

**CITY OF WASILLA
ORDINANCE SERIAL NO. 09-31**

AN ORDINANCE OF THE WASILLA CITY COUNCIL AMENDING WMC 13.04, WATER SERVICES, SPECIFICALLY BY AMENDING WMC 13.04.010, DEFINITIONS, AND BY ADOPTING WMC 13.04.150-180, REGARDING CROSS CONNECTION CONTROL.

Section 1. Classification. This ordinance is of a general and permanent nature and shall become part of the city code.

Section 2. Amendment of section. WMC 13.04.010. Definitions, is amended by adding the following definitions:

“Approved” means accepted by the Director of Public Works as meeting an applicable specification stated or cited in this Code, or as suitable for the proposed use.

“Auxiliary Water Supply” means any water supply on or available to the premises other than the purveyor’s approved public water system. These auxiliary water supplies may include water from another purveyor’s public water system or any natural source(s) such as well, spring, river, stream, harbor, etc., or “used waters” or “industrial fluids”. These auxiliary water supplies 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” means the flow of water or other liquids, mixtures or substances under pressure into the distributing pipes of a potable water supply system from any source or sources other than its intended source.

“Backpressure” means a pressure, higher than the supply pressure, caused by a pump, elevated tank, boiler, or any other means that may cause backflow.

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

“Backflow prevention assembly” means a mechanical backflow preventer used to prevent the backward flow of contaminants or pollutants into a potable water distribution system. An assembly has a resilient seated, full-flow shut-off valve before and after the backflow preventer making it testable in-line. The assembly is shipped with the shut-off valves attached to the backflow preventer. An assembly is labeled with the manufacture's symbol, size, serial number, model number, the working pressure, and the direction of flow. The Foundation for Cross Connection Control and Hydraulic Research at the University of Southern California tests and approves backflow prevention assemblies.

“Backflow Prevention Device” means a type of backflow protection, usually mechanical that does not require shut-off valves and test cocks. Any backflow prevention assembly without the shut-off valves is called a

device. The American Society of Sanitary Engineers approves backflow prevention devices.

“Backflow Preventer” means a device, assembly or means designed to prevent backflow. These devices or assemblies are described below:

- **Air-Gap:** 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 top of the rim of the vessel. In no case shall it be less than 1 inch. When an air gap is used at the service connection to prevent the contamination or pollution of the public water system, an emergency by-pass shall be installed around the air-gap system and an approved reduced pressure principle assembly shall be installed in the bypass system.

- **Approved Backflow Prevention Device:** Must include isolation valves and test cocks to facilitate in-line testing and repair. The assembly must appear on a current approval list from the American Society of Sanitary Engineering or on an approval list from the Foundation of Cross-Connection Control and Hydraulic Research at the University of Southern California.

- **Reduced Pressure Principle Assembly:** A device containing within its structure a minimum of two independently acting approved check valves, together with an automatically operating pressure

differential relief valve located between the two 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 pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the checks less than the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks. The entire assembly shall meet the design and performance specifications of a recognized testing agency for backflow prevention assemblies. To be approved, these assemblies must be readily accessible for in-line maintenance and testing and be installed in a location where no part of the assembly will be submerged.

- 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, plus properly located test cocks for the testing of each check valve. A check valve is a valve that is drip-tight in the normal direction of flow when the inlet pressure is one psi and the outlet pressure is zero. The check valve shall permit no leakage in a direction reverse to the normal flow. The closure element shall be internally weighted or otherwise internally loaded to promote rapid and positive closure. The entire assembly shall meet the

design and performance specifications of a recognized testing agency for backflow prevention assemblies. To be approved, these assemblies must be readily accessible for in-line maintenance and testing.

- **Double Check Valve:** A compact unit manufactured with two independent spring actuated check valves.
- **Atmospheric vacuum breaker:** An anti-siphon backflow prevention device that incorporates an air inlet to prevent backflow by backsiphonage. Designed to protect against high and low hazards during a backsiphonage condition only. Sometimes includes a shut-off valve on the upstream side only.
- **Pressure vacuum breaker:** An assembly containing one independently operated internally loaded check valve and an independently operated internally loaded air inlet valve located on the discharge side of the check. Assembly includes tightly closing shut-off valves on the inlet and outlet sides of the assembly and properly located test cocks.
- **Spill Resistant Pressure Vacuum Breaker:** An assembly designed to prevent backsiphonage that can be used under continuous pressure; the assembly includes an independently operating spring loaded check valve and an independently loaded air inlet valve located on the discharge side of the check with shut-off valves located on the inlet and outlet side of the assembly, a resilient seated test cock located downstream of the number one shut-off valve and upstream of the check

valve with a properly located air vent above the check valve and below the air inlet valve.

