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Policy # 95-5  
Cross Connection Control Program

Adopted or Effective: December 18, 1995  
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### **Purpose**

To protect the public potable water supply served by Knappa Water Association from the possibility of contamination or pollution by isolating, within its customers= internal distribution system, such contaminants or pollutants which could backflow or backsiphon into the public water system.

To promote the elimination of, or control of, existing cross connections, actual or potential, between the potable water system and sources of non-potable water or other hazardous substances.

To provide for the maintenance of a continuing program of cross connection control which will effectively prevent the contamination or pollution of Knappa Water Association=s water system by cross connection.

### 1. Authority

- a. The Federal Safe Drinking Water act of 1974, with amendments, and the statutes of the State of Oregon Administrative Rules, Chapters 333-061-0005, 333-061-0030, and 333-061-0070 through 0073.
- b. Knappa Water Association Rules and Regulations as adopted.

### 2. Responsibility

- a. The Knappa Water Association Operations Manager shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or backsiphoning of contaminants or pollutants through the water service connection. If, in the judgment of the Operations Manager, an approved backflow device is required at the Association=s water connection to any customer=s premises, the Operations Manager, or his delegated agent, shall give notice in writing to said customer to install an approved back flow prevention device at each service connection to his premises.
- b. The customer shall, within 30 (thirty) days, install such approved device(s), at his expense, and failure, refusal, or inability on the part of the customer to install said device(s) within 30 (thirty) days shall constitute a ground for discontinuing water service to the premises until such device(s) has been properly installed.

### 3. Definitions

- **Act** The Oregon Drinking Water Quality Act of 1981 (ORS 448.115-448.990 as amended).
- **Administrator** The Director of the Department of Human Services or his/her designee.
- **Approval or Approved** Approved in writing.

- **Approved Air Gap (AG)** A physical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressurized receiving vessel. An “Approved Air Gap” shall be at least twice the diameter of the supply pipe measured vertically above the overflow rim of the vessel and in no cases less than one inch (2.54 cm), and in accord with Oregon Plumbing Specialty Code.
- **Association** Knappa Water Association
- **Atmospheric Vacuum Breaker (AVB)** A non-testable device consisting of an air inlet valve or float check, a check seat and an air inlet (port(s)). This device is designed to protect against a non-health hazard or a health hazard under a backsiphonage condition only. Product and material approval is under the Oregon Plumbing Specialty Code.
- **Auxiliary Water Supply** Any supply of water used to augment the supply obtained from the public water system, which serves the premise in question.
- **AWWA** American Water Works Association.
- **Backflow** The flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from any source(s) other than its intended source, and is caused by backsiphonage or backpressure.
- **Backflow Preventer** A device, assembly, or method to prevent backflow into the potable water system.
- **Backflow Prevention Assembly** A backflow prevention assembly such as a Pressure Vacuum Breaker Backsiphonage Prevention Assembly, Spill-Resistant Pressure Vacuum Breaker Backsiphonage Prevention Assembly, Double Check Valve Backflow Prevention Assembly Double Check-Detector Backflow Prevention Assembly, Reduced Pressure Principle Backflow Prevention Assembly, or Reduced Pressure Principle-Detector Backflow Prevention Assembly and the attached shutoff valves on the inlet and outlet ends of the assembly, assembled as a complete unit.
- **Backpressure** An elevation of pressure downstream of the distribution system that would cause, or tend to cause, water to flow opposite of its intended direction.
- **Backsiphonage** A drop in distribution system pressure below atmospheric pressure (partial vacuum) that would cause, or tend to cause, water to flow opposite of its intended direction.
- **Bore-Sighted Drain to Daylight** An unrestricted straight-line opening in an enclosure that vents to grade and is sized and constructed to adequately drain the full flow discharge from a reduced pressure principle backflow prevention assembly, thus preventing any potential for submersion of the assembly.
- **Check Valve** A valve which allows flow in only one direction.
- **Community Water System** A public water system that has 15 or more service connections used by year-round residents, or that regularly serves 15 or more year-round residents.
- **Containment** To confine potential contamination caused by a cross connection within the facility where it arises by installing a backflow prevention device at the service entrance.
- **Contaminant** Any physical, chemical, biological, or radiological substance or matter in water that creates a health hazard.
- **Corrosion Inhibitor** A substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.
- **Cross Connection** Any actual or potential unprotected connection or structural arrangement between the public or user’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 substances other than the intended potable water with which the system is

supplied. Bypass arrangements, jumper connections, removable sections, swivel, or change-over devices, and other temporary or permanent devices through which, or because of which, backflow can occur are considered to be cross connections.

