St. Mary's County
Metropolitan Commission

Cross Connection Control Program

Approved July 9, 2009

Adopted: July 9, 2009

St. Mary's County Metropolitan Commission
Cross-Connection Control Program

Section 1: Purpose

1.1 To protect the public potable water supply served by the St. Mary's County Metropolitan Commission (MetCom) from the possibility of contamination of pollution by isolating, within its customers internal distribution system, such contaminants or pollutants which could backflow or back-siphon into the public water system.

1.2 To promote the elimination or control of existing cross-connections, actual or potential, between MetCom customer's non-potable water systems.

1.3 To provide for the maintenance of a continuing program of cross-connection control to effectively prevent the contamination of all potable water systems.

Section 2: Authority

2.1 The Federal Safe Drinking Water Act of l974 stipulates that the water purveyor has the primary responsibility for preventing water from unapproved sources, or any other substances, from entering the public potable water system.

Section 3: Definitions

3.1 **Accessible:** The term "accessible" shall mean having access to, but in some cases may require the removal of a panel door or similar covering of the item described.

3.2 **Accessible, Readily:** The term "readily accessible" shall mean having access without the need of removing any panel, door or similar covering of the item described.

3.3 Air Gap Separation: The term "air gap separation" shall mean a physical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An "approved air-gap separation" shall be at least double the diameter of the supply pipe measured vertically above the overflow rim of the vessel but, not less than 1 inch (2.54 cm). If there are sidewalls, splash shields or other obstructions to the admission of free atmosphere to the air gap within a horizontal distance of two times the diameter or one inch, the air gap must be increased to three times the inlet diameter. If there are two intersecting walls within a horizontal distance of two times the diameter or one inch, the air gap shall be increased to four times the inlet diameter.

3.4 ANSI: American National Standards Institute, Washington, D.C.

3.5 Approved: Accepted by the St. Mary's County Metropolitan Commission as meeting an applicable specification stated or cited in this regulation, or as suitable for the proposed use.

3.6 Approved Assembly: In reference to backflow prevention assemblies or methods, those assemblies or methods which have been accepted by ASSE, USC Foundation for Cross Connection Control and Hydraulics Research, and the St. Mary's County Plumbing and Fuel Gas Board as an effective measure or method to prevent backflow.

3.7 ASSE: American Society of Sanitary Engineers, Westlake, Ohio

3.8 Auxiliary Water Supply: Any water supply, on or available, to the premises other than the MetCom approved water supply.

3.9 AWWA: American Water Works Association, Denver, Colorado

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

3.11 Backflow Prevention Assembly: The term "approved backflow prevention assembly" shall mean an assembly that has been investigated and approved by the St. Mary's County Metropolitan Commission. The approval of backflow prevention assemblies by the St. Mary's County Metropolitan Commission should be on the basis of favorable laboratory and field evaluation report by an "approved testing laboratory" recommending such approval. St. Mary's County Metropolitan Commission requirements include approval from ASSE, USC Foundation for Cross Connection Control and Hydraulics Research and the St. Mary's County Plumbing and Fuel Gas Board.

3.12 Backpressure: A condition in which the owners system pressure is greater than the supplier's system pressure.

3.13 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.

3.14 Certified Tester: An Master Plumber who has proven his/her competency to test backflow prevention assemblies of all types, and to prepare reports on such assemblies, as evidenced by the successful completion of the Backflow Assembly Tester Mechanic Certification provided by The Maryland Plumbing-Heating-Cooling Contractors, Inc. and/or approved by the Maryland State Board of Plumbing.

3.15 Containment: An isolation method requiring a backflow prevention device at the water service entrance.

3.16 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 disease. Any substance which adversely affects the quality of water.

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

3.18 Degree of Hazard: The term "degree of hazard" shall mean an actual or potential threat of contamination of a physical or toxic nature to the public potable water system or the owner's potable water system.

3.19 Director: The Director, Certified Maryland Water Operator/Distribution Superintendent, or his/her delegated representative of the St. Mary's County Metropolitan Commission, 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.

3.20 Double Check Valve Assembly: An assembly composed of two (2) single independently-acting approved check valves, including tightly closing shut-off valves located at each end of the assembly, and suitable connections for testing the water tightness of each check valve. St. Mary's County Metropolitan Commission will only accept Double Check Valve Assemblies identified with an ASSE 1015 mark (ANSI/AWWA C510-97). Such assemblies shall not to be installed within a pit or vault, or below the 100 year flood elevation.

