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**APPENDIX G**  
**POLICY FOR THE CONTROL OF BACKFLOW**  
**AND CROSS-CONNECTIONS**

**(REVISED)**

A POLICY FOR THE CONTROL OF BACKFLOW AND CROSS-CONNECTIONS

ADOPTED PURSUANT TO THE REQUIREMENTS OF  
THE ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
ADMINISTRATIVE CODE FOR WATER DIVISION – WATER SUPPLY PROGRAM  
CHAPTER 335-7-9, ENTITLED  
“CROSS CONNECTION CONTROL REQUIREMENTS”  
WHICH MAY AFFECT POTABLE WATER LINES BELONGING TO  
THE BOARD OF WATER AND SEWER COMMISSIONERS  
OF THE CITY OF MOBILE

WHEREAS, the Board of Water and Sewer Commissioners of the City of Mobile operates a water supply system which serves the City of Mobile and certain surrounding areas;

WHEREAS, it is recognized that cross-connections allowing non-potable water or other foreign substances to contaminate the municipal drinking water supply present an imminent health hazard to both residential and non-residential users of the public water system and the threat of significant economic loss due to disrupted water service to commercial, industrial, and institutional water users and the possibility of liabilities that may be incurred;

WHEREAS, the cost of restoring the public water supply after contamination presents the possibility of substantial financial liability;

NOW THEREFORE, be it resolved that the Board of Water and Sewer Commissioners of the City of Mobile in their regular meeting of January 23, 1995 adopted the following Policy for the control of backflow and cross-connections; and directs that a program be developed and implemented to carry out the provisions of this Policy.

SECTION 1 Purpose

The purpose of this Policy is to protect the public potable water supplied by the Board of Water and Sewer Commissioners of the City of Mobile from the possibility of contamination or pollution by isolating within the customer's internal distribution system(s) or the customer's private water system(s) such contaminants or pollutants which could backflow into the public water system.

The Policy promotes the elimination or control of existing cross-connections, actual or potential, between the customer's in-plant potable water system(s) and non-potable water systems, plumbing fixtures and industrial piping systems.

The Policy also provides for the maintenance of a continuing program of cross-connection control with a goal to systematically and effectively prevent the contamination or pollution of all potable water systems, and provides for discontinuance of service for violation of the Policy.

## SECTION 2 Definitions

Director – The Director is the chief administrative officer of the Board of Water and Sewer Commissioners of the City of Mobile, and is invested with the authority and responsibility for the implementation of an effective cross-connection control program and for the enforcement of the provisions of this Policy.

Approved – Accepted by the Director as meeting an applicable specification stated or cited in this Policy, or as suitable for the proposed use.

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

Backflow – The reversal of the normal flow of water caused by either back-pressure or back-siphonage.

Back-Pressure – The flow of water or other liquids, mixtures or substances under pressure into the distribution pipes of a potable water supply system from any source or sources other than the intended source.

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.

Backflow Preventer – A device or means designed to prevent backflow.

a) Air-Gap – 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 flood level rim of said vessel. An approved air-gap shall be at least double the diameter of the supply pipe, measured vertically, above the top of the overflow rim of the vessel, and in no case less than one inch.

b) Reduced Pressure Principle Device – An assembly of two independently acting approved check valves together with a hydraulically operating, mechanically independent pressure relief valve located between the check valves and at the same time below the first check valve. The unit shall include properly located test cocks and tightly closing shut-off valves at each end of the assembly. The entire assembly shall meet the design and performance specifications as determined by a laboratory and a field evaluation program resulting in an approval by a recognized and approved testing agency for backflow prevention assemblies. The assembly shall operate to maintain the pressure in the zone between the two check valves at an acceptable level less than the pressure on the public water supply side of the device. At cessation or normal flow, the pressure between the two check valves shall be less than the pressure on the public water supply side of the device. In case of leakage of either of the check valves, the differential relief valve shall operate to maintain the reduced pressure in the zone between the check valves 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. To be approved

these devices must be readily accessible for in-line testing and maintenance and be installed in a location where no part of the device will be submerged.

c) Double Check Valve Assembly – An assembly of two independently operating approved check valves with tightly closing shut-off valves on each end of the check valves, plus properly located test cocks for the testing of each check valve. The entire assembly shall meet the design and performance specifications as determined by a laboratory and field evaluation program resulting in an approval of a recognized and approved testing agency for backflow prevention assemblies. To be approved these devices must be readily accessible for in-line testing and maintenance.

Board – The Board of Water and Sewer Commissioners of the City of Mobile.

Contamination – An impairment of the quality of the potable water by sewage, industrial fluids or waste liquids, compounds, or other materials to a degree which creates an actual or potential hazard to the public health through poisoning or through the spread of disease.

Cross-Connection – Any physical connection or arrangement of piping or fixtures between two otherwise separate piping systems; one of which contains potable water and the other non-potable water or industrial fluids of questionable safety, through which, or because of which, backflow may occur into the potable water system. This would include any temporary connections, such as swing connections, removable sections, four-way plug valves, spools, dummy sections of pipe, swivel or change-over devices or sliding multiport tube.

