

**Rural Water District #4  
Williamsburg, KS 66095**

**Policy Number: 2019-01**

**Title: Cross Connection Policy**

WHEREAS, it is in conformity with Kansas Administrative Regulation 28-15-18 and in the public interest to protect the quality of water to the consumers Rural Water District No. 4, Franklin County, Kansas, hereinafter referred to as "the district"; and,

WHEREAS, this public water supply system is operated by the district in compliance with the policies and regulations of the Kansas Department of Health & Environment, hereafter referred to as "KDHE"; and,

WHEREAS, restrictions are necessary to prevent contamination of the water provided to the consumers from cross connections with the public water supply system; and,

NOW THEREFORE, be it resolved by the district that the following regulation be adopted:

Section I. Definitions. The following definitions shall apply in the interpretation and enforcement of this policy:

1. Air gap separation means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the overflow level rim of the receptacle, and shall be at least double the diameter of the supply pipe measured vertically above the flood level rim of the vessel, but in no case less than one inch.
2. Approved tester means a person qualified to make inspections; to test and repair backflow prevention/cross connection control devices; and who is approved by the district.
3. Authorized representative means any person designated by the district to administer this cross connection control regulation.
4. Auxiliary water supply means any water source or system, other than the district, that may be available in the building or premises. This does not include other KDHE permitted public water supply systems.
5. Backflow means the flow other than the intended direction of flow, of any foreign liquids, gases, used water or substances into the distribution system of a public water supply system.
6. Backflow prevention device means any device, method, or type of construction intended to prevent backflow into the public water supply system.
7. Consumer means any individual, firm, partnership, corporation, or agency or their authorized agent receiving water from the district.
8. Contamination means an introduction of any sewage, process fluids, chemicals, wastes or any other substance that would be objectionable. Contamination may be a threat to life or health, or may cause an esthetic deterioration, color, taste or odor.
9. Cross connection means any physical connection or arrangement between two (2) otherwise separate piping systems; one of which contains potable water of the public water supply system, and the second, water of unknown or questionable safety, or steam, gases, chemicals, or substances whereby there may be backflow from the second system to the public water supply system. No physical cross connection shall be permitted between a public water supply system and an auxiliary water supply system.

10. Degree of hazard means an evaluation of the potential risk to public health and the adverse effect of the hazard upon anyone using the water.

11. Health hazard means any condition, device, or practice in the public water supply system that could create or may create a danger to the health and well-being of anyone using the water or allow contamination of the water.

12. Public water system means the water supply source, distribution system and appurtenances to the service meter operated as a public utility that supplies potable water to the consumers' water systems.

13. Public water supply system means the public water system and the consumers' water systems.

14. Consumer's water system means all service pipes, all distribution piping and all appurtenances beyond the service meter of the public water system.

15. Service connection means the terminal end of the service line from the public water system. If a meter is installed at the end of the service, then the service connection means the downstream end of the meter.

## **Section II. Cross Connection Control General Policy**

A. Purpose. The purpose of this policy is:

1. To protect the public water supply system from contamination.
2. To promote the elimination, containment, isolation, or control of cross connection between the public water supply system and non-potable water systems, plumbing fixtures, and industrial process systems or other systems which introduce or may introduce contaminants into the public water system or the consumer's water system.
3. To provide for the maintenance of a continuing program of cross connection control which will prevent the contamination of the public water supply system.

B. Application. This regulation shall apply to all consumers' water systems. The district may also require cross connection control devices at the service connections of other KDHE permitted public water supply systems served by the district.

C. Intent. This policy will be reasonably interpreted by the district. It is the intent of the district to recognize the varying degrees of hazard and to apply the principle that the degree of protection shall be commensurate with the degree of hazard.

If, in the judgment of the district or its authorized representative, cross connection protection is required through either piping modification or installation of an approved backflow prevention device, due notice shall be given to the consumer. The consumers shall immediately comply by providing the required protection at their personal expense. Failure or refusal or inability on the part of the consumer to provide such protection shall constitute grounds for the discontinuation of water service to the premises until such protection has been provided.

