Cross-Connection Control

and

Backflow Prevention Program

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1 Introduction

1-1 Introduction

The purpose of the Cross-Connection Control and Backflow Prevention Program ("Program") is to provide guidelines for the implementation of the Canyon Lake Water Service Company (CLWSC) Tariff for Water Service, System Extension, and Service Line installation and the "criteria" for water supply and distribution within its service area and as established by the Texas Commission on Environmental Quality (TCEQ). All of these are promulgated for the purpose of protecting the water supply of CLWSC from contamination by isolating within each customer's internal distribution system any contaminants which could backflow into the public water supply system.

The Program also establishes guidelines for the maintenance of a continuing program of cross-connection control and backflow prevention. Failure, refusal or inability on the part of the customer to comply shall constitute grounds for refusing or discontinuing water service. The desired control is one of containment of the actual or potential hazard within the customer's premises.

Any hazard must be isolated from the drinking water supply regardless of when the hazard was first created or the site was built. Because the effects of a backflow event can be so significant, there are no grandfather clauses that apply to cross-connection control and backflow prevention in the TCEQ's regulations on backflow. However, the landscape irrigation regulations do contain some provisions for existing irrigation systems. This is covered in section 5-8.2 of the Program.

The Program is subject to change without notice to meet the requirements of the TCEQ and/or the needs of CLWSC. Final interpretations of these guidelines are left to the discretion of CLWSC. While TCEQ rules state the minimum requirement, CLWSC has the prerogative to require additional measures and evaluate scenarios on a case-by-case basis to ensure the protection of the public water supply system.

1-2 Principles

The overall Program is based on the experience obtained as a result of extensive field surveys which have revealed that after initial construction, uncontrolled cross-connections are made within many existing establishments to which CLWSC service is being provided. The desired control is one of containment of the actual or potential hazard within the customer's premises. The hazard is contained through the use of an air gap separation or in certain instances, backflow prevention assemblies will be installed between the outlet side of the water meter and the first tap or tee. In some situations, backflow protection of the CLWSC's distribution system can be accomplished at the hazard point or through internal containment backflow prevention assemblies as outlined elsewhere in this Program.

1-3 Reference

The following references are adopted and made a part of the Program.

(1) The pertinent sections of the CLWSC Tariff for water service which prohibit a direct connection between CLWSC, and a customer service line which includes a potential cross-connection, and which may, therefore, result in a source of contamination of the CLWSC water supply. CLWSC shall require appropriate backflow prevention arrangements for those facilities as provided for in the CLWSC Criteria where a potential health hazard exists.

CLWSC shall immediately discontinue service to any property where any unapproved connection or cross-connection exists, and service shall not be re-established until CLWSC determines that the unsatisfactory condition has been corrected.

(2) Those pertinent sections of the CLWSC Criteria for water supply and distribution within its Certificated area or jurisdiction, which stipulate the type of backflow prevention assembly and the condition under which such a device shall be installed. These assemblies are outlined in section 4 of this Program.

(3) The pertinent sections of the CLWSC Standard Specification and Standard Details

(4) The 2006 edition (or latest revision) of the Uniform Plumbing Code of the International Association of Plumbing and Mechanical Officials, as amended hereinafter, is adopted as the Plumbing Code of the Canyon Lake Water Service Company. The Uniform Plumbing Code 2006 chapter 6, section 602.3, Cross-Connection Control states: “No person shall make a connection or allow one to exist between pipes or conduits carrying domestic water supplied by a public or private water service system, and any pipes, conduits, or fixtures containing or carrying water which has been used for any other purpose whatsoever, unless there is provided a backflow prevention device approved for the potential hazard.”

Section 303.0 Cross-connection control shall be provided in accordance with the provision of this chapter. “No person shall install any water treating chemical or substance, if it is found that such equipment, mechanism chemical or substance may cause pollution or contamination of the domestic water supply. Such equipment or mechanisms may be permitted only when equipped with an approved backflow prevention device or assembly.”

(5) Occupational Safety & Health Administration – Federal Register, number 202 Part 2 Page 2234 sub-parts J General Environmental Control 1910.41.1 Sanitation which states the “(b) Water Supply-(2) Non-potable Water (ii) there

shall be no cross-connection; open or potential, between systems furnishing non-potable water. (iii) Construction shall be such as to prevent backflow or containment water into a potable water system."

(6) U.S. Environmental Protection Agency – Cross-Connection Control Manual (2003 Edition or latest revision) EPA

(7) TCEQ Rules and Regulations for Public Water Systems, Sec. 290.44 (h)(1) Backflow, Siphonage, which states "No water connection from any public drinking water supply system shall be allowed to any residence or establishment where an actual or potential contamination hazard exists unless the public water facilities are protected from contamination. The containment air gap is sometimes impractical and instead, reliance must be placed on individual "internal" air gaps or mechanical backflow prevention devices. Under these conditions, additional protection shall be required at the meter in the form of a backflow prevention assembly (in accordance with American Water Works Association (AWWA) Standards C510 and C511, and AWWA Manual M14) on those establishments handling substances deleterious or hazardous to the public health. The water purveyor need not require backflow protection at the water service entrance if an adequate cross-connection control program is in effect that includes an annual inspection and testing by a licensed backflow prevention assembly tester. It will be the responsibility of the water purveyor to ensure that these requirements are met."

2 Definitions

2-1 Approved Air Gap Separation (AG)

An approved air gap separation is the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet conveying water to a tank, fixture, receptor, sink, or other assembly and the flood level rim of the receptacle. The vertical, physical separation must be at least twice the diameter of the water supply outlet, but never less than one inch.

2-2 Approved Backflow Prevention Method

An approved backflow prevention method is one that has been reviewed and approved by CLWSC and meets the requirements of TCEQ as defined in section 4-4.5.1 of this Program.

2-3 Approved By-pass

An approved by-pass is a connection from CLWSC's side of an approved device to the customer side of the device for the purpose of diverting the water around the backflow preventer while it is being repaired or replaced. All by-passes on the backflow prevention devices will themselves include provisions for backflow prevention as described within this program.

2-4 Approved Check Valve

An approved check valve is a valve that seats readily and completely. It must be carefully machined to save free moving parts and assure water tightness permitting no leakage in a direction reverse to the normal flow. The valve must be weighted or spring loaded to one psi in the direction of flow. The face of the closure element and valve seat must be of bronze composition or other non-corrodible material which will seat tightly under all prevailing conditions of field use. Pins and bushings shall be of bronze or other non-corrodible, non-sticking material machined for easy, dependable operation. The closure element normally referred to as a clapper, shall be internally weighted or otherwise internally equipped to promote rapid and positive closure in all sizes where this feature is obtainable.

2-5 Approved Double Check Detector Assembly (DCDA)

DCDA shall mean a specifically designed assembly composed of a line-sized approved double check valve assembly with a by-pass containing a specific water meter and an approved double check valve assembly. The meter shall measure accurately for only very low rates of flow up to three gallons per minute (gpm) and shall show a registration of all rates of flow. This assembly shall only be used to protect against a non-health hazard (i.e., pollutant). The DCDA is primarily used on fire sprinkler systems. The entire assembly shall meet the design and performance specifications and full approval, lab

and field, of a recognized and approved testing agency for backflow prevention assemblies, e.g., University of Southern California's Cross-Connection Control or AWWA.

2-6 Approved Double Check Valve Assembly (DCVA)

An approved DCVA is an assembly composed of two single, independently acting, approved check valves, including resilient seating shut-off valves located at each end of the assembly and suitable connections for testing the water tightness of each check valve. The entire assembly shall meet the design and performance specifications and full approval, lab and field, of a recognized and approved testing agency for backflow prevention assemblies, e.g., University of Southern California's Cross-Connection Control or AWWA.

