

41-01080

POLICY
for the
CONTROL OF BACKFLOW AND CROSS-CONNECTIONS

Section 1. CROSS-CONNECTION CONTROL - GENERAL POLICY

1.1 Purpose. The purpose of this Policy is:

*NPS Annie Spr: ~~AS~~/Rim
Crater Lake*

1.1.1 To protect the public and non public water supply of **Crater Lake National Park** from the possibility of contamination or pollution.

1.1.2 To promote the elimination or control of existing cross-connections, actual or potential, between the potable water system(s) and non potable water system(s), plumbing fixtures and industrial piping systems; and,

1.1.3 To provide for the maintenance of a continuing program of cross-connection control which will systematically and effectively prevent the contamination or pollution of all potable water systems.

1.2 Responsibility. The Chief of Maintenance shall be responsible for the protection of the public and non-public potable water distribution systems from contamination or pollution through the water service connections. If, in the judgment of the Chief of Maintenance, regional Public Health Service (PHS) representative, or appropriate area regulatory officials, an approved backflow prevention assembly is required for the safety of the water system, the Chief of Maintenance shall install, or have installed, such an approved backflow prevention assembly.

Section 2. DEFINITIONS

2.1 Park Chief of Maintenance. The Park Chief of Maintenance is in charge of the park maintenance and is invested with the authority and responsibility for the implementation of an effective cross-connection control program and for the provisions of this policy.

2.2 Approved. Accepted by the Park Chief of Maintenance as meeting an applicable specification stated or cited in this policy, or as suitable for the proposed use.

2.3 Auxiliary Water Supply. Any water supply on or available to the premises other than the National Park Service approved public water supply will be considered as an auxiliary water supply. These auxiliary waters may include water from another purveyor's public potable water

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supply or any natural source(s) such as a well, spring, river, stream, lake, etc., or "used waters" or "industrial fluids". These waters may be contaminated or polluted or they may be objectionable and constitute an unacceptable water source over which the National Park Service does not have any sanitary control.

2.4 Backflow. The reversal of the normal flow of water caused by either back-pressure or backsiphonage.

2.5 Backpressure. The flow of water or other liquids, mixtures or substances under pressure into the distribution pipes of a potable water supply system from any source or sources other than the intended source.

2.6 Backsiphonage. The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply from any source other than its intended source caused by the reduction of pressure in the potable water supply system.

2.7 Backflow Preventer. An assembly or means to prevent backflow.

2.7.1 Air-Gap. 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 device and the flood level rim or the vessel. An approved air-gap shall be at least double the diameter of the supply pipe, measured vertically, above the overflow rim of the vessel; and in no case less than one inch.

2.7.2 Reduced Pressure Principle Assembly. An assembly of two independently acting approved check valves together with a hydraulically operating, mechanically independent differential pressure 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 resilient seated shut-off valves at each end of the assembly. The entire assembly shall meet the design and performance specifications as determined by the Foundation for Cross Connection Control and Hydraulic Research at the University of Southern California (USC) University Park, Los Angeles, CA 90089, for backflow prevention assemblies. The assembly shall operate to maintain the pressure in the zone between the two check valves at an acceptable level less than the pressure on the public water supply side of the assembly. At cessation of a normal flow the pressure between the two check valves shall be less than the pressure on the supply side of the assembly. In case of leakage of either of the check valves, the differential relief valve shall operate to maintain the reduced pressure in the zone

between the check valves by discharging to the atmosphere. When the inlet pressure is two pounds per square inch or less, the relief valve shall open to the atmosphere. To be approved these assemblies must be readily accessible for in-line testing and maintenance and be installed in a location where no part of the assembly will be submerged.

2.7.3 Double Check Valve Assembly. An assembly of two independently operating approved check valves with resilient seated shut-off valves on each end of the check valves, plus properly located resilient seated test cocks for the trusting of each check valve. The entire assembly shall meet the design and performance specifications as determined by the aforementioned Foundation for Cross Connection Control at USC for backflow prevention assemblies. To be approved, these assemblies must be readily accessible for in-line testing and maintenance.

2.8 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 or potential hazard to the public health through poisoning or through the spread of disease.

2.9 Cross-Connection. 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 may occur into the potable water system. This would include any temporary connections, such as swing connections, removable sections, four way plugvalves, spools, dummy section of pipe, swivel or change-over devices or sliding multiport tube.

