

ORDINANCE NO. 128-98

IN THE MATTER OF:

AN ORDINANCE ADOPTING A CROSS CONNECTION PROGRAM FOR THE HARTSTENE POINTE WATER SYSTEM.

WHEREAS, WAC 246-290-490 establishes cross connection control regulations;

WHEREAS, Purveyors (in this case Mason County) have the responsibility to protect public water systems from contamination due to cross connections. Cross connections which can be eliminated shall be eliminated;

WHEREAS, Mason County shall develop and implement a cross connection control program acceptable to the State Department of Health;

WHEREAS, notices (including public hearing notices) were sent to all property owners informing them of this cross connection proposal;

WHEREAS, the Board of County Commissioners held a public hearing on December 8, 1998, to consider the recommendation of the Department of Community Development on the proposed cross connection program;

WHEREAS, this hearing was advertised in the legal newspaper for Mason County;

NOW, THEREFORE, BE IT HEREBY ORDAINED, that the Board of County Commissioners of Mason County hereby adopts the Hartstene Pointe Cross Connection Control Program.

This ordinance shall be in full force and effective on this date.

DATED this 8<sup>th</sup> Day of December 1998.

Board of County Commissioners  
Mason County, Washington

Absent 12/8/98

CHAIRPERSON

Cynthia Olsen

COMMISSIONER

Mary So Cady

COMMISSIONER

ATTEST:

Rebecca S. Rogers  
CLERK OF THE BOARD

APPROVED AS TO FORM:

John W. [Signature] CHIEF DPA

DEPUTY PROS. ATTORNEY

**HARTSTENE POINTE**  
**CROSS CONNECTION CONTROL PROGRAM**  
**Ordinance No. 128-98**  
**Adopted December 9, 1998**

**PURPOSE**

The purpose of a Cross Connection Control Program is to protect the health of water consumers and the potability of the water system. This program is designed to maintain the quality of the Hartstene Pointe's public water supply by the elimination and prevention of cross connections between the distribution system and other sources of water or liquids used for other purposes. The policies and procedures presented in this program are designed in compliance with the Washington Administrative Code (WAC 246-290-490).

**GENERAL**

Except where specifically designated herein, all words used in this program shall carry their customary meanings. Words used in the present tense shall include the future, and all plural words shall include the singular. The word "shall" indicates a mandatory action, and the word "may" denotes a use of discretion in making a decision.

**DEFINITIONS**

**Air Gap Separation (AG):** Shall mean 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 assembly, and the maximum flood level rim of the receptacle. This gap shall be at least double the diameter of the supply pipe measured vertically above the flood rim of the vessel. In no case shall this gap be less than one (1) inch.

**Approved Backflow Prevention Assembly:** Shall mean any assembly to prevent backflow that has been approved for use by the System Manager and the Washington State Department of Health. Approved assemblies shall be those that have successfully passed performance tests of the University of Southern California Engineering Center or another approved testing laboratory.

**Atmospheric Vacuum Breaker (AVB):** Shall mean a backflow prevention assembly which is operated by atmospheric pressure in combination with the force of gravity. The unit is so 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 in the supply system. An AVB is designed to protect against back siphonage events only.

**Auxiliary Supply:** Shall mean any water supply on or available to the premises other than the County public water supply.

**Backflow:** Shall mean the flow, other than in the intended direction of flow, of any foreign liquids, gasses or other substances (including water) into the distribution system of the public water supply.

**Backflow Assembly Tester:** Shall be a person certified by Washington State in the inspection and testing of approved backflow prevention devices.

**Back Pressure:** Shall mean any induced pressure caused by a pump, elevated tank, boiler, pressure vessel, or any other means that could create pressure within a customer's system greater than the operating pressure of the public water supply distribution system.

**Back Siphonage:** Shall mean backflow of water due to a negative or reduced pressure within the water system.

**Building Inspector:** Shall be a Building Inspector of Mason County.

**County Inspector:** Shall be that person or persons employed by the County that have been trained and are qualified to perform the designated inspection work.

**Cross Connection:** Shall mean any actual or potential connection whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture or other assembly 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 (reversed flow).