2-7 Approved Pressure Vacuum Breaker

An approved pressure vacuum breaker is an assembly containing a single-loaded check valve and an air inlet valve which shall admit air whenever the pressure within the body of the assembly is reduced so that there is a tendency toward backsiphonage. The body of the assembly must be equipped with two tight closing shut off valves, one immediately upstream from the body and one immediately downstream of the body, and two properly located test cocks. The entire assembly shall meet the design and performance specifications and full approval, lab and field, of a recognized and approved testing agency for backflow prevention assemblies, e.g., University of Southern California's Cross-Connection Control or AWWA.

2-8 Approved Reduced Pressure Backflow Prevention Assembly (RP)

An approved RP is an assembly with two independently operating approved check valves with an automatically operating differential relief valve between the two check valves. There must be resilient seating shut-off valves on either side of the assembly, plus four properly located test cocks for the testing of the check and relief valves. The entire assembly shall meet the design and performance specifications and full approval, lab and field, of a recognized and approved testing agency for backflow prevention assemblies, e.g., University of Southern California's Cross-Connection Control or AWWA. The device shall operate to maintain the pressure in the zone between the check valves at a level two psi less than the supply pressure. In case of leakage of either check valve, the differential relief valve shall operate to maintain this reduced pressure by discharging to the atmosphere. When the inlet pressure is twenty psi or less, the relief valve shall open to the atmosphere. To be approved, these devices must be installed a minimum of 12 inches above ground in a location that will insure that the assembly will not be submerged.

2-9 Approved Reduced Pressure Detector Assembly (RPDA)

An approved RPDA is an assembly comprised of a mainline reduced pressure backflow assembly equipped with OS&Y gate valves, a bypass arrangement containing a smaller reduced pressure backflow assembly and water meter. The RPDA must be installed at least 12 inches above ground in a location that will insure that the assembly will not be submerged. This assembly is an outgrowth of the Double Check Detector Assembly and is typically only used on fire line applications. However, this assembly is intended to protect the potable water supply from fire sprinkler systems that contain chemical additives or can be connected to an auxiliary non-potable water source. The entire assembly shall meet the design and performance specifications and full approval, lab and field, of a recognized and approved testing agency for backflow prevention assemblies, e.g., University of Southern California's Cross-Connection Control or AWWA.

2-10 Approved Spill Resistant Pressure Vacuum Breaker

An approved spill resistant pressure vacuum breaker is an assembly containing a single-loaded check valve and an air inlet valve which shall admit air whenever the pressure within the body of the assembly is reduced so that there is a tendency toward backsiphonage. The body of the assembly must be equipped with two tight closing shut-off valves, one immediately upstream from the body and one immediately downstream of the body and one properly located test cock and vent valve. It is designed to operate under pressure for long periods of time without becoming inoperative. It must be installed such that it could never be subject to back pressure. The entire assembly shall meet the design and performance specifications and full approval, lab and field, of a recognized and approved testing agency for backflow prevention assemblies, e.g., University of Southern California's Cross-Connection Control or AWWA.

2-11 Backflow

Backflow, within the scope of this Program, is the reverse flow of water through a service connection, i.e., flowing from the customer's side of the service connection into the distributing pipelines of the potable water system. Backflow may occur under either a backpressure or backsiphonage condition.

2-12 Backpressure

Backpressure is the pressure in the customer's system that exceeds the pressure in the public water system. Backpressure can be created by positive displacement pumps, water at a higher elevation, water in a pressurized vessel and other variables.

2-13 Backsiphonage

Backsiphonage occurs when the pressure in the public water system becomes less than that of the customer's system due to main line breaks, use of fire hydrants or other variables which cause a vacuum or partial vacuum in the public system.

2-14 Certification Classification-Licensing Classification

Certification or licensing classification is divided into the following categories and the testers are not considered to be employees, agents, or representatives of CLWSC.

a) Licensed Tester means qualified to test any type or make of backflow prevention device. Tester must be a licensed Backflow Prevention Assembly Tester (BPAT).

b) Limited Licensed Tester means qualified to test all types of backflow prevention devices at the premises owned or controlled by an individual or company.

c) Licensed Irrigator Tester is approved to test assemblies located on all irrigation systems.

d) Licensed Fire Line Tester is approved to test assemblies on all fire lines. Must be registered by State Fire Marshall's office.

e) Customer Service Inspector must be licensed by TCEQ as a Customer Service Inspector (CSI) or by The Texas State Board of Plumbing Examiners (TSBPE) as a Water Supply Protection Specialist (WSPS) or Plumbing Inspector.

2-15 County

County is either Comal or Blanco Counties.

2-16 Contamination

Contamination is the presence of any foreign substance (organic, inorganic, radiological, or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness of the water.

2-17 Cross-Connection

Cross-connection is an unprotected, actual or potential connection, mechanical or hydraulic union between a potable water system and any source or system containing potable or non-potable water or other substance that could cause contamination of the potable water supply.

2-18 Customer

The customer, or consumer of record, is the person, business, or owners that have applied for service from CLWSC. This may be, but is not limited to, the tenant, landlord, resident, or property owner.

2-19 Customer Service Department

The Customer Service Department is the department for all inquiries regarding service, payment, line extension, complaints, etc., and is managed by the Customer Service Department Manager.

2-20 Customer Service Inspection (CSI) Certificate

A Customer Service Inspection Certificate complies with the format specified in TCEQ Form 20699. Inspections completed for customers of CLWSC should be completed on the CLWSC Customer Service Inspection Certificate. The form can be printed and completed manually or electronically through an electronic medium (tablet, laptop computer, etc.). As specified by TCEQ, the form is intended to be completed on-site while the inspection is occurring. If the form is completed electronically, the electronic device must also be on-site for proper use of this form.

2-21 Cross-Connection Representative

Cross-Connection Representative is a CLWSC representative with customer service inspection and backflow prevention knowledge designated to perform tasks pertinent to protecting the public water supply from potential contamination caused by cross-connection.

2-22 Engineering Department

The Engineering Department is the CLWSC department for inquiries regarding Standard Guidelines and Specifications, developments, projects, new construction, etc., and is managed by the Engineering Manager, or his or her authorized representatives.

2-23 Home

Home is a general term in reference to the entire private water distribution facilities of any domestic, commercial, municipal, agricultural, industrial or institutional piping system.

2-24 Premises

Premises refers to any and all areas on a water user’s property which are served or have the potential to be served by the public water system.

2-25 Private Water Supply

Private water supply is any water supply including a well on, or available to, the premises other than the CLWSC water supply. These auxiliary water supplies may include water from another purveyor's public water supply or any natural source such as a well, spring, river, pond, rain water collection etc.

2-26 Service Line

A service line is a pipe extending from a water distribution main installed in a permitted location adjacent to the property of a customer and terminating at the CLWSC's water meter for the purpose of providing water to a customer for ordinary metered water service. Service line connections also include water service connections from fire hydrants and other temporary or emergency water service lines from the CLWSC water system.

2-27 Test and Maintenance (T&M) Report

A T&M Report is a report that complies with the format specified in TCEQ Form 20700. Tests completed for customers of CLWSC should be completed on the CLWSC T&M Report. The form can be printed and completed manually or electronically through an electronic medium (tablet, laptop computer, etc.). As specified by TCEQ, the form is intended to be completed on-site while the testing is occurring. If the form is completed electronically, the electronic device must also be on-site for proper use of this form.

2-28 Water Service

Water service is the complete range of activities of CLWSC in combination with all facilities owned/operated by CLWSC to provide for the delivery of and to deliver potable water and water for fire protection in adequate quantity, quality, and pressure to the premises of the customer.

3 Responsibilities

3-1 General

The implementation of a program for the effective control of cross-connections and backflow prevention requires the full cooperation of all concerned: the state and local health agencies, the water purveyor, the Licensed Backflow Prevention Assembly Tester and the customer.

3-2 Health Agencies

Chapter 341, Subchapter C, of the Texas Health and Safety Code, prescribes some of the duties of the TCEQ. In order to properly discharge these duties, the TCEQ is authorized to develop rules and regulations governing the design of system facilities, as well as minimum acceptable operating practices necessary to protect the public health.