2.10 Cross-Connections - Controlled. A connection between a potable water system and a nonpotable water system with an approved backflow prevention assembly properly installed and maintained so that it will continuously afford the protection commensurate with the degree of hazard.

2.11 Cross-Connection Control by Containment. The installation of an approved backflow prevention assembly at the water service connection to any building where it is physically and economically infeasible to find and permanently eliminate or control all actual or potential cross-connections within the building owner's water system; or, it shall mean the installation of an approved backflow prevention assembly on the water system where there are actual or potential cross-connections which cannot be effectively eliminated or controlled at the point of the cross-connection.

2.12 Hazard, Degree of. The term is derived from an evaluation of the potential risk to the public health and the adverse effect of the hazard upon the potable water system.

2.12.1 Hazard - Health. Any condition, device, or practice in the water supply system and its operation which could create, or in the judgment of the Park Chief of Maintenance, regional PHS representative, or the appropriate area regulatory officials, may create a danger to the health and well-being of the water consumer.

2.12.2 Hazard - Plumbing. A plumbing type cross-connection in a consumer's potable water system that has not been properly protected by an approved air-gap or approved backflow prevention assembly.

2.12.3 Hazard - Pollution. An actual or potential threat to the physical properties of the water system or to the potability of the public or the consumer's 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.

2.12.4 Hazard - System. An actual or potential threat of severe damage to the physical properties of the public potable water system, or the consumer's water system, or of a pollution or contamination which would have a protracted effect on the quality of the potable water in the system.

2.13 Industrial Fluids System. 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, system, pollution or plumbing hazard if introduced into an approved water supply. This may include, but not be limited to: polluted or contaminated waters; all types of processed 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 alkalis; circulating cooling waters connected to an open cooling tower and/or cooling towers that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters such as from wells, springs, streams, rivers, irrigation canals or systems, etc.; oils, gases, glycerin, paraffins, caustic and acid solutions and other purposes or for fire-fighting purposes, recirculating hot water systems, hot water heating systems, solar systems with antifreeze solutions, and charged fire systems.

2.14 Pollution. Means the presence of any foreign substance (organic, inorganic, or biological) in water which tends to degrade the water 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.

2.15 Water - Potable. Any water which, according to recognized standards, is safe for human consumption.

2.16 Water - Nonpotable. Water which is not safe for human consumption or which is of questionable potability.

Section 3. REQUIREMENTS

3.1 Water System

3.1.1 The water system shall be considered as made up of two parts: The Utility System and the Building System.

3.1.2 Utility System shall consist of the source facilities and the distribution system; and shall include all those facilities of the water system up to the point where the building system begins.

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

3.1.4 The distribution system shall include the network of conduits used for the delivery of water from the source to the building system.

3.1.5 The building system shall include those parts of the facilities beyond the termination of the distribution system which are utilized in conveying delivered domestic water to points of use.

3.2 Policy

3.2.1 No water service connection to any premises shall be installed or maintained by the National Park Service unless the water supply is protected by State laws and regulations and this Cross-Connection and Backflow Prevention Policy. Service of water to any premises shall be discontinued by the NPS if a backflow prevention assembly required by this Policy is not installed, tested and maintained, or if it is found that a backflow prevention assembly has been removed, by-passed, or if any

unprotected cross-connection exists on the premises. Service will not be restored until such conditions or defects are corrected.

3.2.2 The building system should be open for inspection at all reasonable times to authorized representatives of the NPS to determine whether cross-connections or other structural or sanitary hazards, including violations of these regulations, exist. When such a condition becomes known, the Park Chief of Maintenance shall deny or immediately discontinue service to the premises by providing for a physical break in the service line until the building owner has corrected the condition(s) in conformance with the State and Local statutes relating to plumbing and water supplies and the regulations adopted pursuant thereto.

3.2.3 An approved backflow prevention assembly shall also be installed on each service line to a building water system at or near the property line if relevant , 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:

3.2.3.a 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 by the Park Chief of Maintenance or regional PHS representative, the public water system shall be protected against backflow from the premises by installing an approved backflow prevention assembly in the service line appropriate to the degree of hazard.