- Hose Bibb Vacuum Breaker: A device which is permanently attached to a hose bib and which acts as an atmospheric vacuum breaker.

“Contamination” means 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 hazard to the public health through poisoning or through the spread of disease.

“Cross-Connection” means 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 by backpressure or backsiphonage may occur into the potable water system. A water service connection between a public water system and a customer’s water distribution system which is cross-connection to a contaminated fixture, industrial fluid system or with a potentially contaminated supply or auxiliary water system, constitutes one type of cross-connection. Other types of cross-connections include connectors such as swing connections, removable sections, four-way valves, spools, dummy sections of pipe, swivel or change-over devices, sliding multi-port tube, solid connections, etc.

“Cross-Connections – Controlled” means a connection between a potable water system and a non-potable water system with an approved backflow prevention assembly properly installed that will continuously afford the protection commensurate with the degree of hazard.

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

“Director of Public Works” means the Director or their designee in charge of the Water Department with the authority and responsibility for the implementation of an effective cross-connection control program and for the enforcement of the provisions of this Code.

“Hazard, Degree of” means the term is derived from an evaluation of the potential risk to public health and the adverse affect of the hazard upon the potable water system.

“Hazard-Health” means any condition, device or practice in the water supply system and its operation which could create, or in the judgment of the Director of Public Works may create a danger to the health and well-being of the water consumer. An example of a health hazard is a structural defect, including cross-connection, in a water supply system.

“Hazard-Plumbing” means a plumbing type cross-connection in the potable water system 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.

“Hazard-Pollutional” means an actual or potential threat to the physical properties of the potable water system 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.

“Hazard-System” means an actual or potential threat of severe damage to the physical properties of the 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” means 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, pollution or plumbing hazard when 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 alkalyes, circulated cooling water connected to an open cooling tower and/or cooling towers that are chemically or biologically treated or stabilized with toxic substances; contaminated natural water such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems; oils, gases, glycerin, paraffin's, caustic and acid solutions and other liquids and gaseous fluids used in industrial or other purposes or for fire-fighting purposes.

"Isolation" means fixture isolation and area or zone isolation. Isolation at a fixture means installing an approved backflow preventer at the source of the potential contamination. Isolation at an area or zone is confining the potential source of contamination within a specific area. Isolation may be appropriate with or without containment depending on the whether the conditions create a health or non-health hazard.

"Pollution" means 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” means any water, which, according to recognized standards is safe for human consumption.

“Water-Non Potable” means water which is not safe for human consumption or which is of questionable potability.

“Water Purveyor” means the owner or operator of the public water system supplying an approved water supply to the public. As used herein, the terms water purveyor and City of Wasilla water utility may be used synonymously.

“Water Service Connections” means the terminal end of a service connection from the public water system where the Water Purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the customer’s water system, typically at the property line and/or water service keybox. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter for the purpose of cross connection control. There should be no unprotected takeoffs from the service line ahead of any meter or backflow prevention assembly 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 water system.

“Water-Used” means any water supplied by a water purveyor from a public 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.

Section 3. Adoption of section. WMC 13.04.150 is hereby adopted to read as follows:

13.04.150 Cross Connection Control - Purpose

A. The purpose of cross connection control is to protect the public water system against actual or potential cross-connections, backflow by back pressure and backsiphonage by:

1. Isolating within the premise or private property contamination or pollution that has occurred or may occur because of same un-discovered or unauthorized cross-connection on the premises or private property.

2. Requiring such air gaps, vacuum breakers, backflow preventers, special devices as required by this Code, or other applicable regulations.

3. Eliminating cross-connections, backflow by backpressure and backsiphonage on any other source of water or process water used for any purpose whatsoever which may affect the safety of the water supply or which may endanger the health and welfare of the public.

4. Establishing a cross-connection control and backflow prevention program that includes provisions for inspection and maintenance to ensure compliance.

Section 3. Adoption of section. WMC 13.04.160 is hereby adopted to read as follows:

13.04.160 Cross Connection Control - Responsibility

The Director of Public Works shall be responsible for the protection of the public water system from contamination or pollution due to backflow of contaminants or pollutants through the water service connection. If, in the judgment of the Director an approved backflow prevention assembly is required for the safety of the water system, the Director shall give notice in writing to said customer to install such an approved backflow prevention assembly at each service connection to their premises. The customer shall immediately install such approved device, or devices, or assemblies at his own expense; and, failure, refusal, or inability on the part of the customer to install said device, or assemblies, immediately shall constitute a ground for discontinuing water service to the premises until such device, or assemblies, have been properly installed. Cross-connection control devices or assemblies shall comply with State and Federal regulations.

