



# BACKFLOW POLICY

Board Approved 3-27-08

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## DIVISION 1. GENERALLY

### **Purposes**

The purposes of this article are to:

- 1) Protect the New Braunfels Utilities potable water system from contamination or pollution by preventing contaminants and pollutants within the water systems of customers from entering New Braunfels water system.
- 2) Provide for the maintenance of a continuing program of cross connection control by requiring the installation of approved backflow prevention assemblies and requiring the certification and operational testing of all testable backflow prevention assemblies.
- 3) Comply with federal regulations related to cross-connections and backflow prevention, including, without limitation, those of the Occupational Safety and Health Administration and the Environmental Protection Agency.
- 4) Comply with state regulations related to cross-connections and backflow prevention, including, without limitation, those of the Texas Commission on Environmental Quality.

### **Applicability**

This article applies to all connections to the New Braunfels Utilities potable water system, and to all installations of backflow prevention assemblies related to NBU's potable water system, regardless of whether the connection or assembly is located within the city limits of New Braunfels or in NBU's water service area, and regardless of whether the connection or assembly is for a retail, wholesale, or other customer or user of NBU's water supply system.

### **Definitions**

*Air gap separation* means a physical separation between the free flowing discharge end of the New Braunfels Utilities water system pipeline and an open or un-pressurized receiving line or vessel.

*Approved assembly* is a backflow prevention assembly that has been, manufactured, tested and approved in accordance with the standards adopted by the AWWA, or

approved and listed by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research.

*Auxiliary water supply* means any water supply on or available to a customer's premises from a source other than directly through the New Braunfels Utilities water supply. Auxiliary water supplies include all of the following:

- 1) Water from another public water system.
- 2) Water from a natural source, such as a well, spring, pond, river or creek.
- 3) Reclaimed water.
- 4) Any water supplied by a public water system, including the New Braunfels Utilities water system, that has passed through a point of delivery and is no longer controlled by the public water system.

*AWWA* means American Water Works Association.

*Backflow* means the reversal of flow of water and/or mixtures of water and other liquids, gases, or other substances from a customer's side of the service connection into the New Braunfels Utilities water system. Backflow may occur under either a backpressure or back siphonage condition.

*Backflow prevention assembly* or *assembly* means a device or aggregation of devices designed to prevent backflow, including reduced pressure backflow assemblies, double-check valve assemblies, atmospheric vacuum breakers, pressure vacuum breaker assemblies or an air gap.

*Backpressure* means any situation where the pressure in a customer's system is higher than in the New Braunfels Utilities water system.

*Back siphonage* occurs when the pressure in the public water system becomes less than that of the customer's system due to a vacuum in the public system.

*Building official* means the person designated as the building official by the City of New Braunfels.

*Bypass* means a connection from the New Braunfels Utilities side of a backflow prevention assembly to the customer side of the assembly for purpose of diverting the water around the assembly while it is being repaired or replaced.

*Certified backflow prevention assembly tester* or *certified tester* means a person who has received certification as a backflow prevention assembly tester from the TCEQ by successfully completing a TCEQ-approved certification school.

*Check valve* means a valve which seats readily and completely, to completely cease the flow of water.

*Contamination* means the presence of any foreign substance (organic, inorganic, radiological or biological) in water that tends to degrade its quality so as to constitute a hazard or impair the usefulness of the water. Contamination includes both hazardous contaminants and pollutants.

*Cross connection* means any physical connection between the New Braunfels Utilities water system and another water system or source, through which backflow may occur.

*Customer* means any person that is supplied potable water by or through New Braunfels Utilities water system, including, without limitation, retail and wholesale customers and persons using a portion of the utilities water system for water transmission purposes.

*Customer's system* means the entire plumbing system, including all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to produce, convey, store or utilize potable water between the point of delivery and the customer's point of use.

*CEO* means the Chief Executive Officer of New Braunfels Utilities.

*Hazardous contaminant* means any form of contamination that poses a health hazard with respect to the use of water for drinking or other domestic purposes.

*NBU* means New Braunfels Utilities.

*New Braunfels Utilities water system* means the entire potable water distribution system of the New Braunfels Utilities, including, without limitation, all pipes, facilities, valves, pumps, conduits, tanks, receptacles and fixtures and appurtenances between the water supply source and the point of delivery, used by the city to produce, convey, deliver, measure, treat or store potable water for public consumption or use.

