CROSS CONNECTION CONTROL PROGRAM

for

CONSOLIDATED RURAL WATER DISTRICT #1
LEAVENWORTH COUNTY

2001

Consolidated Rural Water District #1, Leavenworth County

Cross Connection Control Program

I. Purpose

A. To protect the public water supply served by Consolidated Rural Water District (water department) from the possibility of contamination or pollution by isolating, within its customers internal distribution system, such contaminants or pollutants which could backflow or back-siphon into the public water system.

B. To promote the elimination or control of existing cross-connections, actual or or potential, between its customers in-plant potable water system, and non-potable systems.

C. To provide for the maintenance of a continuing program of cross-connection control which will effectively prevent the contamination or pollution of all potable water systems by cross-connection.

II. Authority

A. The Federal Safe Drinking Water Act of 1974, and the statutes of the State of Kansas (Regulation K.A.R. 28-15-18h of the Ks. Dept. of Health & Environment), the water purveyor has the primary responsibility of preventing water from unapproved sources, or any other substances, from entering the public potable water system.

B. The Adopted Rules and Regulations of Consolidated Rural Water District #1 of Leavenworth County, Kansas.

III. Responsibility

The Board of Directors shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or back-siphonage of contaminants or pollutants through the water service connection. If, in the judgement of the Board, an approved backflow device is required at the service connection to any customer's premises, the Board or their delegated agent, shall give notice in writing to said customer to install an approved backflow prevention device at each service connection to his premises. The customer shall, within 90 days install such approved device, or devices, at his/her own expense, and failure or refusal, or inability on the part of the customer to install said device or devices within ninety (90) days, shall constitute a ground for discontinuing water service to the premises until such device or devices have been properly installed.

IV. Definitions

A. Approved

Accepted by the Board of Directors as meeting an applicable specification stated or cited in this regulation, or as suitable for the proposed use.

B. Auxiliary Water Supply

Any water supply, on or available, to the premises other than the purveyors approved public potable water supply.

C. Backflow

The flow of water or other liquids, mixtures or substances, under positive or reduced pressure in the distribution pipes of a potable water supply from any source other than its intended source.

D. Backflow Preventer

A device or means designed to prevent backflow or back-siphonage. Most commonly catergorized as air gap, reduced pressure principle device, double check valve assembly, pressure vacuum breaker, atmospheric vacuum breaker, hose bibb vacuum breaker, residential dual check, double check with intermediate atmospheric vent, and barometric loop.

D.1 AirGap

A physical separation sufficient to prevent backflow between the free-flowing discharge end of the potable water system and any other system. Physically defined as a distance equal to twice the diameter of the supply side pipe diameter but never less than one (1) inch.

D.2 Atmospheric Vacuum Breaker

A device which prevents back-siphonage by creating an atmospheric vent when there is either a negative pressure or sub-atmospheric pressure in a water system.

D.3 Barometric Loop

A fabricated piping arrangement rising at least thirty five (35) feet at its topmost point above the highest fixture it supplies. It is utilized in water supply systems to protect against back-siphonage.

D.4 Double Check Valve Assembly

An assembly of two (2) independently operating spring loaded check valves with tightly closing shut off valves on each side of the check valves, plus properly located test cocks for the testing of each check valve.

D.5 Double Check Valve with Intermediate Atmospheric Vent

A device having two (2) spring loaded check valves separated by an atmospheric vent chamber.

D.6 Hose bibb Vacuum Breaker

A device which is permanently attached to a hose bibb and which acts as an atmospheric vacuum breaker.

D.7 Pressure Vacuum Breaker

A device containing one or two independently operated spring loaded check valves and an independently operated spring loaded air inlet valve located on the discharge side of the check or checks. Device includes tightly closing shut-off valves on each side of the check valves and properly located test cocks for the testing of the check valve(s).

D.8 Reduced Pressure Principle Backflow Preventer

An assembly consisting of two (2) independently operating approved check valves with an automatically operating differential relief valve located between the two (2) check valves, tightly closing shut-off valves on each side of the check valves plus properly located test cocks for the testing of the check valves and the relief valve.