Section 4. Adoption of section. WMC 13.04.165 is hereby adopted to read as follows:

13.04.165 Cross Connection Control - Requirements

A. The water system shall be considered as made up of two parts: the utility system and the customer system.

1. Utility 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 utility, up to the point where the customer's system begins.

2. Source shall include all components of the facilities utilized in the production, treatment, storage, and delivery of water to the distribution system.

3. Distribution system shall include the network of conduits used for the delivery of water from the source to the customer's system.

4. Customer's system shall include those parts of the facilities beyond the termination of the utility distribution system that are utilized in conveying utility-delivered domestic water to points of use.

Section 5. Adoption of section. WMC 13.04.170 is hereby adopted to read as follows:

13.04.170 Cross Connection Control - Policy

A. 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 regulations and this Code. Service of water to any premises shall be discontinued by the Water Purveyor if a backflow prevention assembly required by this Code is not installed, tested and maintained, or if it is found that a backflow prevention assembly 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.

B. The customer's system should be open for inspection at all reasonable times to authorized representatives of the City of Wasilla Water Utility to determine whether cross-connections or other structural or sanitary hazards, or violations of this Code exist. Water service may be discontinued after reasonable notice to the Consumer if a violation of this Code exists on the premises, and such other precautionary measures may be taken as are deemed necessary to eliminate any danger to the potable water. Water service shall not be restored until the danger has been eliminated in compliance with the provisions of this Code.

C. An approved backflow-prevention assembly shall be installed 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:

1. 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 as determined by the Director of Public Works, the public water system shall be protected against backflow from the premises by installing a backflow prevention assembly in the service line appropriate to the degree of hazard.

2. 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 a backflow prevention assembly in the service line appropriate to the degree of hazard. This shall include the handling of process waters and waters originating from the utility system which have been subject to deterioration in quality.

3. In the case of premises having: internal cross-connections that cannot be permanently corrected and controlled, or 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 a backflow prevention device assembly in the service line.

D. The type of protection assembly required by this Code shall depend upon the degree of hazard which exists as follows:

1. In the case of any premises where there is an auxiliary water supply 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 assembly.

2. In the case of any premises where there is water or 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.

3. In the case of any 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 air gap separation or an approved reduced pressure principle backflow prevention assembly. Example of premises where these conditions will exist include sewage treatment plants, sewage pumping station, chemical manufacturing plants, hospitals, mortuaries and plating plants.

4. In the case of any problems 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 assembly at the service connection.

5. In 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 by backpressure or backsiphonage from the premises device in the service line. In this case, maximum protection will be required; that is, an approved air-gap separation or an approved reduced pressure principle backflow prevention assembly shall be installed in each service to the premises.

E. Any backflow prevention assembly required herein shall be of a model and size approved by the Director of Public Works. An

approved backflow prevention assembly shall be manufactured in full conformance with the standards established by the American Water Works Association entitled: AWWA C510-97 - Double Check Valve Backflow Prevention Assembly; and AWWA C511-97 Reduced Pressure Principle and Double Check Valve Backflow Prevention Assembly as well as the standards set forth by the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California. It shall be the duty of the customer-user at any premises where backflow prevention assemblies are installed to have certified inspections and operational tests made at least once per year. In those instances where the Director of Public Works deems the hazard to be great enough, the Director may require certified inspections at more frequent intervals. These inspections and tests shall be performed by the assembly manufacturer's representative, or by a certified tester approved by the Director. It shall be the duty of the Director to see that these timely tests are made. The customer-user shall notify the Director in advance when the tests are to be undertaken so that their representative may witness the tests if it is so desired. These assemblies shall be repaired, overhauled, or replaced at the expense of the customer-user whenever said assemblies are found to be defective. Records of such test, repairs, and overhaul shall be kept and copies sent to the Director.

G. All presently installed backflow prevention assemblies which do not meet the requirements of this section but were approved assemblies 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 sub-section (F.), be excluded from the requirements of these rules so long as the Director of Public Works is assured that they will satisfactorily protect the utility system. Whenever the existing assembly 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 a backflow prevention assembly meeting the requirements of this section.

H. Nothing herein shall relieve the consumer of the responsibility for conducting, or causing to be conducted, periodic surveys of water use practices on their premises to determine where there are actual or potential cross-connections in the consumer's water system through which contaminants or pollutants could flow back into a public water system or potable consumer's water system.

