

The Texas Commission on Environmental Quality (TCEQ, agency, or commission) proposes to amend §§290.38, 290.39, and 290.44 - 290.47.

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE PROPOSED RULES

In 2009, the 81st Legislature passed Senate Bill (SB) 361, relating to the requirement that certain water service providers ensure emergency operations during an extended power outage. SB 361 amends Texas Water Code (TWC), Chapter 13, by adding §13.1395, Standards of Emergency Operation, and §13.1396, Coordination of Emergency Operations. TWC, §13.1395, requires that affected utilities prepare an emergency preparedness plan that shows that the utility has the ability to provide emergency operations and submit that plan to the commission. TWC, §13.1396, outlines the coordination efforts among an affected utility, its county judge, and its office of emergency management as well as each retail electric provider that sells electric power to an affected utility and each electric utility that provides transmission and distribution service to an affected utility.

TWC, §13.1395, provides that a water service provider may use the commission's template to develop its emergency preparedness plan and must include one of eight means for maintaining 35 pounds per square inch (psi) of pressure during power outages that last longer than 24 hours as soon as it is safe and practicable following natural disasters. The statute also specifies that the commission has 90 days once the plan is submitted to review the plan and either approve it or recommend changes. Once the commission approves the plan the water service provider must operate in accordance with its plan and maintain any generators in accordance with manufacturer's specifications. TWC, §13.1395, also specifies that the commission will conduct inspections to ensure compliance and that waivers to these requirements are available under certain circumstances. Additionally, these additions to the TWC made by SB 361

give the commission the authority to regulate water service providers that have not previously been regulated by the TCEQ.

SB 361, Section 2(c), requires that each affected utility submit to the commission its emergency preparedness plan required by TWC, §13.1395, no later than March 1, 2010.

The proposed applicability is based on population estimates from the Texas State Data Center and Office of the State Demographer for 2005, the midpoint between federal decennial censuses.

The commission solicits comments on the appropriate sources and year of population data to determine the counties to which this rule applies. Potential sources of population data include, but are not limited to, the most recent federal decennial census, the most recent federal population estimate, population projections by the Texas State Data Center and Office of the State Demographer, and local appraisal districts. Further, the commission solicits comments on which counties adjacent to Harris County would be subject to this proposed rule.

Written comments on the appropriate sources of population data and year, and the applicability of this proposal may be submitted to the contact person at the address listed under the SUBMITTAL OF COMMENTS section of this preamble.

SECTION BY SECTION DISCUSSION

§290.38, Definitions

The commission proposes to add a definition for "affected utility" in §290.38(1) using the language of TWC, §13.1395(a)(1). The commission proposes to add a definition for "emergency operations" in §290.38(25) using the language of TWC, §13.1395(a)(2). The commission proposes to add a definition for "extended power outage" in §290.38(27) using the language of TWC, §13.1395(a)(3). The commission proposes these amendments to implement TWC, §13.1395, as added by SB 361. All existing definitions in this section are renumbered to accommodate the proposed new definitions.

§290.39, General Provisions

The commission proposes to amend §290.39(a) to include a statement that the authority for this subchapter comes from TWC, §13.1395. The commission proposes to add §290.39(c)(4)(A) - (D) for new affected utilities and §290.39(o)(1) - (5) for existing affected utilities, to require affected utilities to adopt and submit an emergency preparedness plan as required by TWC, §13.1395(a)(2). These include requirements that the executive director review the plan and either approve it or make recommendations to the plan within 90 days to implement TWC, §13.1395(c), that affected utilities who provide water to wholesale customers install and maintain automatically starting auxiliary generators or distributive generation facilities for each facility necessary to provide water to its wholesale customers to implement TWC, §13.1395(c), that affected utilities provide a deadline for implementation of the plan as described in TWC, §13.1395(c), and provide for a mechanism to request an extension to the deadline to implement or submit the plan as allowed in SB 361, Section 2(e). The commission proposes these amendments to implement TWC, §13.1395, as added by SB 361 and to implement SB 361, Section 2(e). Additionally, the commission proposes to add §290.39(c)(4)(E) for new affected utilities and §290.39(o)(6) for existing affected utilities to allow them to request a waiver to the emergency preparedness plan requirements if they can demonstrate that compliance with those requirements will cause a significant financial burden on

their customers. The affected utility shall submit financial, managerial, and technical information as requested by the executive director to demonstrate their financial burden. These additions are to implement TWC, §13.1395(j), as added by SB 361.

§290.44, Water Distribution

The commission proposes to amend §290.44(d) to specify that the distribution system of affected utilities must be designed to provide for emergency operations to implement TWC §13.1395(b)(1). The commission proposes these amendments to implement TWC, §13.1395, as added by SB 361.

§290.45, Minimum Water System Capacity Requirements

The commission proposes to add §290.45(a)(7) which requires affected utilities that cannot maintain emergency operations to revise and submit their emergency preparedness plan within 180 days of restoration of power, and that based on a review of the plan, the executive director may require additional or alternative auxiliary emergency facilities to implement TWC, §13.1395(b)(1). For affected utilities to reference the emergency operations requirements rules in §290.45(h), the commission proposes to add §290.45(b)(3) for community water systems; §290.45(c)(3) and §290.45(d)(4) for noncommunity water systems; and §290.45(e)(4) for wholesalers. Section 290.45(b)(3) also specifies that these requirements do apply to affected utilities that provide 100 gallons of elevated storage capacity per connection. The commission proposes these amendments to implement TWC, §13.1395, as added by SB 361.

The commission proposes to add §290.45(g)(5)(A)(iv) to specify that a public water system that is an affected utility and requests an alternative capacity requirement for pressure maintenance facilities must conduct the modeling requirements using the minimum capacities, pressures, and auxiliary power

requirements specified in §290.45(h)(1) and §290.45(h)(3). The commission proposes to amend §290.45(g)(5)(B)(i) to further clarify that the affected utility's generators must only be maintained, tested, and operated in accordance with manufacturer's specifications to implement TWC, §13.1395(h). The commission proposes to amend §290.45(g)(5)(B) to specify that affected utilities that are public water systems must comply with the requirements in §290.45(h). The commission proposes these amendments to implement TWC, §13.1395, as added by SB 361.

The commission proposes to add a new §290.45(h) for affected utilities' emergency power requirements. It specifies that these new requirements are in addition to the existing emergency power requirements for public water systems located in this section. The commission proposes to add §290.45(h)(1)(A) - (D) and (h)(2)(A) - (D) for community and noncommunity water systems, respectively, setting forth the minimum flow requirements for systems to provide during emergency operations. The commission proposes to include these minimum flow requirements as a method to ensure that affected utilities can maintain 35 psi during emergency operations as required by TWC, §13.1395(b)(1). The commission proposes to add §290.45(h)(3)(A) - (H) which provides eight auxiliary power options as listed in TWC, §13.1395(c)(1) - (8) for including in the emergency preparedness plan. It also clarifies that the auxiliary power must meet the capacity requirements for affected utilities during emergency operations. The commission proposes to add §290.45(h)(4) which requires that affected utilities who provide surface water to wholesale customers install and maintain automatically starting auxiliary generators or distributive generation facilities for each facility necessary to provide water to its wholesale customers to implement TWC, §13.1395(c). The commission proposes to add §290.45(h)(5) which requires that auxiliary power facilities for affected utilities be maintained, tested, and operated in accordance with the manufacturer's specifications to implement TWC, §13.1395(h). The commission proposes to add §290.45(h)(6) which allows an affected

utility to adopt and encourages them to enforce limitations on water use while the utility is providing emergency operations to implement TWC, §13.1395(k). The commission proposes to add §290.45(h)(7) which clarifies that affected utilities with elevated storage must operate in accordance with their approved emergency preparedness plan during emergency operations, which may or may not include using elevated storage, to implement TWC, §13.1395(e). The commission proposes to add §290.45(h)(8) which requires an affected utility to maintain on-site, or make readily available during emergency operations, an amount of fuel necessary to operate any required emergency power equipment under load for a period of at least 72 hours. The commission proposes these amendments to implement TWC, §13.1395, as added by SB 361.

§290.46, Minimum Acceptable Operating Practices for Public Drinking Water Systems

The commission proposes to add a new §290.46(f)(5) which requires affected utilities to maintain records. Proposed §290.46(f)(5)(A) requires that they maintain copies of an emergency preparedness plan approved by the executive director and a copy of the approval letter. Proposed §290.46(f)(5)(B) requires that they maintain copies of operating and maintenance records for auxiliary power equipment, and proposed §290.46(f)(5)(C) requires that they maintain a copy of the manufacturer's specifications for all generators that are part of the approved emergency preparedness plan. These records requirements are to aid in the implementation of TWC, §13.1395(i), which requires that the commission periodically inspect affected utilities to ensure compliance with their approved emergency preparedness plans. The commission proposes these amendments to implement TWC, §13.1395, as added by SB 361.

The commission proposes to amend §290.46(r) to clarify that affected utilities must maintain a minimum of 35 psi throughout the distribution system as soon as safe and practicable during an extended power

outage following a natural disaster to implement TWC, §13.1395(b)(1). The commission proposes these amendments to implement TWC, §13.1395, as added by SB 361.

§290.47, Appendices

The commission proposes to add §290.47(j) Emergency Preparedness Plan Template to implement TWC, §13.1395(g). The new template lists the eight options that affected water systems may choose as listed in TWC, §13.1395(c)(1) - (8), and the preparations an affected utility may make, as well as applicable rules for emergency operations of affected utilities as required by TWC, §13.1395(g)(1) and (2). The commission proposes these amendments to implement TWC, §13.1395, as added by SB 361.

FISCAL NOTE: COSTS TO STATE AND LOCAL GOVERNMENT

Nina Chamness, Analyst, Strategic Planning and Assessment, has determined that, for the first five-year period the proposed rules are in effect, no significant fiscal implications are anticipated for the agency as a result of administration or enforcement of the proposed rules. The agency will use currently available resources to review emergency preparedness plans for compliance and inspect affected utilities to ensure compliance with those plans under the provisions of SB 361. SB 361 requires retail public utilities, exempt utilities, or providers or conveyors of raw water service in a county with a population of 3.3 million or in an adjacent county with a population of 400,000 or more furnishing water service to more than one customer to establish emergency preparedness plans to ensure emergency operations of water systems during extended power outages as soon as safe and practicable following the occurrence of a natural disaster. Governmental entities that do not already meet emergency preparedness plan options found in SB 361 may experience cost increases, although those cost increases are not expected to be significant.

The proposed rules amend Chapters 290 and 291 to implement SB 361. The bill requires the agency to adopt rules that would ensure the emergency operation of water systems at 35 psi through the adoption of an emergency preparedness plan. Currently, the bill's provisions will apply to Harris and Fort Bend counties. The agency is also required to develop an emergency preparedness plan template listing and explaining necessary preparations, agency rules, and standards pertaining to emergency preparedness plans. This fiscal note details the fiscal implications of the proposed amendments to Chapter 290, which pertains to public water systems; and the fiscal implications of amendments to Chapter 291 are found in that rule proposal.

Current rules require emergency power for systems serving 250 or more connections that do not have elevated storage. The proposed rules will require local governments in Harris County and Fort Bend County that furnish water to more than one customer to prepare an emergency preparedness plan ensuring operation of their water systems at 35 psi during an extended power outage by one of the following options: automatically starting auxiliary generators, sharing of auxiliary generator capacity, negotiation of leasing and contracting (mutual aid) agreements, use of portable generators, on-site electrical generation, hardening of the electric transmission and distribution system, and direct engine or right angle drives.

