The Texas Commission on Environmental Quality (TCEQ, agency, or commission) adopts the amendments to §§290.38, 290.39, 290.41, 290.42, 290.46, 290.47, 290.111 - 290.115, 290.119, 290.121, 290.122, 290.271, and 290.272, and the repeal of §290.117. The commission simultaneously adopts new §290.117.

Sections 290.39, 290.41, 290.46, 290.112, 290.113, 290.115, 290.119, 290.271, and 290.272 are adopted *with changes* to the proposed text as published in the December 10, 2010, issue of the *Texas Register* (35 TexReg 10815). Sections 290.38, 290.42, 290.47, 290.111, 290.114, 290.117, 290.121, and 290.122 are adopted *without changes* to the proposed text and will not be republished.

Background and Summary of the Factual Basis for the Adopted Rules

The primary purpose of the adopted rulemaking is to implement federal regulations pertaining to the safety of drinking water from groundwater and surface water sources. Federal rules controlling levels of the metals lead and copper in drinking water have been in place since 1991. Lead and copper can leach into drinking water from pipes or solder under corrosive conditions. The federal rules require public water systems to monitor for lead and copper; monitor for water quality parameters related to corrosivity; perform corrosion control studies; install optimum corrosion control treatment; meet lead and copper action levels; and, when action levels are exceeded, educate the public. The United States Environmental Protection Agency (EPA) adopted the National

Primary Drinking Water Regulations for Lead and Copper: Short-Term Regulatory Revisions and Clarifications (LCSTR) on October 10, 2007. Under 40 Code of Federal Regulations (40 CFR) §142.10, the commission must adopt rules at least as stringent as the federal rules to maintain primary enforcement authority (primacy) over public water systems in Texas. This rulemaking adopts the federal rules for lead and copper and makes minor changes for consistency with the adopted federal rules to retain primacy for the Safe Drinking Water Act and its amendments (SDWA). In addition, the commission adopts the rule language for lead and copper to reorganize the state rules to match the organizational structure for other chemicals in drinking water. The intent of this reorganization is to assist the regulated community by making the rules easier to use. No part of the adopted rulemaking differs from the federal requirements or existing Texas requirements in stringency.

This rulemaking also adopts minor changes to Chapter 290 for consistency with the federal Long Term 2 Enhanced Surface Water Treatment Rule (LT2), Stage 2 Disinfectants and Disinfection Byproducts Rule (DBP2), and Ground Water Rule (GWR). Rule Project Number 2006-045-290-PR incorporated the major requirements of the federal LT2, DBP2, and GWR on December 19, 2007. In the time since that adoption, as part of the EPA's primacy review, the EPA identified some rule elements inadvertently omitted from that rulemaking. These omissions have been corrected in this adopted rulemaking. These changes, though important in order to meet primacy,

are relatively minor in terms of extent and scope.

Section by Section Discussion

In addition to implementation of the federal laws discussed previously, the commission adopts administrative changes throughout the adopted rulemaking to reflect the agency's current practices and to conform with *Texas Register* and agency guidelines. These changes include updating cross-references and correcting typographical, spelling, and grammatical errors.

Subchapter D: Rules and Regulations for Public Water Systems

The commission adopts the amendment to §290.38, Definitions. The commission amends §290.38(4) and (11) to correct references to "certified" laboratories. On July 1, 2005, the commission published rules under 30 TAC §25.4(f) changing the requirements for environmental laboratories, a classification that includes laboratories that perform sample analyses required under the SDWA. The rulemaking eliminated the historical certification program, and replaced it with an accreditation program consistent with the environmental laboratory testing program known as the National Environmental Laboratory Accreditation Conference standards. Specifically, the rule stated that after the third anniversary of the publishing in the *Texas Register*, an environmental testing laboratory that provides analytical data used for a commission decision relating to the SDWA would no longer be certified, but must be accredited. The

third anniversary of publishing was June 30, 2008. Therefore, after June 30, 2008, laboratories ceased to be "certified" by the agency, and are now "accredited" according to 30 TAC §25.4(f). The commission amends §290.38(6) to update the reference to the American Society for Testing and Materials standards. The commission amends §290.38(40) to ensure consistency with normal syntax standards by adding a closing parenthesis.

The commission adopts §290.39, General Provisions. The commission amends §290.39(b) to remove the word "a" in order to ensure consistency with normal English usage standards. The commission amends §290.39(j) to incorporate requirements contained in the federal LCSTR. Specifically, the commission amends §290.39(j) to contain requirements of the federal rules under 40 CFR §§141.82(h), 141.83(b)(6), and 141.86(d)(4)(vii) and (g)(4)(iii) that systems seek approval from the TCEQ for any change in treatment that may affect the corrosivity of the water. The commission amends §290.39(j)(1)(E) and (F) to move the word "and," together with its semicolon, to the correct location in the sequential list of requirements. The commission adopts §290.39(j)(1)(G) to include the requirements of the new federal LCSTR under 40 CFR §141.90(a)(3) giving examples of changes that the TCEQ must approve before use, consistent with requirements of repealed §290.117(g)(2)(E). The commission had proposed the addition of language in §290.39(j)(1)(G) to incorporate the requirements of the new federal LCSTR under 40 CFR §141.86(g)(4)(iii) and (iv) requiring all systems

to notify the TCEQ of the addition of any lead-containing or copper-containing material in writing within 60 days of becoming aware of its presence. In response to comment, the adopted rule is amended to strike the notification requirement from §290.39(j)(1)(G); the requirement for small systems to notify the TCEQ of addition of lead or copper material in their distribution system remains under adopted §290.117(c)(2)(D)(vi).

The commission adopts §290.41, Water Sources, to correct references to "certified" or "approved" laboratories in subsection (c)(3)(F)(i) and (G). After June 30, 2008, laboratories are not certified by the agency, but are instead "accredited" by the agency, consistent with existing state rule under 30 TAC §25.4(f). At adoption, an incorrect reference contained in §290.41(e)(1)(D), related to disposal of wastes from boats or any other watercraft, has been corrected.

The commission adopts §290.42, Water Treatment, to maintain consistency with the federal requirements of the LT2 and LCSTR rules. The commission amends §290.42(c)(6) to correct a cross-reference. The commission amends §290.42(d)(3) to delete the phrase "relating to Public Notice" in conformance to agency syntax standards for internal references. The commission amends §290.42(d)(15)(A) and (B) to correct references to "certified" laboratories. After June 30, 2008, laboratories are not certified by the agency, but are instead "accredited" by the agency, consistent with existing state

rule under 30 TAC §25.4(f). The commission amends §290.42(e)(4)(C) and (6) to remove a space between the last word of the sentence and the period, in order to ensure consistency with normal syntax standards. The commission amends §290.42(g) and (g)(2)(B) to correct references to be consistent with agency syntax standards. The commission amends §290.42(g)(2) to allow *Giardia* removal credit of up to 3.0-log after April 1, 2012. The federal LT2 rule only discusses removal credits for *Cryptosporidium*, not for *Giardia* as seen in 40 CFR §141.719(a). The state rule under §290.42(g)(4) allows a 3.0-log removal credit for *Giardia* for bag and cartridge systems installed or replaced before April 1, 2012. Section 290.42(g)(4) describes the *Giardia* credits allowed until April 1, 2012, and §290.42(g)(2) describes the *Giardia* credits allowed after April 1, 2012. The LT2 rule did not change the *Giardia* requirements. The adopted change amends §290.42(g)(2) to continue the same level of *Giardia* credit as is currently available for bag and cartridge filters. The commission amends §290.42(g)(3) to clarify that removal credits can only be given to those systems or modules that meet the criteria in the paragraph. Before these rule changes, the rule could imply that systems would have other options to receive credits, whereas the federal LT2 rule under 40 CFR §141.719(a) provides only one method of approving credits. The commission amends §290.42(g)(3)(D)(i) and (ii) to correct the reference to meet agency syntax standards. The commission adopts §290.42(n) to reference the requirements for installation of corrosion control or source water treatment referenced in adopted §290.117(f) and (g). Adopted §290.42(n) language is consistent with repealed

§290.117(j)(1). It is adopted under this section because this section contains all other treatment requirements for public water systems.

The commission adopts §290.46, Minimum Acceptable Operating Practices for Public Drinking Water Systems. The commission amends §290.46(b) to correct a reference to "certified" laboratories. After June 30, 2008, laboratories are not certified by the agency, but are instead "accredited" by the agency, consistent with existing state rule under 30 TAC §25.4(f). The commission removes the three-year turbidity record retention requirement in §290.46(f)(3)(B)(iv) and replaces it with a five-year record retention requirement in §290.46(f)(3)(C)(iv), consistent with the federal DBP2 rule under 40 CFR §141.33(a). Without these changes, the rule would be less stringent than the federal rule. Section 290.46(f)(3)(B)(v) - (ix) is re-lettered to maintain the sequence of lettering and amended to correct references to other rules to meet agency syntax standards. In response to comment, a reference to retaining source water monitoring plans for three years is added to adopted §290.46(f)(3)(B)(vi). The commission amends §290.46(f)(3)(C)(ii) to remove the word "and" in order to maintain correct numerical sequence in the list of requirements. Section 290.46(f)(3)(C)(iii) is adopted to add the word "and" in order to incorporate the new turbidity analysis record retention requirement of §290.46(f)(3)(C)(iv). The commission amends §290.46(f)(3)(C)(iv) and corrects the reference to meet agency syntax standards. The commission amends §290.46(f)(3)(E)(v) to remove the hyphen in the word "by-products" to be consistent

with current federal usage standards. Section 290.46(f)(3)(F) is adopted to contain the requirement of the federal LCSTR under 40 CFR §141.80(j) and §141.91 that records related to compliance with the lead and copper requirements be maintained for 12 years, consistent with the repealed state rules for lead and copper under §290.117(m)(2). In response to comment, the proposed requirement for attaching tap water monitoring results and other sample-specific data to the monitoring plan is omitted from the adopted rule language. Section 290.46(f)(3)(F) is re-lettered as §290.46(f)(3)(G) in order to maintain the correct sequence of rule requirements. The commission amends §290.46(f)(4)(C) to replace the incorrect term "certified" with the correct term "licensed" in reference to water operators.

The commission adopts §290.47, Appendices. The commission amends the figure in §290.47(a), concerning Appendix A, Recognition as a Superior or Approved Public Water System, to replace the incorrect term "certified" with the correct term "licensed" in reference to water operators and to correct a cross-reference. The commission amends the figure in §290.47(b), concerning Appendix B, Service Agreement, to add the word "retail" to the title and text in order to specify that the agreement is for retail connections. In the first sentence of the form, the commission replaces the term "private water distribution" with the term "retail connection owner's side of the meter" to make the reference more specific, and easier for public water systems and their customers to understand. The commission replaces the word "utility" with the phrase

"public water system" to correctly reflect the type of regulated entity to which the rule applies because the retail service agreement provided under §290.47(b) is applicable to all public water systems, not just to that subset of public water systems that also meet the definition of a utility. The Texas rules under Chapter 290 apply to public water systems, which are defined therein, not to utilities, which are defined in 30 TAC Chapter 291, Utility Regulations. The commission amends the figure in §290.47(c), concerning Appendix C, Sample Sanitary Control Easement Document for a Public Water Well, to correct a misspelling. Additionally, the prior sample sanitary control easement form did not include all of the items that are required by §290.41(c)(1)(F) to be included in a sanitary control easement. The fifth list item from the prior figure has been deleted and its substantive information moved to other list items, specifically the third and fourth list items. The commission amends the figure in §290.47(d), concerning Appendix D, Customer Service Inspection Certification, to correct the formatting. The check boxes were not aligned with the compliance criteria. The commission amends the figure in §290.47(f), concerning Appendix F, Sample Backflow Prevention Assembly Test and Maintenance Report. The prior heading of "Reduced Pressure Principle Assembly" was separated from the "Relief Valve" column. This separation made it unclear that a Reduced Pressure Principle Assembly contains the components of a Double Check Valve Assembly (a 1st Check and a 2nd Check) and a Relief Valve. The adopted revision eliminates the line separating the heading of "Reduced Pressure Principle Assembly" from the "Relief Valve" column. Only this formatting is changed; no substantive

changes are adopted.

