

ORDINANCE NO. 2001-38

AN ORDINANCE ESTABLISHING A CROSS CONNECTION CONTROL AND BACKFLOW PREVENTION PROGRAM FOR THE CITY OF BOERNE POTABLE WATER DISTRIBUTION SYSTEM

WHEREAS, the City of Boerne (the "City") seeks to protect the public potable water distribution system from contamination or pollution due to the backflow of contaminants or pollutants through water service connections, and;

WHEREAS, in accordance with requirements of the Texas Natural Resource Conservation Commission's "Rules and Regulations of Public Water Systems", 30 TAC 290.38 et. Seq., as amended, the Texas Health and Safety code, §§ 341.031 et. Seq., as amended, and the Federal Safe Drinking Water Act, 42 USCA § 3000f et. Seq., as amended:

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BOERNE, TEXAS:

That the City Council hereby adopts a Cross Connection Control and Backflow Prevention Program for the City of Boerne, Texas.

I. Scope

The City of Boerne, Texas Cross Connection Control and Backflow Prevention Ordinance is implemented to meet the requirements of the Texas Natural Resource Conservation Commission's "Rules and Regulations for Public Water Systems," 30 TAC 290.38 et. seq., as amended, the Texas Health and Safety code, §§ 341.031 et. seq., as amended, and the Federal Safe Drinking Water Act, 42 USCA § 300f et. seq., as amended.

II. Purpose

The purpose of this ordinance is to:

- A. Protect the public potable water supply of Boerne, Texas from the possibility of contamination or pollution by isolating within the customer's internal distribution system(s) or the customer's private water system(s) such contaminants or pollutants that could backflow into the public water system; and,
- B. Promote the elimination or control of existing cross connections, actual or potential, between the customer's water system(s) and non-potable water system(s), plumbing fixtures, and industrial piping systems; and,
- C. Provide for the maintenance of a continuing program of cross-connection control that will systematically and effectively prevent the contamination or pollution of all potable water systems.

The Department of Public Works shall be responsible for the protection of the

public potable water distribution system from contamination or pollution due to the backflow of contaminants or pollutants through any water service connection.

If, in the judgment of the Director of Public Works, 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 public water system, the Director of Public Works or designated agent shall give notice in writing to said customer to install such an approved backflow-prevention assembly(s) at specific location(s) on his/her premises. The customer shall immediately install such approved assembly(s) at his/her own expense; and, failure, refusal, or inability on the part of the customer to install, have tested, and maintain said assembly(s) shall constitute grounds for discontinuing water service to the premises until such requirements have been satisfactorily met.

III. Definitions

Air gap – a physical separation between the free flowing discharge end of a potable water supply piping and/or appurtenance and an open or non-pressure receiving vessel, plumbing fixture or other device. An “approved air-gap separation” shall be at least twice the diameter of the supply pipe measured vertically above the overflow rim of the vessel, plumbing fixture or other device, in no case less than one inch.

Atmospheric Vacuum Breaker (AVB) – a device used to prevent back-siphonage. This device cannot be tested and cannot prevent back-pressure backflow.

Auxiliary supply – any water source or system other than the public water system that may be available in the building or on the property, including ground water or surface waters used for industrial, irrigation or any other purpose.

Backflow prevention assembly – an assembly to counteract or prevent back-siphonage.

Backflow – the flow in the direction opposite to the normal flow, or the introduction of any foreign liquids, gases, or substances into the water system.

Back-pressure – any elevation of pressure in the downstream piping system (by any means) above the supply pressure at the point of consideration, which would cause, or tend to cause, a reversal of the normal direction of flow.

Back-siphonage – the flow of water or other liquids, mixture or substances into the distribution pipes of a potable water supply system from any source other than its intended source caused by a sudden reduction of pressure in the potable water supply system.

Boresight (Boresight to daylight) – providing adequate drainage for backflow prevention assemblies installed in vaults through the use of an unobstructed

drainpipe.

City – the City of Boerne or its designated representative.

Commercial establishment – property or location which is used primarily for the manufacture, production, storage, wholesaling or retailing of services which is, or may be placed, in the flow of commerce or any property or location which is used primarily for the provision of any service.

Contaminants – any foreign material, solid, liquid or gaseous, that is not common to the potable water supply, which makes the water unfit or undesirable for human or animal consumption.