*Plumbing code* means the current version of the plumbing code adopted by the City of New Braunfels.

*Point of delivery* means the point at which water leaves New Braunfels Utilities water system and enters a customer's system at or near the property line or the edge of an easement. When a water meter is installed on or near the property line or edge of an easement, the point of delivery is the terminal end on the discharge side of the water meter.

*Pollutant* means a substance that impairs the quality of water in a manner or to a degree that does not create a hazard to public health, but may adversely affect the aesthetic qualities of the water for domestic use.

*Potable water* means water that complies with the Texas Commission on Environmental Quality (TCEQ) Rules for drinking water and other domestic uses.

*Service connection* means the terminal end of a service connection from New Braunfels Utilities water system, i.e., where the utility loses jurisdiction and sanitary control over the water at the point of delivery to the customer. If a meter is installed at the point of delivery, the *service connection* means the point at which the terminal end on the discharge side of the water meter connects to the customer's system.

*T&M* means the test and maintenance report for the testing of backflow prevention assemblies.

*TCEQ* means the Texas Commission of Environmental Quality or its predecessor or successor agencies.

### **Conflicts with other ordinances**

If there is a conflict between a provision of this article and the applicable plumbing code or any other provision of this Policy, the most restrictive provision will apply.

## **DIVISION 2. AUTHORITY AND RESPONSIBILITY**

### **Authority of New Braunfels Utilities (NBU) Water Systems**

- a. New Braunfels Utilities is responsible for enforcing the requirement of this article with respect to connections made to the NBU water system.
- b. To ensure adequate protection in individual cases, NBU may assess and determine the degree of hazard to the public potable water system posed in the case of individual connections, customers or users.
- c. When New Braunfels Utilities determines that a backflow prevention assembly is required for the protection of the NBU water system, the engineer will require the customer, at the customer's expense, to properly install an approved assembly at each service connection or hazard point.
- d. The NBU Water Systems will make periodic inspections to verify that proper records of the installation and maintenance of backflow prevention assemblies are maintained by customers in accordance with this article.
- e. The NBU Water Systems may refuse to initiate service, or may discontinue service, to any customer that maintains an actual or potential sanitary hazard in the customer's system, or whose plumbing is susceptible to cross connections, where the utilities determines that adequate protection against backflow is not provided.

### **Authority of City of New Braunfels Building Official**

- a. The City of New Braunfels building official is responsible for enforcing all provisions of the City's plumbing code pertaining to cross connections, i.e., proper installation of each customer's system, including the connection to the utilities water system.
- b. The City of New Braunfels building official will coordinate all building permit approvals to ensure compliance with this article.

### **Certified backflow prevention assembly testers**

- a. *Registration of testers.* Each person who wishes to perform services as a certified tester for New Braunfels Utilities water system customer must register with NBU by submitting to the Backflow Specialist copies of the BPAT license, copies of their annual gauge tests, business information and phone numbers. It is the responsibility of the tester to update this information each year. The NBU Backflow Prevention Specialist has the authority to refuse test results or other performance of service by a certified tester if the tester is not currently registered with the purveyor, New Braunfels Utilities. If a tester is a representative of an equipment manufacturer, the tester will be restricted to testing assemblies produced by that manufacturer. NBU will maintain a current list of approved registered testers.
- b. *Testing equipment.* The certified tester must be equipped with and competent to use all the necessary tools, gauges, manometers and other equipment necessary to properly test, repair and maintain backflow prevention assemblies. The certified tester must furnish NBU with the serial number of the tester's test kit, and the tester's test gauge must be tested when purchased and annually thereafter, or more frequently as required by the Backflow Specialist.. The certified tester must maintain the test gauge to a (+/-) 2% accuracy.
- c. *Responsibility of certified tester.* When employed by a customer, the certified tester is responsible for the testing of the customer's backflow prevention assemblies. The tester is responsible for the competency and accuracy of all tests and reports performed or submitted by the tester, and for all work done by any persons under the control or supervision of the tester.
- d. *Immediate reports by certified tester.* If a backflow prevention assembly test fails, or an assembly malfunctions, the certified tester must immediately notify NBU Water Systems and the customer in writing, and the tester must take all reasonable steps, including the cessation of water service through the assembly, to prevent the contamination of the utilities water system.
- e. *Inspection and repair.* The certified tester will be responsible for making competent inspections and repairing or overhauling backflow prevention assemblies. The certified tester will make reports of the repair to the customer and NBU Water Systems Engineering Department on the TCEQ test and

maintenance report form. The certified tester must include in the report a list of materials or replacement parts use. The tester must ensure that parts recommended by the manufacturer of the assembly or device being repaired are used in the repair or replacement of parts in the assembly or device.