D.9 Residential Dual Check

An assembly of two (2) spring loaded, independently operating check valves without tightly closing shut-off valves and test cocks. Generally employed immediately downstream of the water meter to act as a containment device.

E. Backpressure

A condition in which the owners system pressure is greater than the suppliers system pressure.

F. Back-siphonage

The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply system from any source other than its intended source caused by the sudden reduction of pressure in the potable water supply system.

G. Commission

The Kansas Department of Health and Environment

H. Containment

A method of backflow prevention which requires a backflow prevention preventer at the water service entrance.

I. Contaminant

A substance that will impair the quality of the water to a degree that it creates a serious health hazard to the public leading to poisoning or spread of disease.

J. Cross-Connection

Any actual or potential connection between the public water supply and a source of contamination or pollution.

K. Department

Consolidated Rural Water District #1, Leavenworth County

L. Fixture Isolation

A method of backflow prevention in which a backflow preventer is located to correct a cross connection at an in-plant location rather than at a water service entrance.

M. Owner

Any person who has legal title to, or license to operate or habitat in, a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.

N. Person

Any individual, partnership, company, public or private corporation, political subdivision or agency of the State Department, agency or instrumentality or the United States or any other legal entity.

O. Permit

A document issued by the Consolidated Rural Water District #1, Leavenworth County, Kansas, which allows the use of a backflow preventer.

P. Pollutant

A foreign substance, that if permitted to get into the public water system, will degrade its quality so as to constitute a moderate hazard, or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably effect such water for domestic use.

Q. Water Service Entrance

That point in the owners water system beyond the sanitary control of the District; generally considered to be the outlet end of the water meter and always before any unprotected branch.

R. Board of Directors and/or Manager

The Board or their delegated representative in charge of Consolidated Rural Water District #1, Leavenworth County is invested with the authority and responsibility for the implementation of a cross-connection control program and for the enforcement of the provisions of the Ordinance.

V. Administration

A. The water department will operate a cross-connection control program, to include the keeping of necessary records, which fulfills the requirements of the Kansas Department of Health and Environment's Cross-Connection Regulations and is approved by Kansas Department of Health and Environment.

B. The owner shall allow his property to be inspected for possible cross-connections and shall follow the provisions of the Consolidated Rural Water District #1, Leavenworth County's program and the Kansas Department of Health and Environment's Regulations if a cross-connection is permitted.

C. If the water department requires that the public supply be protected by containment, the Owner shall be responsible for water quality beyond the outlet end of the containment device and should utilize fixture outlet protection for that purpose.

He may utilize public health officials, or personnel from the water department, or their delegated representatives, to assist him in the survey of his facilities and to assist him in the selection of proper fixture outlet devices, and the proper installation of these devices.

VI. Requirements

A. Department

1. On new installations, the water department may provide on site-evaluation and/or inspection in order to determine the type of backflow preventer, if any, that will be required. In any case, a minimum of a dual check valve will be required in any new construction. Said preventer (if required) shall be tested before being placed into service.

2. For premises existing prior to the start of this program, the water department shall inform the owner by letter of any action and/or corrective action deemed necessary, the method of achieving the correction, and the time allowed for the correction to be made. Ordinarily, ninety (90) days will be allowed, however, this time period may be shortened depending upon the degree of hazard involved and the history of the device(s) in question.

3. The water department will not allow any cross-connection to remain unless it is protected by an approved backflow preventer for which a permit has been issued and which will be regularly tested to insure satisfactory operation.

4. The water department shall inform the Owner by letter, of any failure to comply. The water department will allow an additional fifteen (15) days for the correction. In the event the Owner fails to comply with the necessary correction by the time of the second notice, the water department will terminate service to the owner's premises. In the event that the Owner informs the water department of extenuating circumstances as to why the correction has not been made, a time extension may be granted by the water department but in no case will exceed an additional thirty (30 days.

5. If the water department determines at any time that a serious threat to the public health exists, the water service will be terminated immediately.