3.21 Double Detector-Check Valve Assembly: An assembly composed of an approved double check valve assembly with a bypass water meter and meter-sized approved double check valve assembly. The meter shall register accurately very low flow rates and shall register all flow rates. St. Mary's County Metropolitan Commission will only accept Double Detector-Check Valve Assemblies identified with an ASSE 1015 mark (ANSI/AWWA C510-97). Such assemblies shall not be installed within a pit or vault, or below the 100 year flood elevation.

3.22 Dual Check Valve: 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 assembly. St. Mary's County Metropolitan Commission will only accept dual check valves identified with an ASSE 1024 mark.

3.23 Flood Level: That level from which liquid in plumbing fixtures, appliances tanks, or vats will overflow to the floor, when all drain and overflow openings built into the equipment are obstructed. Flood level shall also be defined as the 100 year flood elevation.

3.24 Grade: The term "grade" shall mean the slope or fall of a line of pipe in reference to a horizontal plane. In drainage, it is usually expressed as the fall in a fraction of an inch-per-foot length of pipe.

3.25 High Hazard: An actual or potential threat of contamination to the public water system or to a private water system to such a degree or intensity that there could be a danger to health.

3.26 Isolation: The term "isolation" shall mean to confine a potential source of contamination to the non-potable system being served; to provide a backflow prevention mechanism to each actual (individual water outlet) or potential cross connection.

3.27 Imminent Hazard: An actual threat of contamination that presents a danger to public health or integrity of the potable water system with consequences of serious illness or death.

3.28 Installer: A Licensed Plumber who has proven his/her competency in installing backflow prevention devices, and possesses a Backflow Prevention certification through the National Plumbing Code Illustrated and/or the Maryland Board of Plumbing.

3.29 MetCom: Saint Mary's County Metropolitan Commission- MetCom

3.30 MDE: The State of Maryland – Maryland Department of the Environment

3.31 Moderate Hazard: One that presents foreseeable and significant potential for pollution, or undesirable alterations of the drinking water supply.

3.32 Owner: Any person who has legal title to, licenses to operate or habitat in, property upon which a cross-connection inspection may be required.

3.33 Person: Any individual, partnership, company, public or private corporation, political subdivision. Maryland State or Federal property, or any other legal entity.

3.34 Permit: A document issued by the MetCom, which allows the installation and use of a backflow prevention assembly.

3.35 Pollutant: A foreign substance that if permitted to enter the public water system, will degrade its quality.

3.36 Potable Water: The term "potable water" shall mean water from any source that has been investigated by the Maryland Department of the Environment and the Environmental Protection Agency, which has been approved for human consumption.

3.37 Potable Water System: The term "potable water system" shall mean any publicly or privately owned water system operated as a public utility under a valid health permit to supply water for domestic purposes. This system will include all sources, facilities and appurtenances between the source and the point of delivery, such as valves, pumps, pipes, conduits, tanks, receptacles, fixtures and equipment used to produce, convey, treat, or store a potable water for public consumption or use.

3.38 Private (Owner's) Water System: The term "private or owner's water system" shall mean that portion of the privately owned potable water system lying between the point of delivery and the point of use. This system will include all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to produce, convey, store or dispense potable water.

3.39 Protected Cross Connection: A water service connection between a public potable water distribution system and a non-potable water distribution system with an approved backflow prevention assembly properly installed and maintained so that it will continuously afford the protection commensurate with the degree of hazard.

3.40 Reduced Pressure Principle Assembly: An assembly containing with its structure a minimum of two (2) independently acting, approved check valves, together with an automatically operating pressure differential relief valve located between the check valves. The first check valve reduces the supply pressure a predetermined amount so that during normal flow and at cessation of normal flow, the pressure between the checks shall be less than the supply pressures. In case of leakage of either check valve the differential relief valve, by discharge to the atmosphere, shall operate to maintain pressure between the checks less than the supply pressure. The assembly must include properly located test cocks and tightly closing shutoff valves at each end of the assembly. Installations of Reduced Pressure Principle assemblies require a drain that is capable of consuming the maximum discharge capacity of the Reduced Pressure Principle assembly. MetCom will only accept Reduced Pressure Principle Assemblies identified with an ASSE 1013 mark (ANSI/AWWA C511-97). Such assemblies shall not be installed within a pit, vault, or below the 100 year flood elevation.

3.41 Retrofit: To modify something such as a machine or a building by adding parts or assemblies of types or sizes not originally included.

3.42 Unprotected Cross Connection: A water service connection between a public potable water distribution system and a non-potable water distribution system **without** an approved backflow prevention assembly properly installed and maintained so that it will continuously afford the protection commensurate with the degree of hazard.