- f. Procedure *and equipment*. It is unlawful for a certified tester to change the design, material, or operational characteristics of a backflow prevention assembly during repair or maintenance without prior approval. All work performed by a certified tester's assistants must be performed in the tester's presence, and the tester is responsible for all such work.

### **Responsibilities of customers**

- a. Each customer has the primary responsibility of preventing contaminants from entering the customer's system or the utilities water system. This responsibility starts at the point of delivery, and includes the customer's complete internal water system.
- b. Each customer, as a condition of receiving water service from NBU, must allow city water and wastewater department personnel access to the customer's property to inspect and survey the customer's system for potential contamination and backflow hazards.
- c. The customer, at the customer's expense, must install, operate, test and maintain approved assemblies as required by this article and the Rules and Regulations governed by Texas Commission on Environmental Quality. After any repair or overhaul of an assembly, the customer must have it tested by a certified tester to ensure that it is in proper operating condition. A customer must apply for and obtain a permit from the City of New Braunfels Building Department for the re-piping or relocation of a backflow prevention assembly. Upon completion of any such work, the customer must have the assembly retested by a certified tester. The customer must maintain accurate TCEQ test and maintenance report forms for all tests and repairs made to backflow prevention assemblies, and must provide NBU Water Systems with the originals of these reports as soon as the test is completed.
- d. The use of a backflow prevention assembly at the service connection shall be considered as additional backflow protection and shall not negate the requirement to use backflow protection on internal hazards as outlined and enforced by local plumbing codes.
- e. The customer may choose any tester included on the list of registered testers on file with NBU.

## DIVISION 3. STANDARDS AND REQUIREMENTS

### General Requirements

- a. The TCEQ Rules and Regulations for Public Water Systems, as amended from time to time, will govern the design, construction, operation and maintenance of the utilities water system with respect to cross connection control and backflow prevention. Each customer must comply with all applicable provisions of these rules and regulations.
- b. It is unlawful for a customer to cause or allow water from an auxiliary water supply to enter the utilities water system.
- c. It is unlawful for a person to make a connection from the utilities water system to a customer's system where an actual or potential contamination hazard to the utilities water system exists and there is no air gap separation between the drinking water supply and source of potential contamination. Where a containment air gap is impractical and, instead, an individual internal air gap or mechanical backflow prevention assembly is used, a backflow prevention assembly will be required at the service connection in accordance with AWWA Standards C510 and C511, and AWWA Manual M14, on those establishments handling substances deleterious or hazardous to the public health. This requirement does not apply if the customer maintains an adequate cross-connection control program that includes an annual inspection by a certified tester.
- d. It is unlawful for a person to make any connection from the utilities water system to any condensing, cooling or industrial process or any other system of non-potable usage over which utilities water system officials do not have sanitary control, in a manner that does not fully comply with the requirements of subsection (c) above. It is unlawful for any person to cause or permit backflow from any such process to the city water system.
- e. All backflow prevention assemblies must be tested upon installation by a certified tester, and must be certified to be operating within specifications. The required T&M report form shall be available from NBU. Backflow prevention assemblies, which are installed to provide protection against hazardous contaminants must also be tested and certified to be operating within specifications at least annually by a certified tester. Certain commercial / business / industrial properties will require a premises isolation backflow at the meter. (See page 11)
- f. Gauges used in the testing of backflow prevention assemblies must be tested for accuracy annually in accordance with the University of Southern California's Foundation of Cross Connection Control and Hydraulic Research and/or the American Water Works Association Manual of Cross Connection Control (Manual M-14). Each certified tester that performs tests related to the utilities water

system must include test gauge serial numbers on all test and maintenance report forms to verify that the tester uses gauges tested for accuracy.