Cross-connection – any connection, physical or otherwise, between a potable water supply system and any plumbing fixture or any tank, receptacle, equipment or device, through which it is possible for any non-potable, used, unclean, polluted and/or contaminated water, or other substances, to enter into any part of such potable water system under any condition or set of conditions.

Cross-connection control device – any approved or recognized device placed upon any connection, physical or otherwise, between a potable water supply system and any plumbing fixture or any tank, receptacle, equipment or device, which is designed to prevent non-potable, used, unclean, polluted and/or contaminated water, or their substances, from entering into any part of such potable water system under any condition or set of conditions.

Customer service inspection – an inspection designed to detect any actual or potential cross-connection hazards and/or exceedance of the lead action level in solder or flux pipe or pipe fittings.

Degree of hazard – the low or high hazard classification that shall be attached to all actual or potential cross-connections.

- a. Health hazard – an actual or potential threat of contamination of a physical or toxic nature to the public potable water system or the consumer's potable water system that would be a danger to health.
- b. High hazard – the classification assigned to an actual or potential cross-connection that potentially could allow a substance that may cause illness or death to backflow into the potable water supply.
- c. Low hazard – the classification assigned to an actual or potential cross-connection that potentially could allow a substance that may be objectionable but not hazardous to one's health to backflow into the potable water supply.
- d. Pollution hazard – an actual or potential threat to the physical properties of the water system or the potability of the public or the

consumer's potable water system, but which would not constitute a health or system hazard, as defined. Maximum degree of intensity of pollution which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause damage to the system or its appurtenances.

- e. System hazard – an actual or potential threat of severe danger to the physical properties of the public or consumer's potable water supply or of a pollution or contamination that would have a detrimental effect on the quality of the potable water in the system.

Director of Public Works – the Director of Public Works or his designee who is vested with the authority and responsibility for the implementation of an effective cross-connection control program and for the enforcement of the provisions of this ordinance.

Double Check Detector Assembly – (DCDA) an assembly composed of a line-size approved double check assembly with a bypass containing a specific water meter and an approved double check valve assembly. The meter shall register accurately for very low rates of flow.

Double Check Assembly – (DCA) an assembly which consists of two independently acting, approved check valves, including tightly closing resilient seated shutoff valves attached at each end of the assembly and fitted with properly located resilient seated test cocks.

Fire line tester – a tester who is employed by a state approved fire line contractor and is qualified to test backflow prevention assemblies on fire lines.

General tester – a tester who is qualified to test backflow prevention assemblies on any domestic, commercial, industrial or irrigation service except fire lines.

Manual of cross-connection control – the latest edition as published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USC FCCCHR).

Mobile unit – any operation which may have the potential to introduce contaminants into a potable water system from a mobile source. These include, but are limited to; carpet cleaning vehicles, water-hauling vehicles, street-cleaning vehicles, liquid-waste vehicles, power-wash operations, and pest control vehicles.

Non-residential use – water used by any person other than a residential customer of the water supply and includes all uses not specifically included in “residential uses”.

Person – any individual, partnership, association, corporation, firm, club, trustee, receiver, and bodies political and corporate.

Point-of-use isolation – the appropriate backflow prevention within the consumer's water system at the point at which the actual or potential cross-connection exists.

Potable water supply – any water supply intended or used for human consumption or other domestic use.

Premises – any piece of property to which water is provided, including all improvements, mobile structures, and structures located on it.

Premises isolation – the appropriate backflow prevention at the service connection between the public water system and the water user.

Pressure Vacuum Breaker (PVB)– an assembly, which provides protection against back-siphonage, but does not provide adequate protection against back-pressure backflow. The assembly is a combination of a single check valve with an AVB and can be used with downstream resilient seated shutoff valves. In addition, the assembly has suction and discharge gate valves and resilient seated test cocks, which allows for the full testing of the assembly.

Public water system or system – any public or privately owned water system, which supplies water for public domestic use. The system includes all services, reservoirs, facilities, and any equipment used in the process of producing, treating, storing, or conveying water for public consumption.

Reduced Pressure Principle Assembly (RP) – an assembly containing two independently acting approved check valves together with a hydraulically operated, mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The assembly shall include properly located resilient seated test cocks and a tightly closing resilient seated shutoff valve at each end of the assembly.

Reduced Pressure Principle Detector Assembly (RPDA)– an assembly composed of a line-size approved reduced pressure principle assembly with a bypass containing a specific water meter and an approved reduced pressure principle backflow prevention assembly. The meter shall register accurately for very low rates of flow.