Staff estimates that there are approximately 577 public water systems owned by local governments in Harris and Fort Bend counties. The staff assumes for purposes of this fiscal note that most of the affected public water systems owned or operated by governmental entities already comply with emergency requirements of the current rule and therefore will also be able to meet the 35 psi requirements of the

proposed rule. However, staff estimates that 151 governmental entities may not currently have generators, mutual aid agreements, or other methods to comply with the 35 psi requirement. If these 151 governmental entities are able to enter into a mutual aid agreement, they should not experience any cost increases as a result of the proposed rules. If these local governments choose not to enter into such an agreement and they purchase a generator to comply with emergency preparedness plan provisions instead, staff estimates that they will need to purchase and maintain a 150 kilowatt diesel generator. This size generator could cost as much as \$55,000 to purchase and install. Annual maintenance is estimated to be \$960 per year. This cost is not expected to have a significant fiscal impact on these governmental entities since they could recoup costs through increased monthly rates and since it would be their choice to make such a purchase. Consumers of public water utilities could see rates increase, but the increase is not expected to be significant for each consumer. In addition, consumers are expected to experience more rapid deployment of water services in emergency situations.

PUBLIC BENEFITS AND COSTS

Nina Chamness also determined that for each year of the first five years the proposed new rules are in effect, the public benefit anticipated from the changes seen in the proposed rules will be additional protection against loss of water service during a natural disaster.

Privately owned utilities and businesses that furnish water from their own water systems will have to prepare an emergency preparedness plan that will ensure the operation of its water system at 35 psi during an extended power outage by one of the following options: automatically starting auxiliary generators, sharing of auxiliary generator capacity, negotiation of leasing and contracting (mutual aid) agreements,

use of portable generators, on-site electrical generation, hardening of the electric transmission and distribution system, and direct engine or right angle drives.

Staff estimates that there may be as many as 153 large businesses in Harris and Fort Bend counties that have public drinking water systems for their employees that could be affected by the proposed rules. These businesses would include chemical plants, refineries, and other large facilities. If these businesses enter into mutual aid agreements that comply with the requirements of the proposed rules, they should not incur additional costs for equipment meeting the emergency preparedness plan criteria of the proposed rules. If these businesses cannot enter into such an agreement, staff estimates that they would be required to purchase at least one 50 kilowatt generator with a one time cost of \$31,960 and annual maintenance costs of \$960 per year. The cost to prepare an emergency preparedness plan using the template included in the proposed rules is not expected to be significant.

SMALL BUSINESS AND MICRO-BUSINESS ASSESSMENT

No adverse fiscal implications are anticipated for small or micro-businesses as a result of the proposed rules unless the water system has a small number of connections and chooses not to enter into a mutual aid agreement. Staff estimates that there may be as many as 528 investor owned water utilities and 1,530 water systems (convenience stores, day care centers, etc.) providing water to customers from their own system that are small businesses. If these small businesses are able to enter into a mutual aid agreement, the fiscal impact of the proposed rules will be significantly reduced. For the small businesses that cannot enter into mutual aid agreements, equipment costs could have fiscal impacts for the water system. Staff expects that the approximate cost for a private utility with 100 connections to purchase a 50 kilowatt generator will be about \$31,960. Staff estimates that this would be around \$6 per connection per month,

but the costs are dependent on the number of facilities and customers. Small businesses are expected to recoup any equipment and maintenance costs through their rate or pricing structure.

SMALL BUSINESS REGULATORY FLEXIBILITY ANALYSIS

The commission has reviewed this proposed rulemaking and determined that a small business regulatory flexibility analysis is not required because the proposed rules are required to comply with state law, and SB 361 did not exempt small businesses from requirements to establish emergency preparedness plans to ensure emergency operations of water systems during extended power outages as soon as safe and practicable following the occurrence of a natural disaster.

LOCAL EMPLOYMENT IMPACT STATEMENT

The commission has reviewed this proposed rulemaking and determined that a local employment impact statement is not required because the proposed rules do not adversely affect a local economy in a material way for the first five years that the proposed rules are in effect.

DRAFT REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the proposed rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the rulemaking does not meet the definition of a "major environmental rule" as defined by that statute. A "major environmental rule" means 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.

This rulemaking does not meet the statutory definition of a "major environmental rule" because it is not the specific intent of this rule to protect the environment or reduce risks to human health from environmental exposure. The specific intent of this rule is to require certain water utilities, providers, and conveyors, to have emergency preparedness plans for maintaining water pressure following a disruption in service caused by a natural disaster. These rules are not required by federal regulations.

The proposed amendments to Chapter 290 set out who the affected utilities are and how they may comply with the requirements. The proposed amendments require water utilities, providers, and conveyors of potable or raw water to submit for commission approval emergency preparedness plans demonstrating how they can maintain 35 psi following a natural disaster that causes an extended power outage, while providing for waivers for those who can show that the requirement would result in a significant financial burden to its customers.

Further, this rulemaking does not meet the statutory definition of a "major environmental rule" because the proposed amendments would not 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. It is not anticipated that the cost of complying with the proposed amendments will be significant with respect to the economy as a whole; therefore, the proposed amendments will not adversely affect in a material way the economy, a sector of the economy, competition, or jobs.

Additionally, the rulemaking does not meet any of the four applicability criteria for requiring a regulatory impact analysis for a major environmental rule, which are listed in Texas Government Code,

§2001.0225(a). This section 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 rulemaking does not meet any of these four applicability requirements because this rulemaking: 1) does not exceed any standard set by federal law for treatment of water used in public water systems and is specifically required by state law; 2) does not exceed the requirements of state law under TWC, Chapter 13, Subchapter E; 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 any state and federal program on treatment of water used in public water systems, but rather is proposed to be consistent with state law in order to ensure that emergency operations of water systems are commenced as soon as safe and practicable following the occurrence of a natural disaster; and 4) is not proposed solely under the general powers of the agency, but rather specifically under TWC §13.041, which allows the commission to adopt and enforce rules reasonably required in the exercise of its powers and jurisdiction, including rules governing practice and procedure before the commission.

The commission invites public comment regarding this draft regulatory impact analysis determination. Written comments on the draft regulatory impact analysis determination may be submitted to the contact person at the address listed under the SUBMITTAL OF COMMENTS section of this preamble.

TAKINGS IMPACT ASSESSMENT

The commission evaluated these proposed rules and performed an analysis of whether these proposed rules constitute a taking under Texas Government Code, Chapter 2007. The specific purpose of these proposed rules is to implement certain recently enacted legislation relating to the emergency preparedness of affected utilities. The proposed rules require an "affected utility" that is located within a county with a population of 3.3 million or more, or a county with a population of 400,000 or more that is adjacent to a county with a population of 3.3 million or more to comply with emergency operations (SB 361). This rulemaking substantially advances this stated purpose by making the commission's rules consistent with the new statutory language. The commission's analysis indicates that Texas Government Code, Chapter 2007 does not apply to these proposed rules because this action does not affect private real property.

Promulgation and enforcement of these proposed rules will constitute neither a statutory nor a constitutional taking of private real property. The proposed regulations do not adversely affect a landowner's rights in private real property, in whole or in part, temporarily or permanently, because this rulemaking does not burden nor restrict the owner's right to property. More specifically, these rules implement legislation addressing the adoption of emergency preparedness plans by "affected utilities" (SB 361). These provisions do not impose any burdens or restrictions on private real property. Therefore, the proposed amendments do not constitute a taking under Texas Government Code, Chapter 2007.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the proposed rules and found that they are neither identified in the 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). The

specific intent of the proposed rules is to amend the rules to be consistent with recent legislative enactments (SB 361) to address the submission and review of emergency preparedness plans by affected utilities which is a procedural mechanism and is administrative in nature. Therefore, the proposed rules are not subject to the Texas Coastal Management Program.

Written comments on the consistency of this rulemaking may be submitted to the contact person at the address listed under the SUBMITTAL OF COMMENTS section of this preamble.

ANNOUNCEMENT OF HEARINGS

The commission will hold two public hearings on this proposal in Harris County. The first hearing will be on September 21, 2009 at 2:00 p.m. at the Houston-Galveston Area Council, located at 3555 Timmons Lane, Houston, Texas 77027. The second hearing will be held on September 22, 2009 at 2:00 p.m. at the Katy Branch Library, located at 5414 Franz Road, Katy, Texas 77493. The hearings are structured for the receipt of oral or written comments by interested persons. Individuals may present oral statements when called upon in order of registration. Open discussion will not be permitted during the hearing; however, commission staff members will be available to discuss the proposal 30 minutes prior to the hearing.

Persons who have special communication or other accommodation needs who are planning to attend the hearing should contact Jessica Rawlings, Office of Legal Services at (512) 239-0177. Requests should be made as far in advance as possible.

SUBMITTAL OF COMMENTS

Written comments may be submitted to Jessica Rawlings, MC 205, Office of Legal Services, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087, or faxed to (512) 239-4808. Electronic comments may be submitted at: <http://www5.tceq.state.tx.us/rules/ecomments/>. File size restrictions may apply to comments being submitted via the eComments system. All comments should reference Rule Project Number 2009-032-290-PR. The comment period closes September 28, 2009. Copies of the proposed rulemaking can be obtained from the commission's Web site at http://www.tceq.state.tx.us/nav/rules/propose_adopt.html. For further information, please contact Reyna Holmes, Water Supply Division, (512) 239-6183.

SUBCHAPTER D: RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS

§§290.38, 290.39, 290.44 - 290.47

STATUTORY AUTHORITY

These amendments are proposed under Texas Water Code (TWC), §5.013, which establishes the general jurisdiction of the commission; 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; and Texas Health and Safety Code (THSC), §341.0315, which requires public water systems to comply with commission rules adopted to ensure the supply of safe drinking water.

The proposed amendments implement TWC, §13.1395.

§290.38. Definitions.

The following words and terms, when used in this chapter shall have the following meanings, unless the context clearly indicates otherwise. If a word or term used in this chapter is not contained in the following list, its definition shall be as shown in Title 40 Code of Federal Regulations (CFR) §141.2. Other technical terms used shall have the meanings or definitions listed in the latest edition of *The Drinking Water Dictionary*, prepared by the American Water Works Association.

(1) Affected utility--A retail public utility, exempt utility, or provider or conveyor of potable or raw water service that furnishes water service to more than one customer:

(A) in a county with a population of 3.3 million or more; or,

(B) in a county with a population of 400,000 or more adjacent to a county with a population of 3.3 million or more.

(2) [(1)] Air gap--The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet conveying water to a tank, fixture, receptor, sink, or other assembly and the flood level rim of the receptacle. The vertical, physical separation must be at least twice the diameter of the water supply outlet, but never less than 1.0 inch.

(3) [(2)] ANSI standards--The standards of the American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018.

(4) [(3)] Approved laboratory--A laboratory certified and approved by the commission to analyze water samples to determine their compliance with maximum allowable constituent levels.

(5) [(4)] ASME standards--The standards of the American Society of Mechanical Engineers, 346 East 47th Street, New York, New York 10017.

(6) [(5)] ASTM standards--The standards of the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19102.

(7) [(6)] Auxiliary power--Either mechanical power or electric generators which can enable the system to provide water under pressure to the distribution system in the event of a local power failure. With the approval of the executive director, dual primary electric service may be considered as auxiliary power in areas which are not subject to large scale power outages due to natural disasters.

(8) [(7)] AWWA standards--The latest edition of the applicable standards as approved and published by the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235.

(9) [(8)] Bag Filter--Pressure-driven separation device that removes particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to the outside.

(10) [(9)] Cartridge filter--Pressure-driven separation device that removes particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.

(11) [(10)] Certified laboratory--A laboratory certified by the commission to analyze water samples to determine their compliance with maximum allowable constituent levels.

(12) [(11)] Challenge test--A study conducted to determine the removal efficiency (log removal value) of a device for a particular organism, particulate, or surrogate.

(13) [(12)] Chemical disinfectant- Any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to the water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic microorganisms.