6. The water department may have on file, a list of Private Contractors who are certified backflow device testers. All charges for these tests will be paid by the Owner of the building or property.

7. The water department will begin initial premise inspections to determine the nature of existing or potential hazards, following the approval of this program by the Board of Directors. Initial focus will be on high hazard industries and commercial premises.

B. Owner

1. The Owner shall be responsible for the elimination or protection of all cross-connections on his premises.

2. The Owner, after having been informed by a letter from the water department, shall at his expense, install, maintain, and have tested, any and all backflow preventers on his premises.

3. The Owner shall correct any malfunction of the backflow preventer which is revealed by periodic testing and provide the water department of the corrected test results.

4. The Owner shall inform the water department of any proposed or modified cross-connections and also any existing cross-connections of which the Owner is aware but has not been found by the water department.

5. The Owner shall not install a by-pass around any backflow preventer unless there is a backflow preventer of the same type on the bypass. Owners who cannot shut down operation for testing of the device(s) must supply additional devices necessary to allow testing to take place.

6. The Owner shall install backflow preventers in a manner approved by water department under the National Plumbing Code, ASA A40.8-1955, or subsequent revisions thereof.

7. The Owner shall install only backflow preventers approved by the water department or the Kansas Department of Health and Environment.

8. Any Owner having a private well or other private water source, must have a permit if the well or source is cross-connected to the water departments system. Permission to cross-connect may be denied by the water department. The Owner may be required to install a backflow preventer at the service entrance if a private water source is maintained, even if it is not cross-connected to the water department's system.

9. In the event the Owner installs plumbing to provide potable water for domestic purposes which is on the water department's side of the backflow preventer, such plumbing must have its own backflow preventer installed.

10. The Owner shall be responsible for the payment of all fees for permits, device testing and/or re-testing in the case that the device fails to operate correctly, and second re-inspections for non-compliance with the water department or Kansas Department of Health and Environment requirements. Devices will be tested at least once annually and more as deemed feasible based on the type of hazard.

VII. Degree of Hazard

The water department recognizes the threat to the public water system arising from cross-connections. All threats will be classified by degree of hazard and will require the installation of approved reduced pressure principle backflow prevention devices or double check valves.

VIII. Permits

The water department shall not permit a cross-connection within the public water supply system unless it is considered necessary and that it cannot be eliminated.

A. Cross-connection permits that are required for each backflow prevention device are obtained from the water department. A fee may be charged for the initial permit and for the renewal of each permit as deemed necessary by the Board of Directors. (See Rate Fee Schedule)

B. Permits shall be renewed every year and are non-transferable. Permits are subject to revocation and become immediately revoked if the Owner should so change the type of cross-connection or degree of hazard associated with the service.

C. A permit is not required when fixture isolation is achieved with the utilization of a non-testable backflow preventer.

IX. Existing in-use backflow prevention devices.

Any existing backflow preventer shall be allowed by the water department to continue in service unless the degree of hazard is such as to supercede the effectiveness of the present backflow preventer, or result in an unreasonable risk to the public health. Where the degree of hazard has increased, as in the case of a residential installation converting to a business establishment, any existing backflow preventer must be upgraded to a reduced pressure principle device, or a reduced pressure principle device must be installed in the event that no backflow device was present.

X. Periodic Testing

A. Reduced pressure principle backflow devices shall be tested and inspected at least once annually.

B. Periodic testing shall be performed by a certified tester. This testing will be done at the owner's expense.

C. The testing shall be conducted during the water department's regular business hours. Exceptions to this, when at the request of the owner, may require additional charges to cover the increased costs to the water department.

D. Any backflow preventer which fails during a periodic test must be repaired or replaced. When repairs are necessary, upon completion of the repair, the device will be re-tested at Owners expense to insure correct operation. High hazard situations will not be allowed to continue unprotected if the backflow preventer fails the test and cannot be repaired immediately. In other situations, a compliance date of not more than thirty (30) days after the test date will be established. The owner is responsible for spare parts, repair tools, or a replacement device. Parallel installation of two (2) devices is an

effective means of the owner insuring that uninterrupted water service during testing or repair of devices and is strongly recommended when the owner desires such continuity.

