

The Texas Commission on Environmental Quality (TCEQ or commission) adopts amendments to §§290.44, 290.46, and 290.47. Sections 290.44 and 290.47 are adopted *without changes* as published in the May 2, 2008, issue of the *Texas Register* (33 TexReg 3552) and will not be republished. Section 290.46 is adopted *with changes* to the proposed text.

#### BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE ADOPTED RULES

The purposes of the adopted amendments are to reflect changes to the Texas Health and Safety Code (THSC), §341.042 and §341.0357 made during the 80th Legislative Session, 2007, in §11 of House Bill (HB) 4, HB 1391, and §2.28 of Senate Bill (SB) 3.

HB 4, §11 and SB 3, §2.28 amend THSC, §341.042, Standards for Harvested Rainwater, by requiring the commission to establish rules for structures that are connected to a public water supply system and have a rainwater harvesting system for indoor use. The structure must have appropriate cross-connection safeguards, and the rainwater harvesting system may be used only for nonpotable indoor purposes. The commission's standards and rules adopted under THSC, Chapter 341 do not apply to a person who harvests rainwater for domestic use and whose property is not connected to a public drinking water supply system. These amendments do not change the commission's existing rules in §290.44(h) and §290.47(i) regarding backflow prevention.

HB 1391 amends THSC, Chapter 341, Subchapter C by adding §341.0357, Public Safety Standards. This bill requires that the regulatory authority for a public utility, as defined in Texas Water Code (TWC), §13.002(23), serving a residential area adopt public safety standards to maintain sufficient water pressure to fire hydrants in residential areas in a municipality with a population of 1,000,000 or more. This section

requires the commission to assess residential areas in a municipality with a population of 1,000,000 or more to ensure that public safety standards are adopted by the regulatory authority for the area and that all public utilities serving the residential areas are complying with the standards required by THSC, §341.0357. The commission is proposing a minimum standard. The standard adopted by the local regulatory authority must meet or exceed this standard. The commission will require out-of-compliance regulatory authorities and public utilities to comply within a reasonable time using its existing enforcement rules and policies.

#### SECTION BY SECTION DISCUSSION

The commission adopts §290.44(j) to implement THSC, §341.042, as amended by HB 4, §11 and SB 3, §2.28, 80th Legislative Session, 2007, to establish rules for structures that are connected to a public water supply system and have a rainwater harvesting system for indoor use, including that the rainwater harvesting system may be used only for nonpotable indoor purposes.

The commission adopts §290.46(x) to meet the new public safety requirements from HB 1391. Adopted subsection (x) includes the requirement that the regulatory authority for a public utility adopt standards for maintaining sufficient water pressure for service to fire hydrants adequate to protect public safety. In subsection (x), the commission also adopts definitions for "regulatory authority," "public utility," and "residential area." These definitions are from TWC, §13.002(18) and (23) and THSC, §341.0357, respectively.

In accordance with HB 1391, subsection (x) only applies to municipalities with a population of 1,000,000 or more. The public safety standards only apply to "public utilities" as defined by TWC, §13.002 in

residential areas inside the corporate limits of the municipality. The standards are designed to provide adequate flow to fire hydrants. The adopted rule will require public utilities that do have fire hydrants to maintain sufficient water pressure adequate to protect public safety. The commission's adopted rule does not require a public utility to install fire hydrants if it currently does not have fire hydrants. However, a municipality can require the installation of fire hydrants under its own local authority. Resulting from comments received, the commission amended §290.46(x)(2) to demonstrate the duty imposed upon public utilities to deliver service to their fire hydrants during emergencies.

The commission's adopted rule sets a minimum standard for service to fire hydrants so that the flow is at least 250 gallons per minute (gpm) for a minimum period of two hours while maintaining a minimum pressure of 20 pounds per square inch (psi) throughout the distribution system during emergencies such as fire fighting. The commission intends to enforce this standard on public utilities to which it applies should the applicable local regulatory authority fail to adopt standards. The commission will also use that standard as the basis for determining whether local standards are inadequate under THSC, §341.0357(d). If a local regulatory authority adopts its own standard, the commission will enforce that standard on public utilities to which it applies.

The standard of 250 gpm for a minimum period of two hours while maintaining a minimum pressure of 20 psi comes from legislation, TCEQ rules, and insurance standards. HB 1717, 80th Legislative Session, 2007, defines a fire hydrant as non-functioning if it pumps less than 250 gpm. Existing §290.46(r) requires a public water system to provide a minimum pressure of 20 psi during emergencies such as firefighting. The Insurance Services Office (ISO), which rates municipality's fire systems for insurance

purposes, for a public protection classification of eight or better has a minimum standard of 250 gpm, with a minimum residual pressure of 20 psi, for a period of two hours.

The commission adopts the figure in §290.47(i) in response to THSC, §341.042, as amended by HB 4, §11 and SB 3, §2.28, 80th Legislative Session, 2007, to show that any rainwater harvesting system connected to a public water system is a connection that constitutes a potential health hazard and requires a reduced-pressure principle backflow assembly or an air gap. This requirement already applies to rainwater harvesting systems under the commission's current rules.

#### FINAL REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the adopted rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225 and determined that the rulemaking is not subject to Texas Government Code, §2001.0225 because it does not meet the definition of a "major environmental rule" as defined in Texas Government Code, §2001.0225 or does not meet the applicability criteria. A "major environmental rule" is a rule the specific intent of which is to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. The intent of the rulemaking is to incorporate changes made by HBs 4 and 1391 and SB 3 during the 80th Legislative Session, 2007, to THSC, §341.042 and §341.0357 (relating to Public Safety Standards). THSC, §341.0357, enacted by HB 1391, requires that the regulatory authority for a public utility serving a residential area adopt public safety standards to maintain sufficient water pressure to fire hydrants in residential areas in a municipality with a population of 1,000,000 or more. The specific intent of the adopted rulemaking related to this statute is to amend the commission's

rules to incorporate recent legislative changes that reduce risks to human safety but that are not intended to protect the environment or reduce risks to human health from environmental exposure. Therefore, this adopted rulemaking does not meet the definition of a "major environmental rule."

THSC, §341.042, amended by HB 4 and SB 3, requires structures that are connected to a public water supply system and have a rainwater harvesting system for indoor use to have cross-connection safeguards, and the harvesting system may be used only for nonpotable indoor purposes. The intent of the rules adopted under and in response to this statute is to reduce risks to human health from environmental exposure. However, Texas Government Code, §2001.0225 only applies to a major environmental rule, the result of which is to: (1) exceed a standard set by federal law, unless the rule is specifically required by state law; (2) exceed an express requirement of state law, unless the rule is specifically required by federal law; (3) exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; or (4) adopt a rule solely under the general powers of the agency instead of under a specific state law. This portion of the rulemaking does not meet any of these four applicability criteria because it: (1) does not involve any standard set by federal law; (2) does not exceed the requirements of THSC, §341.042 or any other state law; (3) does not exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; and (4) is not adopted solely under the general powers of the agency, but rather specifically under THSC, §341.042, which requires the commission to adopt rules to implement the statute, and THSC, §341.0315, which requires the commission to ensure that public drinking water supply systems supply safe drinking water. Therefore, these adopted rules do not fall under any of the applicability criteria in Texas Government Code, §2001.0225.

The commission invited public comment regarding the draft regulatory impact analysis determination during the public comment period. No comments were received on the draft regulatory impact analysis determination.

#### TAKINGS IMPACT ASSESSMENT

The commission evaluated these adopted rules and performed an analysis of whether they constitute a taking under Texas Government Code, Chapter 2007. The specific purpose of these rules is to reflect changes to THSC, §341.042 and §341.0357 made during the 80th Legislative Session, 2007. The adopted rules will substantially advance this stated purpose by clarifying current rules and incorporating the requirements found in these statutes into the commission's rules.

The commission's analysis indicates that Texas Government Code, Chapter 2007 does not apply to these adopted rules because this is an action that is reasonably taken to fulfill an obligation mandated by state law, which is exempt under Texas Government Code, §2007.003(b)(4). The commission is the regulatory agency for statutes found in THSC, Subchapter C, which contains §341.042 and §341.0357. The commission's analysis also indicates that Texas Government Code, Chapter 2007 does not apply to these adopted rules because this is an action that is taken in response to a real and substantial threat to public health and safety; that is designed to significantly advance the health and safety purpose; and that does not impose a greater burden than is necessary to achieve the health and safety purpose. The adopted rules are designed to protect public drinking water systems from contamination and ensure that certain fire hydrants receive proper water pressure without imposing unnecessary burdens. Thus, this action is exempt under Texas Government Code, §2007.003(b)(13).

Nevertheless, the commission further evaluated these adopted rules and performed an assessment of whether they constitute a taking under Texas Government Code, Chapter 2007. Promulgation and enforcement of these adopted rules would be neither a statutory nor a constitutional taking of private real property. Specifically, the subject adopted regulations do not affect a landowner's rights in private real property because this rulemaking does not burden nor restrict or limit the owner's right to property and reduce its value by 25% or more beyond that which would otherwise exist in the absence of the regulations. In other words, these rules require compliance with state statutes to protect public drinking water from contamination and provide sufficient water pressure for fire protection without burdening or restricting or limiting the owner's right to property and reducing its value by 25% or more. Therefore, the adopted rules do not constitute a taking under Texas Government Code, Chapter 2007.

#### CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the adopted rules and found that they are neither identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(b)(2) or (4), nor will they affect any action/authorization identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(a)(6). Therefore, the adopted rules are not subject to the Texas Coastal Management Program.

The commission invited public comment regarding the consistency with the coastal management program during the public comment period. No comments were received regarding the consistency of this rulemaking with the coastal management program.

#### PUBLIC COMMENT

The commission held a public hearing for this rule on May 29, 2008, in Austin, Texas. The public comment period for this rulemaking closed on June 2, 2008. The commission received comments from Bac-Flo Unlimited, Inc. (Bac-Flo); Bickerstaff, Heath, Delgado, Acosta, LLP, on behalf of the City of Houston (Houston); Innovative Water Solutions, LLC (Innovative Water); Preserve Our Water (POW); Trinity Rainwater, LLC (Trinity Rainwater); and one individual.

One individual and three commenters disagreed with the proposed rule restricting the use of harvested rainwater for indoor use to non-potable purposes. One individual and one commenter supported the commission's backflow prevention safeguards to address harvested rainwater usage. One commenter suggested multiple changes to the commission's proposed fire flow rule and the rule's preamble.

## RESPONSE TO COMMENTS

### *Background and Summary of the Factual Basis for Proposed Rules*

Houston commented that they do not agree with the following statement used in the proposal preamble under the discussion on HB 1391 "the appropriate standard will be determined by the governing body of the local regulatory authority on a site-specific basis dependent on the public water supply system design," as this statement could be misinterpreted as allowing the regulatory authority to deviate from the minimum standard adopted by the commission and the regulatory authority. Houston requests that the commission omit the phrase "site-specific basis" from the preamble of the adopted rule.

**The commission agrees that, even though a municipality could write an ordinance to allow for site-specific standards, this sentence could be misleading. The commission removed this sentence from the preamble in response to this comment.**

Houston commented that the last sentence used in the proposal preamble under the discussion on HB 1391 should refer to "regulatory authorities" instead of "regulated authorities."

