ORDINANCE 88-1

CONTROL OF BACKFLOW AND CROSS-CONNECTIONS

WHEREAS, the Board of Directors of CALAVERAS PUBLIC UTILITY DISTRICT, as required by California Administrative code, Title 17, Sections 7583 through 7605, inclusive, adopts this Ordinance for the Control of Backflow and Cross-Connections:

SECTION 1. CROSS-CONNECTION CONTROL - GENERAL POLICY

1.1 Purpose. The purpose of this Ordinance is:

1.1.1 To protect the public potable water supply of CALAVERAS PUBLIC UTILITY DISTRICT (CPUD) from the possibility of contamination or pollution by isolating within the customer's internal distribution system(s) or the consumer's private water system(s) such contaminants or pollutants which could backflow into the public water systems; and,

1.1.2 To promote the elimination or control of existing cross-connections, actual or potential, between the consumer's in-plant 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. CPUD is responsible for the protection of the public potable water distribution/system from contamination or pollution due to the backflow of contaminants or pollutants through the water service connection. If, in the judgement of CPUD an approved backflow prevention assembly is required at the customer's water service connection; or, within the customer's private water system for the safety of the water system, CPUD shall give notice in writing to said customer to install such an approved backflow prevention assembly(s) at specific location(s) on customer's premises. The consumer shall immediately install such approved assembly(s) at the consumer's own expense; and, failure, refusal or inability on the part of the customer to install, have tested and maintained said assembly(s) shall constitute a ground for discontinuing water service to the premises until such requirements have been satisfactorily met.

SECTION 2. DEFINITIONS

2.1 Calaveras Public Utility District (CPUD). A public utility formed under the Public Ulility District Act of the State of California originally

enacted May 31, 1921.

2.2 **Approved.** Accepted by CPUD as meeting an applicable specification stated or cited in this Ordinance, or as suitable for the proposed use.

2.3 **Auxiliary Water Supply.** Any water supply on or available to the premises other than CPUD's approved public water supply will be considered as an auxiliary water supply. These auxiliary waters may include water from another water purveyor's public potable water supply or any natural source(s) such as a well, spring, river, stream, harbor, etc., or "used waters" or "industrial fluids". These waters may be contaminated or polluted or they may be objectionable and constitute an unacceptable water source over which CPUD does not have sanitary control.

2.4 **Backflow.** The reversal of the normal flow of water caused by either backpressure 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(s) 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 designed 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 of said 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 test cocks and tightly closing shut-off valves at each end of the assembly. The entire assembly shall meet the design and performance specifications as determined by a laboratory and a field evaluation program resulting in an approval by a recognized and approved testing agency 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 public water supply side of the device. 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 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 tightly closing shut-off valves on each end of the check valves, plus properly located test cocks for the testing of each check valve. The entire assembly shall meet the design and performance specifications as determined by a laboratory and field evaluation program resulting in an approval by recognized and approved testing agency 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 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 plug valves, 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 any other 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 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 or 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 the cross-connection.

2.12 Hazard, Degree of. The term is derived from an evaluation of the potential risk to 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 CPUD, 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 – Pollutional. 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 but 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 potable water system or of a pollution or contamination which would have a protracted affect 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, pollutional 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 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 alkalines; 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 well, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, etc.; oils, gases, glycerine, paraffins, caustic and acid solutions and other liquid and gaseous fluids used in industrial or other purposes or for fire-fighting purposes.

2.14 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.

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.

2.17 **Water - Service Connection.** The terminal end of a service connection from the public potable water system; i.e., where CPUD loses jurisdiction and sanitary control over the water at its point of delivery to the customer's water system. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter. There should be no unprotected takeoffs from the service line ahead of any meter or any 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 potable water system.

2.18 **Water - Used.** Any water supplied by a water purveyor from a public potable 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. 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 Customer 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 under the complete control of the utility, up to the point where the Customer's 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 Customer's System.

