UTILITIES CROSS CONNECTION CONTROL

POLICY NO. 23-04

PURPOSE: The Hernando County Utilities Department in its operation of potable public water supply systems, is required by federal and state regulations to ensure the protection of public health through the provision of minimum requirements and standards for design, construction, operation, and maintenance of potable public water supply systems. In the operation and maintenance of the public water supply system, it is essential that physical cross connections with unapproved water and/or sewage systems which create, or have the potential to create an imminent and substantial danger to public health, be eliminated from both the water distribution system and plumbing systems of buildings which are serviced from the public water supply system. Backflow may result in the potable water system becoming a transmitter of disease, toxic materials and other hazardous liquids. Thus, it has been determined that it is necessary to establish and maintain a cross connection control program to protect the health of water consumers by the control of actual and/or potential cross-connections through methods of containment and/or isolation.

AUTHORITY:

* Florida Safe Water Drinking Act, subsections 403.850-403.864, Florida Statutes.

* Florida Administrative Code, Chapters 17-550, 17-555, 17-560.

    1. Subsection 17-555.360 (2), Florida Administrative Code, “Community Water Systems shall establish a routing cross-connection control program to detect and prevent cross-connections that create or may create an imminent and substantial danger to the public health.”

* Southern Standard Plumbing Code, Appendix d, 1988 Edition.

DEFINITIONS:

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 devices 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, and other temporary or permanent devices through which or because of which, backflow could occur are considered to be cross connections.

PUBLIC WATER SUPPLY – Any system or water supply intended or used for human consumption or other domestic use, including source, treatment, storage, 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.

BACKFLOW PREVENTION DEVICE TECHNICIAN – Any person holding a valid certificate as a Backflow Prevention Device Technician from the Florida Section of the American Water Works Association (AWWA) or other AWWA certified school providing such certification.

CROSS CONNECTION CONTROL INSPECTOR – Any person holding a valid certificate as a Cross Connection Control Inspector from the Florida Section of the American Water Works Association (AWWA) or other AWWA certified school providing such certification.

AUXILIARY WATER SUPPLY – Any water supply on or available to the premises other than the purveyor's approved public potable water supply. These potable water supplies 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 polluted or contaminated or they 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 of 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 within a water system.

BACK SIPHONAGE – Backflow due to a negative or sub atmospheric pressure within a water system.

BACKFLOW PREVENTION DEVICE – A device to counteract back-pressure or prevent back-siphonage.

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.

DOUBLE CHECK VALVE ASSEMBLY – An assembly composed of two (2) 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. Only those double detector check valve assemblies approved by the Foundation for Cross-Connection Control and Hydraulic Research fare acceptable for installation.

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICE – A device incorporating two (2) or more check valves and an automatically operating differential relief valve located between the two (2) checks, two (2) shutoff valves, and equipped with necessary appurtenances for testing. The device shall operate to maintain the pressure in the zone between the two (2) check valves, less than the pressure on the public water supply side of the device. At cessation of normal flow, the pressure between the check valves shall be less than the supply pressure. In 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 (2) pounds per square inch or less, the relief

valve shall open to the atmosphere thereby providing an air gap in the device. Only those reduced pressure backflow preventors approved by the Foundation for Cross-Connection Control and Hydraulic Research are acceptable for installation.

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 on 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.

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.

CONTAINMENT – A method of controlling potential and/or confirmed cross connections by installation of double check valve assemblies and reduce pressure principle backflow prevention devices.

ISOLATION – A method of controlling potential and/or confirmed cross connections by installation of air gap separations and vacuum breakers.