The “Rules and Regulations for Public Water Systems” of the TCEQ governs the design, construction, operation and maintenance of Public Water Supplies.

290.44 (h) (1) Backflow, Siphonage “No water connection from any public drinking water supply system shall be allowed to any residence or establishment where an actual or potential contamination hazard exists unless the public water facilities are protected from contamination”.

The containment air gap is sometimes impractical and instead, reliance must be placed on individual “internal” air gaps or mechanical backflow prevention devices. Under these conditions, additional protection shall be (in accordance with AWWA standards C510 and C511, and AWWA manual M14) on those establishments handling substances deleterious or hazardous to the public health. The water purveyor need not require backflow protection at the water service entrance if an adequate cross-connection control program is in effect that includes an annual inspection.

290.44 (h) (2) “No water connection from any public drinking water supply system shall be made to any condensing, cooling or industrial process or any other system of non-potable usage over which the public water supply system officials do not have sanitary control, unless said connection is made in accordance with the requirements of paragraph (1) of this subsection. Water from such systems cannot be returned to the potable water supply”.

290.44 (h) (4) “All backflow prevention assemblies that are required according to this section and associated table located in 290.47(i) of this title shall be tested upon installation by a recognized backflow prevention assembly tester and certified to be operating within specifications. Backflow prevention assemblies which are installed to provide protection against health hazards must also be tested and certified to be operating within specifications at least annually by a recognized backflow assembly tester”.

290.44 (h) (h) (B) “Gauges used in testing of backflow prevention assemblies shall be tested for accuracy annually in accordance with the University of Southern California’s Manual of Cross-Connection Control or American Water Works Association Recommended Practice for Backflow Prevention and Cross-Connection Control (Manual M-14). Public water systems shall require tester to include test gauge serial numbers on “Test and Maintenance” report forms and ensure tester have gauges tested for accuracy”.

290.44 (h) (4) (C) “A test report must be completed by the recognized backflow prevention assembly tester for each assembly tested. The signed and dated original must be supplied to the public water system for record keeping purposes.”

290.44 (h) (1) (B) (ii) “Copies of all such inspection and test reports must be obtained and kept on file by the water purveyor”.

290.44 (h) (5) “The use of a backflow prevention assembly at the service connection shall be considered as additional backflow protection and shall not negate the use of backflow protection on internal hazards as outlined and enforced by local plumbing codes”. TCEQ is the primary enforcing agency of the “Rules and Regulations” for Public Water Systems for all public water systems in the state of Texas.

3-3 Canyon Lake Water Service Company

CLWSC has the responsibility of providing its customers with drinking water in accordance with its status as a Public Water System in the state of Texas. CLWSC’s responsibility begins at its production facilities and includes all of the public distribution systems, including the service line and ends at the point of delivery to the customer’s water system which is the customer’s side of the water meter.

To ensure adequate protection in individual cases a Cross Connection Control Representative shall determine the degree of hazard to the public potable water system. When it is determined that a backflow prevention assembly is required for the protection of the public water system, the purveyor will require the customer, at the customer’s expense, to properly install an approved backflow prevention assembly at each service connection and/or at the hazard point. The backflow prevention assembly is to be tested upon installation and annually thereafter; or more often in those instances where successive inspections indicate repeated failure. The owner is required to properly repair and maintain such assembly or assemblies.

CLWSC shall maintain a current list of approved backflow prevention assembly testers and Customer Service Inspection inspectors. It shall be the responsibility of CLWSC to enforce the Cross-Connection Control regulations by directing competent inspections of installations of approved backflow prevention assemblies, in accordance with these guidelines on both new and existing facilities. A Cross-Connection Control Representative shall assure that proper records are maintained on all installations and shall initiate action as appropriate to prohibit or discontinue service to any customer who

maintains actual or potential sanitary hazards in their internal water system or whose plumbing is susceptible to cross-connections unless adequate protection against backflow is provided.

3-4 Comal County Health Department

The Comal County Environmental Health Department reviews all designs by Registered Sanitarians and Professional Engineers for on-site sewage facility construction. The department is charged with the issuing of on-site sewage facility permits, as well as the enforcement of county and state laws and regulations relating to Environmental Health. The department also responds to complaints concerning health violations in illegal waste water discharge and other nuisances. In accordance with TCEQ's Health & Safety Code, Chapter 366 "On-Site Sewage Disposal Systems", if the Comal County Environmental Health Department determines that the owner's system directly has violated this chapter or a rule adopted or order or permit issued under this chapter, the owner, not later than the 10th day after the date ofk receipt of notification of the violation shall correct the violation or enter into a contract for the maintenance of the system. Illegal waste water discharge presents an increased risk to public health through the potential contamination of the public water supply if a potential cross-connection exists. If a Cross-Connection Control Representative determines that a potential cross-connection exists, CLWSC may, at its discretion, require the customer to immediately install and test a RP in order to protect the public water supply.

3-5 Certified Backflow Prevention Assembly Tester

Backflow Prevention Assembly Testers must comply with TCEQ Occupational Licensing rules found in 30 TAC Subchapter B: Backflow Prevention Assembly Testers (§§30.51, 30.57, 30.60, 30.62).

3-5.1 Responsibility of Licensed Tester

When employed by a customer, a Licensed Backflow Prevention Assembly Tester is responsible for the test, repair, overhaul, and maintenance of backflow prevention assemblies.

3-5.2 Test and Repair

The licensed tester will be responsible for making competent inspections and repairing or overhauling backflow prevention assemblies and making reports of such repair to the customer in accordance with the T&M Report form. He shall include in the report a list of materials or replacement parts used, and he shall be equipped with and be competent to use all necessary tools, gauges, manometers, and other equipment necessary to properly test, repair and maintain backflow prevention assemblies. It will be his responsibility to assure that parts recommended by the manufacturer of the assembly being repaired are used in the repair of or replacement of parts in a backflow prevention

device. The tester shall report any malfunctioning assembly within 24 hours of the discovery of the malfunction.

3-5.3 Procedure and Equipment

It will be the licensed tester's responsibility not to change the design, material or operational characteristics of an assembly during repair or maintenance without prior approval of CLWSC. All work performed by the tester's assistants shall be performed in the tester's presence and under the tester's direct supervision. Each applicant for approval by CLWSC, as a tester of backflow prevention assemblies shall furnish evidence to show the tester has available the necessary tools and equipment to properly test such assemblies. The serial number of the tester's test kit shall be on record with CLWSC and the test gauge must be tested when purchased and annually or more frequently as required by CLWSC. The gauge must be maintaining an accuracy of ± 2% (.3 PSID). The tester shall be responsible for the competency and accuracy of all tests and reports prepared by the tester and for the workmanship by any persons under the tester's jurisdiction. In addition, gauge accuracy can only be achieved by a certified gauge Manufacturer Representative or an ABPA Certified Proctor. Neither entity can test its own gauges or the gauge of any other affiliated agency.

3-6 Certified Customer Service Inspector

Customer Service Inspectors must comply with TCEQ Occupational Licensing rules found in 30 TAC Subchapter C: Customer Service Inspectors (§§30.81, 30.87, 30.90, 30.92, 30.95).

3-6.1 Responsibility of Licensed Customer Service Inspector

When employed by a customer, a Licensed Customer Service Inspector is responsible for being familiar with the laws and regulations which govern and set standards for cross-connection control and backflow prevention within public drinking water systems, including the guidelines designated in this Program.

3-6.2 Inspections

The licensed inspector will be responsible for making competent inspections by examining the entire premises for the purpose of identifying and ensuring prevention of cross-connections, potential contaminant hazards and illegal lead materials. The inspector shall report any violations to CLWSC immediately. The inspector shall be responsible for the competency and accuracy of all inspections and certificates prepared by the inspector and for the workmanship by any persons under the inspector's jurisdiction.

