The Texas Commission on Environmental Quality (TCEQ, agency, or commission) proposes to amend §§290.41, 290.45, and 290.46.

Background and Summary of the Factual Basis for the Proposed Rules

The proposed amendments will reflect changes to Texas Health and Safety Code (THSC), §341.0358 and §341.0359 made by House Bill (HB) 1814, §2, 82nd Legislature, 2011, and HB 1973 and Senate Bill (SB) 1086, §1 and §2, 83rd Legislature, 2013. The proposed amendments will also cover the addition of Texas Water Code (TWC), §13.148, made by HB 252, 83rd Legislature, 2013.

HB 1814, §2 (2011) extends the requirements of establishing public safety standards for sufficient fire flow and the installation of fire hydrants to a municipality with a population of more than 36,000 and less than 41,000 located in two counties, one of which is a county with a population of more than 1.8 million. The Texas Code Construction Act (Texas Government Code, §311.005(3)) defines population as "the population shown by the most recent federal decennial census." As the legislation was silent on any other source of the population data, the executive director's staff determined that the population brackets of HB 1814, §2 apply to the Cities of Burleson, Coppell, and Lancaster according to the 2010 federal decennial census data.

HB 252 (2013) requires a retail public utility and each entity from which the utility is

obtaining wholesale water service for the utility's retail system to: 1) determine the number of days of water supply available for them to use; and 2) report to the commission when their available water supply is less than 180 days. The commission is required to adopt rules to implement the requirements of TWC, §13.148, as well as to prescribe the form and content of the required notice. The commission has been implementing the requirements of HB 252 on a voluntary basis, but the provisions of HB 252 made the reporting mandatory effective September 1, 2013. The commission has an existing 180-day self-reporting process in place. The commission's Water Supply Division has an existing online form for public water systems (PWSs) to report when available water supplies are less than 180 days. The form's title is the "PWS Drought Contingency Plan Reporting Form" and is located at: *www.droughtreport.org*. Utilities may also report the current stage of their drought contingency plan and other water supply impacts they are experiencing by telephone using Small Business and Environmental Assistance's drought hotline (1-800-447-2827), which is available from 8:00 a.m. to 12:00 p.m. and 1:00 p.m. to 5:00 p.m., Monday through Friday. Utilities reporting a water shortage in accordance with the requirements of HB 252 may use the drought hotline for assistance in meeting the water shortage reporting requirements but will need to confirm the water shortage reporting utilizing either the online drought reporting form, regular or electronic mail, or facsimile. The commission closely monitors PWSs that report having less than a 180-day supply of water. The commission contacts the PWSs on a weekly basis to determine their current status and identify the

types of resources available to assist them. The commission also monitors PWSs that self-report having greater than 180 days, but have indicated to the commission that they may have a water shortage situation if drought conditions persist.

HB 1973 (2013) provides the option for a governing body of a municipality with a population of less than 1.9 million to adopt standards set by the commission requiring a utility within their jurisdictional boundary to maintain a minimum sufficient water flow and pressure to fire hydrants in residential areas. If the municipality chooses to adopt fire flow standards set by the commission, the rule allows the municipality to notify the commission of a utility's failure to comply with an adopted standard, and the commission is charged with enforcing the violation of the standard. Based on the Texas Code Construction Act's definition of population, the executive director's staff determined that HB 1973 applies statewide except for the City of Houston according to the 2010 federal decennial census data; however, the City of Houston has established its own fire flow requirements in accordance with the requirements of HB 1391, 80th Legislature, 2007, and HB 3661, 81st Legislature, 2009. HB 1973 adds a definition of "residential area" and extends the definition of a "utility" to apply to a "public utility" and a "water supply or sewer service corporation," as defined by TWC, §13.002, further defining the applicability requirements of HB 1973.

In accordance with the requirements of SB 1086, §1 (2013), the proposed rules add a

definition of "industrial district." Furthermore, pursuant to SB 1086, §2, the proposed rules amend §290.46(x) to apply to certain municipalities with a population of more than 7,000 and less than 30,000 located in a county with a population of more than 155,000 and less than 180,000 including any industrial district within the municipality or its extraterritorial jurisdiction (ETJ). Based on the Texas Code Construction Act's definition of population, the executive director's staff has determined that the public safety requirements are expanded to apply to the Cities of Buda and Kyle according to the 2010 federal decennial census data. The bill's requirements also apply to a municipality, including any industrial district within the municipality or its ETJ, with a population of more than 11,000 and less than 18,000 located in a county with a population of more than 125,000 and less than 230,000. Based on the Texas Code Construction Act's definition of population, the executive director's staff determined that the public safety requirements are expanded to apply to the Cities of Cibolo, Crowley, and Glenn Heights according to the 2010 federal decennial census data.

In the corresponding rulemaking published in this issue of the *Texas Register*, the commission also proposes revisions to 30 TAC Chapter 291, Utility Regulations.

Section by Section Discussion

In addition to implementation of the state laws discussed previously, the commission proposes administrative changes throughout the proposed rules to update citations and

conform with *Texas Register* requirements.

§290.41, Water Sources

The commission proposes to amend §290.41(b) to implement the addition of TWC, §13.148, as amended by HB 252, requiring retail public utilities and the PWSs that provide the utility's wholesale water service to provide the commission a report on the status of their water supply once the supply is less than 180 days. The proposed rulemaking would add subsection (b)(1), which requires a retail public utility and each entity from which the utility is obtaining wholesale water service from to determine the number of days of water supply available for them to use and to report to the commission when their available water supply is less than 180 days using the commission's online "PWS Drought Contingency Plan Reporting Form" discussed in the Background and Summary section of this preamble. The proposed rulemaking would also add subsection (b)(2), which allows utilities other reporting options when reporting a water shortage if reporting cannot be accomplished using the online drought reporting form. A general information publication will be developed to assist utilities in notifying the commission when their available water supply is less than 180 days. The commission proposes these amendments to implement TWC, §13.148, as added by HB 252.

§290.45, Minimum Water System Capacity Requirements

The commission proposes to amend §290.45(a)(1) and (2) to clarify that the alternative capacity requirements listed in this subchapter do not include the capacity requirements found in §290.46(x) and (y), and to clarify that the commission will require additional capacity if a system is unable to meet the capacity requirements found in §290.46(x) and (y), which are required by THSC, §341.0358 and §341.0359, as amended by HB 1814, §2, HB 1973, and SB 1086, §1 and §2. The commission further proposes to: amend §290.45(e)(2) to clarify that wholesalers of water that have retail connections must meet the alternative capacity requirements found in §290.46(x) and (y); amend §290.45(f)(7) to clarify that purchase systems must meet the alternative capacity requirements found in §290.46(x) and (y); and, amend §290.45(g) to clarify that systems must meet the fire flow requirements when requesting an alternative capacity requirement and must demonstrate that they can comply with the requirements found in §290.46(x) and (y), in addition to the domestic maximum daily demand as required by §290.45(g). The agency is charged with ensuring that water utilities provide safe drinking water in adequate quantities. Water utilities are required to maintain a certain amount of water flow and pressure in their distribution system to ensure that each customer is provided with an adequate amount of water. The amount of water flow and pressure required must also be maintained during emergency situations such as firefighting activities. The additional requirements in HB 1973 for maintaining sufficient fire flow also must be factored into designing a water supply distribution system. The commission proposes these amendments to implement THSC, §341.0358 and §341.0359, as amended by HB

1814, §2, HB 1973, and SB 1086, §1 and §2.