Regulatory authority – any municipal officer or department of the City of Boerne, appointed by the Director of Public Works to administer this ordinance.

Representative of the water system – a person designated by the City of Boerne to perform cross-connection control duties that shall include, but are not limited

to, cross-connection inspections and water use surveys.

Residential use – water used by any residential customer of the water supply, including single family dwellings, duplexes, multiplexes, housing and apartments where the individual units are each on a separate meter or in cases where two or more units are served by one meter; the units are full-time dwellings.

Service connection – the point of delivery at which the water purveyor loses control of the water.

Spill-resistant Pressure Vacuum Breaker (SPVB) – an assembly containing an independently operating, internally loaded check valve and independently operating, loaded air inlet valve located on the discharge side of the check valve. This assembly is to be equipped with a properly located resilient seated test cock and tightly closing resilient seated shutoff valves attached at each end of the assembly.

Tester – a person that is a certified backflow prevention assembly technician approved by and registered with the City and the TNRCC.

Thermal expansion – heated water that does not have the space to expand.

TNRCC – Texas Natural Resource Conservation Commission

Used water – water supplied by a public water system to a water user’s system after it has passed through the service connection.

Water use survey – a survey conducted or caused to be conducted by the local authority designed to identify possible sources of pollution and/or contamination of the potable water supply.

VI. Right-of-Way Encroachment

No person shall install or maintain a backflow prevention assembly upon or within any City right-of-way unless authorized by the City Manager or his designee, provided as follows:

- A. The City retains the right to approve the location, height, depth of enclosure, and other requisites, or the assembly prior to its installation.
- B. All permits and inspections required by the City of Boerne Right-of-Way Construction Ordinance shall be obtained.
- C. The assembly shall be installed below or flush with the surrounding grade except when it is not practicable to install it in this manner. Any assembly or portion of an assembly that extends above ground shall be located no closer

than eighteen (18) inches to the face of the curb.

- D. The City shall not be liable for any damage done to or caused by an assembly installed in a right-of-way.
- E. A property owner shall, at the request of the City and at the owner's expense, relocate a backflow prevention assembly which encroaches upon any City right-of-way when such relocation is necessary for street or utility construction or repairs for purposes of public safety.
- F. A person commits an offense if, after receiving a written order from the regulatory authority, he or she fails to relocate a backflow prevention assembly located in or upon any City right-of-way.

VII. Multiple Connections

Any premises requiring multiple service connections for adequacy of supply and/or fire protection will be required to install a backflow assembly on each of the service lines to the premises. The type of assembly will be determined by the degree of hazard that could occur in the event of an interconnection between any of the water systems on the premises.

VIII. Protection Required – Installation

A. The backflow prevention assembly protection, which is required under this ordinance, shall be any of the University of Southern California Foundation for Cross-Connection Control Hydraulic Research (USC FCCCHR) recognized and approved backflow prevention assemblies, or others as approved by the regulatory authority. Prior to installation, the regulatory authority must approve each backflow assembly. Failure to obtain such approval prior to installation of the backflow prevention assembly may result in the backflow prevention assembly failing to meet final approval by the regulatory authority. The regulatory authority shall determine the type and location of backflow assembly to be installed within the area served by the

City of Boerne. An assembly will be required in each of the following circumstances, but the customer is in no way limited to the following circumstances:

1. The nature and extent of any activity of the premises, or the materials used in connection with any activity of the premises, or materials stored on the premises, if said activity or material could contaminate or pollute the potable water supply.
2. Premises having one or more cross-connections that are identified as present.
3. Premises having one or more cross-connections, and the cross-

connection(s) are protected by an atmospheric vacuum breaker device (AVB).