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

RESPONSIBILITIES:

1. WATER PURVEYOR'S RESPONSIBILITY The water purveyor is responsible for the following items.

   a. The water purveyor shall provide the consumer with a supply of an approved potable water for consumption of use.

   b. The water purveyor shall make sure that water from an unsuitable source or any other harmful substance does not enter the public water system. This responsibility begins at the source of the water supply and ends at the point of

delivery to the consumer's premises providing that an approved backflow prevention device of the appropriate type has been installed (downstream) at the service connection.

c. The water purveyor may prohibit or discontinue service to any consumer who maintains a sanitation hazard in a potable water system (downstream of the meter or service connection), or whose plumbing is susceptible to cross-connections, unless the consumer has provided approved and appropriate backflow prevention devices for such system or systems.

d. The water purveyor shall require the consumer, when and where necessary, to install, operate and maintain an approved backflow prevention device of appropriate type at each service connection or other appropriate location on the public and/or private potable water system(s).

e. The water purveyor shall have the authority to prohibit or discontinue water service to any consumer who fails to install, operate and maintain an approved backflow prevention device of appropriate type as ordered by the water purveyor.

2. CONSUMER'S RESPONSIBILITY The consumer is responsible for the following items.

a. The consumer has the responsibility of preventing any pollutants and contaminants on or about his premises from entering his private potable water system and/or the public potable water system.

b. Upon order from the water purveyor, the consumer shall at his own expense install, operate and maintain an approved backflow prevention device or appropriate type at the location or locations so ordered by the water purveyor.

c. The consumer shall assist the water purveyor by providing any and all information requested by the water purveyor in determining the hazard(s) classification(s) of the consumer's potable water system(s).

d. The consumer shall notify the water purveyor of any pending changes in his potable water system and/or mode of operation which may have effect on his hazard classification and/or backflow prevention device(s) type and/or

application. Such written notification to the water purveyor from the consumer shall precede any such changes.

POLICY: 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 water source by the Hernando County Utilities Department, the public water supply shall be protected against backflow from the premises by installation of an approved air gap separation or an approved reduced pressure principle backflow prevention device. Premises where there is water or a substance that would pollute but not be 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.

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.

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 any approved reduced pressure principle backflow prevention device.

Premises where because of security requirements or other prohibitions or restrictions makes it impossible or impractical to make a complete in-plant cross connection survey, the public water system shall be protected with an approved air gap separation or an approved reduced pressure principle backflow prevention device.

Premises having internal cross connections that, in the judgment of the Utilities Manager of the Hernando County Utilities Department, are not correctable or intricate plumbing arrangements which make it impracticable to determine whether or not cross connection exists, the public water system shall be protected by an approved air gap separation or an approved reduced pressure principle backflow prevention device.

- **DETERMINING THE TYPE OF PROTECTION** – In considering whether in-plant protection can be relied upon to protect the public water supply, a number of factors must

b evaluated in making decisions. These include: THE **DEGREE OF HAZARD** involved, the likelihood of unauthorized plumbing changes, the complexity of the internal piping system, the problems of making frequent inspections to verify that the internal protection provided is being adequately maintained, the likelihood of protective devices being rendered inadequate, and whether there will be free access to inspect all protective devices and all remaining water outlets not protected by a backflow prevention device. It would be necessary that all water outlets not isolated by a backflow prevention device be inspected at least annually, if not more frequently, to determine if new cross-connections have been created. If this appears to be too big an undertaking for those conducting the cross-connection control program, then premises isolation should be required.

The following type 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 by its own merit.

Abbreviations Used Are As Follows:

Type of Facility	Type of Protection
Car wash	A.G. or R.P.
Chemical plant	A.G. or R.P.
Film laboratory or development	A.G. or R.P.
Food or beverage processing plant	A.G. or R.P.
Hospitals, Clinics, Medical Buildings	A.G. or R.P.
Laboratories	A.G. or R.P.
Laundries and dry cleaners	A.G. or R.P.
Machine tool plant (Health Hazard)	A.G. or R.P.
Machine tool plant (No Health Hazard)	D.C..
Metal plating plants	A.G. or R.P.
Morgues, mortuaries, autopsy facilities	A.G. or R.P.
Packing houses	A.G. or R.P.
Paper products plant	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.
Pharmaceutical or cosmetic plant	A.G. or R.P.
Piers, docks, or waterfront 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	A.G. or R.P.
Schools with laboratories	A.G. or R.P.
Sprinkling system residential	V.B.
Sprinkling system residential (with chemical feed)	A.G. or R.P.
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 station (Health Hazard)	A.G. or R.P.
Sewage Pumping station (No Health Hazard)	D.C.
Sewage Pumping station (Outside hose bibs only)	V.B.
Premises having water recirculating systems and pumps (Health Hazard)	A.G. or R.P.
Premises having water recirculating systems and pumps (No Health Hazard)	R.P. or D.C.
Premises having boiler, cooling systems where additives	A.G. or R.P.
Premises having storage tanks, reservoirs, ponds, etc.	A.G. or R.P.
Veterinary establishments	A.G. or R.P.