(14) [(13)] Community water system--A public water system which has a potential to serve at least 15 residential service connections on a year-round basis or serves at least 25 residents on a year-round basis.

(15) [(14)] Connection--A single family residential unit or each commercial or industrial establishment to which drinking water is supplied from the system. As an example, the number of service connections in an apartment complex would be equal to the number of individual apartment units. When enough data is not available to accurately determine the number of connections to be served or being served, the population served divided by three will be used as the number of connections for calculating system capacity requirements. Conversely, if only the number of connections is known, the connection total multiplied by three will be the number used for population served. For the purposes of this definition, a dwelling or business which is connected to a system that delivers water by a constructed conveyance other than a pipe shall not be considered a connection if:

(A) the water is used exclusively for purposes other than those defined as human consumption (see human consumption);

(B) the executive director determines that alternative water to achieve the equivalent level of public health protection provided by the drinking water standards is provided for residential or similar human consumption, including, but not limited to, drinking and cooking; or

(C) the executive director determines that the water provided for residential or similar human consumption is centrally treated or is treated at the point of entry by a provider, a pass through entity, or the user to achieve the equivalent level of protection provided by the drinking water standards.

(16) [(15)] Contamination--The presence of any foreign substance (organic, inorganic, radiological or biological) in water which tends to degrade its quality so as to constitute a health hazard or impair the usefulness of the water.

(17) [(16)] Cross-connection--A physical connection between a public water system and either another supply of unknown or questionable quality, any source which may contain contaminating or polluting substances, or any source of water treated to a lesser degree in the treatment process.

(18) [(17)] Direct integrity test--A physical test applied to a membrane unit in order to identify and isolate integrity breaches/leaks that could result in contamination of the filtrate.

(19) [(18)] Disinfectant--A chemical or a treatment which is intended to kill or inactivate pathogenic microorganisms in water.

(20) [(19)] Disinfection--A process which inactivates pathogenic organisms in the water by chemical oxidants or equivalent agents.

(21) [(20)] Distribution system--A system of pipes that conveys potable water from a treatment plant to the consumers. The term includes pump stations, ground and elevated storage tanks, potable water mains, and potable water service lines and all associated valves, fittings, and meters, but excludes potable water customer service lines.

(22) [(21)] Drinking water--All water distributed by any agency or individual, public or private, for the purpose of human consumption or which may be used in the preparation of foods or beverages or for the cleaning of any utensil or article used in the course of preparation or consumption of food or beverages for human beings. The term "Drinking Water" shall also include all water supplied for human consumption or used by any institution catering to the public.

(23) [(22)] Drinking water standards--The commission rules covering drinking water standards in Subchapter F of this chapter (relating to Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems).

(24) [(23)] Elevated storage capacity--That portion of water which can be stored at least 80 feet above the highest service connection in the pressure plane served by the storage tank.

(25) Emergency operations--The operation of an affected utility during an extended power outage at a minimum water pressure of 35 pounds per square inch.

(26) [(24)] Emergency power--Either mechanical power or electric generators which can enable the system to provide water under pressure to the distribution system in the event of a local power failure. With the approval of the executive director, dual primary electric service may be considered as emergency power in areas which are not subject to large scale power outages due to natural disasters.

(27) Extended power outage--a power outage lasting for more than 24 hours.

(28) [(25)] Filtrate--The water produced from a filtration process; typically used to describe the water produced by filter processes such as membranes.

(29) [(26)] Groundwater--Any water that is located beneath the surface of the ground and is not under the direct influence of surface water.

(30) [(27)] Groundwater under the direct influence of surface water--Any water beneath the surface of the ground with:

(A) significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*; or

(B) significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.

(31) [(28)] Health hazard--A cross-connection, potential contamination hazard, or other situation involving any substance that can cause death, illness, spread of disease, or has a high probability of causing such effects if introduced into the potable drinking water supply.

(32) [(29)] Human consumption--Uses by humans in which water can be ingested into or absorbed by the human body. Examples of these uses include, but are not limited to drinking, cooking, brushing teeth, bathing, washing hands, washing dishes, and preparing foods.

(33) [(30)] Indirect integrity monitoring--The monitoring of some aspect of filtrate water quality, such as turbidity, that is indicative of the removal of particulate matter.

(34) [(31)] Innovative/alternate treatment--Any treatment process that does not have specific design requirements in §290.42(a) - (f) of this title (relating to Water Treatment). For example, the adjustment of fluoride ion content, special treatment for metals, iron, manganese, organic and inorganic contaminant reduction, special methods for taste and odor control, demineralization, corrosion

control processes, membrane filtration, bag/cartridge filters, ozone, chlorine dioxide, Ultraviolet (UV) light disinfection, and other treatment processes.

(35) [(32)] Interconnection--A physical connection between two public water supply systems.

(36) [(33)] International Fire Code (IFC)--The standards of the International Code Council, 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001.

(37) [(34)] Intruder-resistant fence--A fence six feet or greater in height, constructed of wood, concrete, masonry, or metal with three strands of barbed wire extending outward from the top of the fence at a 45 degree angle with the smooth side of the fence on the outside wall. In lieu of the barbed wire, the fence must be eight feet in height. The fence must be in good repair and close enough to surface grade to prevent intruder passage.

(38) [(35)] L/d ratio--The dimensionless value that is obtained by dividing the length (depth) of a granular media filter bed by the weighted effective diameter "d" of the filter media. The weighted effective diameter of the media is calculated based on the percentage of the total bed depth contributed by each media layer.

(39) [(36)] Licensed professional engineer--An engineer who maintains a current license through the Texas Board of Professional Engineers in accordance with its requirements for professional practice.

(40) [(37)] Log removal value (LRV)--Removal efficiency for a target organism, particulate, or surrogate expressed as \log_{10} (i.e., \log_{10} (feed concentration) - \log_{10} (filtrate concentration)).

(41) [(38)] Maximum daily demand--In the absence of verified historical data or in cases where a public water system has imposed mandatory water use restrictions within the past 36 months, maximum daily demand means 2.4 times the average daily demand of the system.

(42) [(39)] Maximum contaminant level (MCL)--The MCL for a specific contaminant is defined in the section relating to that contaminant.

(43) [(40)] Membrane filtration--A pressure or vacuum driven separation process in which particulate matter larger than one micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test; includes the following common membrane classifications microfiltration (MF), ultrafiltration (UF), nanofiltration (NF), and reverse osmosis (RO), as well as any "membrane cartridge filtration" (MCF) device that satisfies this definition.

(44) [(41)] Membrane LRV_{C-Test} --The number that reflects the removal efficiency of the membrane filtration process demonstrated during challenge testing. The value is based on the entire set of LRVs obtained during challenge testing, with one representative LRV established per module tested.

(45) [(42)] Membrane module--The smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

(46) [(43)] Membrane sensitivity--The maximum log removal value (LRV) that can be reliably verified by a direct integrity test.

(47) [(44)] Membrane unit--A group of membrane modules that share common valving, which allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

(48) [(45)] Milligrams per liter (mg/L)--A measure of concentration, equivalent to and replacing parts per million in the case of dilute solutions.

(49) [(46)] Monthly reports of water works operations--The daily record of data relating to the operation of the system facilities compiled in a monthly report.

(50) [(47)] National Fire Protection Association (NFPA) standards--The standards of the NFPA, 1 Batterymarch Park, Quincy, Massachusetts, 02269-9101.

(51) [(48)] National Sanitation Foundation (NSF)--The NSF or reference to the listings developed by the foundation, P.O. Box 1468, Ann Arbor, Michigan 48106.

(52) [(49)] Noncommunity water system--Any public water system which is not a community system.

(53) [(50)] Nonhealth hazard--A cross-connection, potential contamination hazard, or other situation involving any substance that generally will not be a health hazard, but will constitute a nuisance, or be aesthetically objectionable, if introduced into the public water supply.

(54) [(51)] Nontransient noncommunity water system--A public water system that is not a community water system and regularly serves at least 25 of the same persons at least six months out of the year.

(55) [(52)] psi--Pounds per square inch.

(56) [(53)] Peak hourly demand--In the absence of verified historical data, peak hourly demand means 1.25 times the maximum daily demand (prorated to an hourly rate) if a public water supply meets the commission's minimum requirements for elevated storage capacity and 1.85 times the maximum daily demand (prorated to an hourly rate) if the system uses pressure tanks or fails to meet the commission's minimum elevated storage capacity requirement.

(57) [(54)] Plumbing inspector--Any person employed by a political subdivision for the purpose of inspecting plumbing work and installations in connection with health and safety laws and ordinances, who has no financial or advisory interest in any plumbing company, and who has successfully fulfilled the examinations and requirements of the Texas State Board of Plumbing Examiners.

(58) [(55)] Plumbing ordinance--A set of rules governing plumbing practices which is at least as stringent and comprehensive as one of the following nationally recognized codes:

(A) the International Plumbing Code; or

(B) the Uniform Plumbing Code.

(59) [(56)] Potable water customer service line--The sections of potable water pipe between the customer's meter and the customer's point of use.

(60) [(57)] Potable water service line--The section of pipe between the potable water main to the customer's side of the water meter. In cases where no customer water meter exists, it is the section of pipe that is under the ownership and control of the public water system.

(61) [(58)] Potable water main--A pipe or enclosed constructed conveyance operated by a public water system which is used for the transmission or distribution of drinking water to a potable water service line.

(62) [(59)] Potential contamination hazard--A condition which, by its location, piping or configuration, has a reasonable probability of being used incorrectly, through carelessness, ignorance, or negligence, to create or cause to be created a backflow condition by which contamination can be introduced into the water supply. Examples of potential contamination hazards are:

- (A) bypass arrangements;
- (B) jumper connections;
- (C) removable sections or spools; and
- (D) swivel or changeover assemblies.

(63) [(60)] Process control duties--Activities that directly affect the potability of public drinking water, including: making decisions regarding the day-to-day operations and maintenance of public water system production and distribution; maintaining system pressures; determining the adequacy of disinfection and disinfection procedures; taking routine microbiological samples; taking chlorine residuals and microbiological samples after repairs or installation of lines or appurtenances; and operating chemical feed systems, filtration, disinfection, or pressure maintenance equipment; or performing other duties approved by the executive director.

(64) [(61)] Public drinking water program--Agency staff designated by the executive director to administer the Safe Drinking Water Act and state statutes related to the regulation of public drinking water. Any report required to be submitted in this chapter to the executive director must be submitted to the Texas Commission on Environmental Quality, Water Supply Division, MC 155, P.O. Box 13087, Austin, Texas 78711-3087.

(65) [(62)] Public health engineering practices--Requirements in this subchapter or guidelines promulgated by the executive director.

(66) [(63)] Public water system--A system for the provision to the public of water for human consumption through pipes or other constructed conveyances, which includes all uses described under the definition for drinking water. Such a system must have at least 15 service connections or serve at least 25 individuals at least 60 days out of the year. This term includes; any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Two or more systems with each having a potential to serve less than 15 connections or less than 25 individuals but owned by the same person, firm, or corporation and located on adjacent land will be considered a public water system when the total potential service connections in the combined systems are 15 or greater or if the total number of individuals served by the combined systems total 25 or greater at least 60 days out of the year. Without excluding other meanings of the terms "individual" or "served," an individual shall be deemed to be served by a water system if he lives in, uses as his place of employment, or works in a place to which drinking water is supplied from the system.

(67) [(64)] Quality Control Release Value (QCRV)--A minimum quality standard of a non-destructive performance test (NDPT) established by the manufacturer for membrane module production that ensures that the module will attain the targeted log removal value (LRV) demonstrated during challenge testing.

(68) [(65)] Reactor Validation Testing--A process by which a full-scale UV reactor's disinfection performance is determined relative to operating parameters that can be monitored. These parameters include flow rate, UV intensity as measured by a UV sensor and the UV lamp status.