4. Internal cross-connections are present that are not correctable.
 5. Intricate plumbing arrangements are present which make it impractical to ascertain whether cross-connections exist.
 6. There is a repeated history of cross-connections being established and reestablished.
 7. There is unduly restricted entry so that inspections for cross-connections cannot be made with sufficient frequency to assure that cross-connections do not exist.
 8. Materials are being used such that if backflow should occur a health hazard could result.
 9. Installation of an approved backflow prevention assembly is deemed to be necessary to accomplish the purpose of these regulations in the judgment of the City.
 10. An appropriate cross-connection survey report form has not been filed with the Public Works Department of the City of Boerne upon request of the City.
 11. A fire suppression system that is connected to the City's water system.
 12. All new construction, if deemed necessary in the customer service inspection. The type of assembly required will be determined by the degree of hazard.
 13. When a building is constructed on commercial premises, and the end use of such building is not determined or could change, a reduced pressure principle backflow prevention assembly may be installed at the service connection that supplies water for public domestic use.
 14. Any used water return system.
 15. In the event a point-of-use assembly has not had the testing or repair done as required by this ordinance, a premises isolation assembly will be required.
 16. If it is determined that additions or alterations have been made to the plumbing system without obtaining proper permits, premises isolation may be required.
 17. All multistory buildings or any building with a booster pump or elevated storage tank.
 18. Retrofitting will be required on all high hazard connections and wherever else the City deems necessary to meet the intent of this ordinance.
- B. All backflow prevention assemblies installed after the effective date of this ordinance shall be installed in a manner designed to facilitate ease of inspection and testing by the regulatory authority of the City or its chosen representative. Any current installed backflow prevention assemblies, which

are located in inaccessible locations or where the tester is subject to physical danger, shall be relocated to approved locations.

VII. Testing of Assemblies

- A. The regulatory authority shall require all backflow prevention assemblies to be inspected and tested in each of the following circumstances:
 - 1. Immediately after installation.
 - 2. Whenever the assembly is moved.
 - 3. A minimum of once a year.
 - 4. For premises that have been vacated and unoccupied for one year, prior to re-occupancy.
 - 5. Immediately after repairs.
- B. A state certified backflow prevention assembly tester, approved by the regulatory authority, shall perform all assembly testing.
- C. Duly authorized employees of the City bearing proper credentials and identification are entitled to enter any public or private property at any reasonable time for the purpose of enforcing this ordinance. Persons and occupants of premises which are provided water service by the City, either directly or indirectly, shall allow the City or its representatives ready access at all reasonable times to all parts of the premises for the purposes of inspection, testing, records examination, or in the performance of any of its duties. Where persons or occupants of premises have security measures in force which would require proper identification and clearance before entry into their premises, the persons and occupants of the premises shall make necessary arrangements with their security guards so that upon presentation of suitable identification, personnel from the City will be permitted to enter, without delay, for the purposes of performing their specific responsibilities.
- D. The City is not liable for damage to a backflow prevention assembly which may occur during testing.
- E. The regulatory authority may cause a water use survey to be conducted at any establishment located in the City which is served by a public water supply or which provides water to the public. Upon determination by the regulatory authority that the establishment falls under the provisions of this ordinance and requires a backflow prevention assembly, the regulatory authority shall issue a notice to abate the condition or order the establishment to install the proper backflow prevention assembly.
- F. It is the responsibility of any person who owns or controls property to have all assemblies tested annually in accordance with Section VII of this ordinance. Assemblies may be required to be tested more frequently if the regulatory authority deems necessary.

G. All results from assembly testing by a certified backflow prevention assembly tester shall be placed on a form that has been approved by the regulatory authority.

VIII. Thermal Expansion

It is the responsibility of any person who owns or controls property to eliminate the possibility of thermal expansion if a closed system has been created by the installation of a backflow prevention assembly.

IX. Pressure Loss

Any reduction in water pressure caused by the installation of a backflow assembly is not the responsibility of the City.

X. Residential Service Connections

Any person who owns or controls any residential property which has been determined to have an actual or potential cross-connection will be required to eliminate the actual or potential cross-connection or have an approved backflow prevention assembly installed in accordance with this ordinance.

XI. Rental Properties

Any person who owns or controls rental property is responsible for the installation, test and repair of all backflow assemblies on their property.

XII. Water System Connections

A. Water Distribution Infrastructure

1. All water distribution infrastructure must be constructed, installed and tested in accordance with TNRCC Rules and Regulations, as amended, for Public Water Systems.
2. Permanent water service shall not be supplied to any newly constructed infrastructure until after the City has received the results of the bacteriological test(s) and the results show that no bacteria are present.
3. Permanent water service shall not be supplied to any newly constructed infrastructure until an inspection is completed by the regulatory authority or representative to insure that all State Regulations and Local Codes have been met.

XIII. Customer Service Inspection

A. Pursuant to TNRCC Rules and Regulations for Public Water Systems, a customer service inspection for cross-connection control shall be completed by the regulatory authority prior to providing continuous water service in each of the following circumstances:

1. Newly constructed facility or previously non-existent premises.
2. After any material improvement to building(s) or premises.