**Customer:** Shall mean any person, persons, firm or corporation that is furnished potable water from the public water supply system through a legal service connection to the public water supply distribution system.

**Double Check Detector Assembly (DCDA):** Shall mean 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. The assembly shall also have a factory installed bypass feature, with an approved DCVA designated to monitor low flows on low hazard fire systems. The bypass feature is used to detect unauthorized use of the water allocated for fire protection and/or to detect leaks in the fire system. The DCDA is used to protect the water system from both back siphonage and back pressure events and is not suitable for use in protecting the water system from health threatening substances.

**Double Check Valve Assembly (DCVA):** Shall mean a assembly composed of two (2) single, independently acting, approved check valves, including resilient seated shut-off valves located at each end of the assembly and properly located test cocks to test the water tightness of each check valve. Double check valve assemblies are designed to protect the water supply system from both

back siphonage and back pressure events. They are not suitable for use in protecting the water system from health threatening substances.

**Hazards:**

**Degree:** Shall express the results of an evaluation of a health, system, or plumbing hazard.

**Health:** Shall mean any condition, assembly, or practice in a water supply system and/or its operation that creates, or may create, a danger to the health and well-being of a customer.

**Plumbing:** Shall mean a potential or existing cross connection in a customer's water system that may permit back siphonage in the event of a negative or reduced pressure in the supply line.

**System:** Shall mean a threat to the physical properties of the public or the customer's potable water system by a material not dangerous to health, but aesthetically objectionable and having a degrading effect on the quality of the potable water within the system.

**Industrial Fluids:** Shall mean any fluid or solution which may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration that would constitute a health or plumbing hazard if introduced into a potable water supply. This may include, but is not limited to, all types of processed waters originating from the public water or auxiliary supply, which may deteriorate in sanitary quality. Types of processed waters include chemicals in fluid form, circulated cooling waters that are chemically or biologically treated or stabilized with toxic substance, and contaminated natural waters, as from springs, stream, or ponds.

**Liquids:** Shall mean any substance that flows readily but does not expand indefinitely, such as water and industrial fluids.

**Mason County Department of Community Development:** Shall also be referred to as the County, herein.

**Pressure Vacuum Breaker Assembly (PVBA):** Shall mean a backflow prevention assembly which consists of a spring-loaded check valve, an independently operating air-inlet valve, inlet and discharge shut-off valves, and properly installed test cocks. The air-inlet valve is internally loaded to the open position, normally by means of a spring. This internal loading allows the device to be installed on the pressure side of the shut-off valve. A PVBA is designed to protect against back siphonage events only.

**Public Health Officer:** Shall be the duly appointed Public Health Officer of the Southwest Washington Health District. Any act in this program required or authorized by the Public Health Officer may be done on his/her behalf by an authorized representative of the Washington State Department of Health.

**Public Water Supply:** Shall be the system operated and maintained by the County, which is a water supply intended or used for human consumption or other domestic use. The public water supply system includes source, storage, transmission and distribution facilities where water is furnished by the County to the customers of the County.

**Reduced Pressure Principal Backflow Prevention Assembly (RPBA):** Shall mean an assembly containing a minimum of two (2) independently acting, approved check valves, together with an automatically operated pressure differential relief valve located between the two check valves. During normal flow the pressure between these two checks shall be less than the upstream (supply) pressure. In case of leakage of either check valve, the differential valve, by discharging to the atmosphere, shall operate to maintain not less than two (2) pounds per square inch (psi) of pressure between the supply pressure and the zone between the two check valves. The unit must include resilient seated shut-off valves located at each end of the assembly, and each assembly shall be fitted with properly located test cocks.

**Service Connection:** Shall mean a connection between the public water supply distribution system and the customer's system.

**System Manager:** Shall mean the Water System Manager, Mason County, Washington. Any act in this program required or authorized by the System Manager may be done on his/her behalf by an authorized representative of Mason County.

## **CODE AUTHORITY AND ENFORCEMENT**

The enforcement of this cross connection program, in the area served by the Hartstene Pointe Water System, shall be in accordance with the Uniform Plumbing Code, latest Edition, and WAC 246-290, Rules and Regulations of the State Board of Health relating to public water supplies.