## **Section III. Cross Connections Prohibited**

A. No water service connection shall be installed or maintained to any premises where actual or potential cross connections to the public water supply system may exist unless such actual or potential cross connections are abated or controlled to the satisfaction of the district or its authorized representative.

B. No connection shall be installed or maintained whereby an auxiliary water supply may enter a public water supply system.

## **Section IV. Survey and Investigations**

A. The consumer's premises shall be open at all reasonable times to the district or its authorized representative, for the conduction of surveys and investigations of water use practices within the consumer's premises to determine whether there are actual or potential cross connections in the consumer's water system.

B. On request by the district or its authorized representative, the consumer shall furnish requested information on water use practices within his premises and in the consumer's water system.

C. On request by the district or its authorized representative, the consumer shall conduct periodic surveys of water use practices on the premises of the consumer's water system to determine whether there are actual or potential cross connections. The consumer shall provide the survey results to the district or its authorized representative.

## **Section V. Where Protection is Required**

A. An approved backflow prevention device shall be installed on each service line to a consumer's water system serving premises where, in the judgment of the district or its authorized representative or the KDHE, actual or potential cross connections exist. The type and degree of protection required shall be commensurate with the degree of hazard and/or type of contamination that may enter the public water supply system.

B. An approved air gap separation or reduced pressure principle backflow prevention device shall be installed at the service connection or within any premises where, in the judgment of the district or its authorized representative or the KDHE, the nature and extent of activities on the premises, or the materials used in connection with the activities, or materials stored on the premises, would present a health hazard or contamination of the public water supply system from a cross connection. This includes but is not limited to the following situations:

1. Premises having an auxiliary water supply, unless the quality of the auxiliary supply is acceptable to the district or its authorized representative and the KDHE.
2. Premises having internal plumbing arrangements, which make it impractical to ascertain whether or not, cross connections exist.
3. Premises where entry is restricted so that inspections for cross connections cannot be made with sufficient frequency or at sufficiently short notice to assure the cross connections do not exist.
4. Premises having a repeated history of cross connections being established or re-established.
5. Premises, which due to the nature of the enterprise therein, are subject to recurring modification or expansion.
6. Premises on which any substance is handled under pressure so as to permit entry into the public water supply system, or where a cross connection could reasonably be expected to occur. This shall include the handling of process waters and cooling waters.
7. Premises where toxic or hazardous materials are handled.

C. The following types of facilities fall into one or more of the categories or premises where an approved air gap separation or reduced pressure principle backflow prevention device may be required by the district or its authorized representative or the KDHE to protect the public water supply and must be installed at these facilities unless all hazardous or potentially hazardous conditions have been eliminated or corrected by other methods to the satisfaction of the district or its authorized representative and the KDHE:

1. Agricultural chemical facilities
2. Auxiliary water systems, wells
3. Boilers
4. Bulk water loading facilities
5. Car washing facilities

6. Chemical manufacturing, processing, compounding or treatment plants
7. Chill water systems
8. Cooling towers
9. Feedlots
10. Fire protection systems
11. Hazardous waste storage and disposal sites
12. Hospitals, mortuaries, clinics or others as discovered by sanitary surveys
13. Irrigation and sprinkler systems
14. Laundries and dry cleaning
15. Meat processing facilities
16. Metal manufacturing, cleaning, processing and fabricating plants
17. Oil and gas production, refining, storage or transmission properties
18. Plating plants
19. Power plants
20. Research and analytical laboratories
21. Sewage and storm drainage facilities--pumping stations and treatment plants
22. Veterinary clinics

#### **Section VI. Backflow Prevention Devices**

A. Any backflow prevention device required by this regulation shall be of a model or construction approved by the district or its authorized representative and the KDHE.

1. Air gap separation to be approved shall be at least twice the diameter of the supply pipe, measured vertically above the top rim of the vessel, but in no case less than one inch.

2. Double check valve assemblies or reduced pressure principle backflow prevention devices shall appear on the current list of approved backflow prevention devices established by the KDHE, unless the device was installed at the time this regulation was passed and complies with required inspection and maintenance.