(69) [(66)] Resolution--The size of the smallest integrity breach that contributes to a response from a direct integrity test in membranes used to treat surface water or groundwater under the direct influence of surface water.

(70) [(67)] Sanitary control easement--A legally binding document securing all land, within 150 feet of a public water supply well location, from pollution hazards. This document must fully describe the location of the well and surrounding lands and must be filed in the county records to be legally binding.

(71) [(68)] Sanitary survey--An onsite review of the water source, facilities, equipment, operation and maintenance of a public water system, for the purpose of evaluating the adequacy for producing and distributing safe drinking water.

(72) [(69)] Sensitivity--The maximum log removal value (LRV) that can be reliably verified by a direct integrity test in membranes used to treat surface water or groundwater under the direct influence of surface water; also applies to some continuous indirect integrity monitoring methods.

(73) [(70)] Service line--A pipe connecting the utility service provider's main and the water meter, or for wastewater, connecting the main and the point at which the customer's service line is connected, generally at the customer's property line.

(74) [(71)] Service pump--Any pump that takes treated water from storage and discharges to the distribution system.

(75) [(72)] Transfer pump--Any pump which conveys water from one point to another within the treatment process or which conveys water to storage facilities prior to distribution.

(76) [(73)] Transient noncommunity water system--A public water system that is not a community water system and serves at least 25 persons at least 60 days out of the year, yet by its characteristics, does not meet the definition of a nontransient noncommunity water system.

(77) [(74)] Wastewater lateral--Any pipe or constructed conveyance carrying wastewater, running laterally down a street, alley, or easement, and receiving flow only from the abutting properties.

(78) [(75)] Wastewater main--Any pipe or constructed conveyance which receives flow from one or more wastewater laterals.

§290.39. General Provisions.

(a) Authority for requirements. Texas Health and Safety Code (THSC), Chapter 341, Subchapter C prescribes the duties of the commission relating to the regulation and control of public drinking water systems in the state. The statute requires that the commission ensure that public water systems: supply safe drinking water in adequate quantities, are financially stable and technically sound, promote use of regional and area-wide drinking water systems, and review completed plans and specifications and business plans for all contemplated public water systems not exempted by THSC, §341.035(d). The statute also requires the commission be notified of any subsequent material changes, improvements, additions, or alterations in existing systems and, consider compliance history in approving new or modified public water systems. Texas Water Code (TWC), Chapter 13, Subchapter E, §13.1395, prescribes the duties of the commission relating to standards for emergency operations of affected utilities. The statute requires that the commission ensure that affected utilities provide water service as soon as safe and practicable during an extended power outage following the occurrence of a natural disaster.

(b) Reason for this subchapter and minimum criteria. This subchapter has been adopted to ensure regionalization and area-wide options are fully considered, the inclusion of all data essential for comprehensive consideration of the contemplated project, or improvements, additions, alterations, or changes thereto and to establish minimum standardized public health design criteria in compliance with existing state statutes and in accordance with good public health engineering practices. In addition, minimum acceptable financial, managerial, technical, and operating practices must be specified to ensure that facilities are properly operated to produce and distribute a safe, potable water.

(c) Required actions and approvals prior to construction. A person may not begin construction of a public drinking water supply system unless the executive director determines the following requirements have been satisfied and approves construction of the proposed system.

(1) A person proposing to install a public drinking water system within the extraterritorial jurisdiction of a municipality; or within 1/2-mile of the corporate boundaries of a district, or other political subdivision providing the same service; or within 1/2-mile of a certificated service area boundary of any other water service provider shall provide to the executive director evidence that:

(A) written application for service was made to that provider; and

(B) all application requirements of the service provider were satisfied, including the payment of related fees.

(2) A person may submit a request for an exception to the requirements of paragraph (1) of this subsection if the application fees will create a hardship on the person. The request must be accompanied by evidence documenting the financial hardship.

(3) A person who is not required to complete the steps in paragraph (1) of this subsection, or who completes the steps in paragraph (1) of this subsection and is denied service or determines that the existing provider's cost estimate is not feasible for the development to be served, shall submit to the executive director:

(A) plans and specifications for the system; and

(B) a business plan for the system.

(4) Emergency Preparedness Plan for Public Water Systems that are Affected Utilities.

(A) Each public water system that is also an affected utility, as defined by §290.38(1) of this title (relating to Definitions), is required to submit to the executive director, receive approval for, and adopt an emergency preparedness plan in accordance with §290.45 of this title (relating to Minimum Water System Capacity Requirements) using either the template in Appendix J of §290.47 of this title (relating to Appendices) or another emergency preparedness plan that meets the requirements of this section.

(B) Each affected utility that supplies, provides, or conveys surface water to wholesale customers shall include in its emergency preparedness plan under subparagraph (A) of this paragraph provision for the actual installation and maintenance of automatically starting auxiliary generators or distributive generation facilities for each raw water intake pump station, water treatment plant, pump station, and pressure facility necessary to provide water to its wholesale customers.

(C) The executive director shall review an emergency preparedness plan submitted under subparagraph (A) of this paragraph. If the executive director determines that the plan is not acceptable, the executive director shall recommend changes to the plan. The executive director must make its recommendations on or before the 90th day after the executive director receives the plan. In

accordance with commission rules, an emergency preparedness plan must include one of the options listed in §290.45(h)(3)(A) - (H) of this title.

(D) Each affected utility shall install any required equipment to implement the emergency preparedness plan approved by the executive director immediately upon operation.

(E) The executive director may grant a waiver of the requirements for emergency preparedness plans to an affected utility if the executive director determines that compliance with this section will cause a significant financial burden on customers of the affected utility. The affected utility shall submit financial, managerial, and technical information as requested by the executive director to demonstrate the financial burden.

(d) Submission of plans.

(1) Plans, specifications, and related documents will not be considered unless they have been prepared under the direction of a licensed professional engineer. All engineering documents must have engineering seals, signatures, and dates affixed in accordance with the rules of the Texas Board of Professional Engineers.

(2) Detailed plans must be submitted for examination at least 30 days prior to the time that approval, comments or recommendations are desired. From this, it is not to be inferred that final action will be forthcoming within the time mentioned.

(3) The limits of approval are as follows.

(A) The commission's public drinking water program furnishes consultation services as a reviewing body only, and its licensed professional engineers may neither act as design engineers nor furnish detailed estimates.

(B) The commission's public drinking water program does not examine plans and specifications in regard to the structural features of design, such as strength of concrete or adequacy of reinforcing. Only the features covered by this subchapter will be reviewed.

(C) The consulting engineer and/or owner must provide surveillance adequate to assure that facilities will be constructed according to approved plans and must notify the executive director in writing upon completion of all work. Planning materials shall be submitted to the Texas Commission on Environmental Quality, Water Supply Division, MC 153, P.O. Box 13087, Austin, Texas 78711-3087.

(e) Submission of planning material. In general, the planning material submitted shall conform to the following requirements.

(1) Engineering reports are required for new water systems and all surface water treatment plants. Engineering reports are also required when design or capacity deficiencies are identified in an existing system. The engineering report shall include, at least, coverage of the following items:

- (A) statement of the problem or problems;
 - (B) present and future areas to be served, with population data;
 - (C) the source, with quantity and quality of water available;
 - (D) present and estimated future maximum and minimum water quantity demands;
 - (E) description of proposed site and surroundings for the water works facilities;
 - (F) type of treatment, equipment, and capacity of facilities;
 - (G) basic design data, including pumping capacities, water storage and flexibility of system operation under normal and emergency conditions; and
 - (H) the adequacy of the facilities with regard to delivery capacity and pressure throughout the system.
- (2) All plans and drawings submitted may be printed on any of the various papers which give distinct lines. All prints must be clear, legible and assembled to facilitate review.

(A) The relative location of all facilities which are pertinent to the specific project shall be shown.

(B) The location of all abandoned or inactive wells within 1/4-mile of a proposed well site shall be shown or reported.

(C) If staged construction is anticipated, the overall plan shall be presented, even though a portion of the construction may be deferred.

(D) A general map or plan of the municipality, water district, or area to be served shall accompany each proposal for a new water supply system.

(3) Specifications for construction of facilities shall accompany all plans. If a process or equipment which may be subject to probationary acceptance because of limited application or use in Texas is proposed, the executive director may give limited approval. In such a case, the owner must be given a bonded guarantee from the manufacturer covering acceptable performance. The specifications shall include a statement that such a bonded guarantee will be provided to the owner and shall also specify those conditions under which the bond will be forfeited. Such a bond will be transferable. The bond shall be retained by the owner and transferred when a change in ownership occurs.

(4) A copy of each fully executed sanitary control easement and any other documentation demonstrating compliance with §290.41(c)(1)(F) of this title (relating to Water Sources) shall be provided to the executive director prior to placing the well into service. Each original easement document, if

obtained, must be recorded in the deed records at the county courthouse. Section 290.47(c) of this title [(relating to Appendices)] includes a suggested form.

(5) Construction features and siting of all facilities for new water systems and for major improvements to existing water systems must be in conformity with applicable commission rules.

(f) Submission of business plans. The prospective owner of the system or the person responsible for managing and operating the system must submit a business plan to the executive director that demonstrates that the owner or operator of the system has available the financial, managerial, and technical capability to ensure future operation of the system in accordance with applicable laws and rules. The executive director may order the prospective owner or operator to demonstrate financial assurance to operate the system in accordance with applicable laws and rules as specified in Chapter 37, Subchapter O of this title (relating to Financial Assurance for Public Drinking Water Systems and Utilities), or as specified by commission rule, unless the executive director finds that the business plan demonstrates adequate financial capability. A business plan shall include the information and be presented in a format prescribed by the executive director. For community water systems, the business plan shall contain, at a minimum, the following elements:

(1) description of areas and population to be served by the potential system;

(2) description of drinking water supply systems within a two-mile radius of the proposed system, copies of written requests seeking to obtain service from each of those drinking water supply systems, and copies of the responses to the written requests;

(3) time line for construction of the system and commencement of operations;

(4) identification of and costs of alternative sources of supply;

(5) selection of the alternative to be used and the basis for that selection;

(6) identification of the person or entity which owns or will own the drinking water system and any identifiable future owners of the drinking water system;

(7) identification of any other businesses and public drinking water system(s) owned or operated by the applicant, owner(s), parent organization, and affiliated organization(s);

(8) an operations and maintenance plan which includes sufficient detail to support the budget estimate for operation and maintenance of the facilities;

(9) assurances that the commitments and resources needed for proper operation and maintenance of the system are, and will continue to be, available, including the qualifications of the organization and each individual associated with the proposed system;

(10) for retail public utilities as defined by [Texas Water Code (TWTC)], §13.002:

(A) projected rate revenue from residential, commercial, and industrial customers; and

(B) pro forma income, expense, and cash flow statements;

(11) identification of any appropriate financial assurance, including those being offered to capital providers;

(12) a notarized statement signed by the owner or responsible person that the business plan has been prepared under his direction and that he is responsible for the accuracy of the information; and

(13) other information required by the executive director to determine the adequacy of the business plan or financial assurance.

(g) Business plans not required. A person is not required to file a business plan if the person:

(1) is a county;

(2) is a retail public utility as defined by TWC, §13.002, unless that person is a utility as defined by that section;

(3) has executed an agreement with a political subdivision to transfer the ownership and operation of the water supply system to the political subdivision; or

(4) is a noncommunity nontransient water system and the person has demonstrated financial assurance under THSC, Chapter 361 or 382 or TWC, Chapter 26.

(h) Beginning and completion of work.

(1) No person may begin construction on a new public water system before receiving written approval of plans and specifications and, if required, approval of a business plan from the executive director. No person may begin construction of modifications to a public water system without providing notification to the executive director and submitting and receiving approval of plans and specifications if requested in accordance with subsection (j) of this section.