E. Backflow prevention devices will be tested more frequently that specified in "A" above, in cases where there is a history of test failures and the water department feels that due to the degree of hazard involved, additional testing is warranted. Cost of the additional test will be born by the owner.

XI. Records and Reports

A. Records

The water department will initiate and maintain the following:

1. Master files on customers cross-connection tests and/or inspections.
2. Master files on cross-connection permits.
3. Copies of permits and permit applications.
4. Copies of lists and summaries supplied to KDHE.

B. Reports

The water department will submit the following to KDHE upon request:

1. Initial listing of low hazard cross-connections.
2. Initial listing of high hazard cross-connections.
3. Annual update list of items 1 and 2 above.
4. Annual summary of cross-connection inspections.

XII. Fees and Charges

The water department will publish a list of fees or charges for the following services or permits:

1. testing fees (if applicable)
2. re-testing fees (if applicable)
3. fee or re-inspection (if applicable)
4. Charges for after-hours inspections or tests.

Addendum

1. Residential Dual Check

Effective the date of the acceptance of this Cross-Connection Control Program for Consolidated Rural Water District #1, Leavenworth County, Kansas, all new residential buildings will have installed a dual check device by means of the meter setter within the meter pit. Installation of this residential dual check device on a retrofit basis on existing service lines will be instituted at a time deemed feasible by the water department.

The owner must be aware that installation of a residential dual check valve results in a potential closed plumbing system within his residence. As such, provisions may have to be made by the owner to provide for thermal expansion within his closed loop system, the installation of thermal expansion devices and/or pressure relief valves.

2. Strainers

The water department strongly recommends that all new retrofit installations of reduced pressure principle devices and double check valve backflow preventers include the installation of strainers located immediately upstream of the backflow device. The installation of strainers will preclude the fouling of backflow devices due to both foreseen and unforeseen circumstances occurring to the water supply system such as water main repairs, water main breaks, fires, periodic cleaning and flushing of mains, etc. These occurrences may “stir up” debris within the water main that may cause fouling of backflow devices installed without the benefit of strainers.

Definitions of Cross-Connections

Hazards & Recommended Types of Backflow Prevention Devices

HAZARD	Degree of hazard		Recommended type of Backflow				
	HIGH	LO	AG	RPZ	PVB	AVB	DC
I. Direct water connections which may be subject to backpressure:							
A. Pumps, tanks and lines handling:							
a. Sewage and lethal substances	X		X				
b. Toxic Substances	X		X	X			
c. Non-Toxic substances		X	X	X			X
B. Water Connections to Steam & Steam Boilers							
a. Boilers 400K BTU/Hr. & Larger	X		X	X			
b. All boilers with Chemical Feeders	X		X	X			
c. Boilers smaller than 400 K BTU/hr without chemical feed							
Note: low hazard boilers must have blow-off properly air-gapped	X	X	X				
II. Direct or Indirect Water Connections Not subject to Backpresure							
A. Sewer connected waste lines	X		X	X	X	X	
B. Low inlets to receptacles containing toxic substances *	X		X	X	X	X	
C. Low inlets to receptacles containing non-toxic substances **		X	X	X	X	X	X
D. Low inlets to domestic water tanks	Treat each case individually						
E. Lawn irrigation systems	X		X	X	X	X	
F. Coils or jackets used as heat exchangers in compressors, Degreasers or other equipment:							
a. in sewer lines	X		X	X			
b. in toxic substances *	X		X	X			
c. In non-toxic substances **		X	X	X			X
note: Double wall heat exchangers with atmospheric vent may be used in lieu and must always be used when heating potable water.							
G. Flush valve toilets	X					X	
H. Toilet and urinal tanks	X		X			X	
I. Trough urinals	X					X	
Note: AVB must be installed at least 30" above the flushing tube							
J. Valved outlets or fixtures threaded to receive a hose	X		X	X	X	X	

*Toxic Substance:	Any product that because of its nature would cause illness or death to any person or animal ingesting it.
**Non-Toxic Substance:	A product that if it entered a potable water would cause taste, odor or color, but not toxic
High Hazard:	If backflow occurred would cause serious degratation causing the supplying water to Become a threat to health or life.
Low Hazard:	If backflow occurred would cause the supplying water to become aesthetically degraded But not a threat to life or health.