3. Any correction or addition to the plumbing of any facility or premises.
 4. The regulatory authority deems it necessary.
- B. Permanent water service shall not be supplied to a newly constructed facility until after the customer service inspection is completed by the regulatory authority or its representative.

XIV. Installation Guidelines and Requirements

A. General: To ensure proper operation and accessibility of all backflow prevention assemblies, the following shall be required:

1. Backflow prevention assemblies shall be installed in accordance with the current TNRCC rules and these regulations. The assembly installer must obtain the required plumbing permits and have the installation inspected by a representative of the regulatory authority.
2. At those facilities where the regulatory authority requires a backflow prevention assembly be installed at the point of delivery of the water supply, such installation of the assembly must be before any branch in the line and on private property located just inside the boundary between the City right-of-way and the landowner's property and on the service line side of the City meter. The regulatory authority may specify other areas for installation of the assembly. Assemblies that must be installed or are located on City rights-of-way are the responsibility of the business or entity that the water line is serving.
3. The assembly must be protected from freezing and other severe weather conditions.
4. All premises that require continuous, uninterrupted water service and are required to have a backflow assembly must make provisions for the parallel installation of assemblies of the same type so that testing, repair and maintenance can be performed.
5. All backflow prevention assemblies shall be of a type and model approved by the regulatory authority.
6. All vertical installations of backflow assemblies must have prior approval by the regulatory authority.
7. The property owner assumes all responsibility for any damage resulting from installation, operations, and/or maintenance of a backflow assembly. The owner shall be responsible for keeping all backflow prevention assembly vaults reasonably free of silt and debris.
8. Upon completion of installation, the regulatory authority shall be notified and all assemblies must be inspected and tested. All assemblies must be registered with the regulatory authority and shall provide the date of installation, manufacture, model, type, size, serial number of the backflow assembly, physical location and initial test report.

9. Assemblies must be sized and flow characteristics must be sufficient to provide an adequate supply of water and pressure for the premises being served.
 10. Assemblies must be readily accessible for testing and maintenance and must be located in an area where water damage to buildings or furnishings would not occur from water discharge. The property owner assumes all responsibility for any damage caused by water discharge from an assembly. An approved air gap shall be located at the relief valve orifice of RPs.
 11. No part of a reduced pressure principle backflow prevention assembly shall be submerged in water or installed in a location subject to flooding. RPs are typically installed above grade in well-drained areas, but may be installed below grade (ground level) if a boresight drain to daylight is provided. The drain shall be of adequate capacity to carry the full rated flow of the assembly and shall be screened on both sides.
- B. Reduced pressure principle backflow prevention assemblies (RPs) may be utilized at premises where a substance is handled that would be hazardous to health if introduced into the potable water system. The RP is normally used in locations where an air gap is impractical. The RP is effective against both back-siphonage and back-pressure.
1. RPs must be sized to provide an adequate supply of water and pressure of the premises being served. Flow characteristics are not standard. Consult manufacturer's specifications for specific performance data.
 2. The assembly must be readily accessible for testing and maintenance and must be located in an area where water damage to buildings or furnishing would not occur from relief valve discharge. The property owner assumes all responsibility for any damage caused by water discharge for an RP assembly. An approved air gap shall be located at the relief valve orifice of RP assemblies. This air gap shall be at least twice the inside diameter of the incoming supply line as measured vertically above the top rim of the drain, and in no case less than one (1) inch. An approved air-gap funnel assembly may be used to direct minor discharges away from the assembly; this assembly will not control flow in a continuous relief situation. Drain lines to accommodate full relief valve discharge flow should be considered.
 3. Enclosures shall be designed for ready access and sized to allow for the minimum clearances established below. Removable protective enclosures are typically installed on the smaller assemblies. Daylight drain ports must be provided to accommodate full pressure discharge from the assembly.
 4. Assemblies two (2) inches and smaller shall have at least six (6) inches clearance on both sides and on top of the assembly, and twelve

(12) inches below and behind the assembly. All assemblies larger than two (2) inches shall have a minimum of twelve (12) inches on the back side, twenty-four (24) inches on the test cock side, and the relief valve opening shall be at least twelve (12) inches plus nominal size of assembly above the floor or highest possible water level. Headroom of six (6) feet zero (0) inches is required in vaults without a fully removable top. A minimum access opening of thirty-six (36) inches is required on all vault lids.