Subchapter F: Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems

The commission adopts §290.111, Surface Water Treatment. The commission amends §290.111(b) to be consistent with the federal requirements for raw surface water monitoring under the LT2 rule, to allow the state to require more than two rounds of special raw surface water monitoring. The federal rule under 40 CFR §141.711(d) requires the state to assess the watershed of a system and if a significant change has occurred that could increase *Cryptosporidium* contamination, the system must perform actions specified by the state. The federal rule lists additional source water monitoring as a potential action that the state may require. Before these rule changes, the prior wording of the state rule would not allow the commission to require additional source water monitoring. The change is adopted to assure the state rules are as stringent as the federal rules. Without these rule changes, the rule would be less stringent than the federal rule. The commission amends §290.111(b)(4)(B) to allow the state to require a second round of raw surface water sampling for systems that install new intakes after the federal deadlines. The commission moves the requirement for the first round of sampling in the deleted language from prior §290.111(b)(4)(B) to adopted §290.111(b)(4)(B)(i). The commission adopts §290.111(b)(4)(B)(ii) to include the requirement for the second round of raw surface water sampling for new surface water

intakes, consistent with the federal LT2 rule requirements under 40 CFR §141.701(f)(3). The change is adopted to assure the state rules are as stringent as the federal rules. The commission amends §290.111(b)(6) to correct a reference to a "certified" laboratory to use the term "accredited," consistent with existing state rule under 30 TAC §25.4(f). The commission amends §290.111(b)(7)(A)(i) to provide the correct internal references. Before these rule changes, the rule incorrectly referenced paragraph (4)(A) and (B). The commission amends the figure in §290.111(c)(3)(B) to add the word "clarification" to footnote "b." In this context, the word "clarification" refers to a unit process required in surface water treatment that removes turbidity from the water, thus making it physically clearer. Before these rule changes, the figure in §290.111(c)(3)(B), footnote b, was essentially a copy of footnote a, which is inconsistent with the federal rule requirements of 40 CFR §141.711(a), relating to *Cryptosporidium* treatment requirements under the federal LT2 rules. The commission amends §290.111(c)(3)(B)(i) and (ii) to provide the correct internal references and ensure consistency with agency syntax standards. Before these rule changes, the rule referenced §291.114(b)(4)(A) and (B) incorrectly. To meet federal LT2 rules for early implementation sampling in 40 CFR §141.701(c) and (f), internal references are amended to §290.111(b)(4)(A) and (B), respectively. The commission amends the figure in §290.111(d)(1) to move a footnote to the appropriate location and add a definition of the abbreviation "NA". The reference to footnote 3 in the figure in §290.111(d)(1) that previously described "0.0-log" in the Membrane Filters and Cartridge Filters, *Giardia* column in §290.111(d)(1), Microbial Inactivation

Requirements, now describes the heading of "*Giardia*" in the Membrane Filters and Cartridge Filters, *Giardia* column to be consistent with adopted §290.42(g)(3). Also, the abbreviation "NA" contained in this table is amended to be defined correctly as "not allowed" in the context of this table and a new footnote is adopted to define the term. The commission amends §290.111(f)(1)(A) to ensure that the requirements are correctly applied to combined filter effluent as distinct from individual filter effluent, consistent with the federal LT2 rule requirements in 40 CFR §141.551 and §141.719(b)(4)(v). The commission amends §290.111(g)(4)(B) to add a space between the reference and the hyphen in accordance with normal syntax standards. The commission amends §290.111(h)(11) to include a reference to §290.111(b)(7), relating to the LT2 requirement that public water systems provide all reports required under §290.111 to their primacy agency. The commission renumbers §290.111(h)(11) as paragraph (12).

The commission adopts §290.112, Total Organic Carbon, to be consistent with the federal DBP2 rule. In response to comment, the terms "coagulation and flocculation" are added to the terms "sedimentation and clarification" in adopted §290.112(a) in order to be equally as stringent as the federal rule. The commission amends §290.112(c)(2) and (2)(C) to establish that only source water total organic carbon monitoring can be reduced to quarterly instead of monthly, and that finished water sampling may not be reduced, consistent with the federal rule in 40 CFR §141.132(b)(iii). The commission also amends §290.112(c)(2)(C) and (e)(3)(A) to remove the hyphen in the words "by-

product" and "by-products" to be consistent with current federal usage standards. Additionally, the commission amends §290.112(c)(2)(C) to correct a cross-reference.

The commission adopts §290.113, Stage 1 Disinfection Byproducts (TTHM and HAA5), to be consistent with the federal Stage 1 Disinfectants and Disinfection Byproducts (DBP1) rule, current federal usage standards, and agency language usage standards. In response to comment, the phrase "of any population" is added to the heading of the schedule for systems in a combined distribution system in the adopted language of the figure in 30 TAC §290.113(a)(2), since without this clarification the rule could imply that the generality of population applies only to the wholesale system. Further, for consistency with adopted rule changes in response to a comment on the figure in §290.115(a)(2), two colons have also been inserted in the figure in §290.113(a)(2). The first colon is inserted in the figure in §290.113(a)(2) in the adopted row heading titled "Systems of any population that are part of a combined distribution system," and another colon is inserted in the row heading titled "Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system." The commission amends §290.113(b)(2) to abbreviate the term "milligrams per liter" in its second usage to "mg/L" in accordance with the TCEQ usage standards. The commission amends §290.113(c)(4) to remove a space after the opening quote in conformance with normal syntax standards. In response to comment, the adopted rule includes insertion of the phrase ", as long as it meets the

requirements in subparagraph (D) of this paragraph" in §290.113(c)(4)(B) and (C) for consistency with 40 CFR §141.132(b)(1)(iii). The commission adopts §290.113(c)(4)(D) to describe the levels of total organic carbon that are required in order for a system with a surface water treatment plant to remain eligible for reduced monitoring, consistent with the federal DBP1 rule in 40 CFR §141.132(b)(1)(iii). Without these rule changes, the rule would be less stringent than the federal rule. Additionally, the commission adopts the term "total organic carbon" in its first use in the section, consistent with normal syntax standards. The commission amends §290.113(c)(5)(A) to correctly reference the paragraphs containing requirements for any system to return to routine monitoring, and to specifically include the levels of total organic carbon required that would trigger a return to routine monitoring from reduced monitoring, consistent with the federal DBP1 rule in 40 CFR §141.132(b)(1)(iii). The commission adopts §290.113(c)(5)(D) to establish the authority of the executive director to return a system that has been on reduced monitoring to routine monitoring, consistent with the federal rule in 40 CFR §141.132(b)(1)(vi). The commission adopts §290.113(c)(6) to ensure that systems that are monitoring annually or less frequently must increase monitoring if any single sample exceeds the maximum contaminant level, consistent with the federal rule in 40 CFR §141.132(b)(1)(iv). In response to comment, the word "immediately" is added to the adopted rule language under §290.113(c)(6) to clarify that a system must begin monitoring quarterly in the quarter immediately following the monitoring period in which an exceedance occurs. The commission adopts §290.113(d) to correct a reference

to a "certified" laboratory to instead reference an "accredited" laboratory, consistent with existing state rule under 30 TAC §25.4(f). The commission amends §290.113(f)(3)(C) to add the term "monitoring plan" to correctly reference the document in which public water systems are required to maintain a list of sample locations. The commission adopts §290.113(h) to adopt the federal definitions of best available technology for trihalomethane and haloacetic acid treatment at 40 CFR §141.64(b)(1)(ii) by reference.

The commission adopts §290.114, Other Disinfection Byproducts (Chlorite and Bromate), to be consistent with the federal DBP1 rule, current federal usage standards, and existing state rules. The commission amends §290.114(a) to require transient public water systems that use chlorine dioxide to comply with the requirements of the subsection, consistent with federal rule in 40 CFR §141.65(b)(2). The commission amends §290.114(a)(3)(B) to correct a reference to a "certified" laboratory to instead use the correct term "accredited" laboratory consistent with existing state rule under 30 TAC §25.4(f). The commission amends §290.114(a)(4)(B) to correct the rule citation to meet agency syntax standards. The commission adopts §290.114(b)(5)(E) to include the compliance calculation protocol for a system that does not perform all required sampling, consistent with the federal rule in 40 CFR §141.133(b)(2). The requirement is added to maintain consistency between state and federal regulations.

The commission adopts §290.115, Stage 2 Disinfection Byproducts (TTHM and HAA5), for consistency with federal rules, current federal usage standards, and agency rule writing standards. Section 290.115 contains requirements for both the DBP1 rule, promulgated by EPA on December 16, 1998, as well as requirements from the DBP2 rule, promulgated by the EPA on January 4, 2006. Several changes in the figure contained in §290.115(a)(2) are adopted in response to comments. First, in response to comment, the figure in §290.115(a)(2) is adopted with addition of the phrase "of any population" in the schedule's row heading for systems in a combined distribution system. Second, in response to comment, a colon is inserted in the adopted row heading titled "Systems of any population that are part of a combined distribution system" in the figure in §290.115(a)(2) and, for consistency at adoption, a colon is also inserted in the row heading titled "Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system." Third and finally, in response to comment, the footnote in the figure in §290.115(a)(2) referencing compliance extensions is adopted as "The executive director may grant up to an additional 24 months for compliance with maximum contaminant levels (MCLs) and operational evaluation levels if the system requires capital improvements to comply with an MCL" to adopt the footnote in 40 CFR §141.620(c) almost verbatim. In response to comment, adopted §290.115(a)(3) is amended to read "Systems must complete their monitoring plan for the additional Stage 2 TTHM and HAA5 requirements according to §290.121 of this title (relating to Monitoring Plans) before the date shown in the table

entitled "Date to Start Stage 2 Compliance." The commission also amends §290.115(c)(1) to remove the hyphen in the word "by-product" to be consistent with current federal usage standards. The commission amends §290.115(c)(1)(A) to ensure that systems include results collected under the requirements of the prior DBP1 rule in making the determinations for sample sites required under the DBP2 rule, consistent with 40 CFR §141.600(a). In response to comment, §290.115(c) is amended to clarify that the executive director retains authority to set monitoring requirements for disinfection byproducts. The commission amends §290.115(c)(1)(C) to correctly reference the federal requirements for setting Stage 2 sample sites that are adopted by reference, consistent with the federal rule in 40 CFR §141.605(c) - (e). The commission adds the catch line of "Monitoring frequency and number of sample sites" by amending §290.115(c)(2) in accordance with the TCEQ standards for formatting rule language. The commission amends footnote 1 of the figure located in §290.115(c)(2), entitled, "Routine Stage 2 Monitoring Frequency and Number of Sites," to remove the hyphen in the words "by-product" to be consistent with current federal usage standards; and the commission also amends footnote 3 in the figure in §290.115(c)(2) to clarify the number of sample sites required at small systems, consistent with the federal rule in 40 CFR §141.620(c)(6). In response to comment, in the figure in §290.115(c)(2), superscript #3 in the column titled, "Routine Number of Sites" for groundwater systems serving 500 to 9,999 persons is removed to assure consistent stringency with 40 CFR §141.621(a)(2) requiring that this group of water systems take dual samples at each of the 2 monitoring