3-7 Customer Responsibility

The customer has the primary responsibility of preventing contaminants from entering their potable water system or the public potable water system. The customer's responsibility starts at the point of delivery from the public potable water system, and includes the customer's complete internal water system. The customer shall install, operate, test and maintain approved backflow prevention assemblies as required by CLWSC, at the customer's expense. Following any repair, overhaul, or replacement of an assembly the customer shall have the assembly tested to ensure that it is in proper operating condition. The customer shall obtain approval from CLWSC prior to re-piping and relocation of an assembly. All work shall be performed by a licensed Backflow Assembly tester. The customer shall maintain accurate records of tests and repairs to backflow prevention. Copies, either electronic or paper, shall be maintained by the customer for a minimum of 36 months from the date of testing.

3-8 Homeowners and Property Owners Associations

Homeowners Association (HOA), Property Owners Association (POA), Board of Directors, manager or individuals acting under the authority of the Association, are to ensure that they understand and abide by the Rules and Regulation of CLWSC's Cross-Connection Control and Backflow Prevention Program. These rules and regulations are designed to give a common understanding for cross-connection control and guidelines for maintaining a safe potable water system. CLWSC is committed to providing educational tools to HOAs/POAs regarding the potential health risks that cross-connections and backflow events could cause to their community. The HOA/POA shall maintain accurate records of tests and repairs to backflow prevention assemblies and provide CLWSC with the T&M Report.

4 Customer Service Inspections & Backflow Prevention

4-1 General

The procedures outlined herein are based on the aforementioned principle of containment of the potential or actual hazard within the customer's premises. A request for any deviations or exceptions may be submitted to CLWSC's Engineering Department for review and approval. Should a customer refuse the right of entry to a Cross-Connection Control Representative for the purpose of a field survey or backflow prevention assembly inspection, CLWSC must assume maximum hazard and therefore require the highest degree of protection on such a customer's service line.

4-2 Customer Service Inspections

In accordance with the TCEQ's rules which became effective January 1, 1997, a Customer Service Inspection Certificate shall be completed prior to providing continuous water service. Customer Service Inspections are performed to ensure there are no direct connections between the public drinking water supply and a potential source of contamination or private water system that are not protected by either an approved air gap or an appropriate backflow prevention assembly as specified in this Program. They will also ensure that no pipe or pipe fitting which contains more than 8% lead, or solder which contains more than 0.2% lead, exists.

4-2.1 Records

The original Customer Service Inspection Certificate will be completed by qualified licensed Customer Service Inspector shall include all backflow prevention assemblies installed on the various cross-connection hazards and be submitted to CLWSC within 10 business days for recordation.

4-2.2 Time Schedule

Customer Service Inspections must be performed upon completion of new construction, major renovation or expansion of facilities or upon CLWSC's request at an existing service where contaminant hazards are suspected. It will be the responsibility of the customer to initiate the inspection as agreed upon in the Customer Service Inspection Agreement or once notified by CLWSC that an inspection is necessary after a field survey.

4-2.3 Field Surveys

CLWSC personnel may perform or have performed field surveys in order to identify unprotected actual or potential cross-connections within the customer's premises which were not present or not identified at the time of the initial Customer Service Inspection.

4-3 Backflow Prevention Testing

In order to assure that backflow prevention assemblies continue to operate satisfactorily, it will be necessary that tests be conducted in accordance with desired performance standards. It will be the responsibility of the customer to initiate the testing and any necessary maintenance. All tests and repairs shall be performed by a Licensed Tester.

4-3.1 Records

The original T&M Report, along with written maintenance results, will be completed by the Licensed Tester and submitted to CLWSC within 10 business days for recordation.

4-3.2 Time Schedule

All backflow prevention assemblies must be tested at the time of installation, at the time of any repair or relocation and at the completion of each year of service.

4-3.3 Testing by CLWSC

CLWSC personnel may perform or have performed periodic tests on backflow prevention assemblies at random locations, as authorized in the latest edition of the Uniform Plumbing Code, so as to ensure that acceptable tests are being followed by the Licensed Tester. Additionally, assemblies will be randomly selected and tagged in a manner that will determine if the assembly has been tested as required.

4-4 Type of Protection Required

4-4.1 Principle

It is recognized that cross-connections vary widely in degree of hazard. The degree of protection and the type of protection deemed necessary to prevent backflow and possible contamination of CLWSC's distribution system varies as well. The protection afforded by an assembly depends upon its type, specific application, installation, testing and maintenance.

4-4.2 Air Gap Separation

An air gap installation separating CLWSC's potable water supply from the customer's internal water system is acceptable in all situations listed in these procedures so long as it is properly maintained. Initial installations of this type that were originally made in accordance with this Program may be changed subsequently. Since these separations are easily eliminated or by-passed, it shall be the prerogative of CLWSC to perform field surveys and to explicitly specify the additional protection of a mechanical assembly. This would result, for example, in the case of a repeated violation of air gap separation standards. The air gap separation must be located as close as practical to the water meter and normally all piping between the meter and the receiving tank shall be entirely visible. In the instance in which underground piping is capped to create an air gap, the

end of the capped lines must be set in a valve or meter box. Air gaps are required by CLWSC to be accessible to a Cross-Connection Control Representative for inspection on an annual basis in accordance with TCEQ recommendations.

4-4.3 Single Check Valve

The single check valve is not considered an approved backflow prevention assembly and may be used in limited instances such as directional control.

4-4.4 Criteria

The selection of an appropriate backflow prevention assembly depends upon the degree of hazard involved and will be based on the following general criteria:

a) whether or not the assembly could be subject to backpressure due to the customer's internal pumping pressures or elevation differentials

b) the nature of the contaminating material under the most critical circumstances

c) the extent to which additions may be made to the plumbing systems at a later date which could affect the initial selection of the assembly

d) the frequency with which the water supply could be exposed to a hazardous condition

e) the degree of required protection of the water supply as provided by the local plumbing code, TCEQ, or other regulatory agency

CLWSC shall retain the final decision in individual cases, and may obtain advice and recommendations of the TCEQ, consultants, or other qualified cross-connection control and backflow prevention specialists. It is essential that all types of establishments listed below provide for the containment of contamination within their premises either by air gap separation, between the meter and the first tap, or by having each of the internal plumbing facilities properly air gapped.

If the containment air gap is impractical and reliance is instead placed on the individual internal air gap or vacuum breaker, CLWSC has the prerogative of requiring additional protection in the form of either a reduced pressure principle assembly on establishments handling substances deleterious to public health, or a double check valve assembly backflow prevention assembly on those handling substances which, if backflow occurred would cause the potable water to be aesthetically objectionable.

In limited instances provisions for total containment backflow protection shall be reviewed to allow the backflow prevention assembly to be installed on an internal branch line. An example of internal containment backflow protection would be a single combination fire and domestic water service from the public water main. Domestic backflow protection would be installed immediately after the fire line tee for containment

of the fire service system. Additionally the fire line shall be provided with backflow protection in accordance with section 5-3 Backflow Protection for Fire Lines.

4-4.5 Selection of Protection Assembly

The type of assembly selected is based on the degree of hazard determined. The degree of hazard will be determined by a Cross-Connection Control Representative. The determination will primarily be based on the TCEQ's Rules and Regulations for Public Water Systems §290.47(f), Assessment of Hazard and Selection of Assemblies (below). Each instance shall be reviewed individually and may include on-site inspection of the establishment by a Cross-Connection Control Representative.