- **Cross Connection Control** Use of device(s), method(s), and procedure(s) to prevent contamination of a potable water supply through cross connection(s).
- **Degree of Hazard** Means either pollution (non-health hazard) or contamination (health hazard) and is determined by an evaluation of hazardous conditions within a system.
- **Department** The Oregon Department of Human Services (DHS).
- **Distribution System** The network of pipes and other facilities, which are used to distribute water from the source, treatment, transmission, or storage facilities to the water user.
- **Domestic or Other Non-distribution System Plumbing Problem** A coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken.
- **Double Check-Detector Backflow Prevention Assembly (DCDA)** A specially designed assembly composed of a line size approved double check valve assembly assembled with a bypass containing a specific water meter and an approved double check valve assembly. The meter shall register accurately for only very low rates of flow up to three gallons-per-minute and shall show a registration for all rates for flow. This assembly is designed to protect against a non-health hazard.
- **Double Check Valve Backflow Prevention Assembly (DC)** An assembly of two independently acting approved check valves, including tightly closing resilient seated test cocks. This assembly is designed to protect against a non-health hazard.
- **Drinking Water Protection** Implementing strategies within a drinking water protection area to minimize the potential impact of contaminant sources on the quality of water being used as a drinking water source by a Public Water System.
- **EPA** Environmental Protection Agency
- **Fixture Isolation** A method of backflow prevention in which a backflow preventer is located to correct a cross connection at an in-plant location rather than at a water service entrance.
- **Health Hazard (Contamination)** An impairment of the quality of the water that could create an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids, waste, or other substances.
- **Hose Bibb Vacuum Breaker** A device which is permanently attached to a hose bibb and which acts as an atmospheric vacuum breaker.
- **Human Consumption** Water used for drinking, personal hygiene bathing, showering, cooking, dishwashing, and maintaining oral hygiene.
- **Local Administrative Authority** The individual official, board, department or agency established and authorized by a state, county, or city to administer and enforce the provisions of the Oregon State Plumbing Specialty Code adopted under OAR 918-750-0110.
- **Multi-purpose Piping System** A piping system within residential dwellings intended to serve both domestic and fire protection needs. This type of system is considered part of a potable water system.
- **Non-Health Hazard (Pollution)** An impairment of the quality of water to a degree that does not create a hazard to the public health, but does adversely affect the aesthetic qualities of such water for potable use.
- **Non-Transient Non-Community Water System (NTNC)** A public water system that is not a Community Water system and that regularly serves at least 25 of the same persons over six months-per-year.

- **Operations Manager** Individual vested with the authority and responsibility for the Cross Connection Control Program and for the enforcement of the provisions of the Board's policy.
- **Owner** Any person who has legal title or license to operate a property upon which a cross connection is present.
- **Permit** A document issued by Knappa Water Association which allows the use of a backflow preventer.
- **Person** Any individual, partnership, company, public or private corporation, political subdivision or agency of the state, agency or instrumentality of the United States, or any other legal entity.
- **Point of Delivery (POD)** The point of connection between the public water system and the user's water system. Beyond the point of delivery, the Oregon Plumbing Specialty Code applies. (See Service Connection.)
- **Pollutant** A substance that creates an impairment of the quality of water to a degree which does not create a hazard to the public health but which does adversely affect the aesthetic qualities of the water.
- **Potable Water** See Safe Drinking Water.
- **Potential Cross Connection** A cross connections that would most likely occur, but may not be taking place at the time of an inspection.
- **Premise** Real estate and the structures on it.
- **Premise Isolation** The practice of protecting the public water supply from contamination or pollution by installing backflow prevention assemblies at, or near, the point of delivery where the water supply enters the premise. Premise isolation does not guarantee protection to persons on the premise.
- **Pressure Vacuum Breaker Backsiphonage Prevention Assembly (PVB)** An assembly consisting of an independently operating, internally loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve. This assembly is to be equipped with properly located resilient seated test cocks and tightly closing resilient seated shutoff valves attached at each end of the assembly. This assembly is designed to protect against a non-health hazard or a health hazard under backsiphonage conditions only.
- **Public Health Hazard** A condition, device, or practice which is conducive to the introduction of waterborne disease organisms, or harmful chemical, physical, or radioactive substances into the public water system and which presents an unreasonable risk to health.
- **Public Water System** A system for the provision to the public of piped water for human consumption, if such system has more than three service connections, or supplies water to a public or commercial establishment that operates a total of at least 60 days-per-year and that is used by ten or more individuals per day. Public water system also means a system for the provision to the public of water through constructed conveyances other than pipes to at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days of the year. A public water system is either a community water system, a transient non-community water system, a non-transient non-community water system, or a state regulated water system.
- **Reduced Pressure Principle Backflow Prevention Assembly (RP)** An assembly containing two independently acting approved check valves, together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and, at the same time, below the first check valve. The unit shall include properly located resilient seated test cocks and tightly closing resilient seated shutoff valves at each end of the assembly. This assembly is designed to protect against a non-health hazard or a health hazard.
- **Reduced Pressure Principle-Detector Backflow Prevention Assembly (RPDA)** A specifically designed assembly composed of a line size approved reduced pressure principle backflow

prevention assembly with a bypass containing specific water meter and an approved reduced pressure principle backflow prevention assembly. The meter shall register accurately for only very low rates of flow up to three gallons-per-minute and shall show a registration for all rates of flow. This assembly is designed to protect against a non-health hazard or a health hazard.

