

CROSS-CONNECTION CONTROL PROGRAM  
FOR  
Monroeville Water Works

IN ACCORDANCE WITH PUBLIC LAW 805  
AND  
22-23-30 CODE OF ALABAMA 1975  
AND SAFE DRINKING WATER ACT OF 1977  
AS AMENDED  
AND THE SBCCI STANDARD CODES, 1985 EDITION  
REVISED PROCEDURES ADOPTED THE  
4<sup>th</sup> DAY OF JANUARY, 1988

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Butch Feaster, Chairman

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(Attestee) William Snyder Sec/Treas.

AMERICAN WATER WORKS ASSOCIATION  
POLICY ON CROSS-CONNECTIONS

A statement adopted by Board of Directors on Jan. 25, 1970  
and Revised June 24, 1979

The American Water Works Association recognizes that the water purveyor has a responsibility to provide its customers at the service connection with water that is safe under all foreseeable circumstances. Thus in the exercise of this responsibility the water purveyor must take reasonable precaution to protect the community distribution system from the hazards originating on the premises of its customers that may degrade the water in the community distribution system.

It is realized that cross-connection control and plumbing inspections on premises of its customers are regulatory in nature and should be handled through the rules, regulations, and recommendations of the health authority or the plumbing-code enforcing agencies having jurisdiction. The water purveyor, however, should be aware of any situation requiring inspection and/or re-inspections necessary to detect hazardous conditions resulting from cross-connections. If, in the opinion of the utility, effective measures consistent with the degree of hazard have not been taken by the regulatory agency, the water purveyor should take such measures as he may deem necessary to ensure that the community distribution system is protected from contamination. Such action would include the installation of a backflow prevention device, consistent with the degree of hazard, at the service connection, or discontinuance of the service.

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## **1. INTRODUCTION**

**Monroeville Water Works** in its operation of a public potable water supply system is required to ensure protection of public health through the provision of minimum requirements and standards for design, construction, operation, and maintenance of the system. It is essential that physical cross-connections, which create or have the potential to create an imminent and substantial danger to public health be eliminated from the distribution system and plumbing systems of customers. Backflow can result in the potable water system becoming a transmitter of disease, toxic materials and other hazardous liquids. Therefore, it is necessary to establish and maintain a Cross-Connection Control Program to protect the health of water customers by the control of actual and/or potential cross connections through the methods of containment and/or isolation.

## **2. AUTHORITY**

The Alabama Department of Environmental Management requires public water supply systems to establish a routine Cross-Connection Control Program for the purpose of detecting and preventing cross-connections that create or have the potential to create an imminent and substantial danger to public health by and from contamination due to the cross-connection. Upon detection of a prohibited cross-connection both community and non-community water systems shall either eliminate the cross connection by installation of an appropriate backflow prevention device acceptable to the Board or discontinue service until the contaminant source is eliminated. Such program shall be developed utilizing accepted practices of the American Water Works Association guidelines as set forth in AWWA manuals M14, “Backflow Prevention and Cross Connection Control” and “Cross Connections and Backflow Prevention”, 2<sup>nd</sup> edition.

### **3. DEFINITIONS**

Air Gap Separation – An 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 flood 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. In no case shall the gap be less than one(1) inch. This gap shall also be above the established 100-year flood level.

Atmospheric Vacuum Breaker – A backflow prevention device which is operated by atmospheric pressure in combination with the force of gravity. The unit is designed to work in a vertical plane only. The moving part consists of a poppet valve, which must be carefully sized to slide in a guided chamber and effectively shut-off the reverse flow of water when a negative pressure exists.

Auxiliary Water Supply – Any water supply on or available to the premises other than the purveyor's approved public potable water supply. These auxiliary water supplies may include water from another purveyor's public water supply or any natural sources(s) such as a well, spring, river, stream, harbor, etc., or "used waters" or "industrial fluids". These waters may be polluted, contaminated, or may be objectionable and constitute an unacceptable water source over which the water purveyor does not have sanitary control.

Backflow – The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable supply of water from any source or sources other than its intended source.

Back Pressure – Backflow caused by a pump, elevated tank, boiler or other means that could create pressure greater than the supply pressure.

Back Siphonage – Backflow due to a negative or subatmospheric pressure within a water system.

Backflow Prevention Device – A device to counteract back pressure or prevent back siphonage.

Backflow Prevention Device – Approved: The term approved backflow prevention device shall mean a device that has met the requirements of one or more of the following standards:

AWWA – C-505	Standard for backflow prevention devices, Reduced pressure principal and Double Check valve types.
ASSE – 1001	Atmospheric type vacuum breakers.
ASSE – 1011	Hose connection vacuum breakers.
ASSE – 1020	Pressure type vacuum breakers.
ASSE – 1024	Dual Check Type backflow preventer (Residential use only).
ASSE – 1013	Reduced pressure principle back pressure backflow preventers.
ASSE – 1015	Double check valve type back pressure backflow preventers.
USC-FCCC	University of Southern California Foundation for Cross-connection control and Hydraulic Research.