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

The commission proposes to amend §290.46(x) to implement changes to THSC, §341.0358, as amended by HB 1814, §2, and SB 1086, §1 and §2. As the legislation was silent regarding the definition of population, the executive director's staff based its determination upon the definition in the Texas Code Construction Act and thereby determined that the proposed rulemaking would amend §290.46(x) by expanding the applicability of the public safety standards to: a municipality with a population of more than 36,000 and less than 41,000 located in two counties, one of which is a county with a population of more than 1.8 million (Burleson, Coppell and Lancaster); a municipality, including any industrial district within the municipality or its ETJ, with a population of more than 7,000 and less than 30,000 located in a county with a population of more than 155,000 and less than 180,000 (Buda and Kyle); and a municipality, including any industrial district within the municipality or its ETJ, with a population of more than 11,000 and less than 18,000 located in a county with a population of more than 125,000 and less than 230,000 (Cibolo, Crowley, and Glenn Heights). The proposed rulemaking would also add §290.46(x)(1)(D), a definition of "industrial district" to implement THSC, §341.0358, as amended by SB 1086, §1. The commission proposes to add §290.46(y) and its subdivisions to implement the requirements of THSC, §341.0359, added by HB 1973, which would provide the option for a governing body of a

municipality with a population of less than 1.9 million to adopt standards set by the commission requiring a utility within their jurisdictional boundary to maintain a minimum sufficient water flow and pressure to fire hydrants in residential areas. The commission proposes to utilize the existing standard in §290.46(x)(4) of a minimum sufficient water flow of at least 250 gallons per minute for at least two hours; and a minimum sufficient water pressure of at least 20 pounds per square inch. That standard is based on the Insurance Services Office, which rates municipality's fire systems for insurance purposes, using a public protection classification system. The commission's proposed language requires a municipality to provide a signed copy of the ordinance to the commission within 60 days of adopting the ordinance. The requirement was added so that the commission can track the municipalities that have adopted fire flow ordinances since the requirements of adopting an ordinance are optional in accordance with the provisions of THSC, §341.0359, as amended by HB 1973. The proposed rule will also allow a municipality to notify the commission of a utility's failure to comply with the proposed standard. Further, the commission will enforce the violation of the standard, once adopted. The notification requirement proposed in §290.46(y)(2) will enable the commission to more effectively enforce the standards for fire flow upon receipt of a municipality's request. The commission proposes these amendments to implement THSC, §341.0358 and §341.0359, as amended by HB 1814, §2, HB 1973, and SB 1086, §1 and §2.

Fiscal Note: Costs to State and Local Government

Jeffrey Horvath, Analyst in the Chief Financial Officer's Division, has determined that for the first five-year period the proposed rules are in effect, no significant fiscal implications are anticipated for the agency and no fiscal implications are anticipated for other state agencies as a result of administration or enforcement of the proposed rules. Units of local government who are retail public utilities will be required to determine the number of available days of water supply and to report to the commission when their available water supply is less than 180 days. These requirements may result in additional costs for some public utilities and water providers as they may not have the technology or capability to calculate the extent of available water supply. Local governments that own utilities that do not currently have adequate fire flow standards may experience increased costs for installing new water lines, providing additional water storage, installing service pumps, and obtaining increased water supply capacity in order to provide sufficient fire flow capability. Some local governments may also experience increased enforcement costs when requiring some utilities to have adequate water capacity and pressure for fire suppression.

The proposed rules would implement three bills that were passed by the 83rd Legislature and one that was passed by the 82nd Legislature. The bills include: 1) HB 252 which relates to water shortage reporting by water utilities and providers of wholesale water service; 2) HB 1973 which relates to the provision of water by a public

utility or water supply or sewer service corporation for use in fire suppression; 3) SB 1086, §1 and §2, which relate to expanding the public safety standards to certain municipalities; and, 4) HB 1814, §2, 82nd Legislature, which relates to the provision of water and certain equipment by water supply or sewer service corporations for use in fire suppression and the liability of those corporations. HB 252 requires utilities to report water supply availability, while HB 1814, §2, HB 1973, and SB 1086, §1 and §2 concern requirements for municipalities and utilities to provide sufficient water pressure and capacity for fire suppression.

HB 252 (2013)

The proposed rule implements the provisions of HB 252 from the 83rd Legislature by requiring a retail public utility and each entity from which the utility is obtaining wholesale water service for the utility's retail system to: 1) determine the number of days of water supply available for use; and 2) report to the commission when the available water supply is less than 180 days. HB 252 requires the commission to adopt rules to implement these requirements as well as to prescribe the form and content of the notice. No significant fiscal implications are anticipated for the agency to implement and administer the proposed rules. HB 252 will allow the commission and other state agencies to be proactive in providing assistance to utilities and wholesale water providers whose water supplies have less than 180 days of storage available.

Staff estimates that approximately 1,800 governmental entities or facilities will be affected by these proposed rules. Units of local government who are retail public utilities may not have the technology or capability to calculate the extent of their available water supply in order to report to the commission when their available water supply is less than 180 days. These requirements may result in additional costs for some public utilities and water providers. The estimated costs to retail public utilities and wholesale water providers will be highly variable and agency staff is not able to quantify these costs due to the different types of water sources utilized for water supply. A water system can obtain water from a ground (well) or surface (lake or river) source or a combination of both. The capacity and type of production, storage, and treatment equipment utilized also has an impact on the amount of available water supply.

These local governments may also have the opportunity to receive technical assistance from the TCEQ through the Financial, Managerial, and Technical (FMT) assistance program or the EnviroMentor program. EnviroMentors are qualified professionals with technical or legal expertise on environmental issues who volunteer to help small businesses, local governments and independent school districts with state environmental rules. Many EnviroMentors are private-sector consultants. Some are engineers; others are successful professionals (for example, a wastewater system operator) who provide peer-to-peer advice. Local governments may also look at regionalization of their water supply systems as an economical alternative.

HB 1973 (2013)

The proposed rules would implement the provisions of HB 1973 from the 83rd Legislature. HB 1973 gives a municipality with a population of less than 1.9 million the authority to set standards for the installation of fire hydrants and flow standards to provide enough water for fire suppression for a public utility located within its corporate limits and ETJ. The proposed rules provide the option for a governing body of these municipalities to adopt standards set by the commission or to adopt their own standards for minimum sufficient water flow and pressure to fire hydrants in residential areas. HB 1973 applies statewide except for the City of Houston, which already has requirements in place. The proposed rules expand the definition of utility to include water supply and sewer service corporations and specifically defines the minimum standard for sufficient water flow as flow that provides 250 gallons per minute for at least two hours, and a water pressure of at least 20 pounds per square inch. The utility must maintain at least the minimum sufficient water flow and pressure described previously in fire hydrants in a residential area located within the municipality or the municipality's ETJ. The proposed rules allow a municipality to notify the commission of a utility's failure to comply with an adopted standard, and the commission is charged with enforcing the violation of the standard. This may require some changes in the agency's investigation policies and procedures, though this change is not expected to significantly affect the agency. Upon receiving notice, the commission would be required to document the

violation and establish a compliance period for the utility.