(2) The executive director shall be notified in writing by the design engineer or the owner before construction is started.

(3) Upon completion of the water works project, the engineer or owner shall notify the executive director in writing as to its completion and attest to the fact that the completed work is substantially in accordance with the plans and change orders on file with the commission.

(i) Changes in plans and specifications. Any addenda or change orders which may involve a health hazard or relocation of facilities, such as wells, treatment units, and storage tanks, shall be submitted to the executive director for review and approval.

(j) Changes in existing systems or supplies. Public water systems shall notify the executive director prior to making any significant change or addition to the system's production, treatment, storage, pressure maintenance, or distribution facilities. Public water systems shall submit plans and specifications for the proposed changes upon request. Changes to an existing disinfection process at a treatment plant that treats surface water or groundwater that is under the direct influence of surface water shall not be instituted without the prior approval of the executive director.

(1) The following changes are considered to be significant:

(A) proposed changes to existing systems which result in an increase or decrease in production, treatment, storage, or pressure maintenance capacity;

(B) proposed changes to the disinfection process used at plants that treat surface water or groundwater that is under the direct influence of surface water including changes involving the disinfectants used, the disinfectant application points, or the disinfectant monitoring points;

(C) proposed changes to the type of disinfectant used to maintain a disinfectant residual in the distribution system;

(D) proposed changes in existing distribution systems when the change is greater than 10% of the existing distribution capacity or 250 connections, whichever is smaller, or results in the water system's inability to comply with any of the applicable capacity requirements of §290.45 of this title [(relating to Minimum Water System Capacity Requirements)];

(E) proposed replacement or change of membranes modules; and

(F) any other material changes specified by the executive director.

(2) The executive director shall determine whether engineering plans and specifications will be required after reviewing the initial notification regarding the nature and extent of the modifications.

(A) Upon request of the executive director, the water system shall submit plans and specifications in accordance with the requirements of subsection (d) of this section.

(B) Unless plans and specifications are required by Chapter 293 of this title (relating to Water Districts), the executive director will not require another state agency or a political subdivision to submit planning material on distribution line improvements if the entity has its own internal review staff and complies with all of the following criteria:

(i) the internal review staff includes one or more licensed professional engineers that are employed by the political subdivision and must be separate from, and not subject to the

review or supervision of, the engineering staff or firm charged with the design of the distribution extension under review;

(ii) a licensed professional engineer on the internal review staff determines and certifies in writing that the proposed distribution system changes comply with the requirements of §290.44 of this title (relating to Water Distribution) and will not result in a violation of any provision of §290.45 of this title;

(iii) the state agency or political subdivision includes a copy of the written certification described in this subparagraph with the initial notice that is submitted to the executive director.

(C) Unless plans and specifications are required by Chapter 293 of this title, the executive director will not require planning material on distribution line improvements from any public water system that is required to submit planning material to another state agency or political subdivision that complies with the requirements of subparagraph (B) of this paragraph. The notice to the executive director must include a statement that a state statute or local ordinance requires the planning materials to be submitted to the other state agency or political subdivision and a copy of the written certification that is required in subparagraph (B) of this paragraph.

(3) If a certificate of convenience and necessity (CCN) is required or must be amended, the CCN application must be included with the notice to the executive director.

(k) Planning material acceptance. Planning material for improvements to an existing system which does not meet the requirements of all sections of this subchapter will not be considered unless the necessary modifications for correcting the deficiencies are included in the proposed improvements, or unless the executive director determines that reasonable progress is being made toward correcting the deficiencies and no immediate health hazard will be caused by the delay.

(l) Exceptions. Requests for exceptions to one or more of the requirements in this subchapter shall be considered on an individual basis. Any water system which requests an exception must demonstrate to the satisfaction of the executive director that the exception will not compromise the public health or result in a degradation of service or water quality.

(1) The exception must be requested in writing and must be substantiated by carefully documented data. The request for an exception shall precede the submission of engineering plans and specifications for a proposed project for which an exception is being requested.

(2) Any exception granted by the commission is subject to revocation.

(3) Any request for an exception which is not approved by the commission in writing is denied.

(4) The executive director may establish site specific design, operation, maintenance, and reporting requirements for systems that have been issued an exception to the subchapter.

(m) Notification of system startup or reactivation. The owner or responsible official must provide written notification to the commission of the startup of a new public water supply system or reactivation of an existing public water supply system. This notification must be made immediately upon meeting the definition of a public water system as defined in §290.38 of this title [(relating to Definitions)].

(n) The commission may require the owner or operator of a public drinking water supply system that was constructed without the approval required by THSC, §341.035, that has a history of noncompliance with THSC, Chapter 341, Subchapter C or commission rules, or that is subject to a commission enforcement action to take the following action:

(1) provide the executive director with a business plan that demonstrates that the system has available the financial, managerial, and technical resources adequate to ensure future operation of the system in accordance with applicable laws and rules. The business plan must fulfill all the requirements for a business plan as set forth in subsection (f) of this section;

(2) provide adequate financial assurance of the ability to operate the system in accordance with applicable laws and rules. The executive director will set the amount of the financial assurance, after the business plan has been reviewed and approved by the executive director.

(A) The amount of the financial assurance will equal the difference between the amount of projected system revenues and the projected cash needs for the period of time prescribed by the executive director.

(B) The form of the financial assurance will be as specified in Chapter 37, Subchapter O of this title and will be as specified by the executive director.

(C) If the executive director relies on rate increases or customer surcharges as the form of financial assurance, such funds shall be deposited in an escrow account as specified in Chapter 37, Subchapter O of this title and released only with the approval of the executive director.

(o) Emergency Preparedness Plans for Affected Utilities.

(1) Each public water system that is also an affected utility and that exists as of December 1, 2009 is required to adopt and submit to the executive director an emergency preparedness plan in accordance with §290.45 of this title and using the template in Appendix J of §290.47 of this title or another emergency preparedness plan that meets the requirements of this subchapter no later than March 1, 2010.

(2) Each affected utility that supplies, provides, or conveys surface water to wholesale customers shall include in its emergency preparedness plan under this subsection provisions for the actual installation and maintenance of automatically starting auxiliary generators or distributive generation facilities for each raw water intake pump station, water treatment plant, pump station, and pressure facility necessary to provide water to its wholesale customers.

(3) The executive director shall review an emergency preparedness plan submitted under this subsection. If the executive director determines that the plan is not acceptable, the executive director

shall recommend changes to the plan. The executive director must make its recommendations on or before the 90th day after the executive director receives the plan. In accordance with the commission rules, an emergency preparedness plan must include one of the options listed in §290.45(h)(3)(A) - (H) of this title.

(4) Not later than July 1, 2010, each affected utility shall implement the emergency preparedness plan approved by the executive director.

(5) An affected utility may file with the executive director a written request for an extension not to exceed 90 days, of the date by which the affected utility is required under this subsection to submit the affected utility's emergency preparedness plan or of the date by which the affected utility is required under this subsection to implement the affected utility's emergency preparedness plan. The executive director may approve the requested extension for good cause shown.

(6) The executive director may grant a waiver of the requirements for emergency preparedness plans to an affected utility if the executive director determines that compliance with this section will cause a significant financial burden on customers of the affected utility. The affected utility shall submit financial, managerial, and technical information as requested by the executive director to demonstrate the financial burden.

§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.)

Maximum Number of Connections	Minimum Line Size (inches)
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. The distribution system of public water systems that are also affected utilities must be designed to meet the requirements of §290.45(h) of this title (relating to Minimum Water System Capacity Requirements).

(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.

§290.45. Minimum Water System Capacity Requirements.

(a) General provisions.

(1) The requirements contained in this section are to be used in evaluating both the total capacities for public water systems and the capacities at individual pump stations and pressure planes which serve portions of the system that are hydraulically separated from, or incapable of being served by, other pump stations or pressure planes. The capacities specified in this section are minimum requirements only.

(2) The executive director will require additional supply, storage, service pumping, and pressure maintenance facilities if a normal operating pressure of 35 pounds per square inch (psi) cannot be maintained throughout the system, or if the system's maximum daily demand exceeds its total production and treatment capacity. The executive director will also require additional capacities if the system is unable to maintain a minimum pressure of 20 psi during fire fighting, line flushing, and other unusual conditions.

(3) The executive director may establish additional capacity requirements for a public water system using the method of calculation described in subsection (g)(2) of this section if there are repeated customer complaints regarding inadequate pressure or if the executive director receives a request for a capacity evaluation from customers of the system.

(4) Throughout this section, total storage capacity does not include pressure tank capacity.

(5) The executive director may exclude the capacity of facilities that have been inoperative for the past 120 days and will not be returned to an operative condition within the next 30 days when determining compliance with the requirements of this section.

(6) The capacity of the treatment facilities shall not be less than the required raw water or groundwater production rate or the anticipated maximum daily demand of the system.

(7) If a public water system that is an affected utility fails to provide a minimum of 35 psi throughout the distribution system during emergency operations as soon as it is safe and practicable following the occurrence of a natural disaster, a revised emergency preparedness plan shall be submitted for review and approval within 180 days of the date normal power is restored. Based on the review of the revised emergency preparedness plan, the executive director may require additional or alternative auxiliary emergency facilities.

(b) Community water systems.

(1) Groundwater supplies must meet the following requirements.

(A) If fewer than 50 connections without ground storage, the system must meet the following requirements:

(i) a well capacity of 1.5 gallons per minute (gpm) per connection; and

(ii) a pressure tank capacity of 50 gallons per connection.

(B) If fewer than 50 connections with ground storage, the system must meet the following requirements:

(i) a well capacity of 0.6 gpm per connection;

(ii) a total storage capacity of 200 gallons per connection;

(iii) two or more service pumps having a total capacity of 2.0 gpm per connection; and

(iv) a pressure tank capacity of 20 gallons per connection.

(C) For 50 to 250 connections, the system must meet the following requirements:

(i) a well capacity of 0.6 gpm per connection;

(ii) a total storage capacity of 200 gallons per connection;

(iii) two or more pumps having a total capacity of 2.0 gpm per connection at each pump station or pressure plane. For systems which provide an elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6

gpm per connection are required at each pump station or pressure plane. If only wells and elevated storage are provided, service pumps are not required; and

(iv) an elevated storage capacity of 100 gallons per connection or a pressure tank capacity of 20 gallons per connection.

(D) For more than 250 connections, the system must meet the following requirements:

(i) two or more wells having a total capacity of 0.6 gpm per connection.

Where an interconnection is provided with another acceptable water system capable of supplying at least 0.35 gpm for each connection in the combined system under emergency conditions, an additional well will not be required as long as the 0.6 gpm per connection requirement is met for each system on an individual basis. Each water system must still meet the storage and pressure maintenance requirements on an individual basis unless the interconnection is permanently open. In this case, the systems' capacities will be rated as though a single system existed;

(ii) a total storage capacity of 200 gallons per connection;

(iii) two or more pumps that have a total capacity of 2.0 gpm per connection or that have a total capacity of at least 1,000 gpm and the ability to meet peak hourly demands with the largest pump out of service, whichever is less, at each pump station or pressure plane. For systems which provide an elevated storage capacity of 200 gallons per connection, two service pumps

with a minimum combined capacity of 0.6 gpm per connection are required at each pump station or pressure plane. If only wells and elevated storage are provided, service pumps are not required;

(iv) an elevated storage capacity of 100 gallons per connection or a pressure tank capacity of 20 gallons per connection. If pressure tanks are used, a maximum capacity of 30,000 gallons is sufficient for up to 2,500 connections. An elevated storage capacity of 100 gallons per connection is required for systems with more than 2,500 connections. Alternate methods of pressure maintenance may be proposed and will be approved if the criteria contained in subsection (g)(5) of this section are met; and

(v) emergency power for systems which serve more than 250 connections and do not meet the elevated storage requirement. Sufficient emergency power must be provided to deliver a minimum of 0.35 gpm per connection to the distribution system in the event of the loss of normal power supply. Alternately, an emergency interconnection can be provided with another public water system that has emergency power and is able to supply at least 0.35 gpm for each connection in the combined system. Emergency power facilities in systems serving 1,000 connections or greater must be serviced and maintained in accordance with level 2 maintenance requirements contained in the current National Fire Protection Association (NFPA) 110 standards. Although not required, compliance with NFPA 110 standards is highly recommended for systems serving less than 1,000 connections. Logs of all emergency power use and maintenance must be maintained and kept on file for a period of not less than three years. These records must be made available, upon request, for executive director review.