**The commission agrees with this change and revised the preamble in response to this comment.**

*Section by Section Discussion*

Houston commented that in the third paragraph of the Section by Section portion of the preamble, the statement "the commission's proposed rule does not require a municipality to require that public utilities have fire hydrants in residential areas" may unintentionally exempt the systems which are not connected to fire hydrants from the minimum standards. Further, Houston contends that this statement in the preamble could be interpreted by the public utilities to require only the capacity and pressure to sustain service to a fire hydrant but not the delivery of the service. Additionally, Houston commented that the rule may conflict with the legislative intent of ensuring that public utilities serving residential areas are capable of supporting fire suppression efforts. Houston commented that HB 1717, 80th Legislative Session, 2007, applies to "any device having the appearance of a fire hydrant that is located in a place that an entity responsible for providing fire suppression services in a fire emergency would expect a fire hydrant to typically be located." Houston contends that HB 1717 recognized the existence of hydrant-shaped flush valves and the need to apply minimum fire-suppression capability standards to these devices and that HB 1391 does not contain qualifying language that would grandfather existing systems connected only to hydrant-shaped flush valves. Houston commented that when these bills are read together, HB 1391 and HB 1717 intend that a public utility system servicing a residential area in a city with a population of over 1,000,000 must meet the standard set for maintaining sufficient water pressure

for service to fire hydrants adequate to protect public safety. Houston's concern lies with the commission's statement that the "proposed rule does not require a municipality to require that public utilities have fire hydrants in residential areas," which could mean that a public utility does not need to install fire hydrants. Further, Houston acknowledges that the commission's proposed rules allow for local adoption of more stringent requirements; however, as Houston intends to require fire hydrants in residential areas under its home rule powers, Houston requests that the commission clarify in its preamble that the commission's rule does not preclude a municipal ordinance requiring fire hydrants and additionally requests that the commission delete the statement in question from its preamble.

**The commission acknowledges that utilities with fire hydrants must actually deliver the required capacity and pressure to their fire hydrants. However, the commission maintains that HB 1391 does not require a public utility to install fire hydrants if it currently does not have fire hydrants but that a municipality can require a utility to install fire hydrants under its own local authority. In response to this portion of the comment, the commission amended the descriptive language in the Section by Section Discussion to clarify the commission's position on the installation of fire hydrants and a municipality's authority. This portion of the comment also led the commission to conclude that §290.46(x)(2) of the rule should be amended by removing the phrase "have the ability to" to demonstrate the duty imposed upon public utilities to deliver service to their fire hydrants. The commission's rules are intended to implement HB 1391 which refers to fire hydrants; therefore, the commission's rule refers only to fire hydrants. The commission recognizes that regulatory authorities have ordinance authority beyond HB 1391. A regulatory authority may choose to pass an ordinance that covers devices having the appearance of a fire hydrant, such as a fire hydrant shaped flush valve. No changes were made in response to this portion of the comment.**

*Fiscal Note Provisions: Small Business and Micro Business Assessment*

Houston commented that the commission understated the fiscal impact of its proposed rules. Houston believes the estimated cost of design and construction of a six-inch water line is \$100 per linear foot, not \$18.20 as stated in the preamble. Houston further states that in most cases, a six-inch water line may not be adequate to support multiple fire hydrants and that the commission's preamble similarly understated the estimated storage costs. Houston's estimates are derived from bids from construction projects that are already in progress, and their unit cost includes engineering design, construction (including labor, material, and all apparatuses), construction management, and testing and surveying.

**The commission understands that the costs of design and construction can vary considerably from one part of the state to another and from one project to another. The commission's estimate consisted of the cost of installing the lines and the cost of a storage tank; no other costs were included. A water system's costs will vary according to the extent of the construction, the construction materials, the design of the existing facilities, and the difficulty of construction depending upon the construction location. The commission did seek current cost estimates from several stakeholders in the Houston area, including professional engineering firms. Those costs were used in developing the fiscal note. No changes were made in response to this comment.**

*§290.44. Water Distribution.*

An individual commented that THSC, §341.042(b)(1) requires harvested rainwater systems for indoor use to be protected by cross-connection safeguards; however, since a rainwater harvesting system is a self-contained and stand-alone system, it does not need to be connected with a public water supply system. If

the public water supply is needed as an auxiliary source of water, it should be allowed with the use of an air gap. The individual also commented that the requirement imposed by THSC, §341.042(b)(2) limiting the use of rainwater to non-potable purposes is unreasonable and unjustified. There is no need for separate plumbing lines in the house, one for potable and one for non-potable. Trinity Rainwater commented that the state needs to support water conservation and rainwater harvesting and further recommended that HB 4, §11 and SB 3, §2.28 be changed to allow potable use of rainwater with the installation of an air gap between the public water supply and a rainwater harvesting system. Innovative Water commented that the legislation affects its business by restricting their clients' option to use harvested rainwater for potable usage inside their homes. Innovative Water commented that municipalities already have existing regulations to ensure backflow prevention for structures that are connected to a public water system and a rainwater harvesting system. Innovative Water also commented that homeowners should have the right to use harvested rainwater for indoor potable purposes as long as they comply with applicable cross connection laws and regulations.

**During the 80th Legislative Session, 2007, both SB 3, §2.28 and HB 4, §11 amended THSC, §341.042 to require that structures connected to a public water system that also have a rainwater harvesting system for indoor use can only use the rainwater harvesting system for "nonpotable indoor purposes." The commission's proposed rule language was taken directly from those legislative acts and is consistent with those amendments to the THSC, as authorized by the legislature. The commission does not have the authority to make changes to the THSC. No changes were made in response to this comment.**

Innovative Water recommends that the commission establish statewide regulations for cross connection and backflow prevention.

**The commission responds that it has a cross connection control program addressed in §290.44(h) and §290.47(i). The commission's program covers actual or potential contamination hazards. Furthermore, the requested changes are outside the scope of this rulemaking, as this rule implements only the changes made in response to HB 4, §11 and SB 3, §2.28, passed during the 80th Legislative Session, 2007, which amended THSC, §341.042. No changes were made in response to this comment.**

Bac-Flo commented that for pipes carrying rainwater, a standard for orange piping should be used and labeled with "RAIN WATER - NON-POTABLE" instead of the purple piping that is the standard for tertiary treated water, which is treated as sewer water. Innovative Water recommends the commission establish regulations for the marking of the pipes used for potable rainwater inside the home so that home buyers will be aware that the pipes come from the rainwater harvesting system and not the public water supply system.

**The commission responds that it would need to seek additional stakeholder input and guidance outside the scope of this rulemaking regarding whether the commission has the authority to require certain plumbing practices. Furthermore, the requested changes are outside the scope of this rulemaking, as this rule implements only the changes made in response to HB 4, §11, and SB 3, §2.28, during the 80th Legislative Session, 2007, which amended THSC, §341.042. No changes were made in response to this comment.**

POW commented that the Texas Water Development Board's report to the legislature on the topic of rainwater harvesting makes clear that harvested rainwater will be an essential component of meeting the future water needs for Texas. POW requested that the commission use its influence and authority with the legislature to modify the statute to eliminate the restriction of the use of harvested rainwater. An individual commented that the commission should work with the legislature and remove the sentence in THSC, §341.042(b) that restricts rainwater for indoor use to only non-potable uses.

**During the 80th Legislative Session, 2007, both SB 3, §2.28 and HB 4, §11 amended THSC, §341.042 to require that a structure connected to a public water system that also has a rainwater harvesting system for indoor use can only use the rainwater harvesting system for "nonpotable indoor purposes." The commission's rule is consistent with this amendment to the THSC, as authorized by the legislature. No changes were made in response to this comment.**

*§290.46. Minimum Acceptable Operating Practices for Public Drinking Water Systems.*

Houston commented that the eight utilities within its certificated area affected by the rule do not have fire hydrants because they do not have fire flow pressure to service fire hydrants. Houston's interpretation of the commission's proposed rule to implement HB 1391 is that these eight utilities would be exempt because these utilities are not required to have fire hydrants; therefore, the eight utilities would not have to meet the fire flow standards. Houston disagrees with this position. According to Houston, the rule could also be interpreted to mean that the utility would be required to have adequate pressure but not have a fire hydrant. Houston commented that HB 1391 requires that standards for maintaining sufficient water pressure for service to fire hydrants adequate to protect public safety must be adopted and that this means

that fire hydrants must be provided by the utilities. Houston further states that HB 1391 gives the commission the authority to require the installation of fire hydrants and that the commission should do so by utilizing Houston's proposed language that would require a public utility to install and connect functioning fire hydrants to the public utility's water system.

**The commission's adopted rule does not require a public utility to install fire hydrants if it currently does not have fire hydrants. However, a municipality can require the installation of fire hydrants under its own local authority. The commission maintains that if a utility does not have any fire hydrants, then §290.46(x) will not apply to the utility. For example, a city can adopt an ordinance requiring barbeque grills to be used at least 10 feet from any building. If a citizen has a barbeque grill within that city, the city's ordinance will apply, and the citizen will have to operate the grill at a proper distance. However, the citizen would not be required to purchase a barbeque grill if he does not already own one and then use it at the proper distance. It follows that if a utility has fire hydrants, then it must abide by this rule and any city standard adopted under it. However, if the utility does not have fire hydrants, it would not be required under these amendments to install fire hydrants and then comply with this rule. Also, the rule addresses the provision of service to fire hydrants, so the interpretation that a public utility would be required to maintain adequate pressure under this rule when it has no fire hydrants would be an incorrect interpretation. No changes were made in response to this comment.**

Houston commented that by including the definition of "public utility" as stated in TWC, §13.002(23), it implies that entities which provide sewer service are also required to comply with the fire flow

requirements of the rule. Houston requests that the commission revise the definition of a public utility to exclude sewer utilities.

**HB 1391, which amended THSC, §341.0357(a)(1), states "{a} public utility has the meaning assigned by Section 13.002, Water Code." The language used in proposed §290.46(x)(1)(B) was taken directly from the statute. It is beyond the authority granted the commission to make changes to the THSC or the TWC. Furthermore, §290.46(x) addresses the provision of service to fire hydrants, which would not be connected to a sewer system. No changes were made in response to this comment.**

Houston commented on the rule language proposed in §290.46(x)(2), suggesting modification to the requirement that a public water system must provide a minimum pressure of 20 psi by making it applicable only under emergency circumstances.

**The commission agrees that the requirement applies during emergencies and amended §290.46(x)(2) to specify that the public utility must deliver service during emergencies such as fire fighting.**

Houston commented that in the Section by Section Discussion's fourth paragraph, the commission stated that it intends to enforce its minimum standard for service on public utilities should the applicable local regulatory authority fail to adopt standards. Additionally, the commission will use the minimum standard to evaluate the adequacy of the local standards. Houston commented that it is unclear whether the commission will determine compliance by public utilities with the standards adopted by the local

regulatory authority. Houston states that HB 1391 requires the commission to assess and ensure that the regulatory authority adopted the required standards and that all public utilities serving residential areas are complying with the standards. Houston contends that the commission must exercise its broad enforcement authority to ensure that public utilities are in compliance with standards required to be set by the local regulatory authority and provided additional new rule language that spells out this enforcement authority.

**The commission maintains that it has sufficient authority to enforce the rule as written. THSC, §341.0357 explicitly requires the commission to enforce the requirements contained therein. Section 290.46(x) states that a municipality with a population of 1,000,000 or more with a public utility within its corporate limits must adopt standards and that a public utility within the residential area of the municipality must comply with those standards. The commission will enforce this rule as it would any of its other rules, including ensuring that any public utility affected by this rule is complying with a municipality's standards as required. While the commission declines to amend the rule in response to this comment, the commission amended the descriptive language in the Section by Section Discussion to clarify that it will enforce a municipality's standard.**

*§290.47. Appendices.*

Bac-Flo commented that §290.47(i), Appendix I, does not list rainwater harvesting in the Internal Protection listing. Currently, a rainwater harvesting system can only be connected to another source of water through an air gap separation.

**The commission acknowledges the comment and will seek additional stakeholder input and guidance outside the scope of this rulemaking regarding whether the commission has the authority to require internal protection for rainwater harvesting systems. No changes were made in response to this comment.**

Bac-Flo recommends that the TCEQ review all of the current auxiliary water source backflow prevention requirements. Bac-Flo also stated that in §290.47(i), Appendix I, under Premises Isolation, Connection to Sewer Pipe, the commission allows a connection to a sewer pipe with a reduced pressure backflow assembly or air gap. However, plumbing codes do not allow a connection to a sewer pipe, and the only recognized backflow prevention method in this specific instance is an air gap. Further, Bac-Flo commented that in §290.47(i), Appendix I, the heading for internal protection should be changed from "required" to "recommended" because the commission's regulations apply to containment requirements and not particularly to internal cross connection protection requirements.