SB 1086, §1 and §2 (2013)

The proposed rules would implement the provisions of SB 1086, §1 and §2, and add a definition of industrial district and expand the public safety standards to certain municipalities. In accordance with the requirements of SB 1086, §1 and §2, the rule will apply to certain municipalities with a population of more than 7,000 and less than 30,000 located in a county with a population of more than 155,000 and less than 180,000 (Cities of Buda and Kyle) or certain municipalities with a population of more than 11,000 and less than 18,000 located in a county with a population of more than 125,000 and less than 230,000 (Cities of Cibolo, Crowley, and Glenn Heights), including any industrial district within the municipality or its ETJ.

HB 1814, §2 (2011)

The proposed rules would implement the provisions of HB 1814, §2 from the 82nd Legislature. The proposed rule will extend the requirements of establishing standards for sufficient fire flow and the installation of fire hydrants to a municipality with a population of more than 36,000 and less than 41,000 located in two counties, one of which is a county with a population of more than 1.8 million. HB 1814, §2 applies to the Cities of Burleson, Coppell, and Lancaster.

HB 1814, §2 (2011), HB 1973 and SB 1086, §1 and §2 (2013)

No significant fiscal implications are anticipated for the agency to implement and administer the proposed rules relating to the implementation of HB 1973, SB 1086, §1 and §2, or HB 1814, §2. There are an estimated 956 local governmental entities or facilities that could be affected by these proposed rules. Local governments that are regulatory authorities could incur increased enforcement costs when requiring utilities to provide adequate water capacity and pressure for fire suppression. Local governments that own utilities that do not currently have adequate fire flow standards may experience increased costs for installing new water lines, providing additional water storage, installing service pumps, and obtaining increased water supply capacity in order to provide sufficient fire flow capability. However, the significance of any cost increases would vary depending on the characteristics of each system and service area and therefore staff are not able to specifically identify or quantify these cost increases.

In order to mitigate potential costs for fire flow standards or for water supply assessments, some local governments may find it necessary to increase their rates to fund additional equipment, services, or staff. Agency staff is not able to estimate how many retail public utilities and wholesale water providers may increase their rates due to the proposed rules and legislation. However, these local governments may also have the opportunity to receive technical assistance from the TCEQ through the FMT assistance program or the EnviroMentor program. Local governments may also look at

regionalization of their water supply systems as an economical alternative.

Public Benefits and Costs

Mr. Horvath has also determined that for each year of the first five years the proposed rules are in effect, the public benefit anticipated from the changes seen in the proposed rules will be compliance with state law and better management of the amount of water supply available to citizens of the state for water supply planning and policy decisions and a potential for increased public safety through the increased availability of capacity to provide sufficient water supply to fire hydrants to meet the fire suppression demands.

The proposed rules may have fiscal implications for privately owned utilities providing water service and the individuals served by these utilities.

HB 252 (2013)

There are an estimated 580 privately owned retail public utilities that may be affected by the proposed rules. These utilities may not have the technology or capability to calculate the extent of available water supply in order to report to the commission when their available water supply is less than 180 days. These requirements may result in additional costs for some public utilities and water providers. The estimated costs to retail public utilities and wholesale water providers will be highly variable and agency staff is not able to quantify these costs due to the different types of water sources utilized

for water supply. The capacity and type of production, storage, and treatment equipment utilized also has an impact on the amount of available water supply.

These utilities may have to increase their rates in order to compensate for their increased costs for assessments to determine their available remaining water supply. Individuals served by these water systems my experience increased costs for their water. Water utility customers may see their water rates increase to fund additional equipment, contract services, or staff to determine the available water supply remaining. Affected retail water utilities may also have the opportunity to receive technical assistance from the TCEQ through the FMT assistance program or the EnviroMentor program. Water utility retailers may also look at regionalization of their water supply systems as an economical alternative.

HB 1973 (2013)

There are as many as 580 privately owned retail public utilities that may be affected by the proposed rules. Privately owned utilities within the jurisdiction of a municipality or the municipality's ETJ with a population of less than 1.9 million that provides water service are required to comply with these rules. Agency staff is not able to determine the exact number of privately owned retail public utilities that will be affected by the proposed rules because the TCEQ does not maintain information on current city limits or ETJ of cities. The City of Houston is the only municipality for which the proposed

rule would not apply because the city already has fire flow requirements in place. The proposed rule will allow municipalities to require utilities within their jurisdiction to increase their flow capacity to meet the minimum fire flow requirements. The increase in flow capacity may require additional construction for water production, pressure, or water storage and the submission of construction plans to the agency for bonding authority. Privately owned utilities may have to submit a rate application request to the municipality or the agency to increase rates for their customers to fund the construction of additional production, pressure, and/or storage facilities.

SB 1086, §1 and §2 (2013)

There are an estimated six privately owned retail public utilities that may be affected by the proposed rules for SB 1086, §1 and §2. Privately owned utilities within the jurisdiction of the Cities of Buda, Cibolo, Crowley, Glenn Heights, and Kyle that provide water service are required to comply with these rules. The increase in flow capacity may require additional construction for water production, pressure, or water storage and the submission of construction plans to the agency for bonding authority. Privately owned utilities may have to submit a rate application request to the municipality or the agency to increase rates for their customers to fund the construction of additional production, pressure, and/or storage facilities.

HB 1814, §2 (2011)

There are an estimated six privately owned retail public utilities that may be affected by the proposed rules for HB 1814, §2. Privately owned retail utilities within the jurisdiction of a municipality with a population of more than 36,000 and less than 41,000 located in two counties, one of which is a county with a population of more than 1.8 million that provides water service will be required to comply with these rules. The increase in flow capacity may require additional construction for water production, pressure, or water storage and the submission of construction plans to the agency for bonding authority. Privately owned utilities may have to submit a rate application request to the municipality or the agency to increase rates for their customers to fund the construction of additional production, pressure, and/or storage facilities. HB 1814, §2 applies to municipalities of Burleson, Coppell, and Lancaster.