## **GENERAL POLICY**

It is the intention of this program to provide for the permanent abatement or control of all cross connections. Where it is physically and economically infeasible to find or to permanently eliminate all cross connection of the customer's water system, and when it is deemed necessary by the appropriate inspector, there shall be installed at the service connection a suitable backflow prevention assembly commensurate with the degree of hazard to the public water supply.

The following methods of cross connection control are considered minimum protection at the service connection:

1. The public water supply to a premises having an auxiliary water supply from an additional public supply with no known cross connection shall require an approved DCVA at the service connection.
2. The public water supply to a premises on which is handled a substance that is objectionable (not a health hazard) in a manner constituting a potential cross connection shall require a DCVA at the service connection.

3. The public water supply to a premises on which there is an auxiliary water supply and internal cross connections that are not correctable or intricate plumbing arrangements which make it impractical to ascertain whether or not cross connection exist, shall require a RPBA at the service connection.
4. The public water supply to a premises on which material dangerous to health or toxic substances are handled shall have installed a RPBA at the service connection.
5. The public water supply to a premises where entry is restricted so that inspection for cross connection cannot be made at a sufficient frequency or a sufficient short notice to assure that cross connection do not exist shall have installed a RPBA at the service connection.
6. The public water supply to a premises on which any substance is handled under pressure so as to permit entry into the public water supply, or where a cross connection could reasonably be expected to occur, shall have installed a RPBA or DCVA, according to the health hazard at the service connection.
7. The public water supply to a premises having a repeated history of cross connections being established or re-established, shall have installed a RPBA at the service connection.

## **SURVEILLANCE PROGRAM**

The County is charged with the responsibility of ensuring that the public water supply is not compromised by events resulting from cross connections. As such, a surveillance program based on proper management, adequate record keeping, and aggressive inspections must be properly implemented by the County.

Such a program for cross connections initially requires the inspection of all new and existing buildings, structures, and grounds. The procedure requires the County Inspector(s) and the Building Inspector(s) to assist with the requirements of the Department of Health. Each must be knowledgeable in the field of plumbing and building inspection, pipe arrangements, and cross connection control.

The systematic program of inspection shall be established with priority given on the basis of risk to public health and shall be conducted according to the following outline:

- A. New and Proposed Construction
  - 1) Upon application for a building permit, the Building Inspector shall require a detailed set of plans and specifications for the plumbing installations, and shall make such detailed plans and specifications available to the County Inspector.

- 2) The Building Inspector and the County Inspector shall review these plans and specifications to determine the probability of cross connections, the availability of auxiliary water supplies, the handling of substances which, if introduced into the water system, would constitute a health, plumbing, or system hazard. If, upon review, it is determined that any of these conditions will exist, the County Inspector shall coordinate with the property owner to ensure such cross connections are properly controlled, or eliminated.
- 3) During the construction phase of any new building, structure, or ground installation, and during the regular plumbing inspection, the County Inspector shall perform the required cross connection control inspection. Upon completion of the inspection, but prior to the approval of any water service connection, the County Inspector shall advise the customer in writing that further backflow prevention testing is, or is not, required. The customer shall also be notified that a Washington State certified backflow assembly tester must test the backflow assembly, and that the test report form completed by the certified tester must be received by the County Inspector prior to the regular use of the customer's water system.
- 4) Upon receipt of an application for new water service, but prior to the installation of such new service, a cross connection inspection shall be made by the County Inspector and required backflow prevention assemblies shall be installed at the time the new service is installed.

B. Existing Buildings, Structures, and Grounds

- 1) An initial survey of the water system customers shall be conducted by the County to determine if any cross connections currently exist. The initial cross connection determination shall proceed according to the following steps:
  - (a) A survey form shall be sent to each customer explaining the program and stressing the relationship between cross connections and water-borne disease epidemics, types of health hazards, and cross connections. The survey shall also include a brief questionnaire with desired information, such as an auxiliary water supply, any chemicals used, and certain types fixtures installed. This survey shall be returned by the water system customer to the County.
  - (b) Based upon the responses received from the questionnaire, if the County determines that a customer has a potential cross connection, a letter requesting an appointment for inspection by the County Inspector shall be sent to the water system customer.
  - (c) Upon completion of the inspection, the County Inspector shall orally brief the customer or his/her representative of the inspection findings.