Containment – A method of controlling potential and/or confirmed cross-connections by installation of a double check assembly or a reduced pressure principle backflow prevention device.

Cross-Connection – Any physical arrangement whereby a public water supply system is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture or other device which contains or may contain contaminated water, sewage, or other waste or liquid of unknown or unsafe quality, which may be capable of imparting

contamination to the public water supply system as a result of backflow. Bypass arrangements, jumper connections, removable sections, swivel or change-over devices, or any other temporary or permanent devices through which or because of which backflow could occur are considered to be cross-connections.

Double Check Valve Assembly – An assembly composed of two single, independently acting check valves, including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water tightness of each check valve.

Health Hazard – Any conditions, devices, or practices in any water supply system or in its operation which create or may create a danger to the health and well-being of the water consumer.

Isolation – A method of controlling potential and/or confirmed cross-connections by installation of an air gap separation or a vacuum breaker.

Pressure Vacuum Breaker – A pressure vacuum breaker is similar to an atmospheric vacuum breaker except that the checking unit “poppet valve” is activated by a spring. This type of vacuum breaker does not require a negative pressure to react and can be used on the pressure side of a valve.

Public Water Supply – Any system or water supply intended or used for human consumption or other domestic use, including source, treatment, storage, and distribution where water is furnished to any community, collection or number of individuals, or is made available to the public for human consumption or domestic use, but excluding supplies serving one single-family residence.

Reduced Pressure Principle Backflow Prevention Device – A device incorporating two or more check valves and an automatically operating differential relief valve located between the two check valves, two shutoff valves and equipped with necessary appurtenances for testing. The device shall operate to maintain the pressure in the zone between the two check valves, less than the pressure of the

public water supply side of the device even at cessation of normal flow. In the case of leakage of either check valve, the differential relief valve shall operate to maintain this reduced pressure by discharging to the atmosphere. When the inlet pressure is two pounds per square inch or less, the relief valve shall open to the atmosphere, thereby providing an air gap in the device. This air gap shall also be above the 100-year flood level.

#### **4. RESPONSIBILITY**

- (a) Monroeville Water Works is responsible for the protection of its public potable water distribution system from backflow of contaminants or pollutants through any water service connection. If, in the judgment of the Board, an approved backflow prevention device is required at the water service connection to any of its customer's premises for the safety of the users of the water system, the Board shall give notice in writing to the customer that an approved backflow prevention device shall be installed at the customer's expense.
- (b) Failure, refusal or inability on the part of the customer to meet the Board's time schedule for installation of this device or devices shall constitute grounds for discontinuance of water service until such device or devices have been properly installed. Any licensed plumber may install the proper device in the correct manner.
- (c) Compliance testing after initial installation of a backflow prevention device shall be performed by the Board.
- (d) In the event of any known or suspected accidental pollution or contamination of the consumer's or the Board's potable water, the consumer shall promptly take steps to confine any further spread of pollution or contamination and shall immediately notify the Board of the situation.



## **5. POLICY**

- (a) All premises having an auxiliary water supply which is not or may not be of safe bacteriological or chemical quality and which is not acceptable as an additional source to the Board shall have an approved air gap separation or an approved reduced pressure principle backflow prevention device installed in order to protect the public water supply against backflow.
- (b) For all premises where there is water or substances that could be objectionable but not hazardous to health, if introduced into the public water system, the public water system shall be protected by an approved air gap separation, or an approved double check valve assembly, or an approved vacuum breaker.
- (c) For all premises where there is any material dangerous to health, which is handled in such a fashion as to create an actual or potential hazard to the public water system, the public water system shall be protected by an approved reduced pressure principle backflow prevention device. Examples of premises where these conditions have been found to exist include sewage treatment plants, sewage pumping stations, chemical manufacturing plants, hospitals, mortuaries, and plating plants.
- (d) For all premises where there are “uncontrolled” cross connections, either actual or potential, the public water system shall be protected by an approved air gap separation or an approved reduced pressure principle backflow prevention device.
- (e) For all premises where security requirements or other prohibitions or restrictions make it impossible or impractical to perform a complete in-plant cross-connection survey, the public water public water system shall be protected by an approved air gap separation or an approved reduced pressure principle backflow prevention device.

- (f) For all premises more than two stories high (excluding basements), the public water public water system shall be protected by an approved double check valve assembly.
- (g) All backflow prevention devices shall be installed at a location designated by the Board. Generally this will be immediately on the customer's side of the meter. If circumstances make this location impractical, then the backflow prevention device may be placed further downstream from the meter. However, any piping between the meter and the backflow prevention device must be either exposed or readily available for inspection.
- (h) The following types of facilities shall normally require the designated backflow prevention devices. This list is presented as a guideline and should not be construed as being final or complete. Each case will be judged on its own merit.