Small Business and Micro-Business Assessment

Adverse fiscal implications are anticipated for some retail public utilities and wholesale water providers who are small or micro-businesses due to the implementation or administration of the proposed rules for the first five-year period the proposed rules are in effect. There are an estimated 570 small businesses who own approximately 1,600 facilities that may be affected by the proposed rules. The effects of the proposed rules will vary with the size of the business and the level of expertise and resources available to provide additional flow capacity or determine the amount of available water supply. The estimated costs to retail public utilities and wholesale water providers will be highly

variable and agency staff is not able to quantify these costs due to the different types of water sources utilized for water supply or whether affected utilities will need to add infrastructure to provide additional flow capacity. The equipment needed to perform ground water level measurements may not be available in certain areas of the state and the cost to own such equipment may be prohibitive to small water systems. Calculating surface water supply requires some level of technical expertise for most water system officials. The smaller the water system the less likely they are to have the equipment or technical expertise needed to perform an adequate estimation of their water supply. Many of these systems may have to increase their rates to compensate for their increased costs for additional construction costs for fire flow capacity or to assess water supplies. Small businesses that cannot afford these new construction costs or who do not have the appropriate technical expertise may also have the opportunity to receive technical assistance from the TCEQ through the FMT assistance program or the EnviroMentor program.

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 necessary to implement state law and therefore are consistent with protecting the public health, safety, environmental, and economic welfare of the state.

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 is not subject to Texas Government Code, §2001.0225, because it does not meet the definition of a "major environmental rule" as defined in the Texas Administrative Procedure Act. A "major environmental rule" is a rule that is specifically intended to protect the environment or reduce risks to human health from environmental exposure, and that may adversely affect in a material way 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 the rule creation to protect the environment or reduce risks to human health from environmental exposure. The specific intent of the proposed rulemaking is to implement legislative changes enacted by HB 252, HB 1973,

and SB 1086, §1 and §2, 83rd Legislature, 2013, and HB 1814, §2, 82nd Legislature, 2011. HB 252 requires a retail public utility and the system(s) that provides the utility's wholesale water service to notify the commission when the utility or entity is reasonably certain that its available water supply is less than 180 days. HB 1973, SB 1086, §1 and §2, and HB 1814, §2 authorize the governing body of a municipality to adopt standards requiring a utility to maintain sufficient water flow and pressure to fire hydrants located in the municipality or the municipality's ETJ.

Further, the rulemaking does not meet the statutory definition of a "major environmental rule" because the proposed rules additions will not adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or public health and safety of the state or a sector of the state. The cost of complying with the proposed rules are not expected to be significant with respect to the economy as a whole or a sector of the economy; therefore, the proposed rulemaking will not adversely affect in a material way the economy, a sector of the economy, productivity, competition, or jobs.

Furthermore, the proposed rulemaking does not meet the statutory definition of a "major environmental rule" because it does not meet any of the four applicability requirements 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 rules are specifically required by state law; 2) exceed an express requirement of state law, unless the rules are specifically required by federal laws; 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 rules solely under the general powers of the agency instead of under a specific state law. The proposed rulemaking does not meet the four applicability requirements, because the proposed addition to the rules: 1) do not exceed a standard set by federal law; 2) do not exceed an express requirement of state law; 3) do not exceed a requirement of federal delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program as no such federal delegation agreement exists with regard to the proposed rules; and 4) are not proposed solely under the general powers of the commission as the proposed rules are required by HB 252, HB 1973, and SB 1086, §1 and §2, 83rd Legislature, and HB 1814, §2, 82nd Legislature.

The commission invites public comment of the draft regulatory impact analysis determination. Written comments 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 this proposed rulemaking and performed an assessment of whether the proposed rulemaking constitutes a taking under Texas Government Code, Chapter 2007. The commission proposed this rulemaking for the specific purpose of implementing legislation enacted by the 83rd Legislature in 2013 and the 82nd Legislature in 2011. The proposed rulemaking amends §§290.41, 290.45 and 290.46. The commission's analysis revealed that amending these rule sections would achieve consistency with TWC, §13.148, as added in 2013 by HB 252 and THSC, §341.0358 and §341.0359, as added by HB 1973 and SB 1086, §1 and §2, 83rd Legislature, 2013, and HB 1814, §2, 82nd Legislature, 2011. The proposed rulemaking would require a retail public utility and the system(s) that provides the utility's wholesale water service to notify the commission when the utility or entity is reasonably certain that its available water supply is less than 180 days; and would also authorize the governing body of a municipality to adopt standards requiring a utility to maintain sufficient water flow and pressure to fire hydrants located in the municipality or the municipality's ETJ.

A "taking" under Texas Government Code, Chapter 2007, means a governmental action that affects private real property in a manner that requires compensation to the owner under the United States or Texas Constitution, or a governmental action that affects real private property in a manner that restricts or limits the owner's right to the property and reduces the market value of affected real property by at least 25%. Because no taking of

private real property would occur by requiring a retail public utility to notify the commission when its available water supply is less than 180 days or by authorizing the governing body of a municipality to adopt standards requiring a utility to maintain sufficient water flow and pressure to fire hydrants, the commission has determined that promulgation and enforcement of this proposed rulemaking would be neither a statutory nor a constitutional taking of private real property. Specifically, there are no burdens imposed on private real property under the rules because the proposed rulemaking neither relates to, nor has any impact on, the use or enjoyment of private real property, and there would be no reduction in real property value as a result of the rulemaking. Therefore, the proposed rulemaking would 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 Coastal Coordination Act Implementation Rules, 31 TAC §505.11(b)(2) or (4), nor will they affect any action/authorization identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(a)(6). Therefore, the 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 Hearing

The commission will hold a public hearing on this proposal in Austin on April 8, 2014, at 2:00 p.m. in Building E, Room 201S, at the commission's central office located at 12100 Park 35 Circle. The hearing is 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 Sandy Wong, Office of Legal Services at (512) 239-1802. Requests should be made as far in advance as possible.

Submittal of Comments

Written comments may be submitted to Derek Baxter, 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.texas.gov/rules/ecomments/*. File size restrictions may apply to comments being submitted via the eComments system. All comments should reference

Rule Project Number 2013-047-290-OW. The comment period closes April 14, 2014. Copies of the proposed rulemaking can be obtained from the commission's Web site at *http://www.tceq.texas.gov/nav/rules/propose_adopt.html*. For further information, please contact Elston Johnson, Water Supply Division, (512) 239-6266.

SUBCHAPTER D: RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS §§290.41, 290.45, 290.46

Statutory Authority

These amendments are proposed under Texas Water Code (TWC), §5.102, which provides the commission the general powers to carry out duties under the TWC; TWC, §5.103, which establishes the commission's general authority to adopt any rules necessary to carry out the powers and duties under the provision of the TWC and other laws of this state; TWC, §5.105, which establishes the commission's authority to set policy by rule; TWC, §13.148, which requires the commission to adopt rules for water shortage reporting; and Texas Health and Safety Code (THSC), §341.0359, which allows the commission to adopt any rules relating to public safety standards specifying the minimum requirements for sufficient water flow and the installation of fire hydrants. Therefore, TWC and THSC authorize rulemaking that amends §§290.41, 290.45, and 290.46.

The proposed amendments implement language set forth in House Bill (HB) 1814, §2, 82nd Legislature, 2011, and HB 252, HB 1973, and SB 1086, §1 and §2, 83rd Legislature, 2013, which require the commission to establish rules for minimum fire flow standards and water shortage reporting.