**The commission responds that the requested changes to Appendix I would be outside the scope of this rulemaking, as this rule implements only the changes made in response to HB 4, §11 and SB 3, §2.28, passed by the 80th Legislative Session, 2007, which amended THSC, §341.042. However, the change from "required" to "recommended" may be revisited in a future rulemaking. No changes were made in response to this comment.**

## **SUBCHAPTER D: RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS**

### **§§290.44, 290.46, 290.47**

#### STATUTORY AUTHORITY

These amendments are adopted under Texas Water Code (TWC), §5.102, which establishes the commission's general authority necessary to carry out its jurisdiction, §5.103, which establishes the commission's general authority to adopt rules, §5.105, which establishes the commission's authority to set policy by rule; Texas Health and Safety Code (THSC), §341.0315, which requires the commission to ensure that public drinking water supply systems supply safe drinking water, §341.042, which requires the commission to enforce the requirements contained therein, and §341.0357, which requires the commission to enforce the requirements contained therein.

The adopted amendments implement THSC, §§341.0315, 341.042, and 341.0357.

#### **§290.44. Water Distribution.**

(a) Design and standards. All potable water distribution systems including pump stations, mains, and both ground and elevated storage tanks, shall be designed, installed, and constructed in accordance with current American Water Works Association (AWWA) standards with reference to materials to be used and construction procedures to be followed. In the absence of AWWA standards, commission review may be based upon the standards of the American Society for Testing and Materials (ASTM), commercial, and other recognized standards utilized by licensed professional engineers.

(1) All newly installed pipes and related products must conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61 and must be certified by an organization accredited by ANSI.

(2) All plastic pipe for use in public water systems must also bear the National Sanitation Foundation Seal of Approval (NSF-pw) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less.

(3) No pipe which has been used for any purpose other than the conveyance of drinking water shall be accepted or relocated for use in any public drinking water supply.

(4) Water transmission and distribution lines must be installed in accordance with the manufacturer's instructions. However, the top of the waterline must be located below the frost line and in no case shall the top of the waterline be less than 24 inches below ground surface.

(5) The hydrostatic leakage rate shall not exceed the amount allowed or recommended by AWWA formulas.

(b) Lead ban. The following provisions apply to the use of lead in plumbing.

(1) The use of pipes and pipe fittings that contain more than 8.0% lead or solders and flux that contains more than 0.2% lead is prohibited in the following circumstances:

(A) for installation or repair of any public water supply; and

(B) for installation or repair of any plumbing in a residential or nonresidential facility providing water for human consumption and connected to a public drinking water supply system.

(2) This requirement will be waived for lead joints that are necessary for repairs to cast iron pipe.

(c) Minimum waterline sizes. The minimum waterline sizes are for domestic flows only and do not consider fire flows. Larger pipe sizes shall be used when the licensed professional engineer deems it necessary. It should be noted that the required sizes are based strictly on the number of customers to be served and not on the distances between connections or differences in elevation or the type of pipe. No new waterline under two inches in diameter will be allowed to be installed in a public water system distribution system. These minimum line sizes do not apply to individual customer service lines.

Figure: 30 TAC §290.44(c) (No change.)

<b>Maximum Number of Connections</b>	<b>Minimum Line Size (inches)</b>
10	2
25	2.5
50	3
100	4
150	5
250	6
>250	8 and larger

(d) Minimum pressure requirement. The system must be designed to maintain a minimum pressure of 35 psi at all points within the distribution network at flow rates of at least 1.5 gallons per minute per connection. When the system is intended to provide fire fighting capability, it must also be

designed to maintain a minimum pressure of 20 psi under combined fire and drinking water flow conditions.

(1) Air release devices shall be installed in the distribution system at all points where topography or other factors may create air locks in the lines. Air release devices shall be installed in such a manner as to preclude the possibility of submergence or possible entrance of contaminants. In this respect, all openings to the atmosphere shall be covered with 16-mesh or finer, corrosion-resistant screening material or an acceptable equivalent.

(2) When service is to be provided to more than one pressure plane or when distribution system conditions and demands are such that low pressures develop, the method of providing increased pressure shall be by means of booster pumps taking suction from storage tanks. If an exception to this requirement is desired, the designing engineer must furnish for the executive director's review all planning material for booster pumps taking suction from other than a storage tank. The planning material must contain a full description of the supply to the point of suction, maximum demands on this part of the system, location of pressure recorders, safety controls, and other pertinent information. Where booster pumps are installed to take suction directly from the distribution system, a minimum residual pressure of 20 psi must be maintained on the suction line at all times. Such installations must be equipped with automatic pressure cut-off devices so that the pumping units become inoperative at a suction pressure of less than 20 psi. In addition, a continuous pressure recording device may be required at a predetermined suspected critical pressure point on the suction line in order to record the hydraulic conditions in the line at all times. If such a record indicates critical minimum pressures (less than 20 psi), adequate storage facilities must be installed with the booster pumps taking suction from the storage facility. Fire pumps

used to maintain pressure on automatic sprinkler systems only for fire protection purposes are not considered as in-line booster pumps.

(3) Service connections that require booster pumps taking suction from the public water system lines must be equipped with automatic pressure cut-off devices so that the pumping units become inoperative at a suction pressure of less than 20 psi. Where these types of installations are necessary, the preferred method of pressure maintenance consists of an air gapped connection with a storage tank and subsequent repressurization facilities.

(4) Each community public water system shall provide accurate metering devices at each residential, commercial, or industrial service connection for the accumulation of water usage data. A water system that furnishes the services or commodity only to itself or its employees when that service or commodity is not resold to or used by others is exempt from this requirement.

(5) The system shall be provided with sufficient valves and blowoffs so that necessary repairs can be made without undue interruption of service over any considerable area and for flushing the system when required. The engineering report shall establish criteria for this design.

(6) The system shall be designed to afford effective circulation of water with a minimum of dead ends. All dead-end mains shall be provided with acceptable flush valves and discharge piping. All dead-end lines less than two inches in diameter will not require flush valves if they end at a customer service. Where dead ends are necessary as a stage in the growth of the system, they shall be located and arranged to ultimately connect the ends to provide circulation.

(e) Location of waterlines. The following rules apply to installations of waterlines, wastewater mains or laterals, and other conveyances/appurtenances identified as potential sources of contamination.

Furthermore, all ratings specified shall be defined by ASTM or AWWA standards unless stated otherwise. New mains, service lines, or laterals are those that are installed where no main, service line, or lateral previously existed, or where existing mains, service lines, or laterals are replaced with pipes of different size or material.

(1) When new potable water distribution lines are constructed, they shall be installed no closer than nine feet in all directions to wastewater collection facilities. All separation distances shall be measured from the outside surface of each of the respective pieces.

(2) Potable water distribution lines and wastewater mains or laterals that form parallel utility lines shall be installed in separate trenches.

(3) No physical connection shall be made between a drinking water supply and a sewer line. Any appurtenance shall be designed and constructed so as to prevent any possibility of sewage entering the drinking water system.

(4) Where the nine-foot separation distance cannot be achieved, the following criteria shall apply.

(A) New waterline installation - parallel lines.

(i) Where a new potable waterline parallels an existing, non-pressure or pressure rated wastewater main or lateral and the licensed professional engineer licensed in the State of Texas is able to determine that the existing wastewater main or lateral is not leaking, the new potable

waterline shall be located at least two feet above the existing wastewater main or lateral, measured vertically, and at least four feet away, measured horizontally, from the existing wastewater main or lateral. Every effort shall be exerted not to disturb the bedding and backfill of the existing wastewater main or lateral.

(ii) Where a new potable waterline parallels an existing pressure rated wastewater main or lateral and it cannot be determined by the licensed professional engineer if the existing line is leaking, the existing wastewater main or lateral shall be replaced with at least 150 psi pressure rated pipe. The new potable waterline shall be located at least two feet above the new wastewater line, measured vertically, and at least four feet away, measured horizontally, from the replaced wastewater main or lateral.

(iii) Where a new potable waterline parallels a new wastewater main, the wastewater main or lateral shall be constructed of at least 150 psi pressure rated pipe. The new potable waterline shall be located at least two feet above the wastewater main or lateral, measured vertically, and at least four feet away, measured horizontally, from the wastewater main or lateral.

(B) New waterline installation - crossing lines.

(i) Where a new potable waterline crosses an existing, non-pressure rated wastewater main or lateral, one segment of the waterline pipe shall be centered over the wastewater main or lateral such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the centerline of the wastewater main or lateral. The potable waterline shall be at least two feet above the wastewater main or lateral. Whenever possible, the crossing shall be centered between the joints of the

wastewater main or lateral. If the existing wastewater main or lateral is disturbed or shows signs of leaking, it shall be replaced for at least nine feet in both directions (18 feet total) with at least 150 psi pressure rated pipe.

(ii) Where a new potable waterline crosses an existing, pressure rated wastewater main or lateral, one segment of the waterline pipe shall be centered over the wastewater main or lateral such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the centerline of the wastewater main or lateral. The potable waterline shall be at least six inches above the wastewater main or lateral. Whenever possible, the crossing shall be centered between the joints of the wastewater main or lateral. If the existing wastewater main or lateral shows signs of leaking, it shall be replaced for at least nine feet in both directions (18 feet total) with at least 150 psi pressure rated pipe.

(iii) Where a new potable waterline crosses a new, non-pressure rated wastewater main or lateral and the standard pipe segment length of the wastewater main or lateral is at least 18 feet, one segment of the waterline pipe shall be centered over the wastewater main or lateral such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the centerline of the wastewater main or lateral. The potable waterline shall be at least two feet above the wastewater main or lateral. Whenever possible, the crossing shall be centered between the joints of the wastewater main or lateral. The wastewater pipe shall have a minimum pipe stiffness of 115 psi at 5.0% deflection. The wastewater main or lateral shall be embedded in cement stabilized sand (see clause (vi) of this subparagraph) for the total length of one pipe segment plus 12 inches beyond the joint on each end.

(iv) Where a new potable waterline crosses a new, non-pressure rated wastewater main or lateral and a standard length of the wastewater pipe is less than 18 feet in length, the potable water pipe segment shall be centered over the wastewater line. The materials and method of installation shall conform with one of the following options.

(I) Within nine feet horizontally of either side of the waterline, the wastewater pipe and joints shall be constructed with pipe material having a minimum pressure rating of at least 150 psi. An absolute minimum vertical separation distance of two feet shall be provided. The wastewater main or lateral shall be located below the waterline.

(II) All sections of wastewater main or lateral within nine feet horizontally of the waterline shall be encased in an 18-foot (or longer) section of pipe. Flexible encasing pipe shall have a minimum pipe stiffness of 115 psi at 5.0% deflection. The encasing pipe shall be centered on the waterline and shall be at least two nominal pipe diameters larger than the wastewater main or lateral. The space around the carrier pipe shall be supported at five-foot (or less) intervals with spacers or be filled to the springline with washed sand. Each end of the casing shall be sealed with watertight non-shrink cement grout or a manufactured watertight seal. An absolute minimum separation distance of six inches between the encasement pipe and the waterline shall be provided. The wastewater line shall be located below the waterline.

(III) When a new waterline crosses under a wastewater main or lateral, the waterline shall be encased as described for wastewater mains or laterals in subclause (II) of this clause or constructed of ductile iron or steel pipe with mechanical or welded joints as appropriate. An

absolute minimum separation distance of one foot between the waterline and the wastewater main or lateral shall be provided. Both the waterline and wastewater main or lateral must pass a pressure and leakage test as specified in AWWA C600 standards.