- g. A test report (T&M Report) must be completed by the recognized backflow prevention certified tester for each assembly tested. The signed and dated original must be submitted to the purveyor, New Braunfels Utilities, for record keeping purposes. New Braunfels Utilities has T&M Reports available for all customers within the service area. The NBU Backflow Prevention Specialist has the authority to refuse incomplete T&M Reports.
- h. Each certified backflow prevention assembly tester that performs tests related to the utilities water system must retain all test and maintenance reports for at least three years, and must make the reports related to the utilities water system available to NBU Water Systems at the engineer's request.
- i. It is unlawful for a customer to install, or to cause or permit the installation of, a bypass that has not been approved in advance by NBU. All bypasses on backflow prevention assemblies must themselves include provisions for backflow prevention as described in this article.

### **Types of backflow prevention**

- a. *Air gap separation or A/G.* An air gap installation separating the utilities water system from the customer's system is acceptable in all situations listed in this article as long as it is properly maintained. Since air gap installation separations are easily eliminated or bypassed, NBU may perform field surveys and require the additional protection of a mechanical backflow prevention assembly. The air gap separation must be located as close as practical to the city water meter, and normally all piping between the meter and the receiving tank must be entirely visible. An approved air-gap separation must be at least double the diameter of the supply pipe measured vertically above the overflow rim of the vessel, but in no case less than one inch (2.54 cm).
- b. *Atmospheric vacuum breaker or AVB.* This is a device consisting of a float check, a check seat, and an air inlet port. A shutoff valve immediately upstream may be an integral part of the device. The AVB is designed to allow air to enter the downstream water line to prevent back siphonage. This unit must never be subjected to a back pressure condition or have a downstream shutoff valve, and must not be installed where it will be in continuous operation for more than 12 hours.
- c. *Check valve.* Each check valve 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 pound per square inch in the direction of the 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



must be of bronze or other non-corrodible, non-sticking material, machined for easy, dependable operation. The closure element, normally referred to as a clapper, must be internally weighted or otherwise internally equipped to promote rapid and positive closure in all sizes where this feature is obtainable.

- d. *Double check valve assembly or DC.* This is an assembly composed of two independently acting, approved check valves, including tightly closing resilient-seated shutoff valves located at each end of the assembly, and fitted with properly located resilient-seated test cocks.
- e. *Double check detector assembly or DCDA.* This is a specially designed assembly composed of a line-sized approved double check valve assembly with a bypass containing a specific water meter and an approved double check valve assembly. NBU shall not require the meter on the bypass. This assembly must only be used to protect against a pollutant. The DCDA is primarily used on fire sprinkler systems.
- f. *Pressure type vacuum breaker or PVB.* This is an assembly containing a single loaded check valve and an air opening, which admits air whenever the pressure within the body of the assembly is reduced so that there is a tendency toward back siphonage. The body of the assembly must be equipped with two tight closing shutoff valves, one immediately upstream from the body and one immediately downstream of the body, and two properly located test cocks. It must be designed to operate under pressure for long periods of time without becoming inoperative, making it possible to isolate a lawn sprinkler from the potable system. It must be installed so that it is never subject to backpressure.
- g. *Spill Resistant Pressure Type Vacuum Breaker or SVB.* This is an assembly containing a single loaded check valve and an air opening, which admits air whenever the pressure within the body of the assembly is reduced so that there is a tendency toward back siphonage. The body of the assembly must be equipped with two tight closing shutoff valves, one immediately upstream from the body and one immediately downstream of the body, and one properly located test cock and vent valve. It must be designed to operate under pressure for long periods of time without becoming inoperative, making it possible to isolate a lawn sprinkler from the potable system. It must be installed so that it is never subject to backpressure.
- h. *Reduced pressure backflow prevention assembly or R/P.* This is a device consisting of two independently acting approved check valves together with a hydraulically operating mechanically independent pressure differential relief valve located between the check valves and below the first check valve. These units are located between two tightly closing resilient-seated shutoff valves and are fitted with properly located resilient seated test cocks.