§290.41. Water Sources.

(a) Water quality. The quality of water to be supplied must meet the quality criteria prescribed by the commission's drinking water standards contained in Subchapter F of this chapter (relating to Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems).

(b) Water quantity. Sources of supply, both ground and surface, shall have a safe yield capable of supplying the maximum daily demands of the distribution system during extended periods of peak usage and critical hydrologic conditions. The pipelines and pumping capacities to treatment plants or distribution systems shall be adequate for such water delivery. Minimum capacities required are specified in §290.45 of this title (relating to Minimum Water System Capacity Requirements).

(1) A retail public utility as defined by Texas Water Code, §13.002(19) and each entity from which the utility is obtaining wholesale water service for the utility's retail system shall report to the executive director when the utility or entity is reasonably certain that the water supply will be available for less than 180 days. The reporting must be accomplished by utilizing the online "PWS Drought Contingency Plan Reporting Form."

(2) If reporting cannot be accomplished in accordance with paragraph (1) of this subsection, then the retail public utility or entity from which the utility is obtaining wholesale water service may report to the executive director by United States Postal Service mail, program electronic mail, or facsimile.

(c) Groundwater sources and development.

(1) Groundwater sources shall be located so that there will be no danger of pollution from flooding or from unsanitary surroundings, such as privies, sewage, sewage treatment plants, livestock and animal pens, solid waste disposal sites or underground petroleum and chemical storage tanks and liquid transmission pipelines, or abandoned and improperly sealed wells.

(A) No well site which is within 50 feet of a tile or concrete sanitary sewer, sewerage appurtenance, septic tank, storm sewer, or cemetery; or which is within 150 feet of a septic tank perforated drainfield, areas irrigated by low dosage, low angle spray on-site sewage facilities, absorption bed, evapotranspiration bed, improperly constructed water well, or underground petroleum and chemical storage tank or liquid transmission pipeline will be acceptable for use as a public drinking water supply. Sanitary or storm sewers constructed of ductile iron or polyvinyl chloride (PVC) pipe meeting American Water Works Association (AWWA) standards, having a minimum

working pressure of 150 pounds per square inch (psi) or greater, and equipped with pressure type joints may be located at distances of less than 50 feet from a proposed well site, but in no case shall the distance be less than ten feet.

(B) No well site shall be located within 500 feet of a sewage treatment plant or within 300 feet of a sewage wet well, sewage pumping station, or a drainage ditch which contains industrial waste discharges or the wastes from sewage treatment systems.

(C) No water wells shall be located within 500 feet of animal feed lots, solid waste disposal sites, lands on which sewage plant or septic tank sludge is applied, or lands irrigated by sewage plant effluent.

(D) Livestock in pastures shall not be allowed within 50 feet of water supply wells.

(E) All known abandoned or inoperative wells (unused wells that have not been plugged) within 1/4-mile of a proposed well site shall be reported to the commission along with existing or potential pollution hazards. These reports are required for community and nontransient, noncommunity groundwater sources. Examples of existing or potential pollution hazards which may affect groundwater

quality include, but are not limited to: landfill and dump sites, animal feedlots, military facilities, industrial facilities, wood-treatment facilities, liquid petroleum and petrochemical production, storage, and transmission facilities, Class 1, 2, 3, [and] 4, and 5 injection wells, and pesticide storage and mixing facilities. This information must be submitted prior to construction or as required by the executive director.

(F) A sanitary control easement or sanitary control easements covering land within 150 feet of the well, or executive director approval for a substitute authorized by this subsection, shall be obtained.

(i) The sanitary control easement(s) secured shall provide that none of the pollution hazards covered in subparagraphs (A) - (E) of this paragraph, or any facilities that might create a danger of pollution to the water to be produced from the well, will be located thereon.

(ii) For the purpose of a sanitary control easement, an improperly constructed water well is one which fails to meet the surface and subsurface construction standards for public water supply wells. Residential type wells within a sanitary control easement must be constructed to public water well standards.

(iii) A copy of the recorded sanitary control easement(s) shall be included with plans and specifications submitted to the executive director for review.

(iv) With the approval of the executive director, the public water system may submit any of the following as a substitute for obtaining, recording, and submitting a copy of the recorded sanitary control easement(s) covering land within 150 feet of the well:

(I) a copy of the recorded deed and map demonstrating that the public water system owns all real property within 150 feet of the well;

(II) a copy of the recorded deed and map demonstrating that the public water system owns a portion of real property within 150 feet of the well, and a copy of the sanitary control easement(s) that the public water system has obtained, recorded, and submitted to the executive director applicable to the remaining portion of real property within 150 feet of the well not owned by the public water system; or

(III) for a political subdivision, a copy of an ordinance or land use restriction adopted and enforced by the political subdivision which provides

an equivalent or higher level of sanitary protection to the well as a sanitary control easement.

(v) If the executive director approves a sanitary control easement substitute identified in clause (iv)(I) or (iv)(II) of this subparagraph for a public water system and the public water system conveys the property it owns within 150 feet of the well to another person or persons, the public water system must at that time obtain, record, and submit to the executive director a copy of the recorded sanitary control easement(s) applicable to the conveyed portion of the property within 150 feet of the well, unless the executive director approves a substitute identified in clause (iv) of this subparagraph.

(2) The premises, materials, tools, and drilling equipment shall be maintained so as to minimize contamination of the groundwater during drilling operation.

(A) Water used in any drilling operation shall be of safe sanitary quality. Water used in the mixing of drilling fluids or mud shall contain a chlorine residual of at least 0.5 milligrams per liter (mg/L).

(B) The slush pit shall be constructed and maintained so as to minimize contamination of the drilling mud.

(C) No temporary toilet facilities shall be maintained within 150 feet of the well being constructed unless they are of a sealed, leakproof type.

(3) The construction, disinfection, protection, and testing of a well to be used as a public water supply source must meet the following conditions.

(A) Before placing the well into service, a public water system shall furnish a copy of the well completion data, which includes the following items: the Driller's Log (geological log and material setting report); a cementing certificate; the results of a 36-hour pump test; the results of the microbiological and chemical analyses required by subparagraphs (F) and (G) of this paragraph; a legible copy of the recorded deed or deeds for all real property within 150 feet of the well; a legible copy of the sanitary control easement(s) or other documentation demonstrating compliance with paragraph (1)(F) of this subsection; an original or legible copy of a United States Geological Survey 7.5-minute topographic quadrangle showing the accurate well location to the executive director; and a map demonstrating the well location in relation to surrounding property boundaries. All the documents listed in this paragraph must be

approved by the executive director before final approval is granted for the use of the well.

(B) The casing material used in the construction of wells for public use shall be new carbon steel, high-strength low-alloy steel, stainless steel or plastic. The material shall conform to AWWA standards. The casing shall extend a minimum of 18 inches above the elevation of the finished floor of the pump room or natural ground surface and a minimum of one inch above the sealing block or pump motor foundation block when provided. The casing shall extend at least to the depth of the shallowest water formation to be developed and deeper, if necessary, in order to eliminate all undesirable water-bearing strata. Well construction materials containing more than 8.0% lead are prohibited.