(E) Mobile home parks with a density of eight or more units per acre and apartment complexes which supply fewer than 100 connections without ground storage must meet the following requirements:

(i) a well capacity of 1.0 gpm per connection; and

(ii) a pressure tank capacity of 50 gallons per connection with a maximum of 2,500 gallons required.

(F) Mobile home parks and apartment complexes which supply 100 connections or greater, or fewer than 100 connections and utilize ground storage must meet the following requirements:

(i) a well capacity of 0.6 gpm per connection. Systems with 250 or more connections must have either two wells or an approved interconnection which is capable of supplying at least 0.35 gpm for each connection in the combined system;

(ii) a total storage of 200 gallons per connection;

(iii) at least two service pumps with a total capacity of 2.0 gpm per connection; and

(iv) a pressure tank capacity of 20 gallons per connection.

(2) Surface water supplies must meet the following requirements:

(A) a raw water pump capacity of 0.6 gpm per connection with the largest pump out of service;

(B) a treatment plant capacity of 0.6 gpm per connection under normal rated design flow;

(C) transfer pumps (where applicable) with a capacity of 0.6 gpm per connection with the largest pump out of service;

(D) a covered clearwell storage capacity at the treatment plant of 50 gallons per connection or, for systems serving more than 250 connections, 5.0% of daily plant capacity;

(E) a total storage capacity of 200 gallons per connection;

(F) a service pump capacity that provides each pump station or pressure plane with two or more pumps that have a total capacity of 2.0 gpm per connection or that have a total capacity of at least 1,000 gpm and the ability to meet peak hourly demands with the largest pump out of service, whichever is less. For systems which provide an elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6 gpm per connection are required at each pump station or pressure plane;

(G) an elevated storage capacity of 100 gallons per connection or a pressure tank capacity of 20 gallons per connection. If pressure tanks are used, a maximum capacity of 30,000 gallons is sufficient for systems of up to 2,500 connections. An elevated storage capacity of 100 gallons per connection is required for systems with more than 2,500 connections. Alternate methods of pressure maintenance may be proposed and will be approved if the criteria contained in subsection (g)(5) of this section are met; and

(H) emergency power for systems which serve more than 250 connections and do not meet the elevated storage requirement. Sufficient emergency power must be provided to deliver a minimum of 0.35 gpm per connection to the distribution system in the event of the loss of normal power supply. Alternately, an emergency interconnection can be provided with another public water system that has emergency power and is able to supply at least 0.35 gpm for each connection in the combined system. Emergency power facilities in systems serving 1,000 connections or greater must be serviced and maintained in accordance with level 2 maintenance requirements contained in the current NFPA 110 standards. Although not required, compliance with NFPA 110 standards is highly recommended for systems serving less than 1,000 connections. Logs of all emergency power use and maintenance must be maintained and kept on file for a period of not less than three years. These records must be available, upon request, for executive director review.

(3) Any community public water system that is an affected utility shall have an emergency preparedness plan approved by the executive director and must meet the requirements for

emergency operations contained in subsection (h) of this section. This includes any affected utility that provides 100 gallons of elevated storage capacity per connection.

(c) Noncommunity water systems serving transient accommodation units. The following water capacity requirements apply to noncommunity water systems serving accommodation units such as hotel rooms, motel rooms, travel trailer spaces, campsites, and similar accommodations.

(1) Groundwater supplies must meet the following requirements.

(A) If fewer than 100 accommodation units without ground storage, the system must meet the following requirements:

(i) a well capacity of 1.0 gpm per unit; and

(ii) a pressure tank capacity of ten gallons per unit with a minimum of 220 gallons.

(B) For systems serving fewer than 100 accommodation units with ground storage or serving 100 or more accommodation units, the system must meet the following requirements:

(i) a well capacity of 0.6 gpm per unit;

(ii) a ground storage capacity of 35 gallons per unit;

(iii) two or more service pumps which have a total capacity of 1.0 gpm per unit; and

(iv) a pressure tank capacity of ten gallons per unit.

(2) Surface water supplies, regardless of size, must meet the following requirements:

(A) a raw water pump capacity of 0.6 gpm per unit with the largest pump out of service;

(B) a treatment plant capacity of 0.6 gpm per unit;

(C) a transfer pump capacity (where applicable) of 0.6 gpm per unit with the largest pump out of service;

(D) a ground storage capacity of 35 gallons per unit with a minimum of 1,000 gallons as clearwell capacity;

(E) two or more service pumps with a total capacity of 1.0 gpm per unit; and

(F) a pressure tank capacity of ten gallons per unit with a minimum requirement of 220 gallons.

(3) A noncommunity public water system that is an affected utility shall meet the requirements of subsection (h) of this section.

(d) Noncommunity water systems serving other than transient accommodation units.

(1) The following table is applicable to paragraphs (2) and (3) of this subsection and shall be used to determine the maximum daily demand for the various types of facilities listed.

Figure: 30 TAC §290.45(d)(1) (No change.)

Type of Establishment	Gallons/Person/Day
Restaurants.	18
.....	
Schools without cafeterias, gymnasiums, or showers.	18
Schools with cafeterias, but no gymnasiums or showers.	24
Schools with cafeterias, gymnasiums, and showers.	30
Youth camps without flush toilets, showers, or dining halls.	6
Youth camps with flush toilets, but no showers or dining halls. . .	24
Youth camps with flush toilets, showers, and dining halls.	42
Office buildings.	18
.....	
Hospitals (based on number of beds).	720

.....	
Institutions, other than hospitals.	240
.....	
Factories (exclusive of industrial processes). . .	24
.....	
Parks.	6
.....	
Swimming pools.	12
.....	
Country clubs.	120
.....	
Airports (per passenger).	6
.....	
Self-service laundries.	60
.....	
Service stations/stores.	12
.....	

It should be noted that this table is used to determine minimum capacities only and that the overriding criteria will be the ability of the system to maintain a minimum pressure of 35 psi under normal operating conditions. Minimum distribution pressure shall not be less than 20 psi at any time.

(2) Groundwater supplies must meet the following requirements.

(A) Subject to the requirements of subparagraph (B) of this paragraph, if fewer than 300 persons per day are served, the system must meet the following requirements:

(i) a well capacity which meets or exceeds the maximum daily demand of the system during the hours of operation; and

(ii) a minimum pressure tank capacity of 220 gallons with additional capacity, if necessary, based on a sanitary survey conducted by the executive director.

(B) Systems which serve 300 or more persons per day or serve fewer than 300 persons per day and provide ground storage must meet the following requirements:

(i) a well capacity which meets or exceeds the maximum daily demand;

(ii) a ground storage capacity which is equal to 50% of the maximum daily demand;

(iii) if the maximum daily demand is less than 15 gpm, at least one service pump with a capacity of three times the maximum daily demand;

(iv) if the maximum daily demand is 15 gpm or more, at least two service pumps with a total capacity of three times the maximum daily demand; and

(v) a minimum pressure tank capacity of 220 gallons with additional capacity, if necessary, based on a sanitary survey conducted by the executive director.

(3) Each surface water supply or groundwater supply that is under the direct influence of surface water, regardless of size, must meet the following requirements:

(A) a raw water pump capacity which meets or exceeds the maximum daily demand of the system with the largest pump out of service;

(B) a treatment plant capacity which meets or exceeds the system's maximum daily demand;

(C) a transfer pump capacity (where applicable) sufficient to meet the maximum daily demand with the largest pump out of service;

(D) a clearwell capacity which is equal to 50% of the maximum daily demand;

(E) two or more service pumps with a total capacity of three times the maximum daily demand; and

(F) a minimum pressure tank capacity of 220 gallons with additional capacity, if necessary, based on a sanitary survey conducted by the executive director.

(4) A noncommunity public water system that is an affected utility shall meet the requirements of subsection (h) of this section.

(e) Water wholesalers. The following additional requirements apply to systems which supply wholesale treated water to other public water supplies.

(1) All wholesalers must provide enough production, treatment, and service pumping capacity to meet or exceed the combined maximum daily commitments specified in their various contractual obligations.

(2) For wholesale water suppliers, minimum water system capacity requirements shall be determined by calculating the requirements based upon the number of retail customer service connections of that wholesale water supplier, if any, and adding that amount to the maximum amount of water obligated or pledged under all wholesale contracts.

(3) Emergency power is required for each portion of the system which supplies more than 250 connections under direct pressure and does not provide an elevated storage capacity of at least 100 gallons per connection. If emergency power is required, it must be sufficient to deliver 20% of the minimum required service pump capacity in the event of the loss of normal power supply. When the wholesaler provides water through an air gap into the purchaser's storage facilities it will be the purchaser's responsibility to meet all minimum water system capacity requirements including emergency power.

(4) A wholesaler that is an affected utility must meet the requirements specified in subsection (h) of this section.

(f) Purchased water systems. The following requirements apply only to systems which purchase treated water to meet all or part of their production, storage, service pump, or pressure maintenance capacity requirements.

(1) The water purchase contract must be available to the executive director in order that production, storage, service pump, or pressure maintenance capacity may be properly evaluated. For

purposes of this section, a contract may be defined as a signed written document of specific terms agreeable to the water purchaser and the water wholesaler, or in its absence, a memorandum or letter of understanding between the water purchaser and the water wholesaler.

(2) The contract shall authorize the purchase of enough water to meet the monthly or annual needs of the purchaser.

(3) The contract shall also establish the maximum rate at which water may be drafted on a daily and hourly basis. In the absence of specific maximum daily or maximum hourly rates in the contract, a uniform purchase rate for the contract period will be used.

(4) The maximum authorized daily purchase rate specified in the contract, or a uniform purchase rate in the absence of a specified daily purchase rate, plus the actual production capacity of the system must be at least 0.6 gpm per connection.

(5) For systems which purchase water under direct pressure, the maximum hourly purchase authorized by the contract plus the actual service pump capacity of the system must be at least 2.0 gpm per connection or provide at least 1,000 gpm and be able to meet peak hourly demands, whichever is less.

(6) The purchaser is responsible for meeting all production requirements. If additional capacity to meet increased demands cannot be attained from the wholesaler through a new or amended contract, additional capacity must be obtained from water purchase contracts with other entities, new

wells, or surface water treatment facilities. However, if the water purchase contract prohibits the purchaser from securing water from sources other than the wholesaler, the wholesaler is responsible for meeting all production requirements.

(7) All other minimum capacity requirements specified in this section shall apply.

(g) Alternative capacity requirements. Public water systems may request approval to meet alternative capacity requirements in lieu of the minimum capacity requirements specified in this section. Any water system requesting to use an alternative capacity requirement must demonstrate to the satisfaction of the executive director that approving the request will not compromise the public health or result in a degradation of service or water quality. Alternative capacity requirements are unavailable for groundwater systems serving fewer than 50 connections without total storage as specified in subsection (b)(1) of this section or for noncommunity water systems as specified in subsections (c) and (d) of this section.