3.43 USC Foundation for Cross Connection Control and Hydraulic Research Foundation : University of Southern California Foundation for Cross Connection Control and Hydraulic Research Foundation, Los Angeles, CA .

3.44 Water Service Entrance: That point in the owner's water system beyond MetCom's control, generally considered to be the outlet end of the water meter or at the property line where no meter is installed.

Section 4: Administration

4.1 MetCom will operate a cross-connection control program, to include the maintenance of necessary records, which fulfills the requirements of COMAR 26.04.01.32 Cross-Connection Regulations.

4.2 The Owner shall allow his/her property to be inspected, with adequate prior notice and at reasonable times of the day, for possible cross-connections and shall follow the provisions of the MetCom cross-connection program.

4.3 The Owner shall be responsible for water quality beyond the outlet end of the containment device. The owner should also use devices to further protect the quality of the water supply on the premises and should utilize fixture outlet protection.

4.4 The Director may utilize resources as necessary to determine if backflow prevention devices are needed and assist the owner in the installation of backflow prevention devices.

Section 5: MetCom Requirements

5.1 MetCom will not allow any unprotected cross-connections.

5.2 For premises existing prior to MONTH-DAY, 2 _____ , MetCom may perform evaluations and inspections of plans and/or premises. MetCom may inform the Owner via certified mail of any corrective action deemed necessary. MetCom notification may include the method of achieving the correction, and the time allowed for the correction to be completed.

5.3 MetCom shall inform the Owner via certified mail of failure to comply with this Ordinance. In the event the Owner fails to comply with the necessary correction, MetCom will inform the Owner via certified mail that the water service to the Owner's premises will be terminated. In the event that the Owner informs MetCom of extenuating circumstances as to why the correction has not been completed, a time extension may be granted by MetCom.

5.4 If MetCom determines that a serious threat to the public health exists, water service will be terminated immediately.

5.5 MetCom may maintain a list of approved Contractors who are certified backflow device testers.

5.6 MetCom may commence premise inspections to determine the nature of existing or potential hazards, following the approval of this Ordinance by the Saint Mary's County Metropolitan Commission during the calendar year _____.

Section 6: Owner Requirements

6.1 The Owner shall be responsible for the elimination or protection of all cross-connections on the Owner's premises.

6.2 The Owner, after having been informed by MetCom, shall at his/her expense, install, maintain, and test, or have tested, any and all backflow prevention devices on his/her premises. The Owner shall be responsible to inform MetCom, in writing, of all corrective action or cross-connection examination findings.

6.3 The Owner shall correct the malfunction of any backflow prevention device which is revealed by periodic testing.

6.4 The Owner shall inform MetCom of any proposed plumbing modifications which may present a potential or real cross-connection.

6.5 The Owner shall notify MetCom prior to the installation of a by-pass around any backflow prevention device. All by passes shall incorporate a backflow prevention device of the same type.

6.6 The Owner shall install backflow prevention devices in a manner approved by MetCom

6.7 The Owner shall install only backflow prevention devices approved by MetCom.

6.8 Private wells or other private potable water sources must be discontinued within a public water system when public water supply becomes available. All non-potable private wells and water system must be installed and operated in accordance with all federal, state and local laws. Connections of potable or non-potable private wells and/or water systems to public water systems are strictly prohibited.

6.9 The Owner shall be responsible for the payment of all fees, device testing and other related costs to comply with this ordinance.

Section 7: Tester Requirements

7.1 Testers must have knowledge and understanding of the St. Mary's County Plumbing and Fuel Gas Code and the National Standard Plumbing Code.

7.2 Testers must understand and strictly adhere to testing procedures for all USC certified assemblies accepted by the MetCom.

7.3 The tester shall conduct testing upon assurance that all safety procedures have been observed and that all personnel involved have been appropriately notified.

7.4 The tester's certification shall be kept current by completing recertification on or before the date the current certification expires. Testers shall not perform any backflow prevention tests if his/her certification has lapsed or been discontinued.

7.5 Any work completed by the tester to achieve satisfactory test results for the customer shall be documented and retained with the standard test records.

7.6 Reconstruction or overhaul of backflow prevention assemblies must be done using only manufacturer recommended parts for a particular application.

7.7 The tester shall provide the customer with accurate and complete test records.

Section 8: Plumber Requirements

8.1 It shall be the responsibility of the Plumber to contact MetCom with reports of any potential or unprotected cross connection.