(C) The space between the casing and drill hole shall be sealed by using enough cement under pressure to completely fill and seal the annular space between the casing and the drill hole. The well casing shall be cemented in this manner from the top of the shallowest formation to be developed to the earth's surface. The driller shall utilize a pressure cementation method in accordance with the AWWA Standard for Water Wells (A100-06), Appendix C: Section C.2 (Positive Displacement Exterior Method); Section C.3 (Interior Method Without Plug); Section C.4 (Positive Placement, Interior Method, Drillable Plug); and Section C.5 (Placement Through Float

Shoe Attached to Bottom of Casing). Cementation methods other than those listed in this subparagraph may be used on a site-specific basis with the prior written approval of the executive director. A cement bonding log, as well as any other documentation deemed necessary, may be required by the executive director to assure complete sealing of the annular space.

(D) When a gravel packed well is constructed, all gravel shall be of selected and graded quality and shall be thoroughly disinfected with a 50 mg/L chlorine solution as it is added to the well cavity.

(E) Safeguards shall be taken to prevent possible contamination of the water or damage by trespassers following the completion of the well and prior to installation of permanent pumping equipment.

(F) Upon well completion, or after an existing well has been reworked, the well shall be disinfected in accordance with current AWWA standards for well disinfection except that the disinfectant shall remain in the well for at least six hours.

(i) Before placing the well in service, the water containing the disinfectant shall be flushed from the well and then samples of water shall be collected

and submitted for microbiological analysis until three successive daily raw water samples are free of coliform organisms. The analysis of these samples must be conducted by a laboratory accredited by the Texas Commission on Environmental Quality.

(ii) Appropriate facilities for treatment of the water shall be provided where a satisfactory microbiological record cannot be established after repeated disinfection. The extent of water treatment required will be determined on the basis of geological data, well construction features, nearby sources of contamination and, perhaps, on the basis of quantitative microbiological analyses.

(G) A complete physical and chemical analysis of the water produced from a new well shall be made after 36 hours of continuous pumping at the design withdrawal rate. Shorter pump test periods can be accepted for large capacity wells producing from areas of known groundwater production and quality so as to prevent wasting of water. Samples must be submitted to an accredited laboratory for chemical analyses. Tentative approval may be given on the basis of tests performed by in-plant or private laboratories, but final acceptance by the commission shall be on the basis of results from the accredited laboratory. Appropriate treatment shall be provided if the analyses reveal that the water from the well fails to meet the water quality criteria as prescribed by the drinking water standards. These criteria include turbidity, color and

threshold odor limitations, and excessive hydrogen sulfide, carbon dioxide, or other constituents or minerals which make the water undesirable or unsuited for domestic use. Additional chemical and microbiological tests may be required after the executive director conducts a vulnerability assessment of the well.

(H) Below ground-level pump rooms and pump pits will not be allowed in connection with water supply installations.

(I) The well site shall be fine graded so that the site is free from depressions, reverse grades, or areas too rough for proper ground maintenance so as to ensure that surface water will drain away from the well. In all cases, arrangements shall be made to convey well pump drainage, packing gland leakage, and floor drainage away from the wellhead. Suitable drain pipes located at the outer edge of the concrete floor shall be provided to collect this water and prevent its ponding or collecting around the wellhead. This wastewater shall be disposed of in a manner that will not cause any nuisance from mosquito breeding or stagnation. Drains shall not be directly connected to storm or sanitary sewers.

(J) In all cases, a concrete sealing block extending at least three feet from the well casing in all directions, with a minimum thickness of six inches and sloped

to drain away at not less than 0.25 inches per foot shall be provided around the wellhead.

(K) Wellheads and pump bases shall be sealed by a gasket or sealing compound and properly vented to prevent the possibility of contaminating the well water. A well casing vent shall be provided with an opening that is covered with 16-mesh or finer corrosion-resistant screen, facing downward, elevated and located so as to minimize the drawing of contaminants into the well. Wellheads and well vents shall be at least two feet above the highest known watermark or 100-year flood elevation, if available, or adequately protected from possible flood damage by levees.

(L) If a well blow-off line is provided, its discharge shall terminate in a downward direction and at a point which will not be submerged by flood waters.

(M) A suitable sampling cock shall be provided on the discharge pipe of each well pump prior to any treatment.

(N) Flow measuring devices shall be provided for each well to measure production yields and provide for the accumulation of water production data. These devices shall be located to facilitate daily reading.

(O) All completed well units shall be protected by intruder-resistant fences, the gates of which are provided with locks or shall be enclosed in locked, ventilated well houses to exclude possible contamination or damage to the facilities by trespassers. The gates or wellhouses shall be locked during periods of darkness and when the plant is unattended.

(P) An all-weather access road shall be provided to each well site.

(Q) If an air release device is provided on the discharge piping, it 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.

(4) Pitless units may be desirable in areas subject to vandalism or extended periods of subfreezing weather.

(A) Pitless units shall be shop fabricated from the point of connection with the well casing to the unit cap or cover, be threaded or welded to the well casing, be of watertight construction throughout, and be of materials and weight at least equivalent and compatible to the casing. The units must have a field connection to

the lateral discharge from the pitless unit of threaded, flanged, or mechanical joint connection.

(B) The design of the pitless unit shall make provisions for an access to disinfect the well, a properly designed casing vent, a cover at the upper terminal of the well that will prevent the entrance of contamination, a sealed entrance connection for electrical cable, and at least one check valve within the well casing. The unit shall have an inside diameter as great as that of the well casing up to and including casing diameters of 12 inches.

(C) If the connection to the casing is by field weld, the shop-assembled unit must be designed specifically for field welding to the casing. The only field welding permitted will be that needed to connect a pitless unit to the well casing.

(D) With the exception of the fact that the well was constructed using a pitless unit, the well must otherwise meet all of the requirements of paragraph (3) of this subsection.

(d) Springs and other water sources.

(1) Springs and other similar sources of flowing artesian water shall be protected from potential contaminant sources in accordance with the requirements of subsection (c)(1) of this section.

(2) Before placing the spring or similar source into service, completion data similar to that required by subsection (c)(3)(A) of this section must be submitted to the executive director for review and approval to the Texas Commission on Environmental Quality, Water Supply Division, MC 153, P.O. Box 13087, Austin, Texas 78711-3087.

(3) Springs and similar sources shall be constructed in a manner which will preclude the entrance of surface water and debris.

(A) The site shall be fine graded so that it is free from depressions, reverse grades, or areas too rough for proper ground maintenance in order to ensure that surface water will drain away from the source.

(B) The spring or similar source shall be encased in an open-bottomed, watertight basin which intercepts the flowing water below the surface of the ground. The basin shall extend at least 18 inches above ground level. The top of the basin shall also be at least two feet above the highest known watermark or 100-year

flood elevation, if available, or adequately protected from possible flood damage by levees.