Any backflow prevention device required herein shall be of a type, model and size approved by the Utilities Manager of the Hernando County Utilities Department. The term "Approved" with respect to backflow prevention device shall mean a device that has been manufactured in full conformance with the standards established by the American Water Works Association entitled:

AWWA C506-69 Standards for reduced pressure principle and double check valve backflow prevention devices: 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.

VACUUM BREAKER SPECIFICATIONS

ATMOSPHERIC – Must meet the SBCC Standard Plumbing Code (ASSE Standard #1001)

HOSE BIB – Must meet the SBCC Standard Plumbing Code (ASSE Standard #1011)

PRESSURE-TYPE – Must meet the ASSE Standard #1020

BACKFLOW PREVENTION WITH INTERMEDIATE ATMOSPHERIC VENT – Must meet the standards of the SBCC Standard Plumbing Code (ASSE Standard #1012).

INSPECTIONS: Hernando County Utilities Department employees shall conduct annual inspections of customer previses where

suspected cross connections or potential cross connections may exist. Customers shall be notified in advance of the inspections and reasons for inspections. Employees shall report to customer premises promptly at the appointed time. A preliminary survey shall be conducted. Should any portion of the preliminary questionnaire indicate the affirmative, then a more detailed inspection shall be pursued with completion of the inspector's check list (Appendix B, Page 16). Detection of cross connections are to be reported to the Development Coordinator for determination of appropriate backflow prevention device and official written notification to customer. Refusals by a customer to allow inspections may be considered prima facie evidence of the presence of cross connections.

EXISTING FACILITIES:

A survey should be made of a consumer's water system in order to determine the degree of health hazard to the public potable water supply system and proper application of backflow prevention device(s). 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 the premises, the existence of cross connection, the availability of pollutants, contaminants, and 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.

NEW CONSTRUCTION:

Where possible, plans should be reviewed prior to construction to determine the degree of health hazard and correct application of backflow prevention devices. If adequate plans and specifications are not available and no realistic evaluation of the proposed water uses can be determined, the consumer, architect, engineer or other authorized individual should be advised in writing that eventually circumstances may require the installation of maximum backflow protection of the water system serving the connection.

RECORDS: Proper and appropriate records shall be maintained by the Development Section of the Utilities Department of all potential and confirmed cross connections. Installations, test and maintenance of backflow protection devices shall be recorded and secured in an individual file for each premises having confirmed or potential cross connections.

MAINTENANCE: Annual testing of the backflow prevention device(s) shall be performed by Hernando County Utilities Department employees r their representatives during the course of annual inspections. In those instances where the Hernando County Utilities Department deems the health hazard great enough, testing may be required at more frequent intervals. The customer-user shall be notified in advance when test of backflow devices are to be undertaken so that he or his representative may witness the test(s) if so desired.

Backflow prevention devices shall be repaired, overhauled or replaced at the expense of the customer-user whenever said devices are found to be defective or at intervals of periodic overhaul and parts replacements as prescribed by the device manufacturer.

TRAINING: Hernando County Utilities Department employees will receive training in the detection of cross connections and/or potential cross connections, design theory and characteristics of backflow prevention devices, selection of appropriate backflow prevention device(s) with respect to type of health hazard, proper installation procedures, testing procedures for each type of device, and reporting procedures.

A listing of plumbing companies, agencies or individuals certified by the American Water Works Association (AWWA) as Cross Connection Control Inspectors or Backflow Prevention Device Technicians will be available in the Utilities Department.

This policy shall take effect immediately upon its adoption.

Replaces: Policy No. 90-02
Reference: July 24, 1990
Adopted: September 18, 1991