4-4.5.1 Assessment of Hazards and Selection of Assemblies

Premises Isolation: Description of Premises	**Assessment of Hazard**	**Required Assembly**
Aircraft and missile plants	Health	RP or AG
Animal feedlot	Health	RP or AG
Automotive plant	Health	RP or AG
Brewery	Health	RP or AG
Cannery, packing house, rendering plant	Health	RP or AG
Commercial car wash	Health	RP or AG
Commercial laundry	Health	RP or AG
Cold storage facility	Health	RP or AG
Connection to sewer pipe	Health	AG
Dairy	Health	RP or AG
Docks and dockside facility	Health	RP or AG
Dye works	Health	RP or AG
Food and beverage processing plant	Health	RP or AG
Hospitals, morgues, mortuaries, medical clinics, veterinary clinics, autopsy facilities, sanitariums, medical labs	Health	RP or AG
Metal manufacturing, cleaning, processing and fabrication plants	Health	RP or AG
Microchip fabrication facilities	Health	RP or AG
Paper and paper products plant	Health	RP or AG
Petroleum processing or storage facilities	Health	RP or AG
Photo or film processing	Health	RP or AG
Pleasure boat marinas	Health	RP or AG
Private/Individual/Unmonitored Well	Health	RP or AG
Reclaimed water systems	Health	RP or AG
Restricted, classified or closed facilities	Health	RP or AG
Rubber plants	Health	RP or AG
Sewage lift stations	Health	RP or AG
Sewage treatment plants	Health	RP or AG
Slaughter house	Health	RP or AG
Steam plants	Health	RP or AG
Elevation differences where the highest outlet is 80 feet or more above the meter	Health	RP or AG

Internal Protection: Description of Cross-Connection	Assessment of Hazard	Required Assembly
Aspirators	Non-health†	AVB
Aspirator (medical)	Health	AVB or PVB
Autoclaves	Health	RP
Autopsy and mortuary equipment	Health	AVB or PVB
Bedpan washers	Health	AVB or PVB
Connection to industrial fluid systems	Health	RP
Connection to plating tanks	Health	RP
Connection to salt-water cooling system	Health	RP
Connection to sewer pipe	Health	AG
Cooling towers with chemical additives	Health	AG
Cuspidors	Health	AVB or PVB
Degreasing equipment	Non-health†	DCVA
Domestic space-heating boiler	Non-health†	RP
Dye vats or machines	Health	RP
Fire-fighting system (toxic liquid foam)	Health	RP
Flexible shower heads	Non-health†	AVB or PVB
Heating element commercial	Non-health†	RP
Heating element domestic	Non-health†	DCVA
Hose bib	Non-health†	AVB
Irrigation Systems w/chemical additives	Health	RP
Irrigation System w/o chemical additives	Non-health†	DCVA or PVB
Kitchen equipment commercial	Non-health†	AVB
Lab bench equipment	Non-health† or Health	AVB or PVB
Ornamental fountains	Health	AVB or PVB
Swimming pools private	Non-health†	PVB or AG
Swimming pools public	Non-health†	RP or AG
Sewage pump	Health	AG
Sewage ejectors	Health	AG
Shampoo basins	Non-health†	AVB
Specimen tanks	Health	AVB or PVB
Steam generators	Non-health†	RP
Steam tables	Non-health†	AVB
Sterilizers	Health	RP
Tank vats or other vessels containing toxic substances	Health	RP
Trap primers	Health	AG
Vending machines	Non-health†	RP or PVB
Watering troughs	Health	AG or PVB

†*Where a greater hazard exists (due to toxicity or other potential health impact) additional area protection with RP is required.*

4-5 Installation

The backflow prevention assemblies and air gap separation shall be installed in accordance with CLWSC Standard Specification and Standard Details.

4-5.1 Authorized Installer

Backflow Preventions Assemblies can be installed by:

a) A licensed plumber working under a master plumber's license, if the assembly is not on a fire-suppression system.

b) A licensed irrigator, if the assembly is on an irrigation system.

c) A water operator, if the assembly is on the water-distribution system and not on an irrigation system.

d) A licensed plumber working for a fire line contracting company insured and regulated by Texas State Board of Insurance, if the assembly is on a fire line.

e) Employed as maintenance personnel for the property, if the assembly is a replacement and not part of the fire-suppression system.

f) A licensed water treatment specialist, if the assembly is on equipment for water treatment.

g) A homeowner, if the assembly is on their homestead.

4-5.2 Size of Device

This Program does not regulate the size of backflow prevention assemblies. However, the containment backflow prevention assemblies required will generally be the same size as the meter requirement stipulated by CLWSC's Engineering Department. Backflow Prevention Assemblies must be sized in accordance with local plumbing code requirements, the only exception being assemblies on irrigation systems.

4-5.3 By-pass Policy

At a location which continuous water service is a necessity, provisions should be made for a by-pass around the mainline backflow preventer since it is necessary to turn the water off as part of the testing process. A by-pass installed around an approved backflow prevention assembly must also include a backflow preventer of the same type as the main service line backflow preventer. The backflow prevention assembly on the by-pass must also be tested upon installation and on an annual basis thereafter. Though it need not be of the same size, it must be installed in a similar fashion to the service line assembly.

4-6 Non-Compliance

In any case of non-compliance or violation of this Program, CLWSC shall have the right to disconnect or discontinue service to a non-complying customer subject to proper notice to the customer. Customers are subject to basic meter fees and being sent to collections for non-payment even when service is disconnect for non-compliance.

4-6.1 Rectifying Non-Compliance

CLWSC shall restore or continue service to a non-complying customer once the violation has been correct in accordance with this Program.

4-7 Costs

All costs entailed in this Program are to be borne by the customer. This includes but is not limited to the Customer Service Inspection, initial purchase of the backflow preventer, its proper installation, testing and maintenance. Advisory assistance may be requested at any time from CLWSC.

5 Procedures

5-1 General

The procedures outlined in this section of the Program are intended to support the procedures as specified in section 4 of this Program. This section does not negate any procedures provided in any other section of this program, but rather elaborate CLWSC procedures and processes to ensure adequate protection of potential or actual cross-connections.

5-2 Private Water Supply

No cross-connection between the public drinking water supply and a private water system is permitted. These potential threats to the public drinking water supply shall be eliminated at the service connection by the installation of an approved air gap or a reduced pressure principle assembly. Upon installation and testing of the approved backflow prevention assembly or air gap arrangement, a record of the installation will be made by CLWSC.

5-2.1 Procedures for New Service with Existing Private Well

Since private wells are not constructed with the degree of sanitary protection required for public water supplies and most private wells are not routinely tested for coliform bacteria and lack continuous chlorination; any customer with a private well must use one of the backflow prevention methods described herein to adequately protect the potable water system.

5-2.1.1 Customer Service Department

The customer's application for water service is submitted requesting a meter installation and indicates that there is an existing home on the premises. The requirement for installation of backflow prevention assemblies by a new customer of CLWSC shall be issued in conjunction with their request for water service from the Customer Service department. The application shall indicate what type of backflow prevention will be used and the Customer Service Inspection Agreement must be completed indicating that the Customer Service Inspection will be performed within 30 days of the meter being set.

5-2.1.2 Private Water Supply Backflow Prevention

a) Approved air gap separation provided by an unobstructed vertical, physical separation between any pipes distributing CLWSC water and any pipes distributing water from the private water supply.

b) Reduced Pressure Principle backflow prevention assembly installed at the meter.

5-2.1.3 Customer Responsibility

The customer shall provide one of the approved methods for backflow protection described below as a condition for service. Should a customer fail to have backflow prevention in place prior to the installation of a water meter; CLWSC shall refuse service, until the customer complies with the requirements of this Program.

a) Customers electing to install a reduced pressure principle backflow assembly at the meter will be required to have the assembly installed and tested by a licensed backflow prevention assembly tester and submit the T&M Report prior to the meter being set. In addition to having the Customer Service Inspection performed within 30 days of installation of the meter.

b) Customers electing to install an air gap separation must coordinate to have their CSI Inspection performed at the same time the meter is set and have the air gap separation inspected and approved by a Customer Service Inspector.

5-3 Fire Lines

Fire flow meter installation will be looked at upon individual review in the interest of protecting the public's potable water supply from possible contamination, effective January 1, 2009. In 2009 CLWSC began requiring backflow protection on all new fire line installations. As in other situations encountered in cross-connection control, the degree of backflow protection necessary for a particular fire protection system will depend on specific conditions present. Pressure losses across backflow prevention assemblies must be incorporated in the design or redesign of the fire protection system. The head loss factor is particularly important when redesigning existing fire protection systems.