sites. The commission adds the catch line of "Reduced monitoring for TTHM and HAA5" by amending §290.115(c)(3) in accordance with the TCEQ standards for formatting rule language. The commission amends §290.115(c)(3)(A) to remove the hyphen in the word "by-products" to be consistent with current federal usage standards. The commission amends §290.115(c)(3)(B) to correctly identify the conditions under which reduced monitoring can be continued, consistent with the federal DBP2 rule under 40 CFR §141.623(c). The commission amends §290.115(c)(3)(B)(i) to correctly refer to infrequent monitoring as reduced monitoring, rather than routine, to be consistent with the federal DBP2 rule under 40 CFR §141.623(c). The commission amends §290.115(c)(3)(B)(iii) to ensure that low total organic carbon levels are accurately referenced as a requirement for continuing on a reduced monitoring frequency schedule, as required under the federal DBP2 rule under 40 CFR §141.623(c). The commission adds the catch line of "Increased monitoring for TTHM and HAA5" by amending §290.115(c)(4) in accordance with the TCEQ standards for formatting rule language. The commission adds the catch line of "Initial Distribution System Evaluation (IDSE) requirements" by amending §290.115(c)(5) in accordance with the TCEQ standards for formatting rule language. The commission amends §290.115(c)(5) to ensure that it is absolutely clear that all community systems must perform initial distribution system evaluation monitoring as required by 40 CFR §141.600(b). Before these rule changes, the sentence could be construed to mean that the limitation to systems serving fewer than 10,000 people could apply to both community and

nontransient, noncommunity systems. The commission amends footnote 1 to the figure in §290.115(c)(5)(B) to correct a misspelling and also adopts the definition of the acronym "IDSE" in the figure's heading. The commission amends §290.115(c)(5)(B)(iii) to include the authority of the executive director to require initial distribution system evaluation monitoring even if a system meets the criteria for receiving a very small system waiver, consistent with the federal DBP2 rule under 40 CFR §141.600(d). The commission amends footnote 3 in the figure located in §290.115(c)(5)(C) by adding a period after the last sentence and also defined the acronym "IDSE" in the figure's heading. At adoption, the commission amends the figure in §290.115(c)(5)(C)(ii)(I) to correct the formatting by adding a horizontal line after the last row in the figure. Only this formatting is changed; no substantive changes are adopted. The commission also amends the figure titled, "Frequency of IDSE Monitoring" located in §290.115(c)(5)(C)(ii)(V) to define the acronym "IDSE" in the figure's heading. The commission also amends the figure in §290.115(c)(5)(C)(ii)(V) to remove from footnote 2 the terminology of "hottest month" for annual sampling and replace it with the terminology of "peak historical month" as contained in the federal DBP2 rule under 40 CFR §141.601(b)(1). In response to comment, the figure in §290.115(c)(5)(C)(ii)(V) is adopted with insertion of a reference to footnote 2 on the table column heading “Sampling Frequency and Timing” in order to reference the amended footnote defining a peak historical month. The commission adopts §290.115(c)(5)(C)(iii)(V) to include the requirement that the initial distribution system evaluation report include

recommendations and justifications for the frequency of sample collection as contained in the federal DBP2 rule under 40 CFR §141.605(a). The commission amends §290.115(c)(5)(D) to specify that the executive director can require a system to perform an initial distribution system evaluation for any reason, as contained in the federal DBP2 rule under 40 CFR §141.600(d). The commission amends §290.115(d) to correct a reference to a "certified" laboratory, to refer to an "accredited" laboratory, consistent with existing state rule under 30 TAC §25.4(f). The commission amends §290.115(e)(1)(B) to specify when compliance determinations are initiated under the DBP2 rule as contained in 40 CFR §141.620(d)(1). The commission amends §290.115(e)(1)(C) to correct two cross-references. The commission amends §290.115(g) to correct letter capitalization in the catch line, in accordance with the TCEQ standards for formatting rule language. The commission adopts §290.115(h) to adopt the federal definitions of best available technology for trihalomethane and haloacetic acid treatment by reference, consistent with the federal rule in 40 CFR §141.64(b)(2)(ii). The requirements for best available technology are included in both §290.113(h) and §290.115(h) in order to ensure continuity between DBP1 and DBP2 requirements. In response to comment, a reference to the best available technology listed in 40 CFR §141.64(b)(2)(iii) is added to adopted §290.115(h).

The commission repeals existing §290.117, Regulation of Lead and Copper, and adopts the new §290.117 to incorporate the provisions of the federal LCSTR in 40 CFR Part 141,

Subpart I. All of the sections that regulate chemicals in drinking water are arranged in a standard order. Specifically, subsections are organized as follows: applicability; specific standards, like maximum contaminant levels, action levels, or treatment techniques; monitoring frequency and location; analytical methods; reporting; compliance determination; and public notification. The repealed rule, initially adopted in 1991 to incorporate the original Lead Copper Rule and subsequent revisions, was not organized in that manner; therefore, adopted new §290.117 is organized in the manner of the rules regulating other chemicals. The intent of this reorganization is to make the rules easier for the regulated community to use. No change in stringency is intended, except as specifically related to the incorporation of the LCSTR rule, federally adopted on October 10, 2007. Additionally, as part of the LCSTR, the EPA is requiring that a full primacy crosswalk be performed by states. In other revisions to the lead and copper requirements, only partial crosswalks were required. Repealing and replacing the section allows staff to ensure that all elements of the original Lead Copper Rule and subsequent changes contained in 40 CFR Part 141, Subpart I, Lead and Copper, including the LCSTR, are appropriately incorporated in Texas rules. The specific organization of the adopted section is as follows: applicability; regulatory levels, including action levels, reduced monitoring levels, maximum permissible source water levels, and optimization levels; lead and copper tap sampling frequency and locations; lead and copper entry point monitoring frequency and locations; water quality parameter monitoring frequency and locations; corrosion control requirements; source

treatment requirements; analytical methods, including sample analysis, collection, and invalidation methods; reporting; consumer notification; public education; compliance determination; lead service line replacement; and additional sampling.

The commission adopts new §290.117(a) to contain the applicability requirements of the repealed state rule of §290.117(a)(1) and federal rule in 40 CFR §141.80(a), (a)(1), and (b), that these requirements apply to community and nontransient, noncommunity public water systems.

The commission adopts new §290.117(b) to contain specific standards for lead and copper in drinking water from the repealed state rules and new federal rules. Unlike other rules for chemicals in drinking water, the EPA has not set maximum contaminant levels for lead and copper levels in drinking water. Instead, the federal rule sets action levels and other requirements. New §290.117(b) is adopted to include action levels for lead and copper in the distribution system, trigger levels for allowing reduced lead and copper tap sampling, practical quantitation levels for lead and copper, optimal water quality parameter ranges, the conditions defining a system as having been deemed to have optimized corrosion control, and maximum permissible source water lead levels.

New §290.117(b)(1) is adopted to contain the lead and copper action levels for drinking water in distribution systems, contained in the repealed state rule under §290.117(a)(3).

New §290.117(b)(1)(A) is adopted to contain the lead action level of 0.015 milligrams per liter (mg/L) for tap sampling results, contained in the repealed state rule under §290.117(a)(3) and 40 CFR §141.80(c)(1). New §290.117(b)(1)(B) is adopted to contain the copper action level of 1.3 mg/L for tap sampling results, contained in the repealed state rule under §290.117(a)(3), and in the federal rule at 40 CFR §141.80(c)(2).

New §290.117(b)(2) is adopted to contain the lead and copper tap sample levels that will allow systems to initiate and remain on reduced tap sampling schedules. These requirements were in repealed state rules in §290.117(e)(5) and are contained in 40 CFR §141.86(d)(4)(v).

New §290.117(b)(3) is adopted to contain the practical quantitation levels for lead and copper contained in the repealed state rule under §290.117(l)(2). New §290.117(b)(3)(A) is adopted to contain the practical quantitation level for lead of 0.005 mg/L, as contained in 40 CFR §141.89(a)(1)(ii)(A); new §290.117(b)(3)(B) is adopted to contain the practical quantitation level for copper of 0.050 mg/L, in the federal rule at 40 CFR §141.89(a)(1)(ii)(B).

New §290.117(b)(4) is adopted to contain the optimal water quality parameter ranges that public water systems may be required to set in the event of a lead or copper tap sampling exceedance contained in the repealed state rule in §290.117(h)(1)(P) and (j)(1),

consistent with the federal rules in 40 CFR §141.81(d)(7) and (e)(8). New §290.117(b)(4)(A) is adopted to list the constituents and sample sites that make up optimal water quality parameter ranges. New §290.117(b)(4)(A)(i) is adopted to contain the requirement that optimal water quality parameter ranges be set for pH in entry point samples, as contained in 40 CFR §141.82(f)(1). New §290.117(b)(4)(A)(ii) is adopted to contain the requirement that optimal water quality parameter ranges be set for pH in distribution samples, with a minimum not below 7.0, as contained in the federal rule in 40 CFR §141.82(f)(2). New §290.117(b)(4)(A)(iii) is adopted to contain the optimal water quality parameter range requirements for systems that use a corrosion inhibiting chemical as contained in 40 CFR §141.82(f)(3). New §290.117(b)(4)(A)(iv) is adopted to contain the optimal water quality parameter range requirements for systems that use an alkalinity adjusting treatment or chemical as contained in 40 CFR §141.82(f)(4). New §290.117(b)(4)(A)(v) is adopted to contain the optimal water quality parameter range requirements of 40 CFR §141.82(f)(5) for systems that use calcium carbonate to control corrosion. New §290.117(b)(4)(B) is adopted to include the requirement of repealed §290.117(h)(1)(P) that systems must submit their proposed, system-specific optimal water quality parameter ranges in writing, consistent with 40 CFR §141.82(c)(6) and (h). New §290.117(b)(4)(C) is adopted to contain the approval time line for optimal water quality parameter ranges of repealed §290.117(h)(1)(Q), consistent with 40 CFR §141.81(e)(7) and §141.82(f).

New §290.117(b)(5) is adopted to contain the levels to be achieved in order for a system to be deemed to have optimized their corrosion control treatment strategy, as described in 40 CFR §141.80(d)(2), consistent with repealed §290.117(j). New §290.117(b)(5)(A) is adopted to contain the requirement for small and medium systems serving 50,000 or fewer people to meet the lead and copper action levels in two consecutive initial or routine monitoring periods in order to be deemed to have optimized corrosion control, as contained in repealed §290.117(j)(4)(G), consistent with 40 CFR §141.81(b)(1). New §290.117(b)(5)(B) is adopted to contain the requirement that large systems serving more than 50,000 people may be deemed to have optimized corrosion control if the difference between the 90th percentile lead level and the highest entry point lead level is less than the practical quantitation level and the system meets the copper action levels in two consecutive initial or routine monitoring periods as contained in repealed §290.117(h)(2)(A) and (j)(5)(B), consistent with 40 CFR §141.81(b)(3). New §290.117(b)(5)(C) is adopted to include the general requirement that those systems whose highest lead level measured at the entry point is less than the method detection limit may also be deemed to have optimized corrosion control if their 90th percentile tap water lead level is less than or equal to the practical quantitation level for lead for two consecutive six-month monitoring periods as provided by 40 CFR §141.81(b)(3)(i). New §290.117(b)(5)(D) is adopted to include the language of the state rule in repealed §290.117(j)(5)(A) consistent with the federal requirements of 40 CFR §141.81(b)(2) that a system that performs activities equivalent to corrosion control may be deemed to have

optimized corrosion control treatment. New §290.117(b)(5)(E) is adopted to describe the conditions under which a system will no longer be deemed to have optimized corrosion control treatment contained in the state rule in repealed §290.117(j)(3) and (4)(G), and consistent with the federal requirements of 40 CFR §141.81(b)(2) and (3)(iv).

New §290.117(b)(6) is adopted to provide authority for the executive director to establish the maximum permissible levels for source water lead for systems that are required to install source water treatment as contained in the federal rules at 40 CFR §141.83(a)(5) and (b)(4). The adopted rule also describes the method to be used by the executive director when setting these levels.

New §290.117(c) is adopted to contain requirements for lead and copper tap sampling locations and frequency contained in repealed §290.117(b) and (c), consistent with the federal requirements of 40 CFR §§141.80(h), 141.81(e)(1) and (8), and 141.86(g)(5) and (5)(iii).