(C) In all cases, a concrete sealing block shall be provided which extends at least three feet from the encasement in all directions. The sealing block shall be at least six inches thick and be sloped to drain away from the encasement at not less than 0.25 inches per foot.

(D) The top of the encasement shall be provided with a sloped, watertight roof which prevents the ponding of water and precludes the entrance of animals, insects, and other sources of contamination.

(E) The roof of the encasement shall be provided with a hatch that is not less than 30 inches in diameter. The hatch shall have a raised curbing at least four inches in height with a lockable cover that overlaps the curbing at least two inches in a downward direction. Where necessary, a gasket shall be used to make a positive seal when the hatch is closed. All hatches shall remain locked except during inspections and maintenance.

(F) The encasement shall be provided with a gooseneck vent or roof ventilator which is equipped with approved screens to prevent entry of animals, birds,

insects, and heavy air contaminants. Screens shall be fabricated of corrosion-resistant material and shall be 16-mesh or finer. Screens shall be securely clamped in place with stainless or galvanized bands or wires.

(G) The encasement shall be provided with an overflow which is designed to prevent the entry of animals, birds, insects, and debris. The discharge opening of the overflow shall be above the surface of the ground and shall not be subject to submergence.

(4) Springs and similar sources must be provided with the appurtenances required by subsection (c)(3)(L) - (Q) of this section.

(5) All systems with new springs or similar sources must monitor microbiological source water quality at the new springs or similar sources in accordance with §290.111 of this title (relating to Surface Water Treatment) on a schedule determined by the executive director. The system must notify the agency of the new spring or similar source prior to construction. The executive director may waive these requirements if the spring or similar source has been determined not to be under the direct influence of surface water.

(e) Surface water sources and development.

(1) To determine the degree of pollution from all sources within the watershed, an evaluation shall be made of the surface water source in the area of diversion and its tributary streams. The area where surface water sources are diverted for drinking water use shall be evaluated and protected from sources of contamination.

(A) Where surface water sources are subject to continuous or intermittent contamination by municipal, agricultural, or industrial wastes and/or treated effluent, the adverse effects of the contamination on the quality of the raw water reaching the treatment plant shall be determined by site evaluations and laboratory procedures.

(B) The disposal of all liquid or solid wastes from any source on the watershed must be in conformity with applicable regulations and state statutes.

(C) Shore installations, marinas, boats and all habitations on the watershed shall be provided with satisfactory sewage disposal facilities. Septic tanks and soil absorption fields, tile or concrete sanitary sewers, sewer manholes, or other approved toilet facilities shall not be located in an area within 75 feet horizontally from the lake water surface at the uncontrolled spillway elevation of the lake or 75 feet horizontally from the 50-year flood elevation, whichever is lower.

(D) Disposal of wastes from boats or any other watercraft shall be in accordance with §§321.1 - 321.11 of this title (relating to Boat Sewage Disposal [Purpose, Scope, and Applicability; Definitions; Injection Prohibited; Mechanical Integrity Required; Prevention of Pollution; Prohibition of Class IV Well Injection; Permit Required; Prohibition of Motor Vehicle Waste Disposal Wells and Large Capacity Cesspools; Injection Authorized by Rule; Inventory of Wells Authorized by Rule; and Classification of Injection Wells, respectively]).

(E) Pesticides or herbicides which are used within the watershed shall be applied in strict accordance with the product label restrictions.

(F) Before approval of a new surface water source, the system shall provide the executive director with information regarding specific water quality parameters of the potential source water. These parameters are pH, total coliform, *Escherichia coli*, turbidity, alkalinity, hardness, bromide, total organic carbon, temperature, color, taste and odor, regulated volatile organic compounds, regulated synthetic organic compounds, regulated inorganic compounds, and possible sources of contamination. If data on the incidence of *Giardia* cysts and *Cryptosporidium* oocysts has been collected, the information shall be provided to the executive director. This data

shall be provided to the executive director as part of the approval process for a new surface water source.

(G) All systems with new surface water intakes or new bank filtration wells must monitor microbiological source water quality at the new surface water intakes or new bank filtration wells in accordance with §290.111 of this title on a schedule determined by the executive director. The system must notify the agency of the new surface water intake or bank filtration well prior to construction.

(2) Intakes shall be located and constructed in a manner which will secure raw water of the best quality available from the source.

(A) Intakes shall not be located in areas subject to excessive siltation or in areas subject to receiving immediate runoff from wooded sloughs or swamps.

(B) Raw water intakes shall not be located within 1,000 feet of boat launching ramps, marinas, docks, or floating fishing piers which are accessible by the public.

(C) A restricted zone of 200 feet radius from the raw water intake works shall be established and all recreational activities and trespassing shall be prohibited in this area. Regulations governing this zone shall be in the city ordinances or the rules and regulations promulgated by a water district or similar regulatory agency. The restricted zone shall be designated with signs recounting these restrictions. The signs shall be maintained in plain view of the public and shall be visible from all parts of the restricted area. In addition, special buoys may be required as deemed necessary by the executive director. Provisions shall be made for the strict enforcement of such ordinances or regulations.

(D) Commission staff shall make an on-site evaluation of any proposed raw water intake location. The evaluation must be requested prior to final design and must be supported by preliminary design drawings. Once the final intake location has been selected, the executive director shall be furnished with an original or legible copy of a United States Geological Survey 7.5-minute topographic quadrangle showing the accurate intake location.

(E) Intakes shall be located and constructed in a manner which will allow raw water to be taken from a variety of depths and which will permit withdrawal of water when reservoir levels are very low. Fixed level intakes are acceptable if water quality data is available to establish that the effect on raw water quality will be minimal.

(F) Water intake works shall be provided with screens or grates to minimize the amount of debris entering the plant.

(G) Intakes shall not be located within 500 feet of a sewage treatment plant or lands irrigated with sewage effluent.

(3) The raw water pump station shall be located in a well-drained area and shall be designed to remain in operation during flood events.

(4) An all weather road shall be provided to the raw water pump station.

(5) The raw water pump station and all appurtenances must be installed in a lockable building that is designed to prevent intruder access or enclosed by an intruder-resistant fence with lockable gates.

§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 and do not include emergency fire flow capacities for systems required to meet requirements contained in §290.46(x) and (y) of this title (relating to Minimum Acceptable Operating Practices for Public Drinking Water Systems).

(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 for a [if the] system that is unable to maintain a minimum pressure of 20 psi during firefighting, line flushing, [and] other unusual conditions, and systems that are required to provide fire flow as specified in §290.46(x) and (y) of this title.

(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 or justification regarding pressure drop 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

Standard) [(NFPA) 110 standards]. Although not required, compliance with NFPA 110 Standard [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 Standard [standards]. Although not required, compliance with NFPA 110 Standard [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.

(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 to the figure as it currently exists in TAC.)

(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, fire flow capacities, if required by §290.46(x) and (y) of this title 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 <u>and §290.46(x) and (y) of this title</u> 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 and comply with the requirements found in §290.46(x) and (y) of this title. 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 clauses (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 Standard [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) 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.