- 5 Vertical installation is prohibited.
- 6 All RP assemblies must be tested in accordance with this ordinance. Tests are the responsibility of the assembly owner. The owner must notify the regulatory authority upon installation of any backflow prevention assembly.
- 7 Variances from these specifications will be evaluated on a case-by-case basis. Any deviations must have prior written approval of the regulatory authority.

C. Reduced pressure principle detector backflow prevention assemblies (RPDA) – may be utilized in all installations requiring a reduced pressure principle backflow prevention assembly and detector metering.

1. RPDAs shall comply with the installation requirements applicable for reduced pressure principal backflow assemblies.
2. The line-size RP assembly and the bypass RP assembly must each be tested. The certified tester must complete a separate test report for each assembly.
3. Lines should be thoroughly flushed prior to installation. A strainer with blowout tapping may be required ahead of the assembly.
4. All facilities that require continuous, uninterrupted water service and are required to have a backflow assembly must make provisions for the parallel installation of assemblies of the same type so that testing, repair and maintenance can be performed.
5. Upon completion of installation, the regulatory authority shall be notified and all assemblies must be inspected and tested. All assemblies must be registered with the regulatory authority and shall provide the date of installation, manufacturer, model, type, size, serial number of the backflow assembly, and initial test report.

D. Double check valve backflow prevention assemblies (DCs) may be utilized at premises where a substance is handled that would be objectionable, but not hazardous to health if introduced into the potable water system.

1. DCs must be sized to provide an adequate supply of water and pressure for the premises being served.
2. Premises where an uninterrupted water supply is critical should be provided with two (2) assemblies installed in parallel. Assemblies should be sized in such a manner that either assembly will provide

the minimum water requirements while the two (2) together will provide the maximum flow required.

3. The assembly shall be readily accessible with adequate room for testing and maintenance. DCs may be installed below grade, providing all test cocks are fitted with brass pipe plugs. All vaults shall be well drained, constructed of suitable materials, and sized to allow for the minimum clearances established below.
4. Assemblies two (2) inches and smaller shall have at least six (6) inches clearance below and on both sides of the assembly and, if located in a vault, the bottom of the assembly shall be not more than twenty-four (24) inches below grade. All assemblies larger than two (2) inches shall have a minimum clearance of twelve (12) inches on the back-side, twenty-four (24) inches on the test cock side, and twelve (12) inches below the assembly. Headroom of six (6) feet zero (0) inches is required in vaults without a fully removable top. A minimum access opening of thirty-six (36) inches is required on all vault lids. "Y" pattern double check valve assemblies shall be installed so that the checks are horizontal and the test cocks face upward. These clearance standards apply to all assemblies installed in vaults, enclosures, and meter boxes.
5. All DCs must be tested in accordance with this article. Tests are the responsibility of the assembly owner. The owner must notify the regulatory authority upon installation of any backflow prevention assembly.
6. Variances from these specifications will be evaluated on a case-by-case basis. Any deviations must have prior written approval of the regulatory authority.
7. Vertical installations of DCs are allowed only on sizes up to and including four inches (4") that meet all of the following requirements:
 - a. Internally spring-loaded check valves.
 - a0 Flow is upward through assembly.
 - b0 Approved for vertical installation by the USC FCCCHR.
 - c0 Approved by the regulatory authority.

E0 Double check detector backflow prevention assemblies (DCDA) – may be utilized in all installations requiring a double check valve assembly and detector metering.

1. DCDAs shall comply with the installation requirements applicable for double check valve assemblies (DCs).
2. The line-size DC assembly and the bypass DC assembly must each be tested. The certified tester must complete a separate test report for each assembly.

F0 Pressure vacuum breaker backflow prevention assemblies (PVB) may be

utilized as point-of-use protection only and where a substance is handled that would be objectionable, but not hazardous to health, if introduced into the potable water system. PVBs protect against back-siphonage only and shall not be installed where there is potential for back-pressure.

1. PVBs shall not be installed in an area subject to flooding or where damage would occur from water discharge.
2. The assembly shall be installed a minimum of twelve (12) inches above the highest downstream piping.
3. The assembly shall be readily accessible for testing and maintenance, with a minimum clearance of twelve (12) inches all around the assembly.
4. All PVBs must be tested in compliance with this article. Tests are the responsibility of the assembly owner. The owner must notify the regulatory authority of installation of any backflow prevention assembly.
5. Variances from these specifications will be evaluated on a case-by-case basis. Any deviations must have prior written approval of the regulatory authority.