New §290.117(c)(1) is adopted to contain the specific procedures and requirements for selecting lead and copper tap sampling locations requirements contained in repealed §290.117(c), consistent with the federal rule at 40 CFR §141.86(a)(1). New §290.117(c)(1)(A) is adopted to specify the number of required sample sites, based on

the population of the system, contained in repealed §290.117(c)(6), and consistent with 40 CFR §141.86(c). In order to accomplish this, a table entitled "Required Number of Lead and Copper Tap Sample Sites" has been adopted as §290.117(c)(1)(A), containing the requirements in the table in repealed §290.117(c)(6). New §290.117(c)(1)(B) is adopted to describe what taps can be used as sample sites, as described in repealed §290.117(b)(3), consistent with the federal rules, 40 CFR §141.86(a) and (a)(1).

New §290.117(c)(1)(C)(i) is adopted to specifically reference new TCEQ Form Number 20467, the Sample Site Selection and Material Survey Form to submit proposed sample locations. The requirement for types of sites to be selected is contained in adopted and repealed §290.117(c)(1) and the official form number has been added. The requirements for the survey of materials were contained in repealed §290.117(b)(1) and (2), and (c)(1)(A), and are consistent with the federal requirements of 40 CFR §141.86(a)(1) and (2). New §290.117(c)(1)(C)(i)(I) - (IV) is adopted to contain the specific federal requirements of 40 CFR §141.86(a)(2)(i) - (iii), relating to the sources of information that a public water system must use when performing their material survey. These specific requirements were not contained in the repealed state language, but were implemented through standard operating procedures for submittal of forms.

New §290.117(c)(1)(C)(ii) is adopted to contain the specific process that a public water system must use to consider selection of sample sites starting with worst case - tier 1

sites - first, followed by less vulnerable sites, requirements which were contained in repealed §290.117(b)(1) and (2), and which are consistent with the federal requirements of 40 CFR §141.86(a). New §290.117(c)(1)(C)(ii)(I) is adopted to reference the definitions of age and materials for tier 1, 2, and 3 sites that is adopted in new subparagraph (D), immediately following this subparagraph, as contained in the repealed §290.117(b)(3), consistent with 40 CFR §141.86(a)(3) and (4). New §290.117(c)(1)(C)(ii)(II) is adopted to contain the provision that a community system that does not have enough sites meeting the tier 1, 2, and 3 definitions of adopted new §290.117(c)(1)(D) may sample at other representative sites throughout the distribution system, as provided by 40 CFR §141.86(a)(5). Similarly, new §290.117(c)(1)(C)(ii)(III) is adopted to contain the provision that nontransient, noncommunity public water systems that do not have enough tier 1, 2, or 3 sites shall select sites potentially vulnerable to copper corrosion, followed by selection of sites representing the distribution system, consistent with 40 CFR §141.86(a)(7). New §290.117(c)(1)(C)(ii)(IV) is adopted to contain the provisions for selecting sample sites in systems with lead service lines, consistent with the federal rule at 40 CFR §141.86(a)(8); historically, the use of lead pipes in Texas was extremely rare, so this is not likely to impact any public water systems in Texas. New §290.117(c)(1)(C)(ii)(V) is adopted to require submittal of any explanatory information with submittal of the Site Selection Form as required by repealed §290.117(b)(2). The use of TCEQ form numbers is specific to the TCEQ implementation practices, so there is not a concurrent federal citation.

New §290.117(c)(1)(D) is adopted to contain the definitions of tier 1, 2, and 3 sites in terms of materials, type of facility, and date of installation, in order to explicitly adopt the federal requirements of 40 CFR §141.86(a). New §290.117(c)(1)(D)(i) is adopted to contain the definition of tier 1, worst case, sites at community public water systems, as contained in 40 CFR §141.86(a)(3). New §290.117(c)(1)(D)(i)(I) and (II) is adopted to contain the federal requirements of 40 CFR §141.86(a)(3)(i) and (ii), respectively, detailing the age and material for tier 1 sites at community systems. New §290.117(c)(1)(D)(ii) is adopted to contain the definition of tier 2 sites at community public water systems, as contained in the federal rule at 40 CFR §141.86(a)(4). New §290.117(c)(1)(D)(ii)(I) and (II) is adopted to contain the federal requirements of 40 CFR §141.86(a)(4)(i) and (ii), respectively, detailing the age and material qualifications for tier 2 sites in community public water systems. New §290.117(c)(1)(D)(iii) is adopted to contain the definition of tier 3 sites in community systems, as contained in 40 CFR §141.86(a)(5). New §290.117(c)(1)(D)(iv) is adopted to define other representative sites for community systems that do not have enough sites that meet the tier 1, 2, or 3 definitions, as contained in repealed §290.117(b)(3), consistent with 40 CFR §141.86(a)(5). New §290.117(c)(1)(D)(v) is adopted to define tier 1, worst case, sites at nontransient, noncommunity public water systems, consistent with the federal requirements of 40 CFR §141.86(a)(6). New §290.117(c)(1)(D)(v)(I) and (II) is adopted to contain the federal requirements of 40 CFR §141.86(a)(6)(i) and (ii), respectively,

requiring that tier 1 sites at nontransient, noncommunity systems contain either lead or copper materials. New §290.117(c)(1)(D)(vi) is adopted to contain the definition of other representative sites at nontransient, noncommunity public water systems, consistent with the federal requirements of 40 CFR §141.86(a)(7).

New §290.117(c)(1)(E) is adopted to contain federal provisions in 40 CFR §141.85(b) and §141.90(a) allowing systems that do not have appropriate locations to accomplish first-draw sampling to use other sites; these requirements predate the LCSTR but were not previously contained in Texas rule language. Adding these provisions makes Texas rule language correspond more closely to federal language, and is consistent with the level of stringency in the federal rule. New §290.117(c)(1)(E)(i) is adopted to describe the specific types of systems that may request non-first-draw sample sites, as contained in the federal rules, 40 CFR §141.85(b)(7) and §141.90(a)(2). New §290.117(c)(1)(E)(i)(I) is adopted to provide that prisons and hospitals, or other facilities where the population served cannot change the plumbing or add point of use devices, may request approval of non-first-draw sites, consistent with 40 CFR §141.85(b)(7)(i). New §290.117(c)(1)(E)(i)(II) is adopted to contain the requirement that these systems may only request non-first-draw sample sites if the system provides water as part of the cost of services provided and does not separately charge for water consumption, as contained in 40 CFR §141.85(b)(7)(ii). New §290.117(c)(1)(E)(ii) is adopted to require that any request for approval of non-first-draw sample sites must be in writing, and must be

updated when conditions change, as required under the federal rules at 40 CFR §141.90(a)(1)(v) and (2).

New §290.117(c)(1)(F) is adopted to contain the requirement of repealed §290.117(c)(1) for systems that have fewer than five taps, which is the minimum number of sample sites required; consistent with 40 CFR §141.86(c) and (d)(4)(i), these systems may request a reduction in the minimum number of sites to be used.

New §290.117(c)(1)(G) is adopted to contain the requirement that the same sample sites be used in each sampling round, as contained in repealed §290.117(m)(1)(G), consistent with the federal requirement of 40 CFR §141.90(b)(2). New §290.117(c)(1)(G)(i) is adopted to contain the requirement of repealed §290.117(m)(1)(G) that changes must be requested in writing. New §290.117(c)(1)(G)(ii) is adopted to provide the protocol to be used by the system when circumstances outside their control make it necessary for them to replace sampling sites due to changes occurring in their distribution system, as provided by the state rule under repealed §290.117(c)(3), and consistent with the federal requirements of 40 CFR §141.90(a)(1)(v).

New §290.117(c)(2) is adopted to contain the monitoring frequency requirements for lead and copper tap sampling, consistent with the requirements of repealed §290.117(c) and the federal requirements of 40 CFR §141.86(c). New §290.117(c)(2)(A) is adopted

to contain the most frequent, initial and routine tap sample monitoring requirements; specifically, the requirements that new systems, systems that exceed any action level, systems that install corrosion control treatment, systems that exceed a reduced monitoring level, and systems that operate outside an approved optimal water quality parameter range shall perform lead and copper tap sampling in two consecutive six-month monitoring periods at the initial/routine number of sample sites identified in adopted new §290.117(c)(1), consistent with repealed §290.117(j)(4)(G) and the federal requirements of 40 CFR §141.86(d). New §290.117(c)(2)(A)(i) is adopted to contain the timing for initial tap sampling for new systems, starting in the year after they become active, as referenced in repealed §290.117(c)(5), (7), and (8), consistent with 40 CFR §141.86(d)(1). The new rule is adopted to provide consistency with implementation practice. Previously, the repealed Texas rule specifically stated that initial tap sampling occur in the calendar year following assignment of a new public water system identification number. However, a public water system identification number is assigned to systems during design, development, and construction, which may take longer than one year. Therefore, the rule is adopted to require systems to start sampling the year after they become active. In practice, a public water system's activity status is changed from "proposed" to "active" after construction is complete and the system starts delivering water to at least 25 people (or at least 15 homes) for 60 days or more each year. New §290.117(c)(2)(A)(ii) is adopted to contain the routine tap sampling requirements for systems that have been triggered out of reduced monitoring because of

an action level exceedance, reduced monitoring trigger level exceedance, or failure to operate within approved optimal water quality parameter ranges, consistent with the implicit requirements of repealed §290.117(e),and containing the federal requirements of 40 CFR §141.86(d)(4). New §290.117(c)(2)(A)(ii)(I) is adopted to require that systems which exceed a lead or copper action level, based on the 90th percentile of their sample set, return to routine tap sampling, consistent with 40 CFR §141.86(d)(4)(vi)(B). New §290.117(c)(2)(A)(ii)(II) is adopted to require systems that operate outside of approved optimal water quality parameter ranges return to routine tap sampling, consistent with 40 CFR §141.86(d)(4)(vi)(B). New §290.117(c)(2)(A)(ii)(III) is adopted to contain the timing requirement that systems that return to routine monitoring do so in the calendar year following the triggering event, consistent with 40 CFR §141.86(d)(4)(vi)(B). New §290.117(c)(2)(A)(ii)(IV) is adopted to include the timing for small and medium systems that are required to perform one year of routine monitoring after designation of optimal corrosion control treatment, as contained in repealed §290.117(j)(4)(G), consistent with 40 CFR §141.81(e)(6) and §141.86(d)(2)(i) and (ii), and (4)(vi)(B). New §290.117(c)(2)(A)(ii)(V) is adopted to require that a system perform tap sampling on the routine schedule after they install corrosion control treatment, consistent with the federal rule, 40 CFR §141.86(d)(2)(iii). New §290.117(c)(2)(A)(ii)(VI) is adopted to contain the requirement of 40 CFR §141.86(d)(2)(iii) that any system that installs source treatment return to routine tap sample monitoring.