(v) Where a new potable waterline crosses a new, pressure rated wastewater main or lateral, one segment of the waterline pipe shall be centered over the wastewater line such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the center line of the wastewater main or lateral. The potable waterline shall be at least six inches above the wastewater main or lateral. Whenever possible, the crossing shall be centered between the joints of the wastewater main or lateral. The wastewater pipe shall have a minimum pressure rating of at least 150 psi. The wastewater main or lateral shall be embedded in cement stabilized sand (see clause (vi) of this subparagraph) for the total length of one pipe segment plus 12 inches beyond the joint on each end.

(vi) Where cement stabilized sand bedding is required, the cement stabilized sand shall have a minimum of 10% cement per cubic yard of cement stabilized sand mixture, based on loose dry weight volume (at least 2.5 bags of cement per cubic yard of mixture). The cement stabilized sand bedding shall be a minimum of six inches above and four inches below the wastewater main or lateral. The use of brown coloring in cement stabilized sand for wastewater main or lateral bedding is recommended for the identification of pressure rated wastewater mains during future construction.

(5) Waterline and wastewater main or lateral manhole or cleanout separation. The separation distance from a potable waterline to a wastewater main or lateral manhole or cleanout shall be

a minimum of nine feet. Where the nine-foot separation distance cannot be achieved, the potable waterline shall be encased in a joint of at least 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at five-foot intervals with spacers or be filled to the springline with washed sand. The encasement pipe shall be centered on the crossing and both ends sealed with cement grout or manufactured sealant.

(6) Location of fire hydrants. Fire hydrants shall not be installed within nine feet vertically or horizontally of any wastewater main, wastewater lateral, or wastewater service line regardless of construction.

(7) Location of potable or raw water supply or suction lines. Suction mains to pumping equipment shall not cross wastewater mains, wastewater laterals, or wastewater service lines. Raw water supply lines shall not be installed within five feet of any tile or concrete wastewater main, wastewater lateral, or wastewater service line.

(8) Proximity of septic tank drainfields. Waterlines shall not be installed closer than ten feet to septic tank drainfields.

(f) Sanitary precautions and disinfection. Sanitary precautions, flushing, disinfection procedures, and microbiological sampling as prescribed in AWWA standards for disinfecting water mains shall be followed in laying waterlines.

(1) Pipe shall not be laid in water or placed where it can be flooded with water or sewage during its storage or installation.

(2) Special precautions must be taken when waterlines are laid under any flowing or intermittent stream or semipermanent body of water such as marsh, bay, or estuary. In these cases, the water main shall be installed in a separate watertight pipe encasement and valves must be provided on each side of the crossing with facilities to allow the underwater portion of the system to be isolated and tested to determine that there are no leaks in the underwater line. Alternately, and with the permission of the executive director, the watertight pipe encasement may be omitted.

(3) New mains shall be thoroughly disinfected in accordance with AWWA Standard C651 and then flushed and sampled before being placed in service. Samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure. Sampling shall be repeated if contamination persists. A minimum of one sample for each 1,000 feet of completed waterline will be required or at the next available sampling point beyond 1,000 feet as designated by the design engineer.

(g) Interconnections.

(1) Each proposal for a direct connection between public drinking water systems under separate administrative authority will be considered on an individual basis.

(A) Documents covering the responsibility for sanitary control shall accompany the submitted planning material.

(B) Each water supply shall be of a safe, potable quality.

(2) Where an interconnection between systems is proposed to provide a second source of supply for one or both systems, the system being utilized as a second source of supply must be capable of supplying a minimum of 0.35 gallons per minute per connection for the total number of connections in the combined distribution systems.

(h) Backflow, siphonage.

(1) 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.

(A) At any residence or establishment where an actual or potential contamination hazard exists, additional protection shall be required at the meter in the form of an air gap or backflow prevention assembly. The type of backflow prevention assembly required shall be determined by the specific potential hazard identified in §290.47(i) of this title (relating to Appendices).

(B) At any residence or establishment where an actual or potential contamination hazard exists and an adequate internal cross-connection control program is in effect, backflow protection at the water service entrance or meter is not required.

(i) An adequate internal cross-connection control program shall include an annual inspection and testing by a certified backflow prevention assembly tester on all backflow prevention assemblies used for health hazard protection.

(ii) Copies of all such inspection and test reports must be obtained and kept on file by the water purveyor.

(iii) It will be the responsibility of the water purveyor to ensure that these requirements are met.

(2) No water connection from any public drinking water supply system shall be connected to any condensing, cooling, or industrial process or any other system of nonpotable usage over which the public water supply system officials do not have sanitary control, unless the 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.

(3) Overhead bulk water dispensing stations must be provided with an air gap between the filling outlet hose and the receiving tank to protect against back siphonage and cross-contamination.

(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 prevention assembly tester.

(A) Recognized backflow prevention assembly testers shall have completed an executive director approved course on cross-connection control and backflow prevention assembly testing, pass an examination administered by the executive director, and hold a current license as a backflow prevention assembly tester.

(i) Backflow prevention assembly testers are qualified to test and repair assemblies on any domestic, commercial, industrial, or irrigation service.

(ii) Backflow prevention assembly testers may test and repair assemblies on firelines only if they are permanently employed by an Approved Fireline Contractor. The State Fire Marshal's office requires that any person performing maintenance on firelines must be employed by an Approved Fireline Contractor.

(B) Gauges used in the 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 the American Water Works Association Recommended Practice for Backflow Prevention and Cross-Connection Control (Manual M14). Public water systems shall require testers to include test gauge serial numbers on "Test and Maintenance" report forms and ensure testers have gauges tested for accuracy.

(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 submitted to the public water supplier for recordkeeping purposes. Any form which varies from the format specified in Appendix F located in §290.47(f) of this title must be approved by the executive director prior to being placed in use.

(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.

(6) At any residence or establishment where there is no actual or potential contamination hazard, a backflow prevention assembly is not required.

(i) Water hauling. When drinking water is distributed by tank truck or trailer, it must be accomplished in the following manner.

(1) Water shall be obtained from an approved source.

(2) The equipment used to haul the water must be approved by the executive director and must be constructed as follows.

(A) The tank truck or trailer shall be used for transporting drinking water only and shall be labeled "Drinking Water." Tanks which have been used previously for purposes other than transporting potable liquids shall not be used for hauling drinking water.

(B) The tank shall be watertight and of an approved material which is impervious and easily cleaned and disinfected. Any paint or coating and any plastic or fiberglass materials used as contact surfaces must be approved by the United States Environmental Protection Agency, the United States Food and Drug Administration, or the NSF. Effective January 1, 1993, any newly installed surfaces shall conform to ANSI/NSF Standard 61 and must be certified by an organization accredited by ANSI.

(C) The tank shall have a manhole and a manhole cover which overlaps the raised manhole opening by a minimum of two inches and terminates in a downward direction. The cover shall fit firmly on the manhole opening and shall be kept locked.

(D) The tank shall have a vent which is faced downward and located to minimize the possibility of drawing contaminants into the stored water. The vent must be screened with 16-mesh or finer corrosion-resistant material.

(E) Connections for filling and emptying the tank shall be properly protected to prevent the possible entrance of contamination. These openings must be provided with caps and keeper chains.

(F) A drain shall be provided which will completely empty the tank for cleaning or repairs.

(G) When a pump is used to transfer the water from the tank, the pump shall be permanently mounted with a permanent connection to the tank. The discharge side of the pump shall be properly protected between uses by a protective cap and keeper chain.

(H) Hoses used for the transfer of drinking water to and from the tank shall be used only for that purpose and labeled for drinking water only. The hoses shall conform to ANSI/NSF Standard 61 and must be certified by an entity recognized by the commission. Hoses and related appurtenances must be cleaned and disinfected on a regular basis during prolonged use or before start-up during intermittent use. Hoses must be properly stored between uses and must be provided with caps and keeper chains or have the ends connected together.

(I) The tank shall be disinfected monthly and at any time that contamination is suspected.

(J) At least one sample per month from each tank shall be collected and submitted for microbiological analysis to one of the commission's approved laboratories for each month of operation.

(K) A minimum free chlorine residual of 0.5 mg/L or, if chloramines are used as the primary disinfectant, a chloramine residual of 1.0 mg/L (measured as total chlorine) shall be

maintained in the water being hauled. Chlorine or chlorine containing compounds may be added on a "batch" basis to maintain the required residual.

(L) Operational records detailing the amount of water hauled, purchases, microbiological sampling results, chlorine residual readings, dates of disinfection, and source of water shall be maintained.

(j) If a structure is connected to a public water supply system and has a rainwater harvesting system for indoor use, the structure must have appropriate cross-connection safeguards in accordance with subsection (h)(1) of this section and the rainwater harvesting system may be used only for nonpotable indoor purposes.

**§290.46. Minimum Acceptable Operating Practices for Public Drinking Water Systems.**

(a) General. When a public drinking water supply system is to be established, plans shall be submitted to the executive director for review and approval prior to the construction of the system. All public water systems are to be constructed in conformance with the requirements of this subchapter and maintained and operated in accordance with the following minimum acceptable operating practices. Owners and operators shall allow entry to members of the commission and employees and agents of the commission onto any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to public water systems in the state. Members, employees, or agents acting under this authority shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his presence and shall exhibit proper credentials.

(b) Microbiological. Submission of samples for microbiological analysis shall be as required by Subchapter F of this chapter (relating to Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems). Microbiological samples may be required by the executive director for monitoring purposes in addition to the routine samples required by the drinking water standards. These samples shall be submitted to a certified laboratory. (A list of the certified laboratories can be obtained by contacting the executive director).

(c) Chemical. Samples for chemical analysis shall be submitted as directed by the executive director.

(d) Disinfectant residuals and monitoring. A disinfectant residual must be continuously maintained during the treatment process and throughout the distribution system.

(1) Disinfection equipment shall be operated and monitored in a manner that will assure compliance with the requirements of §290.110 of this title (relating to Disinfectant Residuals).

(2) The disinfection equipment shall be operated to maintain the following minimum disinfectant residuals in each finished water storage tank and throughout the distribution system at all times:

(A) a free chlorine residual of 0.2 milligrams per liter (mg/L); or

(B) a chloramine residual of 0.5 mg/L (measured as total chlorine) for those systems that feed ammonia.

(e) Operation by trained and licensed personnel. Except as provided in paragraph (1) of this subsection, the production, treatment, and distribution facilities at the public water system must be operated at all times under the direct supervision of a water works operator who holds an applicable, valid license issued by the executive director.

(1) Transient noncommunity public water systems are exempt from the requirements of this subsection if they use only groundwater or purchase treated water from another public water system.

(2) All public water systems that are subject to the provisions of this subsection shall meet the following requirements.

(A) Public water systems shall not allow new or repaired production, treatment, storage, pressure maintenance, or distribution facilities to be placed into service without the prior guidance and approval of a licensed water works operator.

(B) Public water systems shall ensure that their operators are trained regarding the use of all chemicals used in the water treatment plant. Training programs shall meet applicable standards established by the Occupational Safety and Health Administration (OSHA) or the Texas Hazard Communications Act, Texas Health and Safety Code, Title 6, Chapter 502.

(C) Public water systems using chlorine dioxide shall place the operation of the chlorine dioxide facilities under the direct supervision of a licensed operator who has a Class "C" or higher license.

(3) Systems that only purchase treated water shall meet the following requirements in addition to the requirements contained in paragraph (2) of this subsection.

(A) Purchased water systems serving no more than 250 connections must employ an operator who holds a Class "D" or higher license.

(B) Purchased water systems serving more than 250 connections, but no more than 1,000 connections, must employ an operator who holds a Class "C" or higher license.

(C) Purchased water systems serving more than 1,000 connections must employ at least two operators who hold a Class "C" or higher license and who each work at least 16 hours per month at the public water system's treatment or distribution facilities.

(4) Systems that treat groundwater and do not treat surface water or groundwater that is under the direct influence of surface water shall meet the following requirements in addition to the requirements contained in paragraph (2) of this subsection.