**Types of backflow prevention required**

- a. The degree of protection and the type of protection deemed necessary to prevent backflow and possible contamination of the utilities water system are outlined in this section. Cross connections vary widely in degree of contamination hazard. Backflow may occur under many different pressure differentials, varying from vacuum to very high pressures. The protection afforded by a backflow prevention assembly depends upon its type, the circumstances in which it is installed, and on its proper installation, testing and maintenance.
- b. *Criteria for selection of backflow prevention assemblies.* The selection of an appropriate backflow prevention assembly depends upon the degree of hazard involved and will be based on the following criteria:
  - 1) Whether or not the assembly could ever be subject to backpressure due to the customer's internal plumbing pressures or elevation differentials.
  - 2) The nature of contaminating material under the most critical circumstances.
  - 3) The extent to which additions may be made to the plumbing system at a later date, which would affect the initial selection of the assembly.
  - 4) The frequency with which a water supply could be exposed to a hazardous condition.
  - 5) The degree of protection of the water supply as provided by the local plumbing code as enforced by the building inspections division.
- c. *Decisions on selection of backflow prevention assembly.* NBU will have the final approval authority over the type of backflow prevention assembly to be used in each individual case.
- d. *All types of establishments listed below must provide for the containment of contamination within their premises, either by an air gap separation between the meter and the first tap or tee, or by having each of the internal plumbing facilities properly air gapped. If the containment air gap separation is impractical, and reliance is placed instead on individual internal air bags or vacuum breakers in a customer's system, New Braunfels Utilities may require additional protection in the form of either an R/P assembly, for customers handling hazardous contaminants, or a D/C assembly, for customers handling pollutants.*
- e. *Some businesses require a premises isolation backflow at the service connection. See table for Guide to Selection of Assembly for Premises Isolation.*
- f. *The use of a backflow prevention assembly at the service connection shall be considered as additional backflow protection and shall not negate the requirement to use backflow protection on internal hazards as outlined and enforced by local plumbing codes.*
- g. *Type of device or assembly required.*

- A/G* - *Air Gap Separation*
- R/P* - *Reduced Pressure Backflow Prevention Assembly*
- D/C* - *Double Check Valve Assembly*
- DCDA* - *Double Check Detector Assembly*
- PVB* - *Pressure Type Vacuum Breaker*
- AVB* - *Atmospheric Vacuum Breaker*
- SVB* - *Spill Resistant Pressure Type Vacuum Breaker*

*Guide to Selection of Assemblies for Premises Isolation*

Description of Premise or Activity	Assessment of Hazard	Required Assembly at Service Connection
Aircraft and missile plants	Health	R/P
Animal feedlots	Health	R/P
Automotive plants	Health	R/P
Buildings – Hotels, apartment houses, public and private buildings, or any other structures having unprotected cross-connections	Health	R/P
Buildings 4 stories or more	Health	R/P
Car wash facilities	Health	R/P
Chemical or plants – manufacturing, processing, compounding, or treatment	Health	R/P
Chemically contaminated water systems	Health	R/P
Civil works	Health	R/P
Cold storage facilities	Health	R/P
Commercial laundries	Health	R/P
Docks and dockside facilities	Health	R/P
Dye works	Health	R/P
Fireline	Nonhealth	D/C or DCDA without meter no more than 50' from tap or tee

Fireline with chemical additive	Health	R/P no more than 50' from tap or tee
Food and beverage processing plants (includes beverage bottling plants, breweries, canneries, packing houses, rendering plants, reduction plants, dairies, creameries, ice cream plants)	Health	R/P
Hospitals, medical buildings, dentist offices, sanitariums, morgues, mortuaries, autopsy facilities, nursing and convalescent homes, clinics, laboratories, and veterinary clinics	Health	R/P
Irrigation without chemical additives	Nonhealth	PVB or R/P
Irrigation with chemical additives	Health	R/P
Metal manufacturing, cleaning, processing, and fabricating plants	Health	R/P
Microchip plants	Health	R/P
Motion picture studios	Health	R/P
Oil, gas, or petroleum processing, production, storage, or transmission properties	Health	R/P
Paper and paper product plants	Health	R/P
Photo and film processing labs	Health	R/P
Plating plants	Health	R/P
Pleasure boat marinas	Health	R/P
Power plants (includes large heating, refrigerating, and power plant used in large buildings and commercial or industrial plants)	Health	R/P
Radioactive materials or substances handling – plants or facilities	Health	R/P
Reclaimed water system	Health	R/P
Restricted, classified, or other closed facilities	Health	R/P
Rubber plants – natural or synthetic	Health	R/P
Schools and colleges	Health	R/P

Sewage lift stations	Health	R/P
Sewage treatment plants	Health	R/P
Slaughter houses	Health	R/P
Steam plants	Health	R/P

*Guide to the Assessment of Hazard and Selection of Assemblies for Internal Protection*