New §290.117(c)(2)(B) is adopted to describe the reduced annual monitoring requirements for lead and copper tap sampling. Generally, systems that successfully perform initial monitoring with no exceedances, that meet all optimal water quality parameter ranges, and that are not in the process of determining and installing corrosion control treatment are allowed to reduce sampling to once a year, in the summer, as contained in repealed §290.117(e)(1) - (3), consistent with the federal requirements of 40 CFR §141.86(c) and (d)(4)(i), (ii), and (iv). New §290.117(c)(2)(B)(i) is adopted to allow systems serving more than 50,000 people that meet the lead action levels and optimal water quality parameter ranges during two consecutive six-month initial or routine sampling periods to reduce their sampling frequency to once a year, consistent with the federal requirements of 40 CFR §141.86(d)(4)(i). New §290.117(c)(2)(B)(ii) is adopted to allow systems serving 50,000 or fewer people that meet both the lead and copper action levels during two consecutive six-month initial or routine sampling periods to reduce their sampling frequency to once a year, consistent with the federal requirements of 40 CFR §141.86(d)(4)(i). New §290.117(c)(2)(B)(iii) is adopted to allow systems serving 50,000 or fewer people that meet the lead action levels and optimal water quality parameter ranges during two consecutive six-month initial or routine sampling periods to reduce their sampling frequency to once a year, consistent with the federal requirements of 40 CFR §141.86(d)(4)(i). New §290.117(c)(2)(B)(iv) is adopted to require that systems with initial or routine lead and copper results falling

between the reduced monitoring levels and the action levels must continue annual monitoring for two consecutive years before becoming eligible for triennial reduced monitoring, consistent with the federal requirements of 40 CFR §141.86(d)(4)(iv). New §290.117(c)(2)(B)(v) is adopted to provide the timing for systems that take advantage of flexibility under the new federal LCSTR that allows systems that are not operational in the summer to collect tap samples in an alternate period, when they are operational, consistent with the federal requirements of 40 CFR §141.86(d)(4)(iv)(B). New §290.117(c)(2)(B)(v) is adopted to ensure that systems that start collecting tap samples in an alternate period start doing so within 21 months of ceasing their summer sampling, consistent with the federal requirements of 40 CFR §141.86(d)(4)(iv)(B). New §290.117(c)(2)(B)(vi) is adopted to contain the general requirement that systems operating outside of any approved optimal water quality parameter ranges are ineligible for reduced monitoring, consistent with the federal requirements of 40 CFR §141.86(d)(4)(iv)(B).

New §290.117(c)(2)(C) is adopted to contain the requirements that apply to further reduction of tap sampling frequency from annual to once every three years contained in repealed §290.117(e)(5), consistent with the federal requirements of 40 CFR §141.86(c) and (d)(4)(iv). New §290.117(c)(2)(C)(i) is adopted to contain the requirement of repealed §290.117(e)(5) that a system with lead levels lower than the reduced monitoring triggers during initial or routine monitoring may immediately be placed on a

three-year tap sampling schedule, consistent with the federal rule requirements of 40 CFR §141.86(d)(4)(v). New §290.117(c)(2)(C)(ii) is adopted to establish that systems serving 50,000 or fewer people may lessen tap sampling frequency to every three years after three years of consecutive annual monitoring during which the system meets the action levels for lead and copper, consistent with the federal requirements of 40 CFR §141.86(d)(4)(iii). New §290.117(c)(2)(C)(iii) is adopted to incorporate the provision of the new federal LCSTR in 40 CFR §141.86(d)(4)(iii) that a system must operate within any approved optimal water quality parameter ranges in order to be allowed to reduce monitoring to every three years. New §290.117(c)(2)(C)(iv) is adopted to incorporate the provision of the new federal LCSTR in 40 CFR §141.86(d)(4)(iii) that systems scheduled for triennial tap sampling collect those samples no later than every third calendar year. New §290.117(c)(2)(C)(v) is adopted to incorporate the provisions of the new federal LCSTR in 40 CFR §141.81(b)(3)(ii) and §141.86(d)(4)(iv)(B) that systems on reduced three-year monitoring that are approved to sample during some time period other than the summer must collect subsequent tap sampling during a time period that ends no later than 45 months after the previous round of sampling.

New §290.117(c)(2)(D) is adopted to incorporate the reduced nine-year lead copper tap sampling requirements for small water systems in repealed §290.117(g), consistent with the federal requirements of 40 CFR §141.86(c) and (g). New §290.117(c)(2)(D)(i) is adopted to incorporate the provision of the new federal LCSTR in 40 CFR

§141.86(g)(7)(i) that the first round of nine-year reduced tap sampling shall be completed no later than nine years after the last time the system monitored for lead and copper at the tap. New §290.117(c)(2)(D)(ii) is adopted to contain the provisions of repealed §290.117(g)(2)(A) related to distribution system material requirements for nine-year sampling eligibility, consistent with the federal requirements of 40 CFR §141.86(g)(4) and (4)(i). New §290.117(c)(2)(D)(ii)(I) is adopted to contain the specifics of materials allowed in distribution systems in order to be eligible for nine-year tap sampling, as provided in repealed §290.117(g)(2)(A), consistent with 40 CFR §141.86(g)(1). New §290.117(c)(2)(D)(ii)(II) is adopted to contain the provision that a system certify in writing and document the absence of lead-containing materials in their distribution system in order to be eligible for nine-year reduced tap sampling, as provided by repealed §290.117(g)(2)(A), consistent with the federal rules at 40 CFR §141.86(g)(1)(i)(A) and (B). New §290.117(c)(2)(D)(ii)(III) is adopted to contain the provision that a system certify in writing and document the absence of copper-containing materials in their distribution system in order to be eligible for nine-year reduced tap sampling, as provided by repealed §290.117(g)(2)(A), consistent with 40 CFR §141.86(g)(1)(ii). New §290.117(c)(2)(D)(ii)(IV) is adopted to contain the provision in repealed §290.117(g)(2)(D) that partial waivers shall not be issued. New §290.117(c)(2)(D)(iii) is adopted to contain the levels of lead and copper that a system must maintain in order to be allowed to reduce tap sampling to every nine years, as contained in repealed §290.117(g)(2)(B), consistent with the federal requirements of 40

CFR §141.86(g)(2), (2)(i) and (ii), (4), and (5)(i). New §290.117(c)(2)(D)(iv) is adopted to contain the provisions allowing the state to require additional activities, such as public notice, as a condition of a waiver, as contained in repealed §290.117(g)(2)(C), consistent with the federal requirements of 40 CFR §141.86(g)(3). New §290.117(c)(2)(D)(v) is adopted to contain the requirement of repealed §290.117(g)(2)(E) that systems notify the TCEQ of changes that could affect their nine-year monitoring eligibility status, consistent with 40 CFR §§141.82(h), 141.83(b)(6), and 141.86(d)(4)(vii) and (g)(4)(iii). New §290.117(c)(2)(D)(vi) is adopted to contain the federal requirements of 40 CFR §141.86(g)(4)(iv), (6), and (6)(ii) requiring the system to notify the executive director if the materials in their system change, and the requirement that a system may be required to return to more frequent monitoring. New §290.117(c)(2)(D)(vii) is adopted to contain the provisions of repealed §290.117(g)(1) relating to grandfathered nine-year waivers, consistent with 40 CFR §141.86(g)(7), (7)(i), and (ii). New §290.117(c)(2)(D)(viii) is adopted to contain the federal requirement of 40 CFR §141.86(d)(4)(iv)(B) that subsequent rounds of sampling, after a return to routine monitoring, must be collected annually, every three years, or every nine years, as required by this section.

New §290.117(c)(2)(E) is adopted to incorporate flexibility provided by the new federal LCSTR under 40 CFR §141.86(d)(4)(iv)(A) allowing systems that are not operational during June through September to request an alternate monitoring period for any

required annual or less frequent monitoring.

New §290.117(c)(2)(F) is adopted to incorporate the provision of the new federal LCSTR under 40 CFR §141.85(b)(2)(vii) requiring that the end of the monitoring for normal summer monitoring is September 30 of the calendar year in which the sampling occurs, or, if the executive director has established an alternate monitoring period, the last day of that period.

New §290.117(c)(2)(G) is adopted to summarize requirements for systems to return to initial/routine monitoring frequency under this adopted subsection, to establish that the executive director shall determine whether a system continues to meet the requirements to remain on reduced monitoring, and to specifically establish the general requirement that systems required to return to routine monitoring shall sample at the number of routine sites, as opposed to the number of reduced sites, consistent with the federal requirements of 40 CFR §141.86(d)(4)(iii).

New §290.117(c)(2)(H) is adopted to include the special timing requirements for replacement lead or copper samples that are collected after any sample is invalidated, for example, when a sample exceeds hold time. The repealed rules under §290.117(f)(4) required that replacement samples be collected within ten days, whereas the federal rules under 40 CFR §141.86(f)(4) allow 20 days for collection of these replacement

samples. The new adopted provision allows 20 days to provide greater flexibility to the regulated community and greater consistency with the federal rules.

New §290.117(c)(2)(I) is adopted to include the special tap sampling requirements for a nontransient, noncommunity system with less than five sampling taps, as provided under the federal rule in 40 CFR §141.86(c). These systems must collect at least one sample from each tap and then must collect additional samples from those same taps on different days during the monitoring period to meet the required number of samples unless they have a waiver. In the repealed Texas rule language, systems were required to submit results within ten days; this has been changed to conform with the federal rule requiring that systems must submit samples within 20 days.

New §290.117(c)(3) is adopted to incorporate the provision of the new federal LCSTR under 40 CFR §141.85(c) that public water systems that exceed the lead action level must arrange for special tap sampling at the tap of any customer who requests it, but that any analytical costs incurred may be borne by the consumer rather than the water system.

Under certain conditions, public water systems that may be at risk of having lead and copper in their drinking water may be required to do sampling to determine whether lead or copper is entering the system from the original sources that they use, rather than

leaching into the system because of corrosive water. New §290.117(d) is adopted to contain the requirements for determining the lead and copper samples in sources through entry point sampling, contained in repealed §290.117(h)(2)(A) and (D), consistent with the federal provisions of 40 CFR §141.80(h) and §141.88(a)(1) and (2). Under these requirements, systems must perform entry point lead and copper sampling after the system exceeds a lead or copper action level, installs source water treatment, exceeds any maximum permissible source water levels set by the executive director, and as part of normal entry point monitoring for inorganic contaminants.

New §290.117(d)(1) is adopted to identify the sample sites for entry point sampling contained in repealed §290.117(h)(2), consistent with the federal requirements of 40 CFR §141.88(a)(1)(i) and (ii). The federal rule refers to composite sampling that is no longer practiced by TCEQ, as a result of instructions from EPA, so no reference to composite sampling is included in the adopted rule language.

New §290.117(d)(2) is adopted to contain timing and frequency requirements for entry point lead and copper sampling under the federal rules at 40 CFR §141.88(a)(1)(iii), consistent with the requirements of repealed §290.117(h)(2), including the requirement that samples be collected under normal operating conditions. New §290.117(d)(2)(A) is adopted to contain the requirements of repealed §290.117(h)(2)(A), consistent with the federal requirements of 40 CFR §141.88(b), that entry point lead and copper sampling

be performed if a system exceeds lead or copper action levels. New §290.117(d)(2)(B) is adopted to provide that systems meeting the lead and copper action levels do not have to conduct entry point sampling, as provided under the federal rules at 40 CFR §141.88(d)(2). New §290.117(d)(2)(C) is adopted to establish that public water systems must perform entry point lead and copper sampling after installation of source water treatment, as contained in repealed §290.117(h)(2)(C), consistent with the federal requirements of 40 CFR §141.88(c).

New §290.117(d)(2)(D) is adopted to incorporate provisions of repealed §290.117(h)(2)(D), consistent with the federal rule at 40 CFR §141.88(d) relating to entry point lead and copper sampling after specification of maximum permissible levels. New §290.117(d)(2)(D)(i) is adopted to incorporate the provision that systems using surface water sources shall collect lead and copper entry point samples annually after maximum permissible levels are set, consistent with the provisions of 40 CFR §141.88(d)(1) and (1)(ii). New §290.117(d)(2)(D)(ii) is adopted to incorporate the provision that systems using groundwater sources shall collect entry point lead and copper samples once every three calendar years, consistent with the federal rule at 40 CFR §141.88(d)(1)(i). New §290.117(d)(2)(D)(iii) is adopted to incorporate reduced nine-year monitoring for entry point lead and copper under certain criteria for systems that use only groundwater, consistent with the federal rule at 40 CFR §141.88(e)(1). New §290.117(d)(2)(D)(iii)(I) and (II) is adopted to incorporate the criteria for reduced

nine-year entry point lead and copper monitoring contained in 40 CFR §141.88(e)(1)(i) and (ii), respectively, that the entry point levels not exceed maximum permissible levels, or that the executive director determined source water treatment is not needed and that during three consecutive rounds the lead and copper entry point levels were less than the reduced monitoring trigger levels for groundwater systems. Similarly, new §290.117(d)(2)(D)(iv) is adopted to incorporate reduced nine-year entry point lead and copper sampling requirements for surface water systems, consistent with the federal rule at 40 CFR §141.88(e)(2). New §290.117(d)(2)(D)(iv)(I) and (II) is adopted to incorporate the specific criteria in the federal rules at 40 CFR §141.88(e)(2)(i) and (ii), respectively, that either the entry point lead and copper levels remain below the maximum permissible levels for three consecutive years or that the entry point lead and copper levels remain below the reduced monitoring trigger levels and the executive director has determined that source water treatment is not required. New §290.117(d)(2)(D)(v) is adopted to incorporate the federal provision of 40 CFR §141.88(e)(3) that new sources are not eligible for reduced monitoring. New §290.117(d)(2)(D)(vi) is adopted to add the special confirmation sampling requirements after any lead or copper entry point sample exceeds the maximum permissible level, consistent with the federal rule at 40 CFR §141.88(a)(2).