(1) Alternative capacity requirements for public water systems may be granted upon request to and approval by the executive director. The request to use an alternative capacity requirement must include:

(A) a detailed inventory of the major production, pressurization, and storage facilities utilized by the system;

(B) records kept by the water system that document the daily production of the system. The period reviewed shall not be less than three years. The applicant may not use a calculated peak daily demand;

(C) data acquired during the last drought period in the region, if required by the executive director;

(D) the actual number of active connections for each month during the three years of production data;

(E) description of any unusual demands on the system such as fire flows or major main breaks that will invalidate unusual peak demands experienced in the study period;

(F) any other relevant data needed to determine that the proposed alternative capacity requirement will provide at least 35 psi in the public water system except during line repair or during fire fighting when it cannot be less than 20 psi; and

(G) a copy of all data relied upon for making the proposed determination.

(2) Alternative capacity requirements for existing public water systems must be based upon the maximum daily demand for the system, unless the request is submitted by a licensed professional engineer in accordance with the requirements of paragraph (3) of this subsection. The maximum daily demand must be determined based upon the daily usage data contained in monthly

operating reports for the system during a 36 consecutive month period. The 36 consecutive month period must end within 90 days of the date of submission to ensure the data is as current as possible.

(A) Maximum daily demand is the greatest number of gallons, including groundwater, surface water, and purchased water delivered by the system during any single day during the review period. Maximum daily demand excludes unusual demands on the system such as fire flows or major main breaks.

(B) For the purpose of calculating alternative capacity requirements, an equivalency ratio must be established. This equivalency ratio must be calculated by multiplying the maximum daily demand, expressed in gpm per connection, by a fixed safety factor and dividing the result by 0.6 gpm per connection. The safety factor shall be 1.15 unless it is documented that the existing system capacity is adequate for the next five years. In this case, the safety factor may be reduced to 1.05. The conditions in §291.93(3) of this title (relating to Adequacy of Water Utility Service) concerning the 85% rule shall continue to apply to public water systems that are also retail public utilities.

(C) To calculate the alternative capacity requirements, the equivalency ratio must be multiplied by the appropriate minimum capacity requirements specified in subsection (b) of this section. Standard rounding methods are used to round calculated alternative production capacity requirement values to the nearest one-hundredth.

(3) Alternative capacity requirements which are proposed and submitted by licensed professional engineers for review are subject to the following additional requirements.

(A) A signed and sealed statement by the licensed professional engineer must be provided which certifies that the proposed alternative capacity requirements have been determined in accordance with the requirements of this subsection.

(B) If the system is new or at least 36 consecutive months of data is not available, maximum daily demand may be based upon at least 36 consecutive months of data from a comparable public water system. A licensed professional engineer must certify that the data from another public water system is comparable based on consideration of the following factors: prevailing land use patterns (rural versus urban); number of connections; density of service populations; fire flow obligations; and socio-economic, climatic, geographic, and topographic considerations as well as other factors as may be relevant. The comparable public water system shall not exhibit any of the conditions listed in paragraph (6)(A) of this subsection.

(4) The executive director shall consider requests for alternative capacity requirements in accordance with the following requirements.

(A) For those requests submitted under the seal of a licensed professional engineer, the executive director must mail written acceptance or denial of the proposed alternative capacity requirements to the public water system within 90 days from the date of submission. If the executive director fails to mail written notification within 90 days, the alternative capacity requirements submitted by a licensed professional engineer automatically become the alternative capacity requirements for the public water system.

(B) If the executive director denies the request:

(i) the executive director shall mail written notice to the public water system identifying the specific reason or reasons for denial and allow 45 days for the public water system to respond to the reason(s) for denial;

(ii) the denial is final if no response from the public water system is received within 45 days of the written notice being mailed; and

(iii) the executive director must mail a final written approval or denial within 60 days from the receipt of any response timely submitted by the public water system.

(5) Although elevated storage is the preferred method of pressure maintenance for systems of over 2,500 connections, it is recognized that local conditions may dictate the use of alternate methods utilizing hydropneumatic tanks and on-site emergency power equipment. Alternative capacity requirements to the elevated storage requirements may be obtained based on request to and approval by the executive director. Special conditions apply to systems qualifying for an elevated storage alternative capacity requirement.

(A) The system must submit documentation sufficient to assure that the alternate method of pressure maintenance is capable of providing a safe and uninterrupted supply of water under pressure to the distribution system during all demand conditions.

(i) A signed and sealed statement by a licensed professional engineer must be provided which certifies that the pressure maintenance facilities are sized, designed, and capable of providing a minimum pressure of at least 35 psi at all points within the distribution network at flow rates of 1.5 gpm per connection or greater. In addition, the engineer must certify that the emergency power facilities are capable of providing the greater of the average daily demand or 0.35 gpm per connection while maintaining distribution pressures of at least 35 psi, and that emergency power facilities powering production and treatment facilities are capable of supplying at least 0.35 gpm per connection to storage.

(ii) The system's licensed professional engineer must conduct a hydraulic analysis of the system under peak conditions. This must include an analysis of the time lag between the loss of the normal power supply and the commencement of emergency power as well as the minimum pressure that will be maintained within the distribution system during this time lag. In no case shall this minimum pressure within the distribution system be less than 20 psi. The results of this analysis must be submitted to the executive director for review.

(iii) For existing systems, the system's licensed professional engineer must provide continuous pressure chart recordings of distribution pressures maintained during past power failures, if available. The period reviewed shall not be less than three years.

(iv) A public water system that is an affected utility must conduct the modeling requirements contained in clause (i)-(iii) of this subparagraph using the requirements specified in subsection (h) of this section.

(B) Emergency power facilities must be maintained and provided with necessary appurtenances to assure immediate and dependable operation in case of normal power interruption. A public water system that is an affected utility must meet the requirements specified in subsection (h) of this section.

(i) The facilities must be serviced and maintained in accordance with level 2 maintenance requirements contained in the current NFPA 110 standards and the manufacturers' recommendations.

(ii) The switching gear must be capable of bringing the emergency power generating equipment on-line during a power interruption such that the pressure in the distribution network does not fall below 20 psi at any time.

(iii) The minimum on-site fuel storage capacity shall be determined by the fuel demand of the emergency power facilities and the frequency of fuel delivery. An amount of fuel equal to that required to operate the facilities under-load for a period of at least eight hours must always be maintained on site.

(iv) Residential rated mufflers or other means of effective noise suppression must be provided on each emergency power motor.

(C) Battery-powered or uninterrupted power supply pressure monitors and chart recorders which are configured to activate immediately upon loss of normal power must be provided for pressure maintenance facilities. These records must be kept for a minimum of three years and made available for review by the executive director. Records must include chart recordings of all power interruptions including interruptions due to periodic emergency power under-load testing and maintenance.

(D) An emergency response plan must be submitted detailing procedures to be followed and individuals to be contacted in the event of loss of normal power supply.

(6) Any alternative capacity requirement granted under this subsection is subject to review and revocation or revision by the executive director. If permission to use an alternative capacity requirement is revoked, the public water system must meet the applicable minimum capacity requirements of this section.

(A) The following conditions, if attributable to the alternative capacity requirements, may constitute grounds for revocation or revision of established alternative capacity requirements or for denial of new requests, if the condition occurred within the last 36 months:

(i) documented pressure below 35 psi at any time not related to line repair, except during fire fighting when it cannot be less than 20 psi;

(ii) water outages due to high water usage;

(iii) mandatory water rationing due to high customer demand or overtaxed water production or supply facilities;

(iv) failure to meet a minimum capacity requirement or an established alternative capacity requirement;

(v) changes in water supply conditions or usage patterns which create a potential threat to public health; or

(vi) any other condition where the executive director finds that the alternative capacity requirement has compromised the public health or resulted in a degradation of service or water quality.

(B) If the executive director finds any of the conditions specified in subparagraph (A) of this paragraph, the process for revocation or revision of an alternative capacity requirement shall be as follows, unless the executive director finds that failure of the service or other threat to public health and safety is imminent under subparagraph (C) of this paragraph.

(i) The executive director must mail the public drinking water system written notice of the executive director's intent to revoke or revise an alternative capacity requirement identifying the specific reason(s) for the proposed action.

(ii) The public water system has 30 days from the date the written notice is mailed to respond to the proposed action.

(iii) The public water system has 30 days from the date the written notice is mailed to request a meeting with the agency's public drinking water program personnel to review the proposal. If requested, such a meeting must occur within 45 days of the date the written notice is mailed.

(iv) After considering any response from or after any requested meeting with the public drinking water system, the executive director must mail written notification to the public drinking water system of the executive director's final decision to continue, revoke, or revise an alternative capacity requirement identifying the specific reason(s) for the decision.

(C) If the executive director finds that failure of the service or other threat to public health and safety is imminent, the executive director may issue written notification of the executive director's final decision to revoke or revise an alternative capacity requirement at any time.

(h) Affected utilities. This subsection applies to all affected utilities and is in addition to any other requirements pertaining to emergency power requirements found in this subchapter.

(1) As soon as it is safe and practicable following the occurrence of a natural disaster, all community public water systems that are affected utilities, regardless of the source of water, must provide the following capacities during emergency operations:

(A) a minimum total water production capacity that meets the greater of the average daily demand or 0.35 gpm per connection;

(B) a minimum treatment plant capacity (disinfection and other if required) that meets the greater of the average daily demand or 0.35 gpm per connection;

(C) if required, a minimum transfer pump capacity (raw, in-plant or to another distribution pump station) that meets the greater of the average daily demand or 0.35 gpm per connection;
and,

(D) a minimum service pump capacity, including but not limited to any contracted purchased water under direct pressure and wells discharging directly into distribution that meets the greater of the average daily demand or 0.35 gpm per connection discharging into each pressure plan.

(2) As soon as it is safe and practicable following the occurrence of a natural disaster, all noncommunity public water systems that are affected utilities, regardless of the source of water, must provide the following capacities during emergency operations:

(A) a minimum total water production capacity that meets the greater of the average daily demand or the maximum daily demand divided by 2.4;

(B) a minimum treatment plant capacity (disinfection and other if required) that meets the greater of the average daily demand or the maximum daily demand divided by 2.4;

(C) a minimum transfer pump capacity, if required (raw, in-plant or to another distribution pump station) that meets the greater of the average daily demand or the maximum daily demand divided by 2.4; and,

(D) a minimum service pump capacity, including but not limited to any contracted purchased water under direct pressure and wells discharging directly into distribution that meets the greater of the average daily demand or the maximum daily demand divided by 2.4 discharging into each pressure plane.

(3) Affected utilities must provide one of the following options of sufficient power to meet the capacity requirements of paragraph (1) or (2) of this subsection, whichever is applicable, and in accordance with the affected utility's approved emergency preparedness plan:

(A) The maintenance of automatically starting auxiliary generators;

(B) The sharing of auxiliary generator capacity with one or more affected utilities;

(C) The negotiation of leasing and contracting agreements, including emergency mutual aid agreements with other retail public utilities, exempt utilities, or providers, or conveyors of potable or raw water service, if the agreements provide for coordination with the division of emergency management in the governor's office.

(D) The use of portable generators capable of serving multiple facilities equipped with quick-connect systems;

(E) The use of on-site electrical generation or electrical distributed generation facilities;

(F) Hardening of the electric transmission and electric distribution system against damage from natural disasters during an extended power outage;

(G) For existing facilities, the maintenance of direct engine or right angle drives;
or,

(H) Any other alternative determined by the executive director to be acceptable.

(4) Each affected utility that supplies, provides, or conveys surface water to wholesale customers shall install and maintain automatically starting auxiliary generators or distributive generation

facilities for each raw water intake pump station, water treatment plant, pump station, and pressure facility necessary to provide water to its wholesale customers.

(5) Emergency generators used as part of an approved emergency preparedness plan must be maintained, tested, and operated in accordance with the manufacturer's specifications.

(6) An affected utility may adopt and is encouraged to enforce limitations on water use while the utility is providing emergency operations.