- (d) The County Inspector shall prepare a written report for the water system customer and the System Manager that shall include the following information:
    - 1. Complete identifying information contained in heading.
    - 2. List of all potential or actual cross connections found, including the location and options for method of control for each.
    - 3. List of any industrial fluids, chemicals or other contaminating liquids used or pumped under pressure, the use of each, and an indication of the probability of cross connection.
    - 4. Any applicable drawings, sketches, blueprints, etc. used in support of the inspection.
    - 5. A summary of the findings of the inspection.
    - 6. Recommendations for actions to be taken by the customer.
  
  - (e) The System Manager, upon completion of review of the report, shall prepare a letter to the customer outlining the corrective action required, and the time period in which the corrective action must be completed. A copy of this letter shall be sent to the customer (return receipt requested), and a copy shall be maintained at the County.
  
  - (g) When all required actions have been completed, the file copy of the completed actions shall be placed in the County's cross connection control file.
  
  - (h) Each premises required to be in compliance with the program shall be re-inspected annually, or more often if the degree of hazard so indicates.
- 2) The backflow prevention devices at the wastewater treatment plant and the community center shall be inspected and tested annually by certified backflow assembly tester.

## **CORRECTIVE MEASURES**

Corrective measures for cross connections shall follow the guidelines in the most recently published Accepted Procedure and Practice in Cross Connection Control, of the Pacific Northwest Section (PNWS) of the American Water Works Association (AWWA).



## **CODE**

The following are the abbreviations for assemblies or methods used to prevent or eliminate cross connections:

- |    |                                    |      |
|----|------------------------------------|------|
| 1) | Air Gap                            | AG   |
| 2) | Reduced Pressure Backflow Assembly | RPBA |
| 3) | Double Check Valve Assembly        | DCVA |
| 4) | Double Check Detector Assembly     | DCDA |
| 5) | Pressure Vacuum Breaker Assembly   | PVBA |
| 6) | Atmospheric Vacuum Breaker         | AVB  |

## **PROCEDURES FOR INSTALLATION, INSPECTION, AND MAINTENANCE OF BACKFLOW -PREVENTION ASSEMBLIES**

### **A. Initial Installation**

- 1) When it is determined that a RPBA, DCVA, DCDA, PVBA, or AVB is required, the County shall inform the owner/manager of the need for a device.
- 2) Approved assemblies shall be installed as specified in the Uniform Plumbing Code, the PNWS-AWWA Cross Connection Control Manual, or the Hartstene Pointe Water System Design Standards, whichever is the more restrictive.
- 3) Upon completion of the installation of the backflow assembly, a certified backflow assembly tester shall make such tests as are required to ensure proper operation of the assembly. If the assembly fails any portion of the test, the assembly shall be rejected until such time that a repaired or a replaced assembly passes all portions of the tests. The test results shall then be supplied to the County.

### **B. Inspection and Maintenance**

- 1) All backflow prevention assemblies shall be tested not less than annually. The testing shall be made by a certified backflow prevention assembly tester, and the results are to be forwarded to the County.
- 2) Maintenance
  - (a) When a backflow prevention assembly is determined to be defective, the tester shall notify the County immediately.

- (b) Upon receipt of notification of the defective assembly, the customer shall take the necessary steps to repair or replace the defective assembly. The defective assembly shall be repaired or replaced by a qualified person, who has specific training in backflow prevention assembly repair.
- (c) Upon completion of repair or replacement, the backflow prevention assembly shall be tested by a certified backflow prevention assembly tester.

## **RECORDS AND REPORTS**

- A. The County shall track each customer utilizing a cross connection device.
- B. The following information shall be available through the County's record keeping program.
  - 1) Information regarding installations
  - 2) Test results for installations.
  - 3) Information about testers
  - 4) Tester's certification histories.
  - 5) Mailing addresses of installation owners.
  - 6) Device manufacturers and model and approved status.