(A) Groundwater systems serving no more than 250 connections must employ an operator with a Class "D" or higher license.

(B) Groundwater systems serving more than 250 connections, but no more than 1,000 connections, must employ an operator with a Class "C" or higher groundwater license.

(C) Groundwater systems serving more than 1,000 connections must employ at least two operators who hold a Class "C" or higher groundwater license and who each work at least 16 hours per month at the public water system's production, treatment, or distribution facilities.

(5) Systems that treat groundwater that is under the direct influence of surface water must meet the following requirements in addition to the requirements contained in paragraph (2) of this subsection.

(A) Systems which serve no more than 1,000 connections and utilize cartridge or membrane filters must employ an operator who holds a Class "C" or higher groundwater license and has completed a four-hour training course on monitoring and reporting requirements or who holds a Class "C" or higher surface water license and has completed the Groundwater Production course.

(B) Systems which serve more than 1,000 connections and utilize cartridge or membrane filters must employ at least two operators who meet the requirements of subparagraph (A) of this paragraph and who each work at least 24 hours per month at the public water system's production, treatment, or distribution facilities.

(C) Systems which serve no more than 1,000 connections and utilize coagulant addition and direct filtration must employ an operator who holds a Class "C" or higher surface water

license and has completed the Groundwater Production course or who holds a Class "C" or higher groundwater license and has completed a Surface Water Production course. Effective January 1, 2007, the public water system must employ at least one operator who has completed the Surface Water Unit I course and the Surface Water Unit II course.

(D) Systems which serve more than 1,000 connections and utilize coagulant addition and direct filtration must employ at least two operators who meet the requirements of subparagraph (C) of this paragraph and who each work at least 24 hours per month at the public water system's production, treatment, or distribution facilities. Effective January 1, 2007, the public water system must employ at least two operators who have completed the Surface Water Unit I course and the Surface Water Unit II course.

(E) Systems which utilize complete surface water treatment must comply with the requirements of paragraph (6) of this subsection.

(F) Each plant must have at least one Class "C" or higher operator on duty at the plant when it is in operation or the plant must be provided with continuous turbidity and disinfectant residual monitors with automatic plant shutdown and alarms to summon operators so as to ensure that the water produced continues to meet the commission's drinking water standards during periods when the plant is not staffed.

(6) Systems that treat surface water must meet the following requirements in addition to the requirements contained in paragraph (2) of this subsection.

(A) Surface water systems that serve no more than 1,000 connections must employ at least one operator who holds a Class "B" or higher surface water license. Part-time operators may be used to meet the requirements of this subparagraph if the operator is completely familiar with the design and operation of the plant and spends at least four consecutive hours at the plant at least once every 14 days and the system also employs an operator who holds a Class "C" or higher surface water license. Effective January 1, 2007, the public water system must employ at least one operator who has completed the Surface Water Unit I course and the Surface Water Unit II course.

(B) Surface water systems that serve more than 1,000 connections must employ at least two operators; one of the required operators must hold a Class "B" or higher surface water license and the other required operator must hold a Class "C" or higher surface water license. Each of the required operators must work at least 32 hours per month at the public water system's production, treatment, or distribution facilities. Effective January 1, 2007, the public water system must employ at least two operators who have completed the Surface Water Unit I course and the Surface Water Unit II course.

(C) Each surface water treatment plant must have at least one Class "C" or higher surface water operator on duty at the plant when it is in operation or the plant must be provided with continuous turbidity and disinfectant residual monitors with automatic plant shutdown and alarms to summon operators so as to ensure that the water produced continues to meet the commission's drinking water standards during periods when the plant is not staffed.

(D) Public water systems shall not allow Class "D" operators to adjust or modify the treatment processes at surface water treatment plant unless an operator who holds a Class "C" or higher surface license is present at the plant and has issued specific instructions regarding the proposed adjustment.

(f) Operating records and reports. Water systems must maintain a record of water works operation and maintenance activities and submit periodic operating reports.

(1) The public water system's operating records must be organized, and copies must be kept on file or stored electronically.

(2) The public water system's operating records must be accessible for review during inspections.

(3) All public water systems shall maintain a record of operations.

(A) The following records shall be retained for at least two years:

(i) the amount of chemicals used:

(I) Systems that treat surface water or groundwater under the direct influence of surface water shall maintain a record of the amount of each chemical used each day.

(II) Systems that serve 250 or more connections or serve 750 or more people shall maintain a record of the amount of each chemical used each day.

(III) Systems that serve fewer than 250 connections, serve fewer than 750 people, and use only groundwater or purchased treated water shall maintain a record of the amount of each chemical used each week;

(ii) the volume of water treated:

(I) Systems that treat surface water or groundwater under the direct influence of surface water shall maintain a record of the amount of water treated each day.

(II) Systems that serve 250 or more connections or serve 750 or more people shall maintain a record of the amount of water treated each day.

(III) Systems that serve fewer than 250 connections, serve fewer than 750 people, and use only groundwater or purchase treated water shall maintain a record of the amount of water treated each week;

(iii) the date, location, and nature of water quality, pressure, or outage complaints received by the system and the results of any subsequent complaint investigation;

(iv) the dates that dead-end mains were flushed;

(v) the dates that storage tanks and other facilities were cleaned;

(vi) the maintenance records for water system equipment and facilities;

and

(vii) for systems that do not employ full-time operators to meet the requirements of subsection (e) of this section, a daily record or a monthly summary of the work performed and the number of hours worked by each of the part-time operators used to meet the requirements of subsection (e) of this section.

(B) The following records shall be retained for at least three years:

(i) copies of notices of violation and any resulting corrective actions. The records of the actions taken to correct violations of primary drinking water regulations must be retained for at least three years after the last action taken with respect to the particular violation involved;

(ii) copies of any public notice issued by the water system;

(iii) the disinfectant residual monitoring results from the distribution system;

(iv) the turbidity monitoring results and exception reports for individual filters as required by §290.111 of this title (relating to Surface Water Treatment);

(v) the calibration records for laboratory equipment, flow meters, rate-of-flow controllers, on-line turbidimeters, and on-line disinfectant residual analyzers;

(vi) the records of backflow prevention device programs;

(vii) the raw surface water monitoring results must be retained for three years after bin classification required by §290.111 of this title;

(viii) notification to the executive director that a system will provide 5.5-log *Cryptosporidium* treatment in lieu of raw surface water monitoring; and

(ix) except for those specified in clause (iv) of this subparagraph and subparagraph (E)(i) of this paragraph, the results of all surface water treatment monitoring that are used to demonstrate log inactivation or removal.

(C) The following records shall be retained for a period of five years after they are no longer in effect:

(i) the records concerning a variance or exemption granted to the system;

(ii) Concentration Time (CT) studies for surface water treatment plants;

and

(iii) the Recycling Practices Report form and other records pertaining to site-specific recycle practices for treatment plants that recycle.

(D) The following records shall be retained for at least five years:

(i) the results of microbiological analyses;

(ii) the results of inspections (as required in subsection (m)(1) of this section) for all water storage and pressure maintenance facilities;

(iii) the results of inspections as required by subsection (m)(2) of this section for all pressure filters;

(iv) documentation of compliance with state approved corrective action plan and schedules required to be completed by groundwater systems that must take corrective actions;

(v) documentation of the reason for an invalidated fecal indicator source sample;

(vi) notification to wholesale system(s) of a distribution coliform positive sample for consecutive systems using groundwater; and

(vii) Consumer Confidence Report compliance documentation.

(E) The following records shall be retained for at least ten years:

(i) copies of Monthly Operating Reports and any supporting documentation including turbidity monitoring results of the combined filter effluent;

(ii) the results of chemical analyses;

(iii) any written reports, summaries, or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by the executive director shall be kept for a period not less than ten years after completion of the survey involved;

(iv) copies of the Customer Service Inspection reports required by subsection (j) of this section;

(v) copy of any Initial Distribution System Evaluation (IDSE) plan, report, approval letters, and other compliance documentation required by §290.115 of this title (relating to Stage 2 Disinfection By-products (TTHM and HAA5));

(vi) state notification of any modifications to an IDSE report;

(vii) copy of any 40/30 certification required by §290.115 of this title  
(relating to Groundwater Corrective Actions and Treatment Techniques);

(viii) documentation of corrective actions taken by groundwater systems  
in accordance with §290.116 of this title; and

(ix) any monitoring plans required by §290.121(b) of this title (relating  
to Monitoring Plans).

(F) A public water system shall maintain records relating to special studies and  
pilot projects, special monitoring, and other system-specific matters as directed by the executive director.

(4) Water systems shall submit routine reports and any additional documentation that the  
executive director may require to determine compliance with the requirements of this chapter.

(A) The reports must be submitted to the Texas Commission on Environmental  
Quality, Water Supply Division, MC 155, P.O. Box 13087, Austin, Texas 78711-3087 by the tenth day of  
the month following the end of the reporting period.

(B) The reports must contain all the information required by the drinking water  
standards and the results of any special monitoring tests which have been required.

(C) The reports must be completed in ink, typed, or computer-printed and must be signed by the certified water works operator.

(g) Disinfection of new or repaired facilities. Disinfection by or under the direction of water system personnel must be performed when repairs are made to existing facilities and before new facilities are placed into service. Disinfection must be performed in accordance with American Water Works Association (AWWA) requirements and water samples must be submitted to a laboratory approved by the executive director. The sample results must indicate that the facility is free of microbiological contamination before it is placed into service. When it is necessary to return repaired mains to service as rapidly as possible, doses may be increased to 500 mg/L and the contact time reduced to 1/2 hour.

(h) Calcium hypochlorite. A supply of calcium hypochlorite disinfectant shall be kept on hand for use when making repairs, setting meters, and disinfecting new mains prior to placing them in service.

(i) Plumbing ordinance. Public water systems must adopt an adequate plumbing ordinance, regulations, or service agreement with provisions for proper enforcement to insure that neither cross-connections nor other unacceptable plumbing practices are permitted. See §290.47(b) of this title (relating to Appendices). Should sanitary control of the distribution system not reside with the purveyor, the entity retaining sanitary control shall be responsible for establishing and enforcing adequate regulations in this regard. The use of pipes and pipe fittings that contain more than 8.0% lead or solders and flux that contain more than 0.2% lead is prohibited for installation or repair of any public water supply and for installation or repair of any plumbing in a residential or nonresidential facility providing water for human

consumption and connected to a public drinking water supply system. This requirement may be waived for lead joints that are necessary for repairs to cast iron pipe.

(j) Customer service inspections. A customer service inspection certificate shall be completed prior to providing continuous water service to new construction, on any existing service either when the water purveyor has reason to believe that cross-connections or other potential contaminant hazards exist, or after any material improvement, correction, or addition to the private water distribution facilities. Any customer service inspection certificate form which varies from the format found in §290.47(d) of this title must be approved by the executive director prior to being placed in use.

(1) Individuals with the following credentials shall be recognized as capable of conducting a customer service inspection certification.

(A) Plumbing Inspectors and Water Supply Protection Specialists licensed by the Texas State Board of Plumbing Examiners (TSBPE).

(B) Customer service inspectors who have completed a commission-approved course, passed an examination administered by the executive director, and hold current professional license as a customer service inspector.

(2) As potential contaminant hazards are discovered, they shall be promptly eliminated to prevent possible contamination of the water supplied by the public water system. The existence of a health hazard, as identified in §290.47(i) of this title, shall be considered sufficient grounds for immediate

termination of water service. Service can be restored only when the health hazard no longer exists, or until the health hazard has been isolated from the public water system in accordance with §290.44(h) of this title (relating to Water Distribution).

(3) These customer service inspection requirements are not considered acceptable substitutes for and shall not apply to the sanitary control requirements stated in §290.102(a)(5) of this title (relating to General Applicability).