All backflow prevention assemblies shall be Underwriters/University of Southern California's Foundation for Cross-Connection Control and Hydraulic Research Laboratory listed. Backflow prevention assemblies detailed herein shall be constructed in accordance with CLWSC.

Stagnant Water Rule: In the interest of protecting public health any water service that remains in a static condition from the property line to an ending point that exceeds 100 linear feet shall have the appropriate backflow prevention device installed within 10 feet of the water meter.

5-3.1 Fire Line Backflow Prevention

TYPE OF FIRELINE	REQUIRED PROTECTION
A. Fire line with no chemical additive and no additional water supply less than 100 total linear feet of fire system pipe footage to the most remote head	DCVA or RP
B. Fire line with on chemical additive and no additional water supply greater than 100 total linear feet of fire system pipe footage to the most remote head*	DCVA or RP
C. Fire line with fire hydrant, no chemical additive and no additional water supply greater than 100 total linear feet of fire system pipe footage to the most remote head*	DCVA or RP
D. Fire line with fire hydrant, no chemical additive and no additional water supply less than 100 total linear feet of fire system pipe footage to the most remote head	DCVA or RP
E. Fire protection system utilizing chemical additives**	Air Gap or RP
F. Fire protection system with access to an auxiliary water supply**	Air Gap or RP
G. Fire Department Connection	DCVA or RP

**Systems under 50% or more renovations and those systems installing booster pumps shall include provisions to protect the potable water supply from stagnant water with approved backflow protection.*

***Systems with chemical loops and/or foam injection shall require a reduced pressure principle backflow prevention assembly at the loop or foam injection point however, an expansion chamber or relief valve will have to be installed to compensate for thermal expansion in accordance with fire codes. The installation of reduced pressure assemblies for containment backflow protection on fire lines should be avoided and installed only in situations where chemical injection occurs prior to any taps or tees.*

****Existing chemical loops and systems with access to an auxiliary water supply shall be retrofitted with approved backflow protection.*

Note: A project that reflects ingress/egress will be looked at as right of way when determining the 100' stagnant water rule on fire line placement. Line demarcation will be determined upon individual review.

5-3.2 Tri-water System or Circulated Closed-Loop System

"Tri-water" or Circulated closed-loop system will not be permitted, i.e., combination fire line, heating or cooling.

5-3.3 Fire Line Flow Testing and Assembly Tear-down

CLWSC requires backflow prevention assemblies installed on fire lines to be completely disassembled a minimum of every five years if full flow testing cannot be accomplished. The assembly shall be cleaned and rubber parts replaced when deemed necessary by the backflow prevention tester and or manufacturer. Assemblies should be tagged by the tester to indicate the last tear down date. A Cross-Connection Control Representative shall track individual assemblies over a five year period to ensure provisions are met as established above.

Exception: If within a five year period, the assembly has been completely disassembled and cleaned (repair parts replaced as necessary), the five year tear down period will begin at that time. In the annual testing process a backflow prevention assembly found to be malfunctioning shall be completely torn down and either repaired, rebuilt, or replaced.

5-3.4 Fire Line Backflow Prevention Assembly Testing

The T&M Report used by fire line testers shall include statements which indicate the system has been placed back in operation upon completion of the test. Additionally, the T&M Report shall have a statement for the tester to check off which indicates a flow test was performed within the past twelve (12) months.

The tester will attach full flow documentation to the T&M Report when submitted to CLWSC.

5-3.5 Fire Line Backflow Prevention Approval

Backflow preventer approval shall be obtained from the CLWSC Engineering Department as part of the plan review process, such approval must be obtained prior to installation. The installation shall conform to this Program and CLWSC Standard Specification and Standard Details for backflow preventer installation.

5-4 Fire Hydrant Meter

Meters to be connected temporarily to a fire hydrant or other appurtenance belonging to CLWSC during construction or other instances must be inspected prior to installation for backflow prevention requirements by a Cross-Connection Control Representative.

5-4.1 Procedures for Fire Hydrant Meters

All water hauling equipment and or potable water mixing tanks using water from fire hydrants or any other type outlet must use one of the backflow prevention methods described herein to adequately protect the potable water system.

5-4.1.1 Customer Service Department

A Bulk Meter Application will be submitted to the Customer Service Department requesting a fire hydrant meter. The application shall indicate what type of equipment they will be using to haul water and what type of backflow prevention will be used.

5-4.1.2 Fire Hydrant Meter Backflow Prevention

a) Approved air gap separation provided by a metallic pipe permanently installed on the water transporting vehicle which will serve as a fill line and also include a hose connection to the potable water outlet

b) Approved air gap separation installed on the outlet side of the fire hydrant meter

c) Reduced Pressure Principle backflow prevention assembly installed at the fire hydrant meter

d) Reduced Pressure Principle backflow prevention assembly permanently installed on the water transporting vehicle

5-4.1.3 Customer Responsibility

The customer shall provide one of the approved methods for backflow protection described below as a condition for service. Should a customer fail to have backflow prevention in place prior to the installation of a fire hydrant meter; CLWSC shall refuse service, until the customer complies with the requirements of this Program.

a) Customers electing to permanently install an air gap separation on water transporting vehicles must have the air gap separation inspected and approved by a Cross-Connection Control Representative prior to meter installation.

b) Customers electing to install an air gap separation on the outlet side of the fire hydrant meter must have the air gap separation inspected and approved by a Cross-Connection Control Representative at the time the meter is set.

c) Customers electing to install a reduced pressure principle backflow assembly at the fire hydrant meter will be required to have the assembly tested by a licensed backflow prevention assembly tester at the time the meter is set.

d) Customers electing to use a reduced pressure principle backflow assembly permanently installed on the water transporting vehicle will be required to t have the assembly tested by a licensed backflow prevention assembly tested annually and T&M Report submitted to CLWSC prior to meter installation.

5-5 Procedures on New Facilities

The requirement for installation of backflow prevention assemblies by a new customer of CLWSC shall be issued in conjunction with their request for water service from the Customer Service department. Customer Service Inspection of the premises and some discussion with the owner or their representative may be necessary to determine actual or potential hazards and the resulting backflow assembly requirement.

5-5.1 Water Service Application

The customer's application for water service shall include a mechanical layout or general provisions as outlined in this Program. If the size and type of assembly is not shown CLWSC may so specify. Upon installation and testing of the approved backflow prevention assembly or air gap arrangement, a record of the installation will be made by CLWSC.

5-5.2 Customer Service Inspections

In accordance with the TCEQ's rules which became effective January 1, 1997, a Customer Service Inspection Certificate shall be completed prior to providing continuous water service to new construction, on any existing service when the water purveyor has reason to believe that cross-connections or other unacceptable plumbing practices exists, or after a material improvement, correction or addition to the private plumbing facilities. CLWSC will require a Customer Service Inspection Certificate to be completed by a qualified licensed Customer Service Inspector prior to CLWSC providing continuous water service. The inspection certificate shall include all backflow prevention assemblies installed on the various cross-connection hazards and submitted to CLWSC within 10 business days for recordation.

5-6 Procedures on Existing Facilities

In the case of an existing service, the following general procedures will be utilized.

5-6.1 Inspection Procedure-Field Survey

After complete premises inspection by a Cross-Connection Control Representative, a notice advising the customer of backflow prevention assembly requirements will be issued.

5-6.2 Customer Service Department

Any customer request for a change on a commercial service or on a residential service where the change is due to an irrigation system, well or other potential cross-connection will be handled by the Customer Service Department. Each request will be routed by the Customer Service Department to a Cross-Connection Control Representative to ensure compliance with this Program.

5-7 Reclaimed Water System

5-7.1 Procedures for Reclaimed Water System

Reclaimed water is treated sewage effluent (wastewater) that undergoes further treatment to improve its quality. Reclaimed water may be utilized in landscape irrigation systems, but requires safeguards to be put in place and maintained at all times to ensure public health and safety. In some areas of the CLWSC system, reclaimed water is available to customers for landscape irrigation purposes only. Although reclaimed water systems are a tremendous conservation resource, they do pose risks if they are improperly installed and/or maintained.