3.1.5 The Customer's System shall include those parts of the facilities beyond the termination of the utility distribution system which are utilized in conveying utility-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 CPUD unless the water supply is protected as required by State laws and regulations and this Ordinance. Service of water to any premises shall be discontinued by CPUD if a backflow prevention assembly required by this Ordinance is not installed, tested and maintained, or if it is found that a backflow prevention assembly has been removed, bypassed or if an

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

3.2.2 The Customer's System should be open for inspection at all reasonable times to authorized representatives of CPUD to determine whether cross-connections or other structural or sanitary hazards, including violations of these regulations, exist. When such a condition becomes known, CPUD shall deny or immediately discontinue service to the premises by providing for a physical break in the service line until the customer has corrected the condition(s) in conformance with the State and County 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 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:

3.2.3a 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 CPUD, the public water system shall be protected against backflow from the premises by installing an approved backflow assembly in the service line appropriate to the degree of hazard.

3.2.3.b 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 an approved 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.

3.2.3c In the case of premises having (1) 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 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:

3.2.4a 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 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.

3.2.4b 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.

3.2.4c 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. Examples of premises where these conditions will exist include sewage treatment plants, sewage pumping stations, chemical manufacturing plants, hospitals, mortuaries and plating plants.

3.2.4d In the case of any premises where there are "uncontrolled" cross-connections, either actual or potential, the public water system shall be protected by an approved air-gap separation or an approved reduced pressure principle backflow prevention assembly at the service connection.

3.2.4e In the 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 from the premises by either an approved air-gap separation or an approved reduced pressure principle backflow prevention assembly on each service to the premsies.

3.2.5 Any backflow prevention assembly required herein shall be a model and size approved by CPUD. The term "Approved Backflow Prevention Assembly" shall mean an assembly that has been manufactured in full conformance with the standards established by the American Water Works Association (AWWA) entitled:

AWWA C506-84 Standards for Reduced Pressure Principle and Double Check Valve Backflow Prevention Devices;

and have met completely the laboratory and field performance specifications of the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California

(FCCC&HR) established by

> Specifications of Backflow Prevention Assemblies - Section 10 of the most current issue of the MANUAL OF CROSS-CONNECTION CONTROL.

Said AWWA and FCCC&HR standards and specificaitons have been adopted by CPUD. 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 specificaitons.

The FCCC&HR testing laboratory has been qualified by CPUD to test and certify backflow preventers. Testing laboratories other than the FCCC&HR will be added to an approved list as they are qualified by CPUD.

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 test or qualification.

3.2.6 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 every 12-month period of time. In those instances where CPUD deems the hazard to be great enough, certified inspections may be required at more frequent intervals. Those inspections and tests shall be at the expense of the water user and shall be performed by the assembly manufacturer's representative, CPUD personnel or by a certified tester approved by CPUD. Inspections and tests performed by CPUD personnel will be charged at rates established by CPUD. It shall be the duty of CPUD to see that these tests are made in a timely manner. The customer-user shall notify CPUD 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 customer-user whenever said assemblies are found to be defective. Records of such tests, repairs and overhaul shall be kept and made available to CPUD.

3.2.7 All presently installed backflow prevention assemblies which do not meet the requirements of this section but were approved devices 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 Subsection 3.2.6, be excluded from the requirements of this Ordinance so long as CPUD is assured that such assemblies will

satisfactorily protect the Utility System. Whenever the existing device is moved from the present location or requires more than minimum maintenance or when CPUD finds that the maintenance constitutes a hazard to health, the unit shall be replaced by an approved backflow prevently assembly meeting the requirements of this section.

RESOLVED FURTHER, that this Ordinance shall take effect upon passage and this Ordinance shall be published in the Calaveras Prospect/Californian, a newspaper of general circulation printed and published in the County of Calaveras, State of California, within ten (10) days from the date of passage.

PASSED AND ADOPTED this 13 day of December, 1988, by the following vote:

AYES: Dell'Orto, Newman, Ortegel, Moore

NOES: None

ABSENT: Lavaroni

ABSTAIN: None

CALAVERAS PUBLIC UTILITY DISTRICT

President

ATTEST:

Secretary