G0 Spill resistant pressure vacuum breaker backflow prevention assemblies (SVB) may be utilized in all installations requiring a pressure vacuum breaker. SVBs shall comply with the installation requirements applicable for pressure vacuum breaker backflow prevention assemblies.

XV. Air Gap Separation

A. Air gaps provide maximum protection from backflow hazards and should be utilized at all locations where hazardous substances are at risk of entering the potable water system.

1. An air gap separation shall be at least twice the diameter of the supply pipeline measured vertically above the top rim of the receiving vessel and in no case less than one inch (1"). If splashing is a problem, tubular screens may be attached or the supply line may be cut at a forty-five degree (45°) angle. The air gap distance is measured from the bottom of the angle. Hoses are not allowed.
2. Air gap separations shall not be altered in any way without prior approval from the regulatory authority and must be available for inspection at all reasonable times.
3. Side walls, ribs or similar obstructions do not affect air gaps when spaced from the inside edge of the spout opening a distance greater than three (3) times the diameter of the effective opening for a single, or a distance greater than four (4) times the effective opening for two intersecting walls.
4. Side walls, ribs or similar obstructions extending from the water surface to or above the horizontal plane of the spout opening other than specified in subsection 3 above. The effect of three (3) or more

such side walls or ribs has not been determined. In such cases, the air gap shall be measured from the top of the well.

- 5 The effective opening shall be the minimum cross-sectional area at the seat of the control valve or the supply pipe or tubing which feeds the assembly or outlet. If two (2) or more lines supply one (1) outlet, the effective opening shall be the sum of the cross-sectional areas of the individual supply lines or the area of the single outlet, whichever is smaller.

XVI. Fire Suppression Systems

- A. All new installations of fire suppression systems, which utilize the City's potable water supply, shall have installed an approved backflow prevention device according to the degree of hazard.
- B. An approved double check detector backflow prevention assembly (DCDA) or reduced pressure detector assemblies (RPDA) shall be the minimum protection for fire sprinkler systems using piping material that is not approved for potable water use and/or that does not provide for periodic flow-through during each twenty-four (24) hour period, unless a variance has been issued in writing from the regulatory authority. A (RPDA) must be installed if any solution other than the potable water can be introduced into the sprinkler system.
 1. It is the responsibility of all property owners and persons in charge of any premises to abide by the conditions of this ordinance. In the event of any changes to the fire suppression system, it is the responsibility of the property owner(s) to notify the regulatory authority. All costs associated with this article and the purchase, installation, testing and repair of (DCDA) or (RPDA) devices is the responsibility of the property owner and persons in charge of any premises.
 2. Upon the approved installation of the (DCDA) or (RPDA) device, a device test report completed by a licensed fire line tester must be sent to the attention of the regulatory authority or its representative and include the information

XVII. Fire Hydrant Protection

- A. An air gap separation shall be the minimum protection for fire hydrant water meters which are being used for a temporary water supply during any construction or other times, which would pose a potential hazard to the public water supply.
 1. It is the responsibility of all persons engaging in the use of a fire hydrant water meter to abide by the conditions of this ordinance and the City of Boerne Bulk Water Ordinance.

2. Only City of Boerne fire hydrant water meters will be allowed within the potable water system.
3. A refundable deposit is required to insure the return of all fire hydrant water meter to the Public Works Department. Failure to return or misuse of the meters can result in the forfeiture of deposit and/or enforcement action being taken against the responsible party, as allowed for in the penalty section of the City of Boerne Bulk Water Ordinance.
4. All non-approved fire hydrant meters which are found to be in use in the City of Boerne will be confiscated and enforcement action taken against the responsible party, as allowed for in the City of Boerne Bulk Water ordinance.