Description of Cross Connection	Assessment of Hazard	Required Assembly at Fixture
Aspirators	Nonhealth	PVB
Aspirators (medical)	Health	R/P
Autoclaves	Health	R/P
Autopsy and mortuary equipment	Health	R/P
Bedpan washers	Health	R/P
Booster pumps	Health	R/P
Connection to plating equipment	Health	R/P
Connection to industrial fluid systems	Health	R/P
Connection to salt-water cooling systems	Health	R/P
Connection to sewer pipe	Health	A/G
Cooling towers with chemical additive	Health	R/P
Cuspidors	Health	R/P
Degreasing equipment	Nonhealth	D/C
Domestic space-heating boiler	Nonhealth	R/P
Dye vats or machines	Health	R/P
Flexible shower heads	Health	PVB
Heating equipment commercial	Nonhealth	R/P
Heating equipment domestic	Nonhealth	D/C

Hose bibs	Nonhealth	AVB
Kitchen equipment commercial	Nonhealth	PVB
Lab bench equipment	Health or Nonhealth	PVB
Ornamental fountains	Health	PVB
Swimming pools private	Nonhealth	PVB or A/G
Swimming pools public	Nonhealth	R/P or A/G
Sewage pump	Health	A/G
Sewage ejectors	Health	A/G
Shampoo basins	Nonhealth	PVB
Steam generators	Nonhealth	R/P
Steam tables	Nonhealth	PVB
Sterilizers	Health	R/P
Tank vats or other vessels containing toxic substances	Health	R/P
Trap primers	Health	A/G
Vending machines	Nonhealth	R/P or PVB
Watering troughs	Health	A/G or PVB

**Uses not listed in this table may require backflow prevention assemblies depending on the nature of the use, the equipment and the plumbing system. These will be determined on an individual basis by NBU.**

- h. *Auxiliary water supplies.* Where a customer is served by an auxiliary water supply in addition to the city water system, all applicable TCEQ regulations must be followed, and NBU will determine the type of backflow prevention assembly to be used.
- i. Backflow prevention for fire lines.
  - 1) Backflow prevention is required on all new fire line installations. The type and extent of backflow prevention needed for a particular fire protection system is subject to approval by NBU. Pressure losses across backflow prevention assemblies must be accommodated in the design or redesign of a fire protection system. This factor is particularly important when redesigning

existing fire protection system. All backflow prevention assemblies for fire line installations must be Underwriters Laboratory listed.

2) Backflow prevention requirements for fire lines:

Type of Fireline	Device or Assembly
Fireline with no chemical additive and no additional water supply Not more than 50' from tap or tee DCDA without leak detector meter	D/C / DCDA
Fire protection system utilizing chemical Additives*	A/G or R/P
Fire Protection system with access to an Auxiliary water supply**	A/G or R/P

\*Systems with chemical loops and/or foam injection will 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 the fire code. The installation of reduced pressure principle assemblies for containment backflow prevention 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 must be retrofitted with an approved assembly/**

- 3) Tri-water system or circulated closed-loop systems, such as a combination fire line, heating and cooling system are prohibited.
- 4) Full-flow testing or assembly tear-down requirements for fire line. Backflow prevention assemblies installed on fire lines must either be full-flow tested at least once each five years, or must be completely torn down and rebuilt at least once each five years if full-flow testing cannot be accomplished. The assembly must be cleaned and all rubber parts replaced when deemed necessary by the certified tester or the assembly manufacturer. Assemblies must be tagged by the tester to indicate the tear-down date. If within a five-year period, an assembly is torn-down, a new five-year tear-down period will begin at that time. If a backflow prevention assembly is found to be malfunctioning in an annual testing process, the assembly must be completely torn-down and rebuilt at that time. NBU will track individual assemblies to ensure compliance with these requirements.
- 5) Test and maintenance report form for fire line backflow prevention assemblies. Test and maintenance report forms used by fire line testers must include a confirmation that the system has been placed back in operation upon

completion of a test. Additionally, these forms must include an indication by the tester of whether a flow test was performed on an assembly within the previous 12 months. The tester will attach full-flow documentation to the form when submitted to NBU.

- 6) Single check valve. The single check valve is not considered to be an approved assembly, and will be used only in limited instances such as for directional flow control.