5-7.1.1 Reclaimed Water System Backflow Prevention

Reclaimed water is non-potable, so a reclaimed water system must be protected by an RP installed at the domestic meter. The installation shall conform to this Program and CLWSC Standard Specification and Standard Details for backflow preventer installation.

5-7.1.2 Customer Responsibility

a) Customers must install a reduced pressure principle backflow assembly at the domestic meter and have tested by a licensed backflow prevention assembly tester and submit the T&M Report prior to the reclaim meter being set. In addition to having the Customer Service Inspection performed upon completion of construction.

b) Customers are required to post signs specifying the use of reclaimed water. Signs must be a minimum of an eight inch by eight inch, in English and Spanish, prominently posted on/in the area that is being irrigated, that reads: "RECLAIMED WATER—DO NOT DRINK" and "AGUA DE RECUPERACIÓN—NO BEBER."

c) There should be no locations on the site where ponding could occur or where reclaimed water overspray could contact any human, food or drinking areas. The irrigation system should not spray water across property lines that do not belong to the irrigation system's owner. Standard hose bibs should not be used on the reclaim water system. All reclaimed water piping, valve, meters, control and equipment should be installed using purple components and clearly labeled. Reclaimed water lines should be separated from potable

water lines, following the same requirements for the separation of potable water lines from sewage lines.

5-8 Irrigation System with On-Site Sewage Facility

5-8.1 On-Site Sewage Facility (OSSF)

An On-Site Sewage Facility is a treatment facility which is used only for the disposal of sewage produced on the site which the system is located. Aerobic Septic Systems and Conventional Septic Systems are classified as On-Site Sewage Facilities and are typically located at business and residential facilities were public sewage is not available.

5-8.2 Irrigation System with On-Site Sewage Facility Backflow Prevention

Any property that is serviced by an On-Site Sewage Facility and has a landscape irrigation system or sprinkler system is considered a health hazard, and must be protected by a reduced pressure principle assembly.

a) §344.50(c) Backflow prevention devices used in applications designated as health hazards must be tested upon installation and annually thereafter.

b) §344.50(d)(2) “If an irrigation system is designed or installed on a property that is served by an on-site sewage facility,” “any connections using a private or public potable water source must be connected to the water source through a reduced pressure principle backflow prevention assembly”.

c) §344.52(c) the backflow prevention device must be “tested prior to being placed in service and the test results provided to the local water purveyor and the irrigation system's owner or owner's representative within ten business days of testing of the backflow prevention device”.

5-8.3 Irrigation System with OSSF Grandfather Clause

Before 2009, a Double-Check Valve Assembly was allowed on irrigation systems installed on sites that also had an OSSF. As a result, there are currently installed irrigation systems that do not have the correct backflow prevention assembly. Systems that were installed before 2009 are essentially grandfathered until they can no longer be repaired in line and must be replaced; it must be upgraded to the required RP. Since 2009, those installing irrigation systems on sites that also have an OSSF must be aware of the change in the required backflow prevention and install the RP. (TCEQ RG-478)

a) §344.52(c) “If an irrigation system is connected to a potable water supply and requires major maintenance, alteration, repair, or service, the system must be connected to the potable water supply through an approved, properly installed backflow prevention method as defined in this title before any major maintenance, alteration, repair, or service is performed.”

Appendices

Appendix I Customer Service Inspection Agreement

Customer Service Inspection Agreement

I. PURPOSE. CANYON LAKE WATER SERVICE COMPANY (CLWSC) is responsible for protecting the drinking water supply from contamination or pollution which could result from improper private water distribution system construction or configuration. The purpose of this Customer Service Inspection Agreement is to notify each customer of the restrictions which are in place to provide this protection. The utility enforces these restrictions to ensure the public health and welfare. Each customer must sign this agreement before CLWSC will begin service.

II. SERVICE AGREEMENT. The following are the terms of the Customer Service Inspection Agreement between

CANYON LAKE WATER SERVICE COMPANY and _____
(the Customer).

A. CLWSC will maintain a copy of this agreement as long as the Customer and/or the premises are connected to the Water System.
B. The Customer shall allow his property to be inspected for possible cross-connections and other potential contamination hazards. These inspections shall be conducted by CLWSC or its designated agent prior to initiating new water service; when there is reason to believe that cross-connections or other potential contamination hazards exist; or after any major changes to the private water distribution facilities. The inspections shall be conducted during CLWSC 's normal business hours.
C. The Customer shall, at his expense, have a Customer Service Inspection (CSI) performed upon completion of new construction, major renovation or expansion of facilities or upon CLWSC's request at an existing service where contaminant hazards are suspected. The original inspection certificate shall be provided to CLWSC within 10 business days of the CSI.
D. CLWSC shall notify the Customer in writing of any cross-connection or other potential contamination hazard which has been identified during the initial CSI or the periodic re-inspection.
E. The Customer shall immediately remove or adequately isolate any potential cross-connections or other potential contamination hazards on his premises.
F. The Customer shall, at his expense, properly install, test, and maintain any backflow prevention device required by CLWSC and the Texas Commission on Environmental Quality. The original report of all test and maintenance records shall be provided to CLWSC within 10 business days of the test.

III. ENFORCEMENT. If the Customer fails to comply with the terms of the Customer Service Inspection Agreement, CLWSC shall, at its option, terminate service. Any expenses associated with the enforcement of this agreement shall be billed to the Customer.

Service Address: _____

CSI DUE DATE: _____
If the due date is not indicated CSI will be due 30 days from the date of this agreement.

CUSTOMER'S SIGNATURE: _____DATE:_____

Canyon Lake Water Service Company
P.O. 1742 Canyon Lake, Texas 78133
(830) 964-2166 / Fax (830) 964-2779
www.clwsc.com / dispatch@clwsc.com

Appendix II Customer Service Inspection Agreement-Commercial

CLWSC

Customer Service Inspection Agreement-Commercial

I. PURPOSE. CANYON LAKE WATER SERVICE COMPANY (CLWSC) is responsible for protecting the drinking water supply from contamination or pollution which could result from improper private water distribution system construction or configuration. The purpose of this Customer Service Inspection Agreement is to notify each customer of the restrictions which are in place to provide this protection. The utility enforces these restrictions to ensure the public health and welfare. Each customer must sign this agreement before CLWSC will begin service.

II. SERVICE AGREEMENT. The following are the terms of the Customer Service Inspection Agreement between

CANYON LAKE WATER SERVICE COMPANY and _____
(the Customer).

A. CLWSC will maintain a copy of this agreement as long as the Customer and/or the premises are connected to the Water System.
B. The Customer shall allow his property to be inspected for possible cross-connections and other potential contamination hazards. These inspections shall be conducted by CLWSC or its designated agent prior to initiating new water service; when there is reason to believe that cross-connections or other potential contamination hazards exist; or after any major changes to the private water distribution facilities. The inspections shall be conducted during CLWSC 's normal business hours.
C. The Customer shall, at his expense, have a Customer Service Inspection (CSI) performed upon completion of new construction, major renovation or expansion of facilities or upon CLWSC's request at an existing service where contaminant hazards are suspected. The original inspection certificate shall be provided to CLWSC within 10 business days of the CSI.
D. CLWSC shall notify the Customer in writing of any cross-connection or other potential contamination hazard which has been identified during the initial CSI or the periodic re-inspection.
E. The Customer shall immediately remove or adequately isolate any potential cross-connections or other potential contamination hazards on his premises.
F. The Customer shall, at his expense, properly install, test, and maintain any backflow prevention device required by CLWSC and the Texas Commission on Environmental Quality. The original report of all test and maintenance records shall be provided to CLWSC within 10 business days of the test.

III. ENFORCEMENT. If the Customer fails to comply with the terms of the Customer Service Inspection Agreement, CLWSC shall, at its option, terminate service. Any expenses associated with the enforcement of this agreement shall be billed to the Customer.