(4) A customer service inspection is an examination of the private water distribution facilities for the purpose of providing or denying water service. This inspection is limited to the identification and prevention of cross-connections, potential contaminant hazards, and illegal lead materials. The customer service inspector has no authority or obligation beyond the scope of the commission's regulations. A customer service inspection is not a plumbing inspection as defined and regulated by the TSBPE. A customer service inspector is not permitted to perform plumbing inspections. State statutes and TSBPE adopted rules require that TSBPE licensed plumbing inspectors perform plumbing inspections of all new plumbing and alterations or additions to existing plumbing within the municipal limits of all cities, towns, and villages which have passed an ordinance adopting one of the plumbing codes recognized by TSBPE. Such entities may stipulate that the customer service inspection be performed by the plumbing inspector as a part of the more comprehensive plumbing inspection. Where such entities permit customer service inspectors to perform customer service inspections, the customer service inspector shall report any violations immediately to the local entity's plumbing inspection department.

(k) Interconnection. No physical connection between the distribution system of a public drinking water supply and that of any other water supply shall be permitted unless the other water supply is of a safe, sanitary quality and the interconnection is approved by the executive director.

(l) Flushing of mains. All dead-end mains must be flushed at monthly intervals. Dead-end lines and other mains shall be flushed as needed if water quality complaints are received from water customers or if disinfectant residuals fall below acceptable levels as specified in §290.110 of this title.

(m) Maintenance and housekeeping. The maintenance and housekeeping practices used by a public water system shall ensure the good working condition and general appearance of the system's facilities and equipment. The grounds and facilities shall be maintained in a manner so as to minimize the possibility of the harboring of rodents, insects, and other disease vectors, and in such a way as to prevent other conditions that might cause the contamination of the water.

(1) Each of the system's ground, elevated, and pressure tanks shall be inspected annually by water system personnel or a contracted inspection service.

(A) Ground and elevated storage tank inspections must determine that the vents are in place and properly screened, the roof hatches closed and locked, flap valves and gasketing provide adequate protection against insects, rodents, and other vermin, the interior and exterior coating systems are continuing to provide adequate protection to all metal surfaces, and the tank remains in a watertight condition.

(B) Pressure tank inspections must determine that the pressure release device and pressure gauge are working properly, the air-water ratio is being maintained at the proper level, the exterior coating systems are continuing to provide adequate protection to all metal surfaces, and the tank remains in watertight condition. Pressure tanks provided with an inspection port must have the interior surface inspected every five years.

(C) All tanks shall be inspected annually to determine that instrumentation and controls are working properly.

(2) When pressure filters are used, a visual inspection of the filter media and internal filter surfaces shall be conducted annually to ensure that the filter media is in good condition and the coating materials continue to provide adequate protection to internal surfaces.

(3) When cartridge filters are used, filter cartridges shall be changed at the frequency required by the manufacturer, or more frequently if needed.

(4) All water treatment units, storage and pressure maintenance facilities, distribution system lines, and related appurtenances shall be maintained in a watertight condition and be free of excessive solids.

(5) Basins used for water clarification shall be maintained free of excessive solids to prevent possible carryover of sludge and the formation of tastes and odors.

(6) Pumps, motors, valves, and other mechanical devices shall be maintained in good working condition.

(n) Engineering plans and maps. Plans, specifications, maps, and other pertinent information shall be maintained to facilitate the operation and maintenance of the system's facilities and equipment. The following records shall be maintained on file at the public water system and be available to the executive director upon request.

(1) Accurate and up-to-date detailed as-built plans or record drawings and specifications for each treatment plant, pump station, and storage tank shall be maintained at the public water system until the facility is decommissioned. As-built plans of individual projects may be used to fulfill this requirement if the plans are maintained in an organized manner.

(2) An accurate and up-to-date map of the distribution system shall be available so that valves and mains can be easily located during emergencies.

(3) Copies of well completion data such as well material setting data, geological log, sealing information (pressure cementing and surface protection), disinfection information, microbiological sample results, and a chemical analysis report of a representative sample of water from the well shall be kept on file for as long as the well remains in service.

(o) Filter backwashing at surface water treatment plants. Filters must be backwashed when a loss of head differential of six to ten feet is experienced between the influent and effluent loss of head gauges or when the turbidity level at the effluent of the filter reaches 1.0 nephelometric turbidity unit (NTU).

(p) Data on water system ownership and management. The agency shall be provided with information regarding water system ownership and management.

(1) When a water system changes ownership, a written notice of the transaction must be provided to the executive director. When applicable, notification shall be in accordance with Chapter 291 of this title (relating to Utility Regulations). Those systems not subject to Chapter 291 of this title shall notify the executive director of changes in ownership by providing the name of the current and prospective owner or responsible official, the proposed date of the transaction, and the address and phone number of the new owner or responsible official. The information listed in this paragraph and the system's public drinking water supply identification number, and any other information necessary to identify the transaction shall be provided to the executive director 120 days before the date of the transaction.

(2) On an annual basis, the owner of a public water system shall provide the executive director with a written list of all the operators and operating companies that the public water system employs. The notice shall contain the name, license number, and license class of each employed operator and the name and registration number of each employed operating company. See §290.47(g) of this title.

(q) Special precautions. Special precautions must be instituted by the water system owner or responsible official in the event of low distribution pressures (below 20 pounds per square inch (psi)),

water outages, microbiological samples found to contain E. coli or fecal coliform organisms, failure to maintain adequate chlorine residuals, elevated finished water turbidity levels, or other conditions which indicate that the potability of the drinking water supply has been compromised.

(1) Boil water notifications must be issued to the customers within 24 hours using the prescribed notification format as specified in §290.47(e) of this title. A copy of this notice shall be provided to the executive director. Bilingual notification may be appropriate based upon local demographics. Once the boil water notification is no longer in effect, the customers must be notified in a manner similar to the original notice.

(2) The flowchart found in §290.47(h) of this title shall be used to determine if a boil water notification must be issued in the event of a loss of distribution system pressure. If a boil water notice is issued under this section, it shall remain in effect until water distribution pressures in excess of 20 psi can consistently be maintained, a minimum of 0.2 mg/L free chlorine residual or 0.5 mg/L chloramine residual (measured as total chlorine) is present throughout the system, and water samples collected for microbiological analysis are found negative for coliform organisms.

(3) A boil water notification shall be issued if the turbidity of the finished water produced by a surface water treatment plant exceeds 5.0 NTU. The boil water notice shall remain in effect until the water entering the distribution system has a turbidity level below 1.0 NTU, the distribution system has been thoroughly flushed, a minimum of 0.2 mg/L free chlorine residual or 0.5 mg/L chloramine residual (measured as total chlorine) is present throughout the system, and water samples collected for microbiological analysis are found negative for coliform organisms.

(4) Other protective measures may be required at the discretion of the executive director.

(r) Minimum pressures. All public water systems shall be operated to provide a minimum pressure of 35 psi throughout the distribution system under normal operating conditions. The system shall also be operated to maintain a minimum pressure of 20 psi during emergencies such as fire fighting.

(s) Testing equipment. Accurate testing equipment or some other means of monitoring the effectiveness of any chemical treatment or pathogen inactivation or removal processes must be used by the system.

(1) Flow measuring devices and rate-of-flow controllers that are required by §290.42(d) of this title, (relating to Water Treatment) shall be calibrated at least once every 12 months. Well meters required by §290.41(c)(3)(N) of this title, (relating to Water Sources) shall be calibrated at least once every three years.

(2) Laboratory equipment used for compliance testing shall be properly calibrated.

(A) pH meters shall be properly calibrated.

(i) Benchtop pH meters shall be calibrated according to manufacturers specifications at least once each day.

(ii) The calibration of benchtop pH meters shall be checked with at least one buffer each time a series of samples is run, and if necessary, recalibrated according to manufacturers specifications.

(iii) On-line pH meters shall be calibrated according to manufacturer specifications at least once every 30 days.

(iv) The calibration of on-line pH meters shall be checked at least once each week with a primary standard or by comparing the results from the on-line unit with the results from a properly calibrated benchtop unit. If necessary, the on-line unit shall be recalibrated with primary standards.

(B) Turbidimeters shall be properly calibrated.

(i) Benchtop turbidimeters shall be calibrated with primary standards at least once every 90 days. Each time the turbidimeter is calibrated with primary standards, the secondary standards shall be restandardized.

(ii) The calibration of benchtop turbidimeters shall be checked with secondary standards each time a series of samples is tested, and if necessary, recalibrated with primary standards.

(iii) On-line turbidimeters shall be calibrated with primary standards at least once every 90 days.

(iv) The calibration of on-line turbidimeters shall be checked at least once each week with a primary standard, a secondary standard, or the manufacturer's proprietary calibration confirmation device or by comparing the results from the on-line unit with the results from a properly calibrated benchtop unit. If necessary, the on-line unit shall be recalibrated with primary standards.

(C) Chemical disinfectant residual analyzers shall be properly calibrated.

(i) The accuracy of manual disinfectant residual analyzers shall be verified at least once every 30 days using chlorine solutions of known concentrations.

(ii) Continuous disinfectant residual analyzers shall be calibrated at least once every 90 days using chlorine solutions of known concentrations.

(iii) The calibration of continuous disinfectant residual analyzers shall be checked at least once each month with a chlorine solution of known concentration or by comparing the results from the on-line analyzer with the result of approved benchtop amperometric, spectrophotometric, or titration method.

(D) Ultraviolet (UV) light disinfection analyzers shall be properly calibrated.

(i) The accuracy of duty UV sensors shall be verified with a reference UV sensor monthly, according to the UV sensor manufacturer.

(ii) The reference UV sensor shall be calibrated by the UV sensor manufacturer on a yearly basis, or sooner if needed.

(iii) If used, the Ultraviolet Transmittance (UVT) analyzer shall be calibrated weekly according to the UVT analyzer manufacturer specifications.

(E) Systems must verify the performance of direct integrity testing equipment in a manner and schedule approved by the executive director.

(t) System ownership. All community water systems shall post a legible sign at each of its production, treatment, and storage facilities. The sign shall be located in plain view of the public and shall provide the name of the water supply and an emergency telephone number where a responsible official can be contacted.

(u) Abandoned wells. Abandoned public water supply wells owned by the system must be plugged with cement according to 16 Texas Administrative Code (TAC) Chapter 76 (relating to Water Well Drillers and Water Well Pump Installers). Wells that are not in use and are non-deteriorated as defined in those rules must be tested every five years or as required by the executive director to prove that they are in a non-deteriorated condition. The test results shall be sent to the executive director for review

and approval. Deteriorated wells must be either plugged with cement or repaired to a non-deteriorated condition.

(v) Electrical wiring. All water system electrical wiring must be securely installed in compliance with a local or national electrical code.

(w) Security. All systems shall maintain internal procedures to notify the executive director by a toll-free reporting phone number immediately of the following events, if the event may negatively impact the production or delivery of safe and adequate drinking water:

(1) an unusual or unexplained unauthorized entry at property of the public water system;

(2) an act of terrorism against the public water system;

(3) an unauthorized attempt to probe for or gain access to proprietary information that supports the key activities of the public water system;

(4) a theft of property that supports the key activities of the public water system; or

(5) a natural disaster, accident, or act that results in damage to the public water system.

(x) Public safety standards. This subsection only applies to a municipality with a population of 1,000,000 or more, with a public utility within its corporate limits.

(1) In this subsection:

(A) "Regulatory authority" means, in accordance with the context in which it is found, either the commission or the governing body of a municipality.

(B) "Public utility" means any person, corporation, cooperative corporation, affected county, or any combination of these persons or entities, other than a municipal corporation, water supply or sewer service corporation, or a political subdivision of the state, except an affected county, or their lessees, trustees, and receivers, owning or operating for compensation in this state equipment or facilities for the transmission, storage, distribution, sale, or provision of potable water to the public or for the resale of potable water to the public for any use or for the collection, transportation, treatment, or disposal of sewage or other operation of a sewage disposal service for the public, other than equipment or facilities owned and operated for either purpose by a municipality or other political subdivision of this state or a water supply or sewer service corporation, but does not include any person or corporation not otherwise a public utility that furnishes the services or commodity only to itself or its employees or tenants as an incident of that employee service or tenancy when that service or commodity is not resold to or used by others.