## **DIVISION 4. PROCEDURES**

### **In General**

- a. The procedures outlined in this division are based on the principle of containment of all actual and potential contamination hazards within the customer's system.
- b. A customer may request approval from NBU for a proposed deviation from or exception to the standards in this article. The request shall be in writing and submitted to the Backflow Specialist. In no case can a deviation or exception from TCEQ requirements be requested. NBU may approve a deviation or exception only if it does not involve a significant risk of increased contamination to the water system
- c. If a customer refuses to allow water and wastewater department representatives access for an inspection or a water use survey, NBU may either refuse or discontinue the customer's water service, or assume that a high contamination hazard exists, and therefore require the highest degree of protection on the customer's system.

### **New Facilities**

- a. All new facilities are required to comply with the requirements of this article. Compliance by a new utilities water system customer with the requirements for installation of one or more backflow prevention assemblies will be verified in conjunction with the customer's application for water service, or with the customer's building and plumbing permits.
- b. NBU may require field inspection of the customer's premises, in addition to plan submittal and review, to determine the actual or potential hazards and backflow prevention assembly requirements.
- c. All mechanical layouts or building plans submitted to the City of New Braunfels building inspections division will be reviewed to assure compliance with the requirements of this article and the plumbing code. All mechanical layouts or plans will be stamped by the City of New Braunfels building inspections to



indicate that containment backflow prevention may be required, and contact must be made with NBU for a determination.

- d. A new customer's application for water service must be accompanied by a mechanical layout or plan for all proposed structures to be connected to the utilities water system, showing or describing all plumbing arrangements and indicating the proposed type and size of backflow prevention assemblies to be installed. This information will be routed through New Braunfels Utilities Water Systems Engineering to ensure compliance with the provisions of the article. Upon installation and testing of the approved assembly or air gap arrangement, NBU will make a record of the installation.
- e. Customer service inspections. In accordance with TCEQ's Rules, NBU will require a customer service inspection certification in all of the following:
  - 1) prior to providing continuous water service to new construction:
  - 2) on any existing service when the water purveyor has reason to believe that cross connections or other unacceptable plumbing practices exist; and
  - 3) after any substantial improvement, alteration, correction, or addition to a customer's system.

### **Existing Facilities**

- a. Inspection procedure. NBU will inspect the existing facilities of all utilities water system customers of the types listed in previous list, that do not have a record of backflow prevention assembly installation on file in the NBU Water Systems Department. After the inspection is completed, the utilities will provide a written notice to the customer advising of the backflow prevention assembly requirements for the customer's system.
- b. Building inspections – plan review. Plans submitted to the building inspections division for approval of plumbing modifications, or additions to an existing plumbing system, will also be reviewed by NBU to determine the type of backflow prevention method or assembly required for the entire establishment. The method and type of assembly required will be noted on the plans.

### **Records and tests**

- a. In order to assure that backflow prevention assemblies continue to operate satisfactorily each commercial customer that is required to use an assembly is required to have periodic testing of the assembly performed in accordance with this section. All assemblies must be tested at the time of installation, and at the time of any repair or relocation. All tests and repairs must be performed by a certified tester. The tester must complete a test and maintenance report form and submit the original form to NBU. It will be the responsibility of the customer

to initiate the testing and any maintenance determined by the test to be necessary, and to submit written results to the director.

b. Time schedule. All assemblies must be tested in accordance with the following schedule:

- |                                   |          |
|-----------------------------------|----------|
| 1) Reduced Pressure               | Annually |
| 2) Double Check Assembly          | Annually |
| 3) Double Check Detector Assembly | Annually |
| 4) Pressure Type Vacuum Breaker   | Annually |
| 5) Atmospheric Vacuum Breaker     | Annually |

c. Testing by city. City or NBU personnel may perform periodic tests on assemblies at random locations to ensure that acceptable test standards are being followed by certified testers. City or NBU personnel may also randomly select and tag assemblies in a manner that will determine if the assemblies have been tested as required.

### **Costs**

All costs associated with compliance with this article, including purchase, installation, testing maintenance, repair and replacement are to be borne by the customer. Advisory assistance may be requested from the NBU Water Systems Engineering or City of New Braunfels Building Inspection Divisions without charge.

### **Penalty; Disconnection.**

- a. A person who knowingly or intentionally violates, or causes or permits the violation of, any provision of this article commits a misdemeanor, and is subject to penalty and conviction. Each day of an ongoing violation will be deemed to be a separate violation.
- b. Failure, refusal or inability on the part of a customer or user to comply with any provision of this article will constitute grounds for refusing or discontinuing water service.**