3.2.3.b In the case of premises on which industrial fluids, sewage, 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 an approved backflow prevention assembly in the service line appropriate to degree of hazard. This shall include the handling of process waters and waters originating from the utility system which have been subjected to deterioration in quality.

3.2.3.c In the case of premises having (1) an internal cross-connection that cannot be permanently corrected or controlled, or (2) 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 or non-public water system shall be protected against backflow from the premises by installing an approved backflow prevention assembly in the service line.

3.2.4 The type of protective assembly required under subsections 3.2.3a, b, and c shall depend upon the degree of hazard which exists as follows:

3.2.4.a In the case of any premises where there is an auxiliary water supply as stated in subsection 3.2.3a of this section and it is not subject to regulation by the NPS, the public or non-public water system shall be protected by an approved air-gap separation or an approved reduced pressure principle backflow prevention assembly.

3.2.4.b In the case of any premises where there is water or a substance(s) that would be objectionable but not hazardous to health if introduced into the public or non-public water system shall be protected by an approved double check valve assembly.

3.2.4.c In any 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 or non-public water system, the public or non-public water system shall be protected by an approved air-gap separation or an approved reduced pressure principle backflow prevention assembly. Examples of premises where these conditions will exist include sewage treatment plants, sewage pumping stations, laboratories.

3.2.4.d In the case of any premises where there are "uncontrolled" cross-connections, either actual or potential, the public or non-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.

3.2.5 Any backflow prevention assembly required herein shall be a model and size approved by the Park Chief of Maintenance. The term "Approved Backflow Assembly" shall mean an assembly that has been manufactured in full conformance with the latest standard established by the American Water Works Association entitled:

AWWA C506 Standards for Reduced Pressure Principle and Double Check Valve Prevention Devices;

and, having met completely the laboratory and field performance specifications of the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California established by:

Specifications of Backflow Prevention Assemblies - Section 10 of the most current issue of **Manual of Cross - Connection Control**.

Said **AWWA** and **FCCC&HR** standards and specification have been adopted by the Park Chief of Maintenance. Final approval shall be evidenced by a "Certificate of Approval" issued by an approved testing laboratory certifying full compliance with the said **AWWA** standards and **FCCC&HR** specifications.

The following testing laboratory has been qualified by the Park Chief of Maintenance to test and certify backflow preventers:

Foundation for Cross-Connection Control and Hydraulic Research
University of Southern California
University Park
Los Angeles, CA 90089

Testing laboratories other than the laboratory listed above will be added to an approved list as they are qualified by the Park Chief of Maintenance.

Backflow preventers which may be subjected to backpressure or backsiphonage that have been fully tested and have been granted a Certificate of Approval by said qualified laboratory and are listed on the laboratory's current list of "Approved Backflow Prevention Assemblies" may be used without further qualification. However, annual testing by a state certified backflow prevention specialist is required to ensure proper continual operation.

3.2.6 It shall be the duty of the building owner at any premises where backflow prevention assemblies are installed to have certified inspections and operational tests made upon installation and at least once per year. In those instances where the Park Chief of Maintenance deems the hazard to be great enough he may require certified inspections at more frequent intervals. These inspections and tests shall be at the expense of the building owner and shall be performed by a state certified tester. It shall be the duty of the Park Chief of Maintenance to see that these tests are made in a timely manner. The building owner shall notify the Park Chief of Maintenance in advance when the tests are to be undertaken so that an official representative may witness the tests if so desired. These assemblies shall be repaired, overhauled or replaced at the expense of the building owner whenever said assemblies are found to be defective. Records of such tests, repairs and overhaul shall be kept and made

available to the Park Chief of Maintenance or the regional PHS representative.

3.2.7 All presently installed backflow prevention assemblies which do not meet the requirements of this section but were approved assemblies for the purpose described herein at the time of installation and which have been properly maintained, shall, except for the inspection and maintenance requirements under subsection 3.2.6, be excluded from the requirements of these rules so long as the Park Chief of Maintenance and the regional PHS representative are assured they will satisfactorily protect the utility system. Whenever the existing assembly is moved from its present location or requires more than minimal maintenance or when the park Chief of Maintenance or the regional PHS representative finds that the maintenance constitutes a hazard to health, the unit shall be replaced by an approved backflow prevention assembly meeting all the requirements of this section.

STATE CERTIFIED CROSS CONNECTION CONTROL PROGRAM SPECIALISTS

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