New §290.117(d)(2)(E) is adopted to incorporate the provisions of repealed §290.117(h)(2)(F), consistent with the federal rule of 40 CFR §141.86(d)(4)(vii)

requiring that water systems shall notify the executive director in writing of any proposed change in treatment or the addition or deletion of a source of water, and that the executive director may require any such system to conduct additional monitoring or to take other action to ensure that the system maintains minimal levels of corrosion in the distribution system.

New §290.117(e) is adopted to contain the monitoring requirements for water quality parameters used to track the corrosivity of the drinking water in the distribution system, consistent with the federal requirements of 40 CFR §141.80(h) and §141.87. The new federal LCSTR under 40 CFR §141.87 provides a table summarizing and clarifying all of the various water quality monitoring parameter requirements; throughout adopted §290.117(e) this tabular format is incorporated into the state rules to make the rules easier for the regulated community to understand.

New §290.117(e)(1) is adopted to incorporate requirements for water quality parameter sample locations in repealed §290.117(h)(1)(D), consistent with 40 CFR §141.87(a)(2). The new figure in §290.117(e)(1) is adopted to specify the number of water quality parameter distribution system sample sites as a function of system population in tabular form. New §290.117(e)(1)(A) is adopted to contain the entry point sample site requirements of existing §290.117(h)(1)(D), consistent with 40 CFR §141.87(c)(3). New §290.117(e)(1)(B) is adopted to contain the provision that water quality parameter

distribution system sample sites can be located outside of a customer's home, as contained in repealed §290.117(h)(1)(E), and consistent with the federal requirements of 40 CFR §141.87(a)(1)(i).

New §290.117(e)(2) is adopted to incorporate initial or routine monitoring requirements for water quality parameter sampling frequency as provided under repealed §290.117(h)(1)(D), consistent with the federal requirements of 40 CFR §141.87(b). The figure in §290.117(e)(2) is adopted to present initial and routine distribution and entry point sampling requirements in tabular form. This adopted table is consistent with the list of sampling parameters and number of sites for initial and routine water quality parameters under repealed §290.117(h)(1)(C), and is consistent with the federal requirements of 40 CFR §141.87(b)(1)(i) - (vii) and (2). New §290.117(e)(2)(A) is adopted to incorporate provisions for initial and routine water quality parameter monitoring of repealed §290.117(h)(1)(D), consistent with the federal rule under 40 CFR §141.87. New §290.117(e)(2)(B) is adopted to incorporate the requirement that systems which exceed a lead or copper action level must monitor for water quality parameters at the routine frequency, as contained in repealed §290.117(h)(1)(B), consistent with the federal requirements of 40 CFR §141.87(b). The federal rule under 40 CFR §141.87(b)(1) requires that two samples be collected during each six-month period; the repealed Texas rule required quarterly sampling. These requirements are equally stringent, so the adopted rule retains the quarterly monitoring requirement of the

repealed state rule under §290.117(h)(1)(C) in adopted §290.117(e)(2).

New §290.117(e)(3) is adopted to incorporate the requirements for water quality parameter monitoring after installation of corrosion control treatment contained in repealed §290.117(h)(1)(F), consistent with the federal requirements of 40 CFR §141.86(d)(2)(ii) and §141.87(c). The figure in §290.117(e)(3) is adopted to present these monitoring requirements in tabular form consistent with the requirements of repealed §290.117(h), consistent with the federal requirements of 40 CFR §141.87(c)(1) - (3). New §290.117(e)(3) is adopted to retain requirements for collection of one sample set each quarter under repealed §290.117(h)(1)(H), consistent with the federal requirement under 40 CFR §141.87(c) and (c)(1), which requires a system to collect two sample sets in each six-month period. New §290.117(e)(3)(A) is adopted to contain the required frequency of water quality parameter monitoring after installation of corrosion control treatment contained in repealed §290.117(h)(1)(O), consistent with the federal requirements of 40 CFR §141.87(c)(2). New §290.117(e)(3)(B) is adopted to contain the requirements for documentation for water quality parameter sample locations after installation of corrosion control treatment contained in repealed §290.117(h)(1)(G) and (M), consistent with the federal requirements of 40 CFR §141.87(c)(3). New §290.117(e)(3)(C) is adopted to incorporate the new federal requirement of the LCSTR under 40 CFR §141.82(a) and §141.87(b), establishing that the state may require additional water quality parameter monitoring to assist in determining the optimal

corrosion control treatment.

New §290.117(e)(4) is adopted to incorporate the requirements for water quality parameter monitoring after designation of optimal water quality parameter ranges, as provided by the new federal LCSTR under 40 CFR §141.87. The new figure in §290.117(e)(4) is adopted to present these requirements in tabular form, consistent with the federal requirements of 40 CFR §141.87. New §290.117(e)(4)(A) is adopted to contain the new federal LCSTR requirement under 40 CFR §141.87(d) for large systems to begin water quality parameter monitoring starting with the first six-month period after the executive director specifies the optimal water quality parameters beginning on either January 1 or July 1, whichever comes first, and that those systems monitor every six months. Adopted new §290.117(e)(4) contains quarterly monitoring requirements synonymous with the repealed Texas requirements of §290.117(h)(1)(C); this is consistent with the stringency of the federal rule that requires two sampling events during each six-month period under 40 CFR §141.87(d) and (e). New §290.117(e)(4)(B) is adopted to contain the new federal LCSTR requirement under 40 CFR §141.87(d) for small and medium systems to begin water quality parameter monitoring starting with the six-month period when the system exceeds the lead or copper action levels. New §290.117(e)(4)(C) is adopted to incorporate the requirement that water quality parameter sampling be accomplished within 36 months after the executive director designates optimal corrosion control treatment, consistent with the federal

requirements of 40 CFR §141.81(e)(6).

New §290.117(e)(5) is adopted to contain the requirements for reduced water quality parameter monitoring for systems that demonstrate a low risk of corrosion of lead and copper into the drinking water contained in repealed §290.117(h), consistent with the federal rules in 40 CFR §141.87(d) and (e)(1). The new figure in §290.117(e)(5) is adopted to present these requirements in tabular form. New §290.117(e)(5)(A) is adopted to contain the specific requirements for monitoring at a reduced number of sites, but on the routine frequency, for a system that operates within approved optimal water quality parameter ranges in all samples taken during two consecutive six-month initial or routine monitoring periods, consistent with repealed §290.117(h)(1)(N) and the federal requirements in 40 CFR §141.87(e) and (e)(1). Under adopted new §290.117(e)(5) the same justification as in adopted §290.117(e)(4) for quarterly sampling applies because the federal rule has both sampling after optimal water quality parameter designation and reduced sampling in the same rule. The federal rule in 40 CFR §141.87(d) requires sampling during a six-month period, then under 40 CFR §141.87(e)(1) the rule adds that two samples must be collected in this six-month period, which is equivalent to the quarterly sampling required in repealed §290.117(h)(1)(C). New §290.117(e)(5)(B) is adopted to include the requirements for a system to be scheduled for reduced annual water quality parameter monitoring, as provided in the federal rules under 40 CFR §141.87(e)(2) and (3). New §290.117(e)(5)(C) is adopted to

include the requirements for a system to be scheduled for triennial water quality parameter monitoring as provided in the federal rule at 40 CFR §141.87(e)(2). New §290.117(e)(5)(C)(i) and (ii) is adopted to incorporate the provisions of the federal rule under 40 CFR §141.87(e)(2)(i) and (ii), respectively, setting the specific conditions under which triennial sampling may be scheduled, and when it shall begin. New §290.117(e)(5)(D) is adopted to contain the conditions under which a system that is on reduced water quality parameter monitoring must return to routine monitoring contained in repealed §290.117(h)(1)(H) - (J), consistent with 40 CFR §141.87(e)(4). New §290.117(e)(5)(E) is adopted to describe the entry point sampling requirements for systems on reduced water quality parameter monitoring, consistent with the requirements of the federal LCSTR in 40 CFR §141.87(e) and (e)(1).

Finally, new §290.117(e)(6) is adopted to establish the conditions under which the executive director may allow a system to forego entry point monitoring, while continuing distribution system monitoring, as provided in the federal rule under 40 CFR §141.87(c)(3).

New §290.117(f) is adopted to contain requirements related to corrosion control. New §290.117(f)(1) is adopted to establish the requirements for corrosion control studies. Systems may be required to perform corrosion control studies to determine whether treatment is necessary to reduce the corrosivity of the water, as contained in repealed

§290.117(j), consistent with the federal requirements of 40 CFR §141.81(d) and (e).

New §290.117(f)(1)(A) is adopted to describe the applicability for a public water system being required to perform a corrosion control study consistent with repealed Texas rules in §290.117(j) and consistent with the federal requirements under 40 CFR §141.81. New §290.117(f)(1)(A)(i) is adopted to require large systems to perform corrosion control studies if they are not deemed to have optimized corrosion control, consistent with the repealed state rule in §290.117(j)(2), consistent with the federal rule requirements of 40 CFR §141.81(a)(1). New §290.117(f)(1)(A)(i)(I) is adopted to establish the requirement of repealed §290.117(j)(2) for large systems that have a lead or copper action level exceedance to perform a corrosion control study within six months, consistent with the federal requirements of 40 CFR §141.81(b)(3)(v). New §290.117(f)(1)(A)(i)(II) is adopted to incorporate the requirement contained in repealed §290.117(j)(2) specifying that large systems that have never been deemed to have optimized corrosion control must perform a demonstration study as opposed to a desk-top study, consistent with the federal requirements of 40 CFR §141.81(d) and §141.82(c). New §290.117(f)(1)(A)(i)(III) is adopted to contain the federal 12-month deadline of 40 CFR §141.81(e)(2) for systems to conduct a corrosion control study and submit the results. New §290.117(f)(1)(A)(ii) is adopted to contain the corrosion control study requirements for small and medium systems, in repealed §290.117(j)(4)(A), consistent with the timing and applicability requirements of the federal rules in 40 CFR §141.81(e)(2) and (3). New

§290.117(f)(1)(A)(ii) is also adopted to contain the conditions under which a small or medium system can cease performing corrosion control activities, consistent with the federal requirements of 40 CFR §141.81(a)(2) and (c).