XVIII. Responsibilities

- A. Property Owner – It is the responsibility of all property owners and/or persons in charge of any premises to abide by the conditions of this article and to comply with the following:
 1. Payment of all costs associated with this ordinance and the purchase, installation, testing and repair of backflow prevention assemblies.
 2. To install and maintain all backflow prevention assemblies in accordance with this article and acceptable industry practice.
 3. All commercial establishments shall cause to have all backflow prevention assemblies on their premises tested annually. A certified tester who is registered with the City must conduct such testing.
 4. Maintain all backflow prevention assemblies in proper working order at all times, including repairs as required.
 5. Maintain all backflow prevention assemblies in a manner that allows them to be tested by a method that has been approved by the regulatory authority.
 6. All records related to backflow prevention assembly installation testing and repair shall be maintained on the premises for a minimum of three (3) years.
- B. Certified backflow prevention assembly testers shall comply with the following requirements:
 1. Annually register with the regulatory authority and pay the required fee.
 2. Maintain testing equipment in proper work condition/calibration.
 3. Maintain the design or operation characteristics of an assembly.
 4. Ensure that devices are tested according to accepted industry practice and TNRCC rules and regulations.
 5. Enter required testing data, including test gauge serial numbers, on Backflow Prevention Device Test forms that have been approved by the regulatory authority.
 6. Report test results to the regulatory authority within thirty (30) days

- of testing.
7. Provide a copy of the completed test report to the property owners and/or persons in charge of any premises.
 8. Maintain testing and/or repair records for a minimum of three (3) years.

E Regulatory Authority – The regulatory authority shall ensure the inspection and testing of all backflow prevention assemblies installed pursuant to the requirements of this ordinance. For new facilities, permanent water service shall not be provided until all backflow prevention assemblies have been tested and are operational. Except in cases where the testing of backflow prevention assemblies must be delayed until the installation of internal production or auxiliary equipment, the regulatory authority shall not approve a certificate of occupancy until all backflow prevention assemblies have been tested and are operational. The City shall not be liable for damage caused by any backflow prevention assembly as a result of the inspection or testing.

XIX. Backflow Prevention Assembly Tester Certification and Registration

To be an approved backflow prevention assembly tester within the City, an individual must register annually with the regulatory authority, provide proof of TNRCC certification, provide proof that testing equipment is able to maintain a calibration of plus or minus 0.2 psid accuracy and pay an annual, non-refundable tester registration fee as stated in the City of Boerne Fees Ordinance. The regulatory authority will maintain a current list of licensed testers, which will be made available to facilities, which may need testers to perform their annual testing.

XX. Fees

All fees and/or deposits referred to in this ordinance are specified in the City of Boerne Fees Ordinance.

XXI. Lawn Irrigation Systems

All lawn irrigation system installations shall obtain a permit issued by the Code Enforcement Department for such installations. Installation requirements must comply with the current City plumbing code and guidelines for the appropriate device found in this ordinance. Interconnections of the potable water supply with an alternate water source are prohibited unless appropriate backflow protection is installed.

XXII. Mobile Units

The connection of a mobile unit to any potable water system is prohibited unless an air gap or an approved backflow prevention assembly protects such connection. Prior approval and annual device testing of any backflow prevention assembly must be received from the regulatory authority before connecting to

any potable water system.

XXIII. Enforcement

A. Violations - An offense is considered committed if:

- 1 There has been a failure to maintain backflow prevention assemblies in compliance with this section.
- 2 There has been failure to comply with a repair order issued by the regulatory authority.
- 3 Backflow from premises owned, operated or managed enters the public water supply system.
- 4 There has been a failure to pay fees required by this article.
- 5 There is violation of any section of this ordinance.
- 6 Water service is reinstated to premises discontinued or disconnected under this article, except as directed by the regulatory authority.
- 7 An unregistered tester is allowed to perform testing work at an establishment.
- 8 A backflow prevention assembly is tested within the City without being registered with the regulatory authority.
- 9 A backflow prevention assembly is tested within the City without being certified by the TNRCC.

B Penalty

The City is entitled to pursue all criminal and civil remedies available for violations of this Ordinance.

C. Sanction for Failure to Pay Fees

In addition to sanctions provided for by this ordinance, the City is entitled to exercise sanctions provided for by other ordinances of the City for the failure to pay for water and sanitary sewer services when due.

D. A certified tester's registration may be reviewed and revoked by the City if the regulatory authority determines that the tester has:

- 1 Falsely, incompletely, or inaccurately reported assembly reports;
- 2 Used inaccurate gauges;
- 3 Used improper testing procedures; or
- 4 Created a threat to public health or the environment.

PASSED and APPROVED this the 13th day of November, 2001.

PASSED, APPROVED and ADOPTED this the 27th day of November, 2001.

APPROVED:

ATTEST:

s/s Linda S. Zartler
City Secretary

s/s Patrick Heath
Mayor

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