- **Responsible Management Authority** The public water system whose water supply is being protected and any government entity having management, rule, or ordinance-making authority to implement wellhead protection management strategies within the wellhead protection area. The responsible management authority is responsible for implementation of the wellhead protection plan and includes cities, counties, special districts, Indian tribes, stat/federal entities, as well as public water systems.
- **Safe Drinking Water** Water which has sufficiently low concentrations of microbiological, inorganic chemical, organic chemical, radiological, or physical substances which may produce harmful physiological effects.
- **Sanitary Survey** An on-site review of the water source, watershed, facilities, equipment, operations, and maintenance of the public water system for the purpose of evaluating the capability of the water system to produce and distribute safe drinking water.
- **Service Connection** The piping connection by means of which water is conveyed from a distribution main of a public water system to a user's premise. For a community water system, the portion of the service connection which conveys water from the distribution main to the user's property line, or to the service meter, where provided, is under the jurisdiction of the water supplier.
- **Single Connection System** A public water system service only on installation such as a restaurant, campground, or place of employment.
- **Single Family Structure** A building constructed as a sing-family residence that is currently used as either a residence or a place of business.
- **Spill Resistant Pressure Vacuum Breaker Backsiphonage Prevention Assembly (SVB)** An assembly containing an independently operation, internally loaded check valve and independently operating loaded air inlet valve located on the discharge side of the check valve. The assembly is to be equipped with a properly located resilient seated test cock, a properly located bleed/vent valve, and tightly closing resilient seated shutoff valves attached at each end of the assembly. This assembly if designed to protect against a non-health hazard or a health hazard under a backsiphonage condition only.
- **Spring** A naturally occurring discharge of flowing water at the ground surface or into surface water. Springs can be derived from groundwater or can be surface water influenced.
- **Stand-Alone Fire Suppression System** A piping system within the premise intended to only serve as a fire protection system separated from the potable water system.
- **State Regulated Water System** A public water system which service 4-14 service connections or serves 10-24 people. Monitoring requirements for these systems are the same as those for transient non-community water systems.
- **Thermal Expansion** The pressure increase due to a rise in water temperature that occurs in water piping systems when such systems become "closed" by the installation of a backflow prevention assembly, or other means, and will not allow for expansion beyond that point of installation.
- **These Rules** The Oregon Administrative Rules encompassed by OAR 333-061-0005 through 333-061-0098.
- **Transient Non-Community Water System** A public water system that serves a transient population of 25 or more persons.

- **University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research (USC FCCCHR)** An agency that conducts laboratory and field tests to evaluate and grant “Certificates of Approval” to backflow prevention assemblies meeting approved standards.
- **Vault** An approved enclosure, above or below ground, to house a backflow prevention assembly that complies with the local administrative authority having jurisdiction.
- **Water Service Entrance** That point in the owner’s water system beyond the sanitary control of the Department, generally considered to be the outlet end of the water meter and always before any unprotected branch.
- **Water Source** Any lake, stream, spring, groundwater supply, impoundment, or other source of water from which water is obtained for a public water system. In some cases, a public water system can be the source of supply for one or more other public water systems.
- **Water Supplier** A person, group of persons, municipality, district, corporation, or other entity which owns or operates a public potable water system.
- **Water System** A system for the provision of piped water for human consumption.
- **Well** An artificial opening or artificially altered natural opening, however made, by which ground water is sought or through which groundwater flows under natural pressure or is artificially withdrawn or injected, provided that this definition shall not include a natural spring or wells drilled for the purpose of exploration or production of oil or gas.

#### 4. Administration

- a. The Association will operate a “Cross Connection Control Program” which fulfills the requirements of OAR 333-061-0070 and 0071 and is approved by the Department. The program will include, but is not limited to, public education, inspections, enforcement, record keeping, and reporting.
- b. The Association’s responsibility for cross connection control begins at the water supply source and ends at the point of delivery to the water user=s premises. On-site inspections are the responsibility of the plumbing inspector as outlined in the Oregon Plumbing Specialty Code.
- c. If the Association requires that the public supply be protected by containment, the owner shall be responsible for water quality beyond the outlet end of the containment device and should utilize a backflow device for that purpose. He may utilize Clatsop County health officials or the Clatsop County Plumbing Inspector to assist in the survey of the facilities and to assist in the selection of proper fixture outlet device(s) and the proper installation of said device(s).