(2) 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.

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

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

(5) 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. An affected utility may meet the requirements of Texas Water Code, §13.1395, including having a currently approved emergency preparedness plan, in lieu of any other rules regarding elevated storage requirements, provided that, under normal operating conditions, the affected utility continues to meet the pressure requirements of §290.46(r) of this title [(relating to Minimum Acceptable Operating Practices for Public Drinking Water Systems)] and the production, treatment, total storage and service pump capacity requirements of this subchapter.

(6) 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 necessary to maintain emergency operations.

§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 including the required elements of a sanitary survey as defined in §290.38(71) of this title (relating to Definitions). 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 an accredited laboratory. (A list of the accredited laboratories can be obtained by contacting the executive director.) The

samples shall be submitted to the executive director in a manner prescribed by 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 Communication [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 and be available to the executive director upon request.

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

(v) the records of backflow prevention device programs;

(vi) the raw surface water monitoring results and source water monitoring plans required by §290.111 of this title (relating to Surface Water Treatment) must be retained for three years after bin classification required by §290.111 of this title;

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

(viii) except for those specified in subparagraphs (C)(iv) and (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;

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

(iv) the turbidity monitoring results and exception reports for individual filters as required by §290.111 of this title.

(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 and documentation of a total coliform-positive sample collected at a location with conditions that could cause such positive samples in a distribution system;

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

(vii) Consumer Confidence Report compliance documentation;

(viii) records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the

executive director-approved minimum specified disinfectant residual for a period of more than four hours for groundwater systems providing 4-log treatment; and

(ix) records of executive director-specified compliance requirements for membrane filtration, records of parameters specified by the executive director for approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four hours for groundwater systems. Membrane filtration can only be used if it is approved by the executive director and if it can be properly validated.

(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 Byproducts (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);

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

(x) records of the executive director-approved minimum specified disinfectant residual for groundwater systems providing 4-log treatment, including wholesale, consecutive, and mixed systems, regulated under §290.116(c) of this title.

(F) A public water system shall maintain records relating to lead and copper requirements under §290.117 of this title (relating to Regulation of Lead and Copper) for no less than 12 years. Any system subject to the requirements of §290.117 of this title shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, executive determinations, and any other information required by the executive director under §290.117 of this title. These records include, but are not limited to, the following items: tap water monitoring results including the location of each site and date of collection; certification of the volume and validity of first-draw-tap sample criteria via a copy of the laboratory analysis request form; where residents collected the sample; certification that the water system informed the resident of proper sampling procedures; the analytical results for lead and copper concentrations at each tap sample site; and designation of any substitute site not used in previous monitoring periods.

(G) 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 licensed 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 *Escherichia coli* [*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 90 days using chlorine solutions of known concentrations.

(ii) The accuracy of continuous disinfectant residual analyzers shall be checked at least once every seven days with a chlorine solution of known concentration or by comparing the results from the on-line analyzer with the

result of approved benchtop method in accordance with §290.119 of this title (relating to Analytical Procedures).

(iii) If a disinfectant residual analyzer produces a result which is not within 15% of the expected value, the cause of the discrepancy must be determined and corrected and, if necessary, the instrument must be recalibrated.

(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 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; a municipality with a population of more than 36,000 and less than 41,000 located in two counties, one of which is a county with a population of more than 1.8 million; a municipality, including any industrial district within the municipality or its extraterritorial jurisdiction (ETJ), with a population of more than 7,000 and less than

30,000 located in a county with a population of more than 155,000 and less than 180,000; or a municipality, including any industrial district within the municipality or its ETJ, with a population of more than 11,000 and less than 18,000 located in a county with a population of more than 125,000 and less than 230,000.

(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% 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.

(D) "Industrial district" has the meaning assigned by Texas Local Government Code, §42.044, and includes an area that is designated by the governing body of a municipality as a zoned industrial area.

(2) When the regulatory authority is a municipality, it shall by ordinance adopt standards for installing fire hydrants in residential areas in the municipality. These standards must, at a minimum, follow current AWWA standards pertaining to fire hydrants and the requirements of §290.44(e)(6) of this title.

(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 (4) of this subsection are the minimum acceptable standards.

(4) 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.

(5) When the regulatory authority is a municipality, it shall adopt the standards required by this subsection within one year of the effective date of this

subsection or within one year of the date this subsection first applies to the municipality, whichever occurs later.

(6) A public utility shall comply with the standards established by a municipality under both paragraphs (2) and (3) of this subsection 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 (5) of this subsection, then a public utility shall comply with the standards specified in paragraphs (2) and (4) 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.

(y) Fire Hydrant Flow Standards.

(1) In this section:

(A) "Municipal utility" means a retail public utility, as defined by Texas Water Code (TWC), §13.002, that is owned by a municipality.

(B) "Residential area" means an area used principally for private residences that is improved with at least 100 single-family homes and has an average density of one home per half acre.

(C) "Utility" includes a "public utility" and "water supply or sewer service corporation" as defined by TWC, §13.002.

(2) The governing body of a municipality with a population of less than 1.9 million by ordinance may adopt standards set by the executive director requiring a utility to maintain a minimum sufficient water flow and pressure to fire hydrants in a residential area located in the municipality or the municipality's ETJ. The municipality must submit a signed copy of the ordinance to the executive director within 60 days of the adoption of an ordinance by its governing body.

(3) In addition to a utility's maximum daily demand, the utility must provide, for purposes of emergency fire suppression:

(A) a minimum sufficient water flow of at least 250 gallons per minute for at least two hours; and

(B) a minimum sufficient water pressure of at least 20 psi.

(4) If a municipality adopts standards for a minimum sufficient water flow and pressure to fire hydrants, the municipality must require a utility to maintain at least

the minimum sufficient water flow and pressure described by paragraph (3) of this section in fire hydrants in a residential area located within the municipality or the municipality's ETJ.

(5) If the municipality owns a municipal utility, it may not require another utility located in the municipality or the municipality's ETJ to provide water flow and pressure in a fire hydrant greater than that provided by the municipal utility as determined by the standard adopted by the executive director.

(6) If the municipality does not own a municipal utility, it may not require a utility located in the municipality or the municipality's ETJ to provide a minimum sufficient water flow and pressure greater than the standard established by ordinance.

(7) An ordinance under paragraph (2) of this subsection may not require a utility to build, retrofit, or improve infrastructure in existence at the time the ordinance is adopted.

(8) A municipality that adopts standards under paragraph (3) of this subsection or that seeks to use a utility's water for emergency fire suppression shall enter into a written memorandum of understanding with the utility to provide for:

(A) the necessary testing of fire hydrants; and

(B) other relevant issues pertaining to the use of the water and maintenance of the fire hydrants to ensure compliance with this subsection.

(9) A municipality may notify the executive director of a utility's failure to comply with a standard adopted under paragraph (3) of this subsection.

(10) On receiving the notice described by paragraph (9) of this subsection, the executive director shall require a utility in violation of a standard adopted under this subsection to comply within a reasonable time established by the executive director.