New §290.117(f)(1)(B) is adopted to contain the scope of any corrosion control study that is required under the previous paragraph, consistent with the requirements given in the repealed state rules in §290.117(j)(4)(A) and the federal rules under 40 CFR §141.82(c)(4). New §290.117(f)(1)(B)(i) is adopted to contain the various corrosion treatment methods that must be investigated as part of any corrosion control study, as contained in repealed §290.117(j)(4)(A), consistent with the federal requirements of 40 CFR §141.82(c), (c)(1) and (2). New §290.117(f)(1)(B)(i)(I) is adopted to specify that a system must investigate the effectiveness of alkalinity and pH adjustment as part of any corrosion control treatment as currently contained in repealed §290.117(j)(4)(A)(i), consistent with the federal requirements of 40 CFR §141.82(c)(1)(i). New §290.117(f)(1)(B)(i)(II) is adopted to specify that a system must investigate the effectiveness of calcium hardness adjustment as part of any corrosion control treatment, as contained in repealed §290.117(j)(4)(A)(ii), consistent with the federal requirements of 40 CFR §141.82(c)(1)(ii). New §290.117(f)(1)(B)(i)(III) is adopted to specify that a system must investigate the effectiveness of the addition of a phosphate-based or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples as part of any corrosion control treatment,

as contained in repealed §290.117(j)(4)(A)(iii), consistent with the federal requirements of 40 CFR §141.82(c)(1)(iii). New §290.117(f)(1)(B)(ii) is adopted to require that systems performing corrosion control studies identify potential constraints to corrosion control treatment methods, consistent with the federal requirements of 40 CFR §141.82(c)(4) and (5). New §290.117(f)(1)(B)(ii)(I) and (II) is adopted to specify that a system must submit data regarding any adverse effects of a given treatment as part of their corrosion control study, consistent with the federal rule requirements of 40 CFR §141.82(c)(4)(i) and (ii), respectively.

New §290.117(f)(1)(C) is adopted to contain the requirements of repealed §290.117(j)(4)(B) describing the specific procedures for performing demonstration corrosion control studies, as contrasted with a desk-top study, consistent with the federal rule at 40 CFR §141.82(c)(2). New §290.117(f)(1)(C) is adopted to introduce the list of parameters that must be evaluated during a demonstration corrosion control study, as contained in repealed §290.117(j)(4)(C), consistent with the federal requirements of 40 CFR §141.82(c)(3). New §290.117(f)(1)(C)(i) - (ix) is adopted to contain the list of specific parameters, consistent with the federal requirements of 40 CFR §141.82(c)(3)(i) - (ix).

New §290.117(f)(1)(D) is adopted to contain the requirements for systems that are allowed to perform a desk-top corrosion control study instead of a demonstration study,

as contained in repealed §290.117(j)(4)(B), consistent with the federal requirements of 40 CFR §141.82(c)(2).

New §290.117(f)(2) is adopted to establish the requirement that systems base recommended optimal water quality parameter ranges on the results of corrosion control studies; this requirement was contained in repealed §290.117(j)(4)(D) and (E), and is consistent with the federal requirements of 40 CFR §141.82(f) and (f)(5).

New §290.117(f)(3) is adopted to contain the basis and timing for designation of optimal corrosion control treatment as contained in repealed §290.117(j)(4)(D) and (E), consistent with the federal requirements of 40 CFR §141.81(e)(1) and (4). New §290.117(f)(3)(A) is adopted to specify that the results of corrosion control studies must be used to determine optimal corrosion control treatment recommendations, as contained in repealed §290.117(j)(4)(D), consistent with the federal requirements of 40 CFR §141.82(a) and (c)(6). New §290.117(f)(3)(B) is adopted to specify that the optimal corrosion control treatment process is the process that the executive director approves, not necessarily the process recommended by the system, as contained in repealed §290.117(j)(4)(E), consistent with the federal requirements of 40 CFR §141.82(d)(1) and (2). New §290.117(f)(3)(C) is adopted to provide the more specific conditions under which corrosion control treatment shall be designated as contained in the federal rule under 40 CFR §141.82(h), consistent with the requirements of repealed

§290.117(j)(4)(E). New §290.117(f)(3)(D) is adopted to contain the condition that optimal corrosion control treatment designations shall be documented in writing, as required by repealed §290.117(j)(4)(E), consistent with the federal requirements of 40 CFR §141.81(e)(4) and (7) and §141.82(d)(1). New §290.117(f)(3)(D)(i) - (iii) is adopted to contain the timing for designation of optimal corrosion control treatment. Specifically, §290.117(f)(3)(D)(i) is adopted to contain the federal requirements of 40 CFR §141.81(e)(2) for large systems; §290.117(f)(3)(D)(ii) is adopted to contain the federal requirements of 40 CFR §141.81(e)(2)(i) for medium systems; and §290.117(f)(3)(D)(iii) is adopted to contain the federal requirements of 40 CFR §141.81(e)(2)(ii) for small systems.

New §290.117(f)(4) is adopted to contain the requirement that a system install the treatment that the executive director has designated as the optimal corrosion control treatment within 24 months, as contained in repealed §290.117(j)(1) and (4)(F), consistent with the federal requirements of 40 CFR §141.81(e)(5) and §141.82(e).

New §290.117(f)(5) is adopted to require that corrosion control treatment, after installation, be operated in a manner that ensures that the system will meet the approved optimal water quality parameter ranges, as required by the federal rule under 40 CFR §141.82(g). New §290.117(f)(5)(A) is adopted to contain the federal requirement of 40 CFR §141.82(f) that results of any sampling done by the system shall

be used to determine whether a system is operating corrosion control treatment appropriately. New §290.117(f)(5)(B) is adopted to provide the authority of the federal rule under 40 CFR §141.81(b) for the executive director to set any requirements needed to ensure that optimal corrosion control treatment is maintained.

New §290.117(f)(6) is adopted to contain the allowance for small systems to discontinue corrosion control activities if sampling shows that the system no longer exceeds the lead action level consistent with the federal rule in 40 CFR §141.81(e)(2) and (3).

New §290.117(g) is adopted to contain the various requirements for systems that are required to install source water treatment consistent with repealed §290.117(h) and the federal requirements of 40 CFR §141.80(e) and §141.83.

New §290.117(g)(1) is adopted to contain the applicability requirements contained in repealed §290.117(h)(2)(B) describing the conditions under which a system may be required to install source water treatment as contained in the federal rule under 40 CFR §141.83(b), (b)(1), and (2). New §290.117(g)(1)(A) is adopted to contain the federal requirement of 40 CFR §141.83(b)(2) for a system to provide data to the TCEQ, consistent with the requirements of repealed §290.117(h)(2). New §290.117(g)(1)(B) is adopted to provide the list of possible treatment processes given in the federal rule under 40 CFR §141.83(b)(2), consistent with the requirements of repealed

§290.117(h)(2). New §290.117(g)(1)(C) is adopted to contain the requirement of 40 CFR §141.83(b)(2) requiring systems to provide any information requested by the TCEQ, consistent with the requirements of repealed §290.117(h)(2)(B). Adopted new §290.117(g)(1)(D) would contain the so-called "no treatment" option for a system to provide data demonstrating that treatment of the source water is not necessary in order to minimize lead and copper levels at users' taps, as contained in the federal rule under 40 CFR §141.83(b)(1). Adopted new §290.117(g)(1)(E) establishes that the executive director shall notify the system in writing of the source water treatment determination and set forth the basis for the decision, consistent with the federal requirements of 40 CFR §141.83(b)(2).

New §290.117(g)(2) is adopted to contain the required schedule for installation of treatment of source water lead and copper as contained in repealed §290.117(h)(2)(B), consistent with the federal rule at 40 CFR §141.83(a). New §290.117(g)(2)(A) is adopted to require that a system exceeding the lead or copper action level recommend treatment to the executive director within 180 days, as required by the federal rule under 40 CFR §141.83(a)(1), and consistent with the adoption by reference of that federal language contained in the Texas rules under repealed §290.117(h)(2)(B). New §290.117(g)(2)(B) is adopted to contain the schedule for determination of source water treatment within six months after the system submits the treatment recommendation, as adopted by reference in repealed §290.117(h)(2)(B), and as specifically required by the federal rules

in 40 CFR §141.83(a)(2). New §290.117(g)(2)(C) is adopted to contain the requirement that a system install the source water treatment approved by the executive director within 24 months after the executive director's determination, as contained in repealed §290.117(h)(2)(B), consistent with federal rules in 40 CFR §141.83(a)(3) and (b)(3). New §290.117(g)(2)(D) is adopted to identify required sampling after installation of source water treatment, as contained in repealed §290.117(h)(2)(B), consistent with federal rules in 40 CFR §§141.83(a)(4), 141.86(d)(2), and 141.88(c).

New §290.117(g)(3) is adopted to incorporate requirements for operation of source water lead and copper treatment contained in the federal rules in 40 CFR §141.83(a)(6) and (b)(3) and §141.88(d). New §290.117(g)(3)(A) is adopted to contain the requirement of the federal rule under 40 CFR §141.83(b)(5) that a system maintain entry point lead and copper levels below the maximum permissible levels consistent with repealed §290.117(h)(2)(D). New §290.117(g)(3)(B) is adopted to contain the authority of the federal rule at 40 CFR §141.83(b)(4) that the TCEQ may review the system's data and determine whether the system has properly installed and operated the source water treatment, consistent with repealed §290.117(h)(2)(F).

New §290.117(g)(4) is adopted to contain requirements of the federal rule under 40 CFR §141.83(b)(6) related to modification of source water treatment decisions, consistent with repealed §290.117(h)(2)(B) - (F).

New §290.117(h) is adopted to specify that the analytical methods, sample collection, and sample invalidation requirements for lead and copper sampling as well as water quality parameter sampling, required by this section must be consistent with the federal rule requirements in 40 CFR Part 141, Subpart I, relating to Lead and Copper. New §290.117(h)(1) is adopted to contain the procedure for collecting lead and copper tap samples contained in repealed §290.117(c)(1) and (2), consistent with the requirement for first-draw sample sites in the federal rule under 40 CFR §141.86(b)(2).

New §290.117(h)(2) is adopted to contain the required lead and copper tap sample analytical methods contained in repealed §290.117(l)(1) and contained in the federal rules under 40 CFR §141.89. New §290.117(h)(2)(A) is adopted to contain the accuracy that a lab must achieve in order to analyze lead and copper samples for rule compliance, as contained in repealed §290.117(l)(1) and as contained in the federal rules under 40 CFR §141.89(a)(1)(iii). New §290.117(h)(2)(B) is adopted to allow the use of previously collected data contained in repealed §290.117(l)(1) and as contained in the federal rules under 40 CFR §141.89(a)(2). New §290.117(h)(2)(C) is adopted to specify reporting requirements for low-level lead results, as contained in repealed §290.117(l)(4), consistent with the federal requirements of 40 CFR §141.89(a)(3). New §290.117(h)(2)(D) is adopted to specify reporting requirements for low-level copper results, as contained in repealed §290.117(l)(4), consistent with the federal requirements

of 40 CFR §141.89(a)(4). New §290.117(h)(2)(E) is adopted to contain the holding time requirement contained in repealed §290.117(l)(5), consistent with the federal rule in 40 CFR §141.86(b)(2).

New §290.117(h)(3) is adopted to describe the conditions under which the executive director may invalidate a lead or copper tap sample, as contained in repealed §290.117(f)(2) and in federal requirements under 40 CFR §141.86(f)(1). New §290.117(h)(3)(A) is adopted to contain the allowance contained in repealed §290.117(f)(2)(A) that lead or copper tap samples may be invalidated if the laboratory establishes that improper sample analysis caused erroneous results, consistent with the federal rule at 40 CFR §141.86(f)(1)(i). New §290.117(h)(3)(B) allows for sample invalidation if it is determined that the sample was taken from an inappropriate site, as contained in repealed §290.117(f)(2)(B), consistent with the federal rule at 40 CFR §141.86(f)(1)(ii). New §290.117(h)(3)(C) is adopted to allow sample invalidation if the sample was damaged in transit, as contained in repealed §290.117(f)(2)(C), consistent with the federal requirements of 40 CFR §141.86(f)(1)(iii). New §290.117(h)(3)(D) is adopted to contain the requirement of repealed §290.117(f)(2)(D) that a sample subject to tampering may be invalidated, consistent with the federal rule requirement under 40 CFR §141.86(f)(1)(iv). New §290.117(h)(3)(E) is adopted to ensure that a sample cannot be invalidated solely because the follow-up sample result is higher or lower than the original sample, as contained in the federal rule under 40 CFR §141.86(f)(3). New

§290.117(h)(3)(F) is adopted to contain the requirement that systems request sample invalidation in writing, as provided in repealed §290.117(f)(3), consistent with the federal rules under 40 CFR §141.86(f)(2) and (3).