(C) "Residential area" means:

(i) an area designated as a residential zoning district by a governing ordinance or code or an area in which the principal land use is for private residences;

(ii) a subdivision for which a plat is recorded in the real property records of the county and that contains or is bounded by public streets or parts of public streets that are abutted by residential property occupying at least 75 percent of the front footage along the block face; or

(iii) a subdivision a majority of the lots of which are subject to deed restrictions limiting the lots to residential use.

(2) A public utility shall deliver water to any fire hydrant connected to the public utility's water system located in a residential area so that the flow at the fire hydrant is at least 250 gallons per minute for a minimum period of two hours while maintaining a minimum pressure of 20 psi throughout the distribution system during emergencies such as fire fighting. That flow is in addition to the public utility's maximum daily demand for purposes other than firefighting.

(3) When the regulatory authority is a municipality, it shall by ordinance adopt standards for maintaining sufficient water pressure for service to fire hydrants adequate to protect public safety in residential areas in the municipality. The standards specified in paragraph (2) of this subsection are the minimum acceptable standards.

(4) When the regulatory authority is a municipality, it shall adopt the standards required by this subsection within one year of the date this subsection first applies to the municipality.

(5) A public utility shall comply with the standards established by a municipality, within one year of the date the standards first apply to the public utility. If a municipality has failed to comply with the deadline required by paragraph (4) of this subsection, then a public utility shall comply with the standards specified in paragraph (2) of this subsection within two years of the effective date of this subsection or within one year of the date this subsection first applies to the public utility, whichever occurs later.

**§290.47. Appendices.**

(a) Appendix A. Recognition as a Superior or Approved Public Water System.

Figure: 30 TAC §290.47(a) (No change.)

APPENDIX A

Requirements. Public water supply systems which achieve and maintain recognition must exceed the minimum acceptable standards of the commission in these sections.

(1) To attain recognition as a "Superior Public Water System", the following additional requirements must be met:

(A) Physical facilities shall comply with the requirements in these sections.

(B) There shall be a minimum of two certified operators with additional operators required for larger systems.

(C) The system's microbiological record for the previous 24 months period shall indicate no violations (frequency, number or MCL) of the drinking water standards.

(D) The quality of the water shall comply with all primary water quality parameters listed in the drinking water standards.

(E) The chemical quality of the water shall comply with all secondary constituent levels listed in the drinking water standards.

(F) The system's operation shall comply with applicable state statutes and minimum acceptable operating practices set forth in §290.46 of this title (relating to Minimum Acceptable Operating Practices for Public Drinking Water Supplies).

(G) The system's capacities shall meet or exceed minimum water system capacity requirements set forth in §290.45 of this title (relating to Minimum Water System Capacity Requirements).

(H) The system shall have at least two wells, two raw water pumps or a combination of these with enough capacity to provide average daily consumption with the largest well or pump out of service. This requirement shall also apply to treatment plant pumps necessary for operation in accordance with §290.42 of this title (relating to Water Treatment).

(I) The water system shall be well maintained and the facilities shall present a pleasing appearance to the public.

(2) To attain recognition as an "Approved Public Water System," all additional requirements listed under subsection (a)(1) of this section with exception of secondary constituents, subsection (a)(1)(E) of this section must be met. Public water systems which provide water quality that exceeds the secondary chemical standards may be excluded from this recognition program at the discretion of the executive director.

Signs. Systems which have met the requirements for recognition as a superior or approved system may erect signs denoting this honor.

Inspections. To receive or maintain recognition as a superior or approved water system, the system must be inspected and evaluated by commission personnel as to physical facilities, appearance and operation. Systems which fail to meet the above requirements in this section will be denied recognition or will have their recognition revoked. The signs shall be immediately removed on notice from the executive director.

(b) Appendix B. Sample Service Agreement.

Figure: 30 TAC §290.47(b) (No change.)

### SERVICE AGREEMENT

- I. **PURPOSE.** The NAME OF WATER SYSTEM 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 service 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 the NAME OF WATER SYSTEM will begin service. In addition, when service to an existing connection has been suspended or terminated, the water system will not re-establish service unless it has a signed copy of this agreement.
- II. **RESTRICTIONS.** The following unacceptable practices are prohibited by State regulations.
  - A. No direct connection between the public drinking water supply and a potential source of contamination is permitted. Potential sources of contamination shall be isolated from the public water system by an air-gap or an appropriate backflow prevention device.
  - B. 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 air-gap or a reduced pressure-zone backflow prevention device.
  - C. No connection which allows water to be returned to the public drinking water supply is permitted.
  - D. No pipe or pipe fitting which contains more than 8.0% lead may be used for the installation or repair of plumbing at any connection which provides water for human use.
  - E. No solder or flux which contains more than 0.2 percent lead can be used for the installation or repair of plumbing at any connection which provides water for human use.
- III. **SERVICE AGREEMENT.** The following are the terms of the service agreement between the NAME OF WATER SYSTEM (the Water System) and NAME OF CUSTOMER (the Customer).
  - A. The Water System will maintain a copy of this agreement as long as the Customer and/or the premises is 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 the Water System 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 the Water System's normal business hours.

- C. The Water System shall notify the Customer in writing of any cross-connection or other potential contamination hazard which has been identified during the initial inspection or the periodic reinspection.
  - D. The Customer shall immediately remove or adequately isolate any potential cross-connections or other potential contamination hazards on his premises.
  - E. The Customer shall, at his expense, properly install, test, and maintain any backflow prevention device required by the Water System. Copies of all testing and maintenance records shall be provided to the Water System.
- IV. ENFORCEMENT. If the Customer fails to comply with the terms of the Service Agreement, the Water System shall, at its option, either terminate service or properly install, test, and maintain an appropriate backflow prevention device at the service connection. Any expenses associated with the enforcement of this agreement shall be billed to the Customer.

CUSTOMER'S SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

(c) Appendix C. Sample Sanitary Control Easement Document for a Public Water Well.

Figure: 30 TAC §290.47(c) (No change.)

#### SANITARY CONTROL EASEMENT

DATE: \_\_\_\_\_, 2\_\_\_\_

GRANTOR(S):

GRANTOR'S ADDRESS:

GRANTEE:

GRANTEE'S ADDRESS:

SANITARY CONTROL EASEMENT:

Purpose, Restrictions, and Uses of Easement:

1. The purpose of this easement is to protect the water supply of the well described and located below by means of sanitary control.
2. The construction and operation of underground petroleum and chemical storage tanks and liquid transmission pipelines, stock pens, feedlots, dump grounds, privies, cesspools, septic tank or sewage treatment drainfields, improperly constructed water wells of any depth, and all other construction or operation that could create an unsanitary condition within, upon, or across the property subject to this easement are prohibited within this easement. For the purpose of the easement, improperly constructed water wells are those wells which do not meet the surface and subsurface construction standards for a public water supply well.

3. The construction of tile or concrete sanitary sewers, sewer appurtenances, septic tanks, storm sewers, and cemeteries is specifically prohibited within a 50-foot radius of the water well described and located below.
4. This easement permits the construction of homes or buildings upon the Grantor's property as long as all items in Restrictions Nos. 2 and 3 are recognized and followed.
5. This easement permits normal farming and ranching operations, except that livestock shall not be allowed within 50 feet of the water well.

The Grantor's property subject to this Easement is described in the documents recorded at:

Volume \_\_\_, Pages \_\_\_ of the Real Property Records of \_\_\_\_\_ County, Texas.

Property Subject to Easement:

All of that area within a 150 foot radius of the water well located \_\_\_ feet at a radial of \_\_\_ degrees from the \_\_\_ corner of Lot \_\_\_, of a Subdivision of Record in Book \_\_\_, Page \_\_\_ of the County Plat Records, \_\_\_\_\_ County, Texas.

**TERM:**

This easement shall run with the land and shall be binding on all parties and persons claiming under the Grantor(s) for a period of two years from the date that this easement is recorded; after which time, this easement shall be automatically extended until the use of the subject water well as a source of water for public water systems ceases.

**ENFORCEMENT:**

Enforcement of this easement shall be proceedings at law or in equity against any person or persons violating or attempting to violate the restrictions in this easement, either to restrain the violation or to recover damages.

**INVALIDATION:**

Invalidation of any one of these restrictions or uses (covenants) by a judgement or court order shall not affect any of the other provisions of this easement, which shall remain in full force and effect.

FOR AND IN CONSIDERATION, of the sum of One Dollar (\$1.00) and for other good and valuable consideration paid by the Grantee to the Grantor(s), the receipt of which is hereby acknowledged, the Grantor does hereby grant and convey to Grantee and to its successors and assigns the sanitary control easement described in this easement.

GRANTOR(S)

By:

**ACKNOWLEDGMENT**

STATE OF TEXAS

§  
§

COUNTY OF \_\_\_\_\_

§

BEFORE ME, the undersigned authority, on the day of \_\_\_\_\_, 2\_\_\_\_, personally appeared \_\_\_\_\_ known to me to be the person(s) whose name(s) is(are) subscribed to the foregoing instrument and acknowledged to me that executed the same for the purposes and consideration therein expressed.

Notary Public in  
and for  
THE STATE OF  
TEXAS  
My Commission  
Expires:

Typed or Printed  
Name of Notary

Recorded in \_\_\_\_\_ Courthouse, \_\_\_\_\_ Texas on \_\_\_\_\_, 2\_\_\_\_

(d) Appendix D. Customer Service Inspection Certification.

Figure: 30 TAC §290.47(d) (No change.)

**Appendix D: Customer Service Inspection Certificate**

Customer Service Inspection Certificate

Name of PWS \_\_\_\_\_ PWS I.D.# \_\_\_\_\_  
 Location of Service \_\_\_\_\_

- 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 hereby 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.	<input type="checkbox"/>	<input type="checkbox"/>
(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-zone backflow prevention assembly is properly installed and a service agreement exists for annual inspection and testing by a certified backflow prevention assembly tester.	<input type="checkbox"/>	<input type="checkbox"/>
(3) No connection exists which would allow the return of water used for condensing, cooling or industrial processes back to the public water supply.	<input type="checkbox"/>	<input type="checkbox"/>
(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.	<input type="checkbox"/>	<input type="checkbox"/>
(5) No solder or flux which contains more than 0.2% lead exists in private water distribution facilities installed on or after July 1, 1988.	<input type="checkbox"/>	<input type="checkbox"/>

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.

Remarks:

\_\_\_\_\_  
Signature of Inspector

\_\_\_\_\_  
Registration Number

\_\_\_\_\_  
Title

\_\_\_\_\_  
Type of Registration

\_\_\_\_\_  
Date

(e) Appendix E. Boil Water Notification.

Figure: 30 TAC §290.47(e) (No change.)

#### BOIL WATER NOTIFICATION

Due to conditions which have occurred recently in the water system, the Texas Commission on Environmental Quality has required the system to notify all customers to boil their water prior to consumption.

To ensure destruction of all harmful bacteria and other microbes, water for drinking, cooking, and ice making should be boiled and cooled prior to consumption. The water should be brought to a vigorous rolling boil and then boiled for two minutes. In lieu of boiling, you may purchase bottled water or obtain water from some other suitable source. When it is no longer necessary to boil the water, water system officials will notify you.

If you have questions regarding this matter you may contact (a) \_\_\_\_\_ at (b) \_\_\_\_\_.

(a) Utility Official(s)(b) Phone Number(s)

#### INSTRUCTIONS:

List more than one utility official and phone number. Do not list the commission as the primary contact. If a customer wishes to call the commission, please have them call (512) 239-4691 .

(f) Appendix F. Sample Backflow Prevention Assembly Test and Maintenance Report.

