to why he cannot install the device within thirty (30) days, the Company of Commission Staff may suspend this requirement for a reasonable period of time.