REQUIRED BACKFLOW PREVENTION METHOD

A. When any of the following activities are conducted on premises served by Consolidated Rural Water District #1, Leavenworth County's water system, a potential hazard to the water supply shall be presumed and a backflow prevention method, of the type specified herein, must be utilized or installed on the water service for that premise.

1. Aircraft and missile plants	RP
2. Animal clinics and animal grooming shops	RP
3. Any premise where a cross-connection is maintained	RP
4. Automotive repair with steam cleaner, acid cleaning equipment or solvent facilities	RP
5. Auxiliary water systems	RP
6. Bottling plants, beverage or chemical	RP
7. Breweries	RP
8. Buildings greater than three (3) stories or 34 feet high from curb level	DC
9. Buildings with house pumps and/or potable water storage tanks	DC
10. Buildings with landscape fountains, ponds, or baptismal tanks	RP or Air Gap
11. Buildings with sewage ejectors	RP
12. Canneries, packing houses, and reduction plants	RP
13. Car wash facilities	RP
14. Centralized heating and air conditioning plants	RP
15. Chemical Plants	RP
16. Chemically treated potable or non-potable water systems	RP
17. Civil works (government owned or operated facilities) not open for inspection	RP
18. Commercial laundries	RP
19. Dairies and cold storage plants	DC
20. Dye works	RP
21. Film processing laboratories	RP
22. Fire systems – AWWA classes 1,2,3. All systems six (6) inches in size or larger or any system four (4) inches in size and larger constructed of a piping material not approved as a potable water system material per the Uniform Plumbing Code	DCDA
23. Fire systems – AWWA Classes 4,5,6	RP
24. Fire systems – Where backflow protection is required on the industrial/domestic service connection that is located on the same premises, both services connections will have adequate backflow protection for the highest degree of hazard effecting either system.	RP
25. Food processing plant	RP
26. High Schools and colleges	RP
27. Holding Tank disposal stations	RP
28. Hospitals and mortuaries	RP
29. Medical and dental buildings, sanitariums, rest and convalescent homes engages in diagnosis, care or treatment of human illness	DC
30. Irrigation systems:	
(a) premises having separate systems used in elevated areas or with drip irrigation.	RP
(b) premises having non-potable water piping (lawn sprinklers) 2inches or smaller	RP

31. Laboratories using toxic materials	RP
32. Livestock (feed lots and/or pasture facilities)	RP
33. Manufacturing, processing and fabricating plants using toxic or non-toxic materials	RP
34. Mobile home parks	DC
35. Motion picture studios	RP
36. Multiple services interconnected	DC
37. Oil and gas production facilities	RP
38. Paper and paper production plants	RP
39. Plating plants	RP
40. Portable insecticide and herbicide spray tanks	RP or Air Gap
41. Power plants	RP
42. Radio active materials processing facilities	RP
43. Restaurants and other food processing facilities	RP
44. Restricted, classified or other closed facilities	RP
45. Rubber plants	RP
46. Sand and gravel plants	RP
47. Sewage and storm drainage facilities	RP
48. Shopping centers	DC
49. Street sweepers, steel wheeled rollers	RP or Air Gap
50. Swimming Pools	RP
51. Water trucks, water tanks or hydraulic sewer cleaning equipment	RP or Air Gap

B. When two or more of the activities listed above are conducted on the same premises and served by the same water service, the most restrictive backflow prevention method required for any of the activities conducted on the premises shall be required to be utilized or installed in compliance with the standard specifications adopted by the Board.

Abbreviations

AG	=	Air Gap
AVB	=	Atmospheric Pressure Breaker
DC	=	Dual Check Assembly
DCDA	=	Dual Detector Dual Check Assembly
PVB	=	Pressure Vacuum Breakers
RP (RPZ)	=	Reduced Pressure Principle Assembly

DEGREE OF HAZARD

"Degree of Hazard" shall be classified as either: (a) high health hazard or (b) low non-health hazard. Health hazard is the potential threat of a physical or toxic nature to the public water supply that would be a danger to the health of the consumer of the water.