Cross-Connections – Controlled – A connection between a potable water system and a non-potable water system with an approved backflow prevention device properly installed and maintained so that it will continuously afford the protection commensurate with the degree of hazard.

Cross-Connection Control by Containment – The installation of an approved backflow prevention device at the water service connection to any customer's premises where it is physically and economically infeasible to find and permanently eliminate or control any or all actual or potential cross-connections within the customer's water system; or the installation of an approved backflow prevention device on the service line leading to and supplying a portion of a customer's water system where there are actual or potential cross-connections, within the customer's premises which cannot be effectively eliminated or controlled at the point of the cross-connection.

Hazard, Degree of – An evaluation of the potential risk to public health and the adverse effect of the hazard upon the potable water system.

a) Hazard – Health – Any condition, device, or practice in the water supply system and its operation which could create, or in the judgment of the Director, may create a danger to the health and well-being of the water consumer.

b) Hazard – Plumbing – A plumbing type cross-connection in a consumer's potable water system that has not been properly protected by an approved air-gap or approved backflow prevention device.

c) Hazard – Pollutonal – An actual or potential threat to the physical properties of the water system or to the potability of the public or the consumer’s potable water system but which would constitute a nuisance or be aesthetically objectionable or could cause damage to the system or its appurtenances, but would not be dangerous to health.

d) Hazard – System – An actual or potential threat of severe damage to the physical properties of the public potable water system 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.

Industrial Fluids System – Any system containing a fluid or solution which may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration such as would constitute a health, system, pollutonal, or plumbing hazard if introduced into an approved water supply. This may include, but not be limited to: polluted or contaminated waters; all types of process waters and “used waters” originating from the public potable water system which may have deteriorated in sanitary quality; chemicals in fluid form; plating acids and alkalies; circulating cooling waters connected to an open cooling tower and/or cooling towers that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals, or systems, etc., oils, gases, glycerin, paraffins, caustic and acid solutions, and other liquid and gaseous fluids used in industrial or other purposes or for fire-fighting purposes.

Pollution – The presence of any foreign substance (organic, inorganic, or biological) in water which tends to degrade its quality so as to constitute a 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 affect such waters for domestic use.

Water – Potable – Any water which, according to recognized standards, is safe for human consumption.

Water – Non-Potable – Water which is not safe for human consumption or which is of questionable safety.

Water – Service Connection – The terminal end of a service connection from the public potable water system; i.e., where the water purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the customer’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. There should be no unprotected takeoffs from the service line ahead of any meter or backflow prevention device located at the point of delivery to the customer’s water system. Service connection shall also include water service connection from a fire hydrant and all other temporary or emergency water service connections from the public potable water system.

Water – Used – Any water supplied by a water purveyor from a public potable water system to a consumer’s water system after it has passed through the point of delivery and is no longer under the sanitary control of the water purveyor.

Water Purveyor – A supplier of water.

### Water System

- a) The water system shall be considered as made up of two parts: The Board's Water System and the Customer System.
- b) The Board's Water System shall consist of the source facilities and the distribution system; and shall include all those facilities of the water system under the complete control of the Board, up to the point where the customer's system begins.
- c) The source facilities shall include all components of the facilities used in the production, treatment, storage, and delivery of water to the distribution system.
- d) The distribution system shall include the network of conduits used for the delivery of water from the source to the customer's facilities system.
- e) The customer's system shall include those parts of the facilities beyond the termination of the Board's distribution system which are used in conveying Board-delivered domestic water to points of use.

### SECTION 3 Responsibility

The Director shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow of contaminants or pollutants through the public potable water service connection. If, in the judgment of said Director an approved backflow prevention device is required at the customer's water service connection; or, within the customer's private water system for the safety of the water system, the Director or his designated agent shall give notice in writing to said customer to install such an approved backflow prevention device(s) at specific location(s) on his premises. The customer shall immediately install such approved device(s) at his own expense; and failure, refusal, or inability on the part of the customer to install, have tested, and maintain said device(s) shall constitute a ground for discontinuing water service to the premises until such requirements have been satisfactorily met.

### SECTION 4 Requirements

Pursuant to Section 3, the following requirements are part of the Board's policy for protection of the water supply.

1) No water service connection to any premises shall be installed or maintained by the water purveyor unless the water supply is protected as required by state laws and regulation and this Policy. Service of water to any premises shall be discontinued by the Board if a backflow prevention device required by this Policy is not installed, tested, and maintained at the customer's expense; or if it is found that a backflow prevention device has been removed, by-passed; or if an unprotected cross-connection exists on the premises. Service will not be restored until such conditions or defects are corrected.

2) The customer's system shall be open for inspection at all reasonable times to authorized representatives of the Board to determine whether cross-connections or other structural or sanitary hazards, including violations of this Policy exist. When such a condition becomes known, the Director shall deny or immediately discontinue service to the premises by providing for a physical break in the service line until the customer has corrected the

condition(s) in conformance with state and city statutes relating to plumbing and water supplies and the regulations adopted pursuant thereto.