**FACILITIES REQUIRING BACKFLOW PREVENTION DEVICES**

- A.C. - Air Gap Separation    D.C. - Double Check Valve Assembly
- R.P. - Reduced Pressure Principle                                  V.B. - Vacuum Breaker (type to be  
Backflow Prevention Device    designated)

<u>Type of Facility</u>	<u>Type of protection</u>
Ice Cream & Dairy Products	A.G. or D.C.
Car wash	A.G. or R.P.
Chemical Plant	A.G. or R.P.
Film Lab or Development	A.G. or R.P.
Food or Beverage Processing Plant	D.C.
Hospitals, Clinics, and Medical Buildings	A.G. or R.P.
Laboratories	A.G. or R.P.
Laundries or Dry Cleaners	D.C.
Machine Tool Plants (health hazard)	A.G. or R.P.
Machine Tool Plants (no health hazard)	D.C.
Metal Plating Plants	A.G. or R.P.
Morgues, Mortuaries or Autopsy Facilities	A.G. or R.P.
Multistoried Buildings	A.G. or D.C.

Packing Houses	A.G. or R.P.
Paper Product Plants	A.G. or R.P.
Pesticides & Herbicides Exterminators	A.G. or R.P.
Petroleum Processing Plants	A.G. or R.P.
Petroleum Storage Plant or Yard (health hazard)	A.G. or R.P.
Petroleum Storage Plant or Yard (no health hazard)	D.C.
Pharmaceutaca 1 or cosmetic plants	A.G. or R.P.
Piers, docks or water front facilities	A.G. or R.P.
Power plants	A.G. or R.P.
Radioactive material plants	A.G. or R.P.
Sand and gravel plants	D.C.
Schools with Laboratories	D.C.
Irrigation Systems	D.C.
Irrigation Systems (with chemical feed)	A.G. or R.P.
Swimming Pools	A.G. or R.P.
Sewage Treatment Plants	A.G. or R.P.
Sewage Pumping Stations (health hazard)	A.G. or R.P.
Sewage Pumping Stations (no health hazard)	D.C.
Sewage Pumping Stations (outside hose bibs only)	V.B.
Premises having water re-circulating systems and pumps (health hazard)	A.G. or R.P.
Premises having water re-circulating systems and pumps (no health hazard)	R.P. or D.C.
Premises having boiler, cooling systems, or hot water heating systems where chemical water conditioners are used	A.G. or R.P.
Premises having storage tanks, reservoirs, ponds, etc.	A.G. or R.P.
Veterinary Establishments	A.G. or R.P.

## **6. INSPECTION**

- (a) Monroeville Water Works shall conduct inspections of customer's premises where suspected cross-connections or potential cross-connections may exist. Customers shall be notified in advance of the inspections and the reason for the inspections. Should any cross-connections or potential cross-connections be detected, the customers shall be notified in writing of the appropriate type of

backflow prevention device to be installed. Refusal by a customer to allow an inspection shall be considered prima facia evidence of the existence of cross-connections, thereby requiring the installation of an approved reduced pressure principle backflow prevention device or the disconnection of service.

- (b) For existing facilities, customers will be asked to complete a questionnaire on their water usage in order to make a preliminary determination of the potential health hazard to the Board's water distribution system. When such information or other knowledge indicates a potential health hazard, a survey of the customer's water system shall be conducted. Such surveys need not be a detailed inspection of the location or disposition of water lines, but can be confined to establishing the water use on premises; the existence of any cross-connections; the availability of auxiliary water supplies; the use or availability of pollutants, contaminants, or other liquids, solid or gaseous substances that may be used industrially for stabilization of water supplies and other procedures for determining the degree of health hazard.
- (c) All new services shall be classified at the time of application to indicate the degree of hazard anticipated and hence, the type of device required. This information shall be given to the applicant in writing. Any later change in water usage may require a change in the type of device. If no realistic evaluation of the proposed water uses can be determined, the customer, architect, engineer or other appropriate individual should be advised in writing that eventually circumstances may require the installation of additional backflow protection of the water supply serving the premises.
- (d) All water customers of the Board shall be required to notify the Board in writing, of any changes in their water usage. These changes will be evaluated to determine if there is an increase in the potential health hazard and if such increase requires the installation of a device. If a device is already in place, it

will be determined if this device is adequate or if a different type of device is required.

## **7. RECORDS**

Appropriate records shall be maintained by the Board of all potential and confirmed cross-connections. Installations and tests of backflow prevention devices shall be recorded and filed for future reference.

## **8. MAINTENANCE**

- (a) Routine testing of backflow prevention device(s) shall be performed by the Board. The frequency of testing will be dependent upon the type of device installed and the potential health hazard involved.
- (b) Customers will be notified in advance of the date and approximate time any testing will be performed. It will be necessary to shut off the water service for a period not exceeding fifteen (15) minutes and every effort will be made to schedule tests to suit the customer's convenience. If the customer's operations cannot permit any interruption of service, it will be the customer's responsibility to have two approved backflow prevention devices installed in parallel so that one may be used while the other is being tested. Bypasses around backflow prevention devices are expressly forbidden.
- (c) If any devices are found to be faulty, the customer will immediately be notified and will be required to have the device promptly repaired or replaced at his expense. In high hazard situations, it may be necessary to terminate service until a properly operating device is in place. The customer should notify the Board as soon as any faulty device has been corrected so that it may be re-tested.