High hazards must be provided a physical separation (approved air gap), an approved reduced pressure principal backflow prevention device or must be protected by an approved pressure vacuum breaker.

EXPLANATION OF TERMS

HIGH HEALTH HAZARD. Any substance that when introduced into the potable water may create a health hazard.

LOW NON-HEALTH HAZARD. Any substance that may create a moderate hazard if introduced into the potable source.

AIR GAP (AG). A physical separation between the potable water and any contaminating source. Must be two pipe diameters but not less than one inch above the flood level rim.

REDUCED PRESSURE PRINCIPLE DEVICE (RPPD). A mechanical device used to prevent backflow due to back pressure and backsiphonage. Suitable for both toxic and non-toxic substances.

PRESSURE VACUUM BREAKER (PVB). A mechanical device used to prevent backflow due to backsiphonage. May be used under continuous line pressure.

ATMOSPHERIC VACUUM BREAKER (AVB). A mechanical device used to prevent backflow due to backsiphonage. May not be used under continuous line pressure.

DOUBLE CHECK VALVE ASSEMBLY (DCVA). A mechanical device used to prevent backflow due to backpressure and backsiphonage. Suitable for non-toxic substances only.

OFFICE USE ONLY

RECOMMENDED TYPES OF BACKFLOW PREVENTION DEVICES

High Degree of Hazard Subject To Back Pressure	**Type of Device**
1. Pumps, tanks and lines handling:	
a. sewage and lethal substances	AG RPPD
b. toxic substances	AG RPPD
2. Connections to steam or steam boilers	
a. boilers 400,000 btu/hr or larger	AG RPPD
b. boilers with chemical feeders	AG RPPD
3. Lawn sprinkler systems	AG RPPD
4. Bulk chemical tanks	AG RPPD

High Degree of Hazard Not Subject to Back Pressure	
1. Sewer connection waste lines	AG-RPPD-PVB-AVB
2. Low inlets to receptacles containing toxic materials (includes lawn sprinkler system)	AG-RPPD-PVB-AVB
3. Coils or jackets used as heat exchangers in compressors, degreasers or other equipment:	
a. in sewer lines	AG RPPD
b. in toxic materials	AG RPPD
4. Flush valve toilets	AVB
5. Toilet and urinal tanks	AG AVB
6. Trough urinals	AVB*1
7. Valved outlets with hose threads	AG-RPPD-PVB-AVB
8. Lawn sprinkler systems	AG – RPPD – PVB
9. Bulk chemical tanks	AG RPPD

Low Degree of Hazard Subject to Back Pressure	
1. Pumps, tanks and lines handling:	
a. Non-Toxic materials	AG – RPPD – DCVA

_____

AVB*1 must be installed not less than 30 inches above flush tube.

NOTE: 1. Double wall heat exchangers with atmospheric vent must always be used when heating potable water.
2. Low hazard boilers must have a properly air gapped blow-off.

OFFICE USE ONLY

2. Connections to stem or steam boilers
   a. Boilers smaller than 400,000 btu/hr — AG – RPPD – DCVA

Low Degree of Hazard Not Subject to Back Pressure

1. Low inlets to receptacles containing non-toxic materials without chemical feeders — AG – RPPD – PVB – AVB DCVA

2. Low inlets to domestic water tanks — treat each case individually

3. Coils or jackets used as heat exchangers in compressors, degreasers or other equipment:
   a. in non-toxic substances — AG – RPPD - DCVA

Dual Check Valves

Dual check valves may be installed at each service connection. Installation of these devices at each service connection to the public water supply is not a requirement of KDHE. A backflow preventer needs only be installed where it is determined a cross connection exists, or the potential for a cross connection is imminent. Protection at every meter or any connection to the public water supply is an option of the water supplier.