#### **Section VII. Installation**

A. Backflow prevention devices required by this policy shall be installed at a location and in a manner approved by the district or its authorized agent. All devices shall be installed at the expense of the water consumer, unless the district or its authorized representative agrees otherwise.

B. Backflow prevention devices installed at the service connection shall be located on the consumer's side of the water meter, as close to the meter as is reasonably practical, and prior to any other connection.

C. Backflow prevention devices shall be conveniently accessible for maintenance and testing, protected from freezing, and where no part of the device will be submerged or subject to flooding by any fluid. All devices shall be installed according to manufacturers' recommendations.

#### **Section VIII. Inspection and Maintenance**

A. The consumer is required by this regulation to inspect, test, and overhaul backflow prevention devices in accordance with the following schedule or more often as determined by the district or its authorized representative.

1. Air gap separations shall be inspected at the time of installation and at least monthly.

2. Double check valve assemblies shall be inspected and tested for tightness at the time of installation and at least every twelve months thereafter. They shall be dismantled, inspected internally, cleaned, and repaired whenever needed and at least every thirty months.

3. Reduced pressure principle backflow prevention devices shall be inspected and tested for tightness at the time of installation and at least every twelve months thereafter. They shall be dismantled, inspected internally, cleaned, and repaired whenever needed and at least every five years.

B. Inspections, tests, and overhauls of backflow prevention devices shall be made at the expense of the consumer and shall be performed by an approved tester.

C. Whenever backflow prevention devices required by this policy are found to be defective, they shall be repaired or replaced without delay at the expense of the consumer.

D. The consumer must maintain a complete record of each backflow prevention device from purchase to retirement. This shall include a comprehensive listing that includes a record of all tests, inspections, and repairs. All records of inspections, tests, repairs, and overhauls shall be provided within 30 days to the district or its authorized representative.

E. All backflow prevention devices shall have a tag showing the date of the last inspection, test, or overhaul or other maintenance.

F. Backflow prevention devices shall not be bypassed, made inoperative, removed, or otherwise made ineffective without specific authorization by the district or its authorized representative.

### **Section IX. Violation and Penalties**

A. The district or its authorized representative shall deny or discontinue the water service to any premises or any consumer wherein any backflow prevention device required by this policy is not installed, tested, and maintained in a manner acceptable to the district or its authorized representative, or if it is found that the backflow prevention device has been removed or bypassed, or if an unprotected cross connection exists.

B. Water service to such premises shall not be restored until the consumer is in compliance with this cross connection regulation to the satisfaction of the district or its authorized representative.

### **Devices**

The following devices are recognized for cross connection control and backflow prevention by the Kansas Department of Health & Environment.

#### **Air Gap**

Gap must be two pipe diameters (in no instance less than one inch). Must be inspected annually. Satisfactory for any material. Whenever practical, this is the control method of choice.

#### **Reduced Pressure Principle Backflow Preventer**

Contains two specifically designed, soft seated, independently acting check valves with a reduced pressure zone (with relief valve) between the two checks. Shut off valves before and after the device. Satisfactory for most toxic materials. Significant pressure loss. (10 psi or more) Must be tested and inspected annually. Repaired as necessary.

#### **Double Check Valve Assembly**

Contains two soft-seated independently acting check valves in series. Shut off valves before and after device. Adequate for non-toxic applications only. Minor pressure loss. Must be inspected and tested annually. Repaired as necessary.

#### **Pressure Vacuum Breaker**

Must be installed a minimum of 12 inches above highest point of usage. No backpressure, only back siphonage. Can operate under constant pressure. Shut off valve can be located beyond the vacuum breaker. Must be inspected and tested annually. Repaired as necessary.

#### **Atmospheric Vacuum Breaker**

Must be installed a minimum of 6 inches above highest point of usage. No backpressure, only back siphonage. Not for use under constant pressure. Shut off valves must be located ahead of vacuum breaker. Must be inspected annually and repaired as necessary.

Date Reviewed: 9/11/2019

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