Figure: 30 TAC §290.47(f) (No change.)

The following form must be completed for each assembly tested. A signed and dated original must be submitted to the public water supplier for recordkeeping purposes:

**BACKFLOW PREVENTION ASSEMBLY TEST AND MAINTENANCE REPORT**

NAME OF PWS: \_\_\_\_\_  
 PWS I.D.: # \_\_\_\_\_  
 MAILING ADDRESS: \_\_\_\_\_  
 CONTACT PERSON: \_\_\_\_\_  
 LOCATION OF SERVICE: \_\_\_\_\_

The backflow prevention assembly detailed below has been tested and maintained as required by commission regulations and is 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-Detector
- Spill-Resistant Pressure Vacuum Breaker

Manufacturer \_\_\_\_\_ Size \_\_\_\_\_  
 Model Number \_\_\_\_\_ Located At \_\_\_\_\_  
 Serial Number \_\_\_\_\_

Is the assembly installed in accordance with manufacturer recommendations and/or local codes? \_\_\_\_\_

	Reduced Pressure Principle Assembly			Pressure Vacuum Breaker	
	Double Check Valve Assembly			Air Inlet	Check Valve
	1st Check	2nd Check	Relief Valve		
Initial Test	Held at ___ psid Closed Tight <input type="checkbox"/> Leaked <input type="checkbox"/>	Held at ___ psid Closed Tight <input type="checkbox"/> Leaked <input type="checkbox"/>	Opened at ___ psid Did not open <input type="checkbox"/>	Opened at ___ psid Did not open <input type="checkbox"/>	Held at ___ psid Leaked <input type="checkbox"/>
Repairs and Materials Used					
Test After Repair	Held at ___ psid Closed Tight <input type="checkbox"/>	Held at ___ psid Closed Tight <input type="checkbox"/>	Opened at ___ psid	Opened at ___ psid	Held at ___ psid

Test gauge used: Make/Model \_\_\_\_\_ SN: \_\_\_\_\_ Date Tested for Accuracy

: \_\_\_\_\_  
 Remarks: \_\_\_\_\_

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

Firm Name \_\_\_\_\_ Certified Tester (print) \_\_\_\_\_  
Firm Address \_\_\_\_\_ Certified Tester (signature) \_\_\_\_\_  
Firm Phone # \_\_\_\_\_ Cert. Tester No. \_\_\_\_\_ Date \_\_\_\_\_

\* TEST RECORDS MUST BE KEPT FOR AT LEAST THREE YEARS

\*\* USE ONLY MANUFACTURER'S REPLACEMENT PARTS

(g) Appendix G. Operator and/or Employment Notice.

Figure: 30 TAC §290.47(g) (No change.)

Section 290.46(p)(2), Data on water system ownership and management, requires the owner of a public water system to annually provide the executive director with a list of all the water works operators and operating companies that the public water system employs. The following form may be used to facilitate compliance with this requirement. This notice should be submitted to the Texas Commission on Environmental Quality, Water Supply Division, MC-155, P.O. Box 13087, Austin, Texas 78711-3087 or provided to the executive director during on-site inspections.

**Operator and/or Employment Notice Form**

Name of Operator or Operating Company	For Operators		For Companies
	License No.	Class of License	Registration No.
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

\_\_\_\_\_  
 Signature of Water System Owner or Responsible Official

\_\_\_\_\_  
 Date

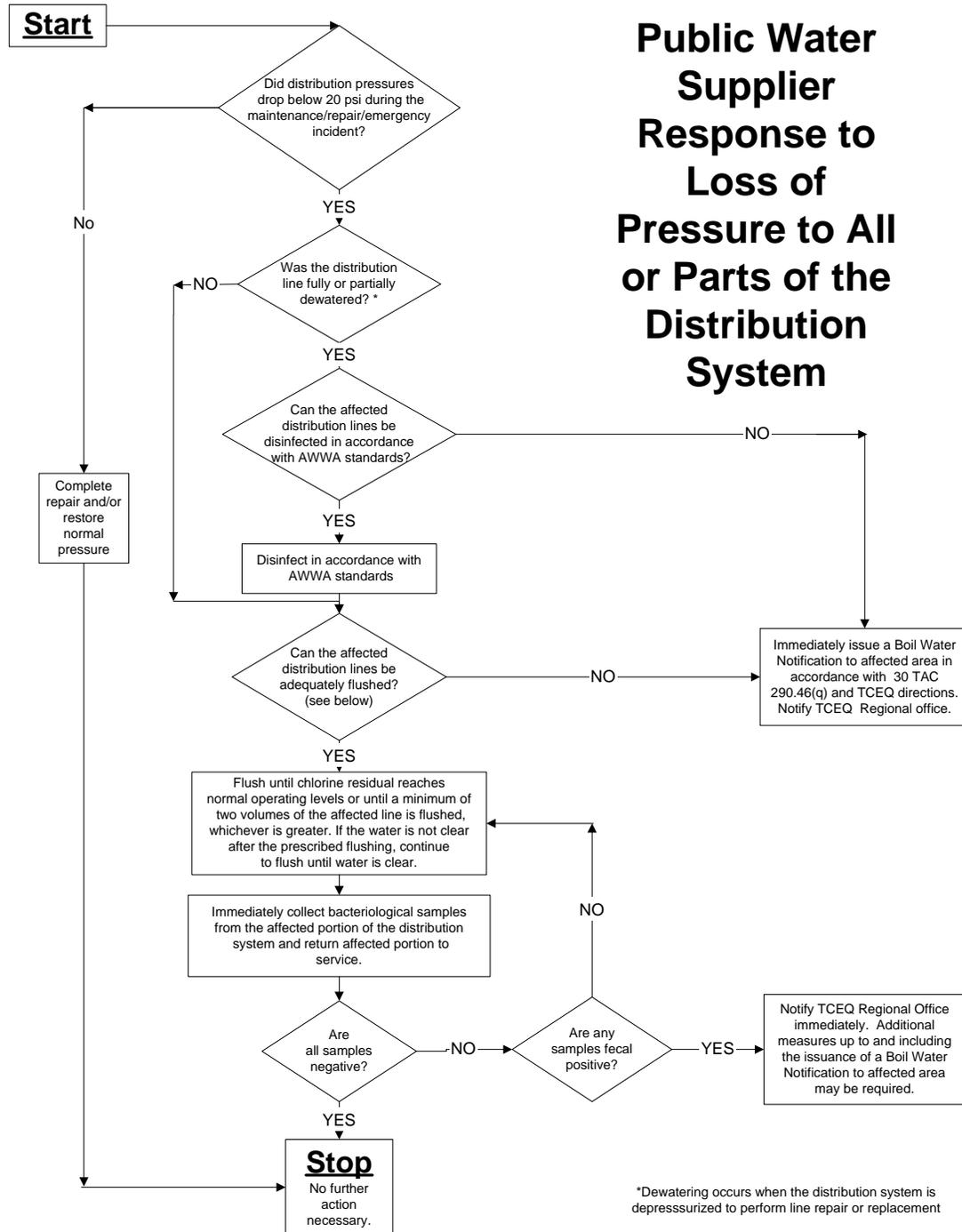
\_\_\_\_\_  
 Name of Water System Owner or Responsible Official

\_\_\_\_\_  
 Title of Owner or Responsible Official

(h) Appendix H. Special Precautions.

Figure: 30 TAC §290.47(h) (No change.)

Figure: 30 TAC §290.47(h)



(i) Appendix I. Assessment of Hazard and Selection of Assemblies.

Figure: 30 TAC §290.47(i)

Appendix I: Assessment of Hazards and Selection of Assemblies

The following table lists many common hazards. It is not an all-inclusive list of the hazards which may be found connected to public water systems.

Premises Isolation: Description of Premises	Assessment of Hazard	Required Assembly
Aircraft and missile plants	Health	RPBA or AG
Animal feedlots	Health	RPBA or AG
Automotive plants	Health	RPBA or AG
Breweries	Health	RPBA or AG
Canneries, packing houses and rendering plants	Health	RPBA or AG
Commercial car wash facilities	Health	RPBA or AG
Commercial laundries	Health	RPBA or AG
Cold storage facilities	Health	RPBA or AG
Connection to sewer pipe	Health	RPBA or AG
Dairies	Health	RPBA or AG
Docks and dockside facilities	Health	RPBA or AG
Dye works	Health	RPBA or AG
Food and beverage processing plants	Health	RPBA or AG
Hospitals, morgues, mortuaries, medical clinics, dental clinics, veterinary clinics, autopsy facilities, sanitariums, and medical labs	Health	RPBA or AG
Metal manufacturing, cleaning, processing, and fabrication plants	Health	RPBA or AG
Microchip fabrication facilities	Health	RPBA or AG
Paper and paper products plants	Health	RPBA or AG

Petroleum processing or storage facilities	Health	RPBA or AG
Photo and film processing labs	Health	RPBA or AG
Plants using radioactive material	Health	RPBA or AG
Plating or chemical plants	Health	RPBA or AG
Pleasure-boat marinas	Health	RPBA or AG
Private/Individual/Unmonitored wells	Health	RPBA or AG
Rainwater harvesting system	Health	RPBA or AG
Reclaimed water systems	Health	RPBA or AG
Restricted, classified or other closed facilities	Health	RPBA or AG
Rubber plants	Health	RPBA or AG
Sewage lift stations	Health	RPBA or AG
Sewage treatment plants	Health	RPBA or AG
Slaughter houses	Health	RPBA or AG
Steam plants	Health	RPBA or AG
Tall buildings or elevation differences where the highest outlet is 80 feet or more above the meter	Nonhealth	DCVA
Internal Protection - Description of Cross-Connection	Assessment of Hazard	Required Assembly
Aspirators	Nonhealth†	AVB
Aspirator (medical)	Health	AVB or PVB
Autoclaves	Health	RPBA
Autopsy and mortuary equipment	Health	AVB or PVB
Bedpan washers	Health	AVB or PVB
Connection to industrial fluid systems	Health	RPBA
Connection to plating tanks	Health	RPBA

Connection to salt-water cooling systems	Health	RPBA
Connection to sewer pipe	Health	AG
Cooling towers with chemical additives	Health	AG
Cuspidors	Health	AVB or PVB
Degreasing equipment	Nonhealth†	DCVA
Domestic space-heating boiler	Nonhealth†	RPBA
Dye vats or machines	Health	RPBA
Fire-fighting system (toxic liquid foam concentrates)	Health	RPBA
Flexible shower heads	Nonhealth†	AVB or PVB
Heating equipment		
Commercial	Nonhealth†	RPBA
Domestic	Nonhealth†	DCVA
Hose bibs	Nonhealth†	AVB
Irrigation systems		
with chemical additives	Health	RPBA
without chemical additives	Nonhealth†	DCVA, AVB, or PVB
Kitchen equipment - Commercial	Nonhealth†	AVB
Lab bench equipment	Health or Nonhealth†	AVB or PVB
Ornamental fountains	Health	AVB or PVB
Swimming pools		
Private	Nonhealth†	PVB or AG
Public	Nonhealth†	RPBA or AG
Sewage pump	Health	AG
Sewage ejectors	Health	AG
Shampoo basins	Nonhealth†	AVB
Specimen tanks	Health	AVB or PVB

Steam generators	Nonhealth†	RPBA
Steam tables	Nonhealth†	AVB
Sterilizers	Health	RPBA
Tank vats or other vessels containing toxic substances	Health	RPBA
Trap primers	Health	AG
Vending machines	Nonhealth†	RPBA or PVB
Watering troughs	Health	AG or PVB

NOTE: AG = air gap; AVB = atmospheric vacuum breaker; DCVA = double check valve backflow prevention assembly; PVB = pressure vacuum breaker; RPBA = reduced-pressure principle backflow prevention assembly.

\*AVBs and PVBs may be used to isolate health hazards under certain conditions, that is, backsiphonage situations. Additional area of premises isolation may be required.

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