Containment by installation of dual check valves may be used as an optional part of an overall local cross connection control program, but may not be considered the total answer to cross connection control. Isolation of contaminants at the point where they may enter the potable water is essential to the cross connection control program.

Installation of a dual check valve results in the consumers piping beyond the dual check valve becoming an enclosed system. The consumer may need to install a pressure relief device to allow for thermal expansion.

The dual check valve is approved for use only at the meter or service connection and cannot be used in place of the double check valve assembly. The dual check valve cannot be tested whereas the double check valve assembly can. The dual check valve may be located in a meter box below ground while the double check valve assembly must be accessible for regular inspection, testing and repair.

A single check valve is not an acceptable cross connection control device.

OFFICE USE ONLY

STATE OF KANSAS

REGULATIONS

ON

BACKFLOW PREVENTION

AND

CROSS-CONNECTION

CONTROL

K.A.R. 28-15-18h

(KS Dept of Health & Environment)

(h) All community water systems and any high risk non-community systems designated by the department shall have a regular program, approved by the department, for the detection and elimination of cross connection and prevention of backflow and back siphonage.

K.A.R. 49-50-4

(KS Dept. of Human Resources)

(a) A person shall not install any water-operated equipment or mechanism, or use any water-treating chemical or substance if it is found such equipment, mechanism, chemical or substance may cause pollution of the domestic water supply. The equipment or mechanism may be permitted only when equipped with an approved backflow prevention device.

(b) Each backflow prevention device installed in a potable water supply system shall be maintained in good working condition by the person or persons having control of the device. The devices may be inspected by authorized inspectors and, if found to be defective or inoperative, shall be repaired or replaced as directed by the inspector. Any device shall not be removed from use or relocated or another device substituted without formal notification to the office of the responsible authorized inspection agency.

© Potable water piping shall not be installed or maintained within any piping or device conveying sewage, wastes or other material hazardous to health and safety.

(d) Steam and steam boiler connections shall be protected by an approved backflow prevention device as set forth in subsection (e) of this section.

(e) Non-Potable water piping. If it is impractical to correct individual cross-connections on the domestic water line, the line supplying such outlets shall be considered a non-potable water line. Drinking or domestic water outlets shall not be connected to the non-potable water line. Backflow or back siphonage from the non-potable water line into the domestic water line shall be prevented by the installation of a gravity tank or by a tank having a pump designated for non-potable water. The domestic water inlets to the non-potable water tank shall have an approved air-gap as with the ASME code in effect on January 1, 1987. Where it is impractical to install such a tank, an approved pressure-type backflow or back-siphonage prevention device shall be installed as follows:

1. Where reverse flow is possible only as a result of a vacuum within the line, an approved pressure-type vacuum breaker unit or other approved backflow prevention device shall be installed in the supply line.

2. each pressure-type vacuum breaker unit shall be installed at a height of a least 12 inches (.3m) above the highest tank, equipment or other point at which the non-potable water is used. Other approved backflow prevention devices shall be installed in a manner satisfactory to the responsible authorized inspection agency, but in no case less than 12 inches (.3m) above the surrounding ground on floor.

3. Where backflow can occur (creating a higher pressure in the non-potable water line) an approved backflow prevention device shall be installed in the supply line. The backflow prevention device shall be installed at least 12 inches (.3M) above the surrounding ground or floor.

(f) Whenever possible, all portions of the non-potable water line shall be Exposed and all exposed portions hall be properly identified in a manner satisfactory to the responsible authorized inspection agency. Each outlet on the non-potable line which could be used for drinking or domestic purposes shall be posted with the following sign: **DANGER---WATER UNSAFE.**

(g) An approved backflow prevention device shall conform to the requirements of the American Society of Sanitary Engineering Code as in effect on December 31, 1986.

K.S.A. 65-163 a

Cessation of water delivery to avoid contamination; order of cessation by secretary; appeal.

(a.) Any supplier of water may refuse to deliver water through pipes and mains to any premises where a condition exists which *might* lead to the contamination of the public water supply system and may continue to refuse the delivery of water to the premises until the condition is remedied.