Section 9: Degree of Hazard

9.1 MetCom recognizes the threat to the public water system arising from cross-connection. All threats will be classified by degree of hazard and will require the installation of approved devices.

9.2 All high hazard facilities shall have an approved Reduced Pressure Principle Assembly (ASSE 1013) as a minimum containment assembly.

9.3 High hazard facilities include, but are not limited to:

9.3.1 A building with five or more stories above ground

9.3.2 Battery manufacturers

9.3.3 Boiler and heat exchangers

9.3.4 Bottling plant

9.3.5 Booster pump facilities with chemical additives

9.3.6 Breweries

9.3.7 Canneries

9.3.8 Car washes with recycling systems

9.3.9 Chemical plants

9.3.10 Commercial laundries

9.3.11 Dairies

9.3.12 Dental offices

9.3.13 Dry cleaners

9.3.14 Dye works

9.3.15 Exterminators

9.3.16 Fertilizer plants

9.3.17 Film laboratories

9.3.18 Fire sprinkler or standpipe systems with chemical additives or with Siamese connections

9.3.19 Hospitals and clinics

9.3.20 Hydropneumatic tanks

9.3.21 Irrigation systems with chemical additives

9.3.22 Laboratories

9.3.23 Lawn care companies

9.3.24 Medical buildings

9.3.25 Metal processing plants

9.3.26 Mortuary or funeral homes

9.3.27 Nursing homes

9.3.28 Pharmaceutical plants

9.3.29 Power plants

9.3.30 Recycling facilities

9.3.31 Restaurants

9.3.32 Sewage treatment plants and pumping stations

9.3.33 Swimming pools

9.3.34 Tire manufacturers

9.3.35 Veterinary hospitals or clinics

9.4 All moderate hazard facilities shall have an approved Double Detector Check Valve Assembly (ASSE 1015) as a minimum containment assembly.

9.5 Moderate hazard facilities include, but are not limited to:

9.5.1 Fire sprinkler systems without Siamese connections or chemicals

9.5.2 Connections to tanks or vessels that handle nontoxic substances

9.5.3 Irrigation systems without chemical injection or booster pumps and not subject to inundation

9.5.4 All industrial and most commercial facilities not identified as high hazard facilities

Section 10: Existing in-use backflow prevention devices.

10.1 Any existing backflow prevention device shall be allowed by MetCom to continue in service unless the degree of hazard is such as to supersede the effectiveness of the present backflow prevention device, or result in an unreasonable risk to the public health. In situations where the degree of hazard has increased, i.e. change in occupancy; the existing backflow prevention device must be upgraded to the appropriate backflow prevention device.

Section 11 - Periodic Testing

11.1 Reduced pressure principle backflow devices shall be tested and inspected in accordance to the Maryland Plumbing Code.

11.2 Periodic testing shall be performed by a Maryland certified tester at the Owner's expense.

11.3 Any backflow prevention device which fails during a periodic test shall be repaired or replaced. When repairs are necessary, upon the completion of the repair, the device shall be re-tested at owner's expense to insure correct operation. High hazard situations will not be allowed to continue unprotected if the backflow prevention device fails the test and cannot be repaired immediately. In other situations, repair or replacement of the backflow prevention device shall be made within 30 days. 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 of repair of devices and is strongly recommended when the owner desires such continuity.

11.4 Backflow prevention devices will be tested more frequently than specified in 11.1 above, in cases where there is a history of test failures or if MetCom feels that due to the degree of hazard involved, additional testing is warranted. Cost of the additional tests will be born by the owner.

Section 12: Records and Reports

12.1 MetCom will initiate and maintain the following:

12.1.1 Master files on customers cross-connection test and/or inspections

12.1.2 Copies of the lists and summaries supplied to the MDE.

12.2 MetCom will submit the following reports to the MDE

12.2.1 Initial listing of high hazard cross-connections.

12.2.2 Initial listing of moderate hazard cross-connections

12.2.3 Annual update lists of high and moderate hazard cross connections

12.2.4 Annual summary of cross-connection inspections

Section 13: Fees and Charges

13.1 MetCom may charge fees:

Addendum

1. Residential dual check

Effective the date of the acceptance of this Cross-Connection Control Program for MetCom, all new residential buildings will be required to install a residential dual check device immediately downstream of the water meter. Installation of this residential dual check device on a retrofit basis on existing service lines will be instituted as time and cost permit. This retrofit shall be completed by the MetCom.

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, i.e., the installation of thermal expansion devices and/or pressure relief valves.

2. Strainers

MetCom 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 prevent 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 will cause fouling of backflow devices installed without the benefit of strainers.