New §290.117(h)(4) is adopted to contain the requirement in repealed §290.117(h)(1)(K) that the analytical methods for water quality parameters must be conducted at a lab that uses the methods provided in the federal rules under 40 CFR §141.89(a). New §290.117(h)(4)(A) is adopted to specify the analytical methods of the federal rules in 40 CFR §141.23(k)(1) for parameters mentioned in this section by reference as contained in repealed §290.117(l)(1), consistent with §290.122 and the federal rule at 40 CFR §141.89(a). New §290.117(h)(4)(B) is adopted to contain the requirements that water quality parameter analyses may be performed in an approved lab, as contrasted with an accredited lab, as contained in repealed §290.117(l)(1), and adopts the requirements of 40 CFR §141.89(a)(1)(i) - (iv) by reference. New §290.117(h)(4)(C) is adopted to establish that in order for any grandfathered data to be used, that data must have been analyzed using the methods referenced in this subsection, consistent with the federal requirements of 40 CFR §141.89(a)(2).

New §290.117(i) is adopted to contain reporting requirements, consistent with the repealed state rules, the federal rules under 40 CFR §141.80(i), and various parts of 40 CFR Part 141, Subpart I. New §290.117(i)(1) is adopted to contain requirements for

reporting lead and copper tap sample results contained in repealed §290.117(m)(1)(B), consistent with the federal requirements of 40 CFR §141.90(a)(1) and (1)(i) and (h) and (h)(1). New §290.117(i)(1)(A) is adopted to contain the requirement that invalidation requests be submitted in writing, as required under the federal rule in 40 CFR §141.90(a)(1)(ii). New §290.117(i)(1)(B) is adopted to contain the requirements for reporting tap sampling results, as in the federal rule in 40 CFR §141.90(h)(2); specifically, §290.117(i)(1)(B)(i) and (ii) are adopted to contain the federal requirements of 40 CFR §141.90(a)(1)(i) and (v), and (h)(2)(i) and (ii), respectively, requiring systems to report lead and copper tap sample sites used for sampling. New §290.117(i)(2) is adopted to specify that systems must report entry point lead and copper sample results, consistent with the federal rules under 40 CFR §141.90(b)(1).

New §290.117(i)(3) is adopted to contain the requirement that systems report water quality parameter results, as required under repealed §290.117(m)(1)(A), and under federal rules in 40 CFR §141.90(a), (a)(1), and (1)(viii). New §290.117(i)(3)(A) is adopted to list the distribution system water quality parameters that must be reported, consistent with the federal rule under 40 CFR §141.90(a)(1)(vi). New §290.117(i)(3)(B) is adopted to provide the reporting requirement for samples taken at entry points, consistent with the federal rule under 40 CFR §141.90(a)(1)(vii). New §290.117(i)(3)(C) is adopted to include the requirement of the federal rule under 40 CFR §141.90(a)(5), that a system limiting entry point sampling must report germane information.

New §290.117(i)(4) is adopted to contain requirements for reporting distribution material and sample site data contained in repealed §290.117(b)(1) and (2). New §290.117(i)(4)(A) is adopted to contain the reporting requirements related to lead and copper tap sampling sites, as contained in repealed §290.117(b)(1), consistent with the federal rule under 40 CFR §141.86(a)(1). New §290.117(i)(4)(B) is adopted to contain the requirement that a system must report documentation to ensure the absence of lead and copper materials in order to be considered for a nine-year tap sampling waiver, consistent with the federal requirements of 40 CFR §141.90(a)(4)(i). New §290.117(i)(4)(B)(i) - (iii) is adopted to contain the federal rule requirements in 40 CFR §141.90(a)(4)(i) - (iii), respectively, describing reporting requirements for systems seeking nine-year waivers for lead and copper tap sampling. New §290.117(i)(4)(C) is adopted to contain the requirement of repealed §290.117(m)(1)(G) related to changes in sample sites, consistent with the federal requirements of 40 CFR §141.90(a)(1)(v).

New §290.117(i)(5) is adopted to contain the reporting requirements related to public education, as contained in repealed §290.117(i)(1) and (m)(1)(F), consistent with 40 CFR §141.85 and §141.90(f). New §290.117(i)(6) is adopted to contain the specific requirements for reporting consumer notification activities, consistent with the federal requirements of 40 CFR §§141.80(g), 141.85(d) and (d)(1), and 141.90(f)(3).

New §290.117(i)(7) is adopted to contain the reporting requirements related to corrosion control studies and treatment, as contained in repealed §290.117(m)(1)(H), consistent with the federal requirements of 40 CFR §141.90(c). New §290.117(i)(7)(A) is adopted to require systems to provide documentation demonstrating optimization of corrosion control treatment, as contained in repealed §290.117(m)(1)(H)(i), consistent with the federal requirements of 40 CFR §141.90(c)(1). New §290.117(i)(7)(B) is adopted to contain the requirements of repealed §290.117(m)(1)(H)(ii) that systems report information related to recommending optimal corrosion control treatment, consistent with the federal requirements of 40 CFR §141.82(a) and §141.90(c)(2). New §290.117(i)(7)(C) is adopted to contain the reporting requirements of repealed §290.117(m)(1)(H)(iv) for systems evaluating the effectiveness of corrosion control treatments consistent with the federal requirements of 40 CFR §141.82(a) and §141.90(c)(3). New §290.117(i)(7)(D) is adopted to contain the requirements of repealed §290.117(m)(1)(H)(iii) for systems required to install optimal corrosion control, consistent with the federal rules in 40 CFR §141.90(c)(4).

New §290.117(i)(8) is adopted to contain the source water treatment reporting requirements contained in repealed §290.117(m)(1)(D), consistent with the federal rules in 40 CFR §141.90(d), (d)(1) and (2).

New §290.117(i)(9) is adopted to contain reporting requirements related to

documentation of system conditions and facility changes. New §290.117(i)(9)(A) is adopted to contain the requirements related to reporting changes related to the use and treatment at entry points, contained in repealed §290.117(h)(1)(M), and consistent with the federal requirements in 40 CFR §141.90(a)(3). New §290.117(i)(9)(B) is adopted to require systems to submit documentation related to treatment changes, as contained in the federal rule under 40 CFR §141.90(a)(3). New §290.117(i)(10) is adopted to provide the timing for reporting extra sample data, as contained in the federal rules under 40 CFR §141.90(g). New §290.117(i)(11) is adopted to contain reporting requirements for lead service line replacement contained in repealed §290.117(m)(1)(E), consistent with the federal rules in 40 CFR §141.84 and §141.90(e).

New §290.117(j) is adopted to require that public water systems must provide consumers with a notice of lead tap sampling results if their homes are tested, as contained in the new federal LCSTR requirements of 40 CFR §141.80(g) and §141.85. New §290.117(j)(1) - (3) is adopted to contain provisions of the new federal LCSTR rules under 40 CFR §141.85(d)(2) - (4), respectively. New §290.117(j)(1) is adopted to contain the timing of consumer notification under the federal rule in 40 CFR §141.85(d)(2); new §290.117(j)(2) is adopted to contain the required content of consumer notification as provided under the federal rule in 40 CFR §141.85(d)(3); and new §290.117(j)(3) is adopted to contain the requirements for delivery of consumer notification as provided under the federal rule in 40 CFR §141.85(d)(4).

New §290.117(k) is adopted to contain the reporting requirements for public education as contained in repealed §290.117(i), consistent with the federal requirements of 40 CFR §141.85 and §141.80(g). New §290.117(k)(1) is adopted to contain the required content of public education reporting requirements as contained in 40 CFR §141.85(a)(1). New §290.117(k)(1)(A) is adopted to contain the required heading language alerting consumers to the issue of lead in drinking water, in accordance with the federal requirements of 40 CFR §141.85(a)(1)(i), consistent with the requirements in repealed §290.117(i)(2)(A). New §290.117(k)(1)(B) is adopted to contain the mandatory health effects language regarding lead in drinking water that must be contained in any public education materials, as contained in the federal rule under 40 CFR §141.85(a)(1)(ii). New §290.117(k)(1)(C) is adopted to contain the requirement that a system performing public education must provide information regarding lead and the possible sources of lead, as contained in the federal rule under 40 CFR §141.85(a)(1)(iii). New §290.117(k)(1)(C)(i) - (iii) is adopted to contain the requirements of 40 CFR §141.85(a)(1)(iii)(A) - (C) providing that public education materials must explain what lead is, explain possible sources, and discuss other risks of lead exposure, specifically lead-based paint or lead-contaminated soils.

New §290.117(k)(1)(D) is adopted to contain the federal requirements of 40 CFR §141.85(a)(1)(iv) that public education materials must discuss the steps consumers can

take to reduce their exposure to lead in drinking water. New §290.117(k)(1)(D)(i) - (v) is adopted to contain the federal requirements of 40 CFR §141.85(a)(1)(ii)(A) - (E), respectively, that public education materials should encourage running the water to flush out the lead, explain that customers should not use hot water to prepare baby formula, explain that boiling water will not help lead levels, discuss the use of alternate water sources, and suggest that parents have children's blood lead levels tested. New §290.117(k)(1)(E) is adopted to contain the federal requirement under 40 CFR §141.85(a)(1)(v) providing that public education materials must explain why there are elevated levels of lead in the system's drinking water (if known) and what the water system is doing to reduce the lead levels in homes and buildings in this area. New §290.117(k)(1)(F) is adopted to contain the mandatory language regarding web resources, as required under the federal rule in 40 CFR §141.85(a)(1)(vi). New §290.117(k)(1)(G) is adopted to contain additional requirements for community systems' public education materials, as contained in the federal rules under 40 CFR §141.85(a)(2). Specifically, §290.117(k)(1)(G)(i) and (ii) is adopted to contain the requirement that community systems' public education materials tell consumers how to get their water tested, and discuss lead in plumbing components and the difference between low lead and lead free, as contained in the federal rules under 40 CFR §141.85(a)(2)(i) and (ii), respectively, consistent with the requirements of repealed §290.117(i)(5). New §290.117(k)(1)(H) is adopted to contain the multilingual requirements for public education materials contained in the federal rules under 40 CFR

§141.85(b)(1).

New §290.117(k)(2) is adopted to contain the delivery requirements for public education materials for community systems, as required by the federal rules under 40 CFR §141.85(b). New §290.117(k)(2)(A) is adopted to contain the requirement that a community system must directly deliver printed public education materials to all bill paying customers, consistent with the requirements of repealed §290.117(i)(2)(A), and consistent with the federal rule under 40 CFR §141.85(b)(2)(i). New §290.117(k)(2)(A)(i) is adopted to contain the requirement that community systems deliver public education materials to local public health agencies, as required under the federal rule in 40 CFR §141.85(b)(2)(ii)(A). New §290.117(k)(2)(A)(ii) is adopted to reference the list of at-risk customers that community systems must deliver public education materials to, as required by the federal rule under 40 CFR §141.85(b)(2)(ii)(B). Section 290.117(k)(2)(A)(ii) is also adopted to list the required institutional customers for public education, as provided in the federal rules in 40 CFR §141.85(b)(2)(ii)(B)(-1-) - (-6-), consistent with the rules in repealed §290.117(i)(2)(C). New §290.117(k)(2)(A)(iii) is adopted to contain the requirements contained in the federal rules under 40 CFR §141.85(b)(2)(ii)(C) that community systems must make a good faith effort to locate potentially at-risk organizations and deliver public education materials to them. Section 290.117(k)(2)(A)(iii) is also adopted to list the potentially at-risk customers