#### 5. Requirements

- a. Association
  - i. On new installations, the Association requires inspection of plans in order to determine the type of backflow preventer, if any, that will be required. Table 32, OAR 333-061-0070, lists premises requiring isolation. Other premises will be individually evaluated.
  - ii. The Association will not allow any cross connection to remain unless it is protected by an approved backflow preventer or approved air gap, commensurate with the degree of hazard. Approved backflow preventers will be tested at a minimum of one-time-per-year to ensure satisfactory operation.

- iii. The Association shall inform the owner by letter of any corrective actions to be taken, within ten (10) working days of the first inspection. The Association will allow an additional 30 (thirty) days for the correction. In the event the owner fails to comply with necessary corrections by the time of the re-inspection, the Association will inform the owner by letter that the water service to the owner's premises will be terminated within a period of time not to exceed five (5) days.
  - iv. If the Association determines at any time that a serious threat to the public health exists, the water service will be terminated immediately.
  - v. The Association shall have on file a list of private contractors who are certified backflow device testers. All charges for these tests will be paid by the owner of the building or property.
- b. Owner
- i. The owner shall be responsible for the elimination or isolation of all cross connections on his/her premises.
  - ii. After having been informed in writing by the Association, the owner shall, at his/her expense, install, maintain, and have tested an approved backflow prevention device commensurate with the degree of hazard that provides premises isolation.
  - iii. The owner shall correct any malfunction of the backflow preventer which is revealed by periodic testing.
  - iv. The owner shall inform the Association of any proposed or modified cross connections and also any existing cross connections of which the owner is aware but which have not been found by the Association.
  - v. The owner shall not install a bypass around any backflow preventer unless there is a backflow preventer of the same type on the bypass. Owners shall not tamper with backflow devices.
  - vi. The owner shall install backflow preventers in a manner approved by the Association and as detailed in OAR 333-061-0071, "Backflow Prevention Assembly Installation and Operation Standards."
  - vii. The owner shall only install backflow prevention assemblies approved by the Department. Assemblies listed in the currently approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research or other testing laboratory using equivalent testing methods are the only devices that will be allowed.
  - viii. Any owner having a private well or other private water source must have an approved backflow prevention assembly if the well or source is cross connected to the Association's system. Permission to cross connect may be denied by the Association. The owner may be required to install a backflow preventer at the service entrance if a private water source is maintained, even if it is not cross connected to the Association's system.

- ix. In the event the owner installs plumbing to provide potable water for domestic purposes which is on the Association's side of the backflow preventer, such plumbing must have its own backflow preventer installed.

6. Degree of Hazard

The Association recognizes the threat to the public water system arising from cross connections. All threats will be classified by degree of hazard and will require the installation of approved backflow prevention device(s) as described in OAR 333-061-0070.

7. Existing In-Use Backflow Prevention Devices

Any existing backflow preventer shall be allowed by the Association to continue in service unless the degree of hazard is such as to supersede the effectiveness of the preventer or result in an unreasonable risk to the public health. In addition, the preventer has to have been on the Department's approved list at the time of installation. Where the degree of hazard has increased, as in the case of a residential installation converting to a business establishment, any existing backflow device(s) must be replaced with an approved device suitable for that degree of hazard.

8. Periodic Testing

- a. All testable backflow devices shall be tested and inspected at least annually.
- b. Periodic testing shall be performed by a certified tester from a list provided by the Association. This testing will be done at the owner's expense.
- c. Any backflow preventer which fails during a periodic test will be repaired or replaced. When the repairs are completed, the device will be re-tested at the owner's expense to ensure correct operation. High hazard situations will not be allowed to continue if the backflow preventer fails the test and cannot be repaired immediately. In other situations, the compliance date of not more than 30 (thirty) days after the test date will be established. Parallel installation of two (2) devices is an effective means for the owner to ensure uninterrupted water service during testing or repair of device(s) and is strongly recommended when the owner desires such continuity.
- d. Backflow prevention devices will be tested more frequently than specified in IX.A. above if the Association believes there is a history of test failures. Cost of additional testing will be borne by the owner.

9. Records and Reports

a. Records

The Association will initiate and maintain the following:

- i. A master list of facilities and premises which are subject to inspection and the hazard level for each.
- ii. A current list of certified cross connection control specialists.
- iii. Current records of backflow devices installed, inspections completed, and backflow device test results.
- iv. A list of certified backflow assembly testers within the geographic area.



b. Reports

- i. The Association shall prepare and submit an Annual Summary Report to the Department using form(s) provided by the Department before the last working day of March each year.
- ii. The main thrust of the Association=s Cross Connection Control Program will be public education. On at least an annual basis the Operations Manager will include an article on cross connections in the Association=s newsletter. A handout on cross connections will be given to each new member when they sign their Water Use Agreement.

SIGNATURE ON FILE

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Board President