IV. BACKFLOW PREVENTION. In accordance with the CLWSC Cross-Connection Control and Backflow Prevention Program, Potential Cross-Connection and Backflow Prevention Assembly:

☐ Fire Line with RPZ ☐ Fire Line with DCVA ☐ Fire Line Bypass with _____

☐ Well with RPZ ☐ Well with Air Gap

☐ Irrigation with RPZ (OSSF) ☐ Irrigation with DCVA (No OSSF)

☐ Other _____ with: ☐ RPZ ☐ DCVA ☐ PVB ☐ RPZ-Detector ☐ DCVA-Detector

☐ Other _____ with: ☐ RPZ ☐ DCVA ☐ PVB ☐ RPZ-Detector ☐ DCVA-Detector

Service Address: _____

CSI DUE DATE: _____
If the due date is not indicated CSI will be due 30 days from the date of this agreement.

CUSTOMER'S SIGNATURE: _____DATE:_____

Canyon Lake Water Service Company
P.O. 1742 Canyon Lake, Texas 78133
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www.clwsc.com / dispatch@clwsc.com

Appendix III Customer Service Inspection Certificate

Customer Service Inspection Certificate

CLWSC use:
Name of PWS _____ PWS ID No. _____

Address of Service _____ Date of Inspection _____

Customer Name _____ Contact No. _____

Reason for Inspection:	New Construction.....	☐
	Existing service where contaminant hazards are suspected.....	☐
	Major renovation or expansion of distribution facilities.....	☐

I,_____, upon inspection of the private water distribution facilities connected to the aforementioned public water supply do herby certify that, to the best of my knowledge:	Compliance	Non–Compliance
1. No direct connection between the public drinking water supply and a potential source of contamination exists. Potential sources of contamination are isolated from the public water system by an air gap or an appropriate backflow prevention assembly in accordance with Commission regulations.	☐	☐
2. No cross-connection between the public drinking water supply and a private water system exists. Where an actual air gap is not maintained between the public water supply and a private water supply, an approved reduced pressure principle backflow prevention assembly is properly installed and a service agreement exists for annual inspection and testing by a certified backflow prevention assembly tester.	☐	☐
3. No connection exists which would allow the return of water used for condensing, cooling or industrial processes back to the public water supply.	☐	☐
4. No pipe or pipe fitting which contains more than 8.0% lead exists in private water distribution facilities installed on or after July 1, 1988 and prior to January 4, 2014.	☐	☐
5. Plumbing installed after January 4, 2014 bears the expected labeling indicating ≤0.25% lead content. If not properly labeled, please provide written comment.	☐	☐
6. No solder or flux which contains more than 0.2% lead exists in private water distribution facilities installed on or after July 1, 1988.	☐	☐

I further certify that the following materials were used in the installation of the private water distribution facilities:

Service Lines:	☐ Lead	☐ Copper	☐ PVC	☐ Other _____
Solder:	☐ Lead	☐ Lead Free	☐ Solvent Weld	☐ Other _____

I recognize that this document shall become a permanent record of the aforementioned Public Water System and that I am legally responsible for the validity of the information I have provided.

Certificate shall include all backflow prevention assemblies installed on the various cross-connection hazards present:

Potential Cross-Connection Hazards:	☐ On-Site Sewage	☐ Sprinkler System	☐ Well/Private Water Supply
	☐ Swimming Pool	☐ Fire Line	☐ Other Hazards Present _____
Backflow Preventer(s):	☐ RPZ	☐ DCV	☐ Other Assembly _____

Inspector Title_____ Registration Type/Number _____

Signature of Inspector_____ Contact Number _____

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Appendix IV Backflow Prevention Assembly Test and Maintenance Report

CLWSC

Backflow Prevention Assembly Test and Maintenance Report

CLWSC use:
Name of PWS _____ PWS ID No _____

The following form must be completed for each assembly test. A signed and dated original must be submitted to the public water supplier for record keeping purposes.

Address of Service _____ Date of Inspection_____

Customer Name_____ Contact Number_____

The backflow prevention assembly detailed below has been tested and maintained as required by the commission regulations and certified to be operating within acceptable parameters.

Type of Assembly

- ☐ Reduced Pressure Principle
- ☐ Double Check Valve
- ☐ Pressure Vacuum Breaker
- ☐ Reduced Pressure Principle-Detector
- ☐ Double Check Valve-Detector
- ☐ Spill-Resistant Pressure Vacuum Breaker

Manufacture _____ Size_____
Model Number _____Located At_____
Serial Number _____

Is the assembly installed in accordance with manufacture recommendations and CLWSC standards? Yes ☐ No ☐

	Reduced Pressure Principle Assembly			Pressure Vacuum Breaker	
	Double Check Valve Assembly				
	1st Check	2nd Check	Relief Valve	Air Inlet	Check Valve
Initial Test	Held at _____ psid Closed Tight Leak	Held at _____ psid Closed Tight Leak	Open at _____ psid Did not open	Open at _____ psid Did not open	Held at _____ psid Leaked
Repairs and Materials					
Test After Repair	Held at _____ psid Closed Tight Leak	Held at _____ psid Closed Tight Leak	Open at _____ psid Did not open	Open at _____ psid Did not open	Held at _____ psid

Test gauge used: Make/Model_____ SN _____ Calibration Date_____
Remarks:_____
The above is certified to be true at the time of testing.
Firm Name _____ Certified Tester _____
Firm Address _____ Certified Tester No. _____
Firm Contact No_____

Signature of Certified Tester _____

*TEST RECORDS MUST BE KEPT FOR AT LEAST THREE YEARS
** USE ONLY MANUFACTURED'S REPLACEMENT PARTS

Canyon Lake Water Service Company
P.O. 1742 Canyon Lake, Texas 78133
(830) 964-2166 / Fax (830) 964-2779
www.clwsc.com / dispatch@clwsc.com

Appendix V Fire Line Backflow Prevention Assembly Test and Maintenance Report

Fire Line Backflow Prevention Assembly Test and Maintenance Report

CLWSC use:
Name of PWS _____ PWS ID No _____

The following form must be completed for each assembly test. A signed and dated original must be submitted to the public water supplier for record keeping purposes.

Address of Service _____ Date of Inspection_____

Customer Name_____ Contact Number_____

The backflow prevention assembly detailed below has been tested and maintained as required by the commission regulations and certified to be operating within acceptable parameters.

Type of Assembly

- ☐ Reduced Pressure Principle
- ☐ Double Check Valve
- ☐ Pressure Vacuum Breaker
- ☐ Reduced Pressure Principle-Detector
- ☐ Double Check Valve-Detector
- ☐ Spill-Resistant Pressure Vacuum Breaker

Manufacture _____ Size_____

Model Number _____Located At_____

Serial Number _____

Flow test was performed within the past twelve months and full flow documentation is attached? Yes ☐ No ☐

The system has been placed back in operation upon completion of testing. Yes ☐ No ☐

Is the assembly installed in accordance with manufacture recommendations and CLWSC standards? Yes ☐ No ☐

	Reduced Pressure Principle Assembly			Pressure Vacuum Breaker	
	Double Check Valve Assembly				
	1st Check	2nd Check	Relief Valve	Air Inlet	Check Valve
Initial Test	Held at _____ psid Closed Tight Leak	Held at _____ psid Closed Tight Leak	Open at _____ psid Did not open	Open at _____ psid Did not open	Held at _____ psid Leaked
Repairs and Materials					
Test After Repair	Held at _____ psid Closed Tight Leak	Held at _____ psid Closed Tight Leak	Open at _____ psid Did not open	Open at _____ psid Did not open	Held at _____ psid

Test gauge used: Make/Model_____ SN _____ Calibration Date_____

Remarks:_____

The above is certified to be true at the time of testing.

Firm Name _____ Certified Tester _____

Firm Address _____ Certified Tester No. _____

Firm Contact No_____

Signature of Certified Tester _____

*TEST RECORDS MUST BE KEPT FOR AT LEAST THREE YEARS

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