Section 6. Adoption of section. WMC 13.04.175 is hereby adopted to read as follows:

13.04.175 Cross Connection Control - Designated Facilities

Facilities that have been identified by the City where backflow preventers are required include but are not limited to the following:
Beverage bottling plants, Car washes, High-rise buildings, Canneries,

packing houses and reduction plants, Dairies, Films and other laboratories, Commercial laundries and dye works (excluding coin laundries), Wastewater facilities, Metal manufacturing, cleaning, processing, and fabricating plants, Oil and gas production, storage and transmission facilities, Plating plants and facilities, Radioactive materials, research, production and utilization plants, Restricted, classified and other facilities closed to inspection, Steam generating facilities, Schools and colleges with laboratories, Sand and gravel plants, Hospitals, medical buildings, doctors' offices, veterinarians' offices, sanitariums, morgues, mortuaries, autopsy facilities, nursing and convalescent homes and clinics, Meat packing plants or related facilities, Fire fighting systems, including reservoirs, which are subject to contamination with anti-freeze solutions, "Foamite", or other chemicals or compounds used in fighting fires, Auxiliary water systems, Irrigation systems. Backflow preventers may be required by the Director of Public Works for other facilities not listed if deemed necessary to protect the water system from possible contamination.

Section 7. Adoption of section. WMC 13.04.180 is hereby adopted to read as follows:

13.04.180 Cross Connection Control Non-Compliance

Water service will be discontinued after reasonable notice to the Customer if a violation of this Code exists on the premises. Water service will be discontinued if the proper backflow prevention assembly is not


installed or not tested at least annually or not repaired when the assembly fails to meet minimum design standards. Water service shall not be restored until the cross connection hazard had been eliminated in compliance with the provisions of this Code.

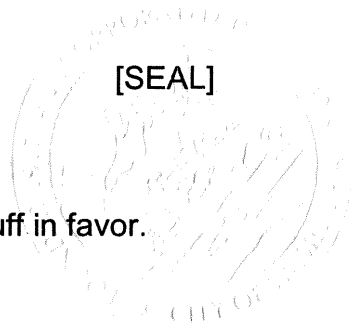
Section 8. Effective date. This ordinance shall take effect upon adoption by the Wasilla City Council.

ADOPTED by the Wasilla City Council on April 27, 2009.


VERNE E. RUPRIGHT, Mayor

ATTEST:


KRISTIE SMITHERS, MMC, City Clerk



VOTE: Cox, Hall, Harris, Holler, Larson, and Woodruff in favor.



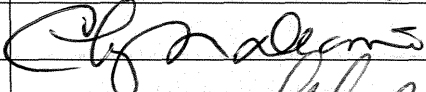
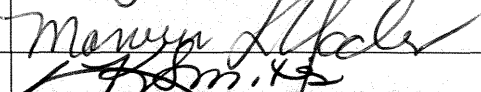
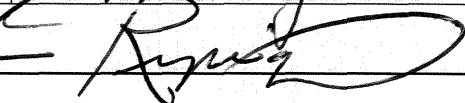
**CITY OF WASILLA
LEGISLATION STAFF REPORT**

RE: ORDINANCE SERIAL NO. 09-31

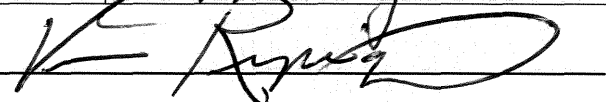
AN ORDINANCE OF THE WASILLA CITY COUNCIL AMENDING WMC 13.04, WATER SERVICES, SPECIFICALLY BY AMENDING WMC 13.04.010, DEFINITIONS, AND BY ADOPTING WMC 13.04.150-180, REGARDING CROSS CONNECTION CONTROL PROGRAM.

Agenda of: April 13, 2009 Introduction
Originator: Public Works Director

Date: March 27, 2009

Route to:	Department	Signature/Date
	Police Chief Youth Court, Dispatch, Code Compliance	
	Culture and Recreation Services Director Library, Museum, Sports Complex	
X	Public Works Director Facility Maintenance, Utility, Roads & Airport	 3/27/09
	Chief Financial Officer Finance, Risk Management, Purchasing & MIS	
X	Deputy Administrator Planning, Economic Development, Human Resources	
X	City Clerk	

REVIEWED BY MAYOR VERNE E. RUPRIGHT:



FISCAL IMPACT: yes or no

Funds Available yes no

Account number/name:

Attachments: None

SUMMARY STATEMENT: This ordinance establishes a cross connection control program for the Water Utility. This program is required by state and federal regulations and it is intended to protect the water system from being contaminated. A cross connection typically occurs when there is a loss in pressure in the public water utility (water main break or other event) that allows contaminants to enter into the system from reverse pressure or backsiphonage, if the water service connection is not protected. This ordinance will require back flow prevention devices and assemblies as a means of protection where there is a risk to the water utility. Commercial and industrial customers are the groups most likely to be effected by this program.

RECOMMENDED ACTION: To adopt Ordinance Serial No. 09-31 that amends the WMC allowing the Water Utility to implement a cross connection control program.