(b.) The secretary may order the supplier of water:

1. to cease the delivery of water through pipes and mains to a premise or premises where a condition exists which *might* lead to the contamination of the public water supply system, or,

2. to cease an activity which would result in a violation of the state primary drinking water standards, or;

3. to cease an activity which results in a continuing violation of the state primary drinking water standards, or;

4. to comply with any combination of these orders.

The supplier of water shall immediately comply with an order issued by the secretary under this section.

© If a supplier of water considers the terms of such order to be illegal, unjust or unreasonable, the operator may appeal within thirty (30) days after the issuance of the order to the district court of the county in which the public water supply system is located or, if the water supply system is located in more than one county, to the district court of any such county. The court shall hear the appeal without delay and shall approve, set aside or modify the order.

K.S.A. 65-171 g

Protection of water and air from sewage contamination. Water supply shall be protected against contamination from sewage by the prohibition of any connection between sewage and water systems which provide the possibility of water contamination by means of back siphonage or direct connection. Air in enclosed spaces shall be protected against contamination from toxic explosive or disagreeable gases or vapors from a sewage system by providing leak tight and substantial waste and ventilation connections, and liquid sealed traps on all plumbing fixtures discharging into any type of sewage disposal systems.

K.S.A. 65-171 I (j,k)

The following acts are prohibited:

(j) The application of fertilizers, pesticides or other chemicals by any person through any lawn irrigation system connected to a public water supply system except in areas where the public water supply system has adopted a program for the detection and elimination of cross-connections and preventions of backflow and back siphonage which has been approved by the secretary of health and environment, such application may be permitted by the public water supply system upon its periodic inspection and current approval of the installed air-gap or reduced pressure zone backflow prevention device which isolates the irrigation system.

(k) The use by any person of a public water supply system as a source of make-up for bulk chemical application tanks except that:

1. in areas where the public water supply system has adopted a program for the detection and elimination of cross-connections and prevention of backflow and back siphonage which has been approved by the secretary of health and environment, may be permitted by the public water supply system upon its periodic inspection and current of an air gap or reduced pressure zone backflow prevention device to protect the public water supply; and

2. in areas where the public water supply system has not adopted a program approved by the secretary of health and environment, such use may be permitted if an air gap or reduced pressure zone backflow prevention device is used and such device meets nationally recognized standards, as determined by the secretary of health and environment.

K.S.A. 65-171 y

(a) subject to the provisions of subsection (b), any lawn irrigation system which is not used for the application of fertilizers, pesticides, or other chemicals shall not be deemed to be a high hazard water system and shall not be required to be equipped with a high-hazard backflow prevention device. Any such lawn irrigation system installed, renovated, replaced or extended on or after July 1, 1994, shall have at least a low-hazard double check valve assembly as a minimum level of backflow prevention and any such valve on a new system installed after July 1, 1994, shall be installed in such a manner as to be easily accessible for inspection.

(b) a public water supply system operated a city or county may impose any requirement, in addition to that provided by subsection (a), for backflow protection or prevention on lawn irrigation systems that are not used for the application of fertilizers, pesticides, or other chemicals and which are connected to the public water supply system.

CROSS CONNECTION CONTROL DEVICES

AIR GAP:

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

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER:

Contains two specifically designed, soft seated, independently acting check valves with a reduced pressure one (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 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 use.
No back pressure, 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 back pressure, only back siphonage
Not for use under constant pressure.
Shut off valve can be located ahead of the vacuum breaker
Must be inspected annually and repaired as necessary.

Cross connection control devices must be inspected, tested and repaired by a trained technician. All devices should be installed such that they will be accessible for regular inspecting and testing.

All devices must be tested and/or certified by an authority acceptable to KDHE. These authorities include the American Society of Sanitary Engineers (ASSE), American Water Works Association (AWWA), Foundation for Cross Connection Control and Hydraulic Research, University of Southern California (FCCCHR of USC), Canadian Standards Association (CSA), Southern Building Code Congress (SBCC) or Factory Mutual (FM). Other testing or certifying authorities may be accepted by KDHE.