3) An approved backflow prevention device shall also be installed, at the customer's expense, on each service line to a customer's water system at or near the property line or immediately inside the building being served; but, in all cases, before the first branch line leading off the service line wherever the following conditions exist:

a) In the case of 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 by the Director, the public water system shall be protected against backflow from the premises by installing an approved backflow prevention device in the service line appropriate to the degree of hazard, at the customer's expense.

b) In the case of premises on which any industrial fluids or any other objectionable substance is handled in such a fashion as to create an actual or potential hazard to the public water system, the public system shall be protected against backflow from the premises by installing an approved backflow prevention device in the service line appropriate to the degree of hazard, at the expense of the owner of the premises. This shall include the handling of process waters and waters originating from the utility system which have been subject to deterioration in quality.

c) In the case of premises having (1) internal cross-connections that cannot be permanently corrected and controlled, or (2) intricate plumbing and piping arrangements or where entry to all portions of the premises is not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether or not dangerous cross-connections exist, the public water system shall be protected against backflow from the premises by installing an approved backflow prevention device in the service line, at the expense of the owner of the premises.

4) The type of protective device required under subsection (3) above shall depend upon the degree of hazard which exists as follows:

a) In the case of any premises where there is an auxiliary water supply as stated in subsection (3) of this section, and it is not subject to any of the following rules, the public water system shall be protected by an approved air-gap separation or an approved reduced pressure principle backflow prevention device, at the expense of the owner of the premises.

b) In the case of any premises where there is water or any substance that would be objectionable but not hazardous to health, if introduced into the public water system, the public water system shall be protected by an approved double check valve assembly, at the expense of the owner of the premises.

c) In the case of any premises where there is any substance 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 air-gap separation or an approved reduced pressure principle backflow prevention device, at the expense of the owner of the premises. Examples of premises where these conditions will exist include sewage treatment plants, sewage pumping stations, chemical manufacturing plants, hospitals, mortuaries, and plating plants.

d) In the case of any 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 at the service connection, at the expense of the owner of the premises.

e) In the case of any premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make a complete in-plant cross-connection survey, the public water system shall be protected against backflow from the premises by either an approved air-gap separation or an approved reduced pressure principle backflow prevention device on each service to the premises, at the expense of the owner of the premises.

5) Any backflow prevention device required herein shall be a model and size approved by the Director. The term "Approved Backflow Prevention Device" shall mean a device that has been manufactured in full conformance with the standard American Water Works Association AWWA C506 Standards for Reduced Pressure Principle and Double Check Valve Backflow Prevention Devices, latest revision, and have met completely the laboratory and field performance specifications of the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California established by "Specifications of Backflow Prevention Devices - #69-2 dated March 1969 or the most current issue."

Said AWWA and FCCC & HR standards and specifications have been adopted by the Board. Final approval shall be evidenced by a "Certificate of Approval" issued by an approved testing laboratory certifying full compliance with said AWWA standards and FCCC & HR specifications.

Backflow preventers which may be subjected to back pressure or back siphonage that have been fully tested and have been granted a Certificate of Approval by said qualified laboratory and are listed on the laboratory's current list of "Approved Backflow Prevention Devices" may be used without further test or qualification.

6) It shall be the duty of the customer-user at any premises where backflow prevention devices are installed to have certified inspections and operational tests made at least once per year. In those instances where the Director deems the hazard to be great enough, more frequent inspection intervals may be required. These inspections and tests shall be at the expense of the water user and shall be performed by the device manufacturer's representative, or by a certified tester approved by the Director. The customer-user shall notify the Director in advance when the tests are to be undertaken so that Board representatives may witness the tests if so desired. These devices shall be repaired, overhauled, or replaced at the expense of the customer-user whenever said devices are found to be defective. Records of such tests, repairs and overhaul shall be kept and made available to the Director.

7) All presently installed backflow prevention devices which do not meet the requirements of this section, but were approved devices for the purposes described herein at the time of installation and which have been properly maintained, shall, except for the inspection and maintenance requirements under subsection 6 above, be excluded from the requirements of these rules so long as the Director is assured that they will satisfactorily protect the Board's system. Whenever the existing device is moved from the present location or requires more than minimum maintenance, or when the Director finds that the maintenance constitutes a hazard to health, the unit shall be replaced by an approved backflow prevention device meeting the requirements of this section.



SECTION 5      Discontinuance of Service

The Board shall deny or discontinue water service to a premises if a required backflow prevention device is not installed or properly maintained. Water service shall not be restored to such premises until the deficiencies have been corrected or eliminated to the satisfaction of the Director.

SECTION 6      Rescission

By adoption of this Policy for the Control of Backflow and Cross-Connections, previous cross-connection policies of the Board, including that adopted on September 5, 1989, are hereby rescinded.