(7) An affected utility is required to meet applicable elevated storage capacity requirements in this section under normal operating conditions. As soon as safe and practicable following the occurrence of a natural disaster, an affected utility must operate in accordance with its approved emergency preparedness plan, which may include using elevated storage.

(8) An affected utility must maintain on-site, or make readily available during emergency operations, an amount of fuel necessary to operate any required emergency power equipment under load for a period of at least 72 hours.

§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;

(viii) documentation of corrective actions taken by groundwater systems in accordance with §290.116 of this title (relating to Groundwater Corrective Actions and Treatment Techniques); 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.

(5) All public water systems that are affected utilities must maintain the following records for as long as they are applicable to the system:

(A) An emergency preparedness plan approved by the executive director and a copy of the approval letter.

(B) All required operating and maintenance records for auxiliary power equipment, including periodic testing of the auxiliary power equipment under load and any associated automatic switch over equipment.

(C) Copies of the manufacturer's specifications for all generators that are part of the approved emergency preparedness plan.

(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. As soon as safe and practicable following the occurrence of a natural disaster, a public water system that is an affected utility shall maintain a minimum of 35 psi throughout the distribution system during an extended power outage.

(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: _____

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.

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.

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 ID.# _____
 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

 Title

 Date

 Registration Number

 Type of Registration

(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.)

Figure: 30 TAC §290.47(f)

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		Relief Valve	Air Inlet	Check Valve
	1st Check	2nd Check			
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

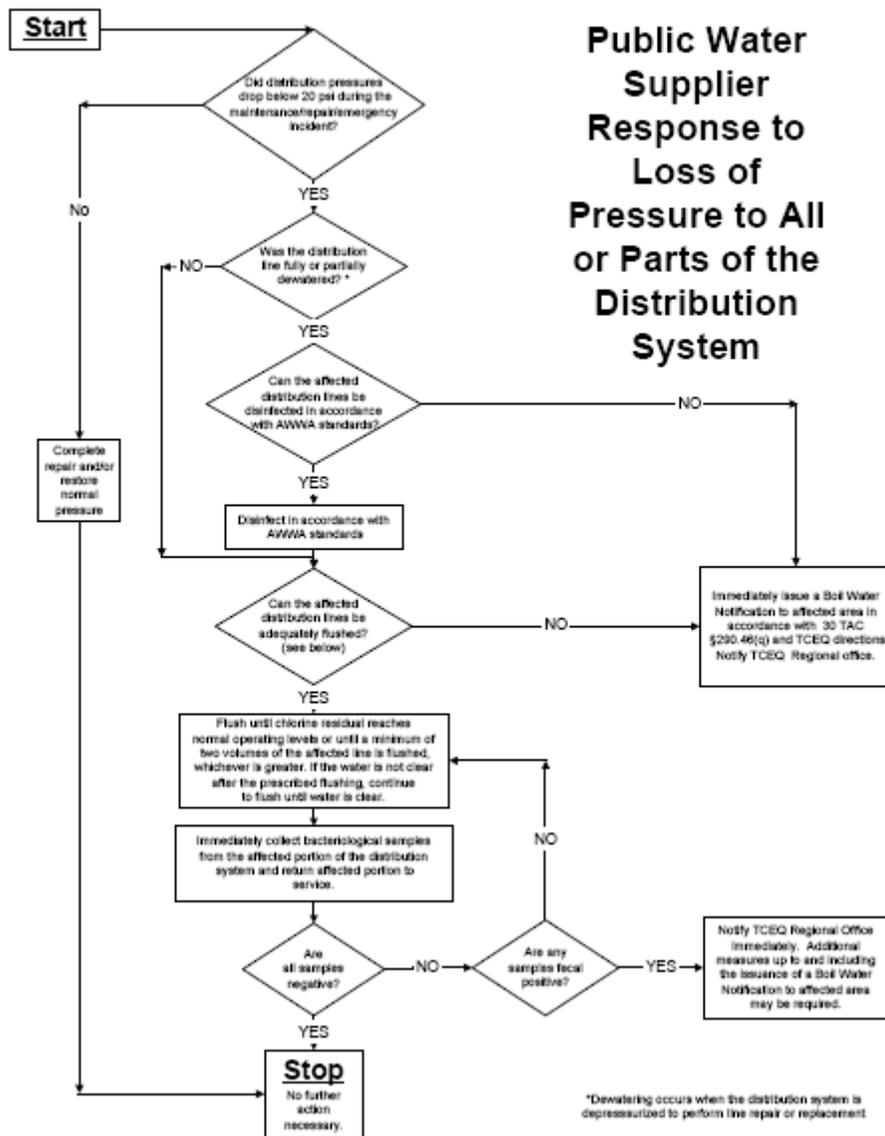
Name of Water System Owner or Responsible Official

Title of Owner or Responsible Official

(h) Appendix H. Special Precautions.

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

Figure: 30 TAC §290.47(i)



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

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

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,	Health	RPBA or AG

processing, and fabrication plants		
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
<hr/>		
Internal Protection - Description of Cross-Connection	Assessment of Hazard	Required Assembly
<hr/>		
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.

(j) Appendix J. Emergency Preparedness Plan Template.

Figure: 30 TAC 290.47(j)

Appendix J: Emergency Preparedness Plan Template

This appendix contains information to assist an affected utility in preparing an emergency preparedness plan. A comprehensive guide and example form for preparing a plan is available from the executive director upon request. A cover letter containing the name of the affected utility and, if applicable, public water system identification number (PWS ID), district number and water certificate of convenience number (CCN) must be included with the plan submittal. Also, the letter must include the affected utility representative's name, title and contact telephone number.

Information provided by an affected utility relating to its emergency preparedness plan is confidential and is not subject to disclosure under Texas Government Code, Chapter 552.

Rules. All of 30 TAC Chapter 291, Subchapter L applies to affected utilities that are not public water systems. The following commission rules apply to affected utilities that are public water systems:

Definitions: §290.38(1), (25), and (27)

General Provisions: §290.39(c)(4)(A)-(E) and (o)(1)-(5)

Water Distribution: §290.44(d)

Minimum Water System Capacity Requirements: §290.45(a)(7), (b)(3), (c)(3), (d)(4), (e)(4), (g)(5)(A)(iv), (g)(5)(B), and (h).

Minimum Acceptable Operating Practices for Public Drinking Water Systems: §290.46(f)(5) and (r).

Appendix J: Emergency Preparedness Plan Template: §290.47(j)

Plan Options. A submitted emergency preparedness plan must include one of the following:

- (1) Auxiliary generators equipped with automatic starting generators and switch over equipment. This equipment must have the ability to detect the failure of normal power from the electric grid; automatically start the generator; isolate necessary water equipment from the normal power grid; and switch the running generator's power to power the necessary water equipment to maintain the required minimum pressure.
- (2) Two or more affected utilities may propose the sharing of auxiliary generator power. Necessary electrical and/or water connections equipped with automatic switch over and opening valves must be presented in the plan to demonstrate how one or more affected utilities will be able to maintain the required minimum pressure. Describe which equipment will share the auxiliary generator power and which equipment, if any, would receive power from only a single affected utility's auxiliary power equipment.

- (3) Copies of negotiated leasing and contract agreements for emergency power equipment and any necessary fuel. This includes mutual aid agreements with other retail public utilities, exempt utilities, or providers or conveyors of potable or raw water service if the agreements provide for coordination with the division of emergency management in the governor's office. Consideration must be given to the location of where the other water supplier(s) are located. The mutual aid agreement may not be approved if the other water service provider is located in an area subject to the same natural disaster event as the affected utility. In addition, when entering into a contract for leasing of emergency power equipment and necessary fuel, the contractual commitments of the supplier to other water suppliers and businesses within an area subject to the same natural disaster event must be taken into consideration.
- (4) Use of portable generators capable of serving multiple facilities. The portable generator(s) and the necessary water equipment must be pre-equipped with quick-connect, mating electrical connectors to facilitate the rapid implementation of the emergency preparedness plan. The plan must address whether there is an adequate number of portable generators to operate all of the necessary water equipment in order to maintain the required minimum pressure in multiple pressure plans or at multiple systems, if affected by the same natural disaster event.
- (5) In lieu of generators, alternative on-site electrical generation, or distributed electrical generation facilities, may be used. This may include the use of wind, solar or other power as a means of providing sufficient emergency power to operate the necessary water equipment to maintain the required minimum pressure.
- (6) Hardening of the electric transmission and distribution system serving the affected utility. One alternative is to relocate electric transmission lines for the system from overhead to underground and protect them from flooding. Another alternative is to replace overhead transmission lines, poles, and related appurtenances with ones that can withstand historical hurricane-force wind velocities, and trim or remove any trees next to and above the overhead transmission lines. Either alternative must include documentation on the ability of applicable power plant(s) and station(s) to withstand hurricane-force winds.
- (7) Engines equipped with direct or right angle drives can be used as auxiliary power sources. Each pump or other equipment must be equipped with appropriate mechanical fittings to facilitate the use of engines. The plan must address the operation of chemical feed pumps using a generator(s).
- (8) Any other alternative determined by the executive director to be acceptable.

Plan Contents. An emergency preparedness plan must provide for any applicable production, treatment, transfer and service pumps at an adequate flow rate and at a minimum pressure of 35 psi in the far reaches of an affected distribution system, including multiple pressure planes, for at least 72 hours. If applicable, provide the following information:

- Contact information, including names, emergency telephone and pager numbers, and email addresses.

- List all ground, surface, and purchased water sources, with locations and individual capacities.
- List all interconnections with other water providers; whether normally open or closed; size; whether wholesale, purchase, or both; available capacity; and any other pertinent information. Include the names of each interconnection and their contact information, including names, titles, telephone and pager numbers, and email addresses.
- List the capacity and power requirements of all treatment equipment.
- For each chemical, list the type of storage, volume, and volume required per day during emergency operations.
- Provide a copy of all water distribution and transmission piping maps.
- Provide the maximum and average daily demands. If the emergency preparedness plan is for a proposed affected utility, the minimum specified capacities in §290.45 of this subchapter shall be used for the maximum daily demand.
- List all primary electrical power sources.
- List all equipment necessary to provide water to customers at the required minimum pressure and adequate flow rate, and the power requirements for each piece of equipment.
- List the size, location and fuel requirement in gallons per hour at full load for all on-site manual and automatic auxiliary power equipment.
- List the size, location, fuel requirement in gallons per hour at full load, and the name of the system sharing the equipment for all shared auxiliary power equipment. Include the other system's contact persons with their emergency telephone and pager numbers and email addresses.
- Provide a copy of any leasing and contracting agreements, including mutual aid agreements with other retail public utilities, exempt utilities, or providers or conveyors of potable or raw water service, if the agreements provide for coordination with the division of emergency management in the governor's office. If leasing, include the vendor's name, location, and contact information.
- List all portable generators' power, phase, type of quick-connect, fuel type, and fuel demand in gallons per hour.
- Provide specifications, a description, and detailed capacity information for all on-site electrical generation or distributive generation equipment. Include all fuel demands for this equipment.
- List all direct or right angle drive emergency power equipment with the name, type of engine, fuel type, and fuel demand in gallons per hour.
- Provide details for any other proposed alternative.

- For each fuel tank, provide the location, volume, name of fuel suppliers, contact names, titles, telephone and pager numbers, and email addresses.
- List all local and state emergency responders and their emergency contact telephone and pager numbers. Include medical facilities.
- List all priority water users, such as hospitals and nursing homes, and their emergency contact names, titles, telephone and pager numbers, and email addresses.
- List any bulk water haulers that could be used, including contact names, telephone and pager numbers, and email addresses.
- Provide the system's designated media spokesperson with a list of local media contact names, titles, type of media, telephone and pager numbers, and email addresses.
- Provide the water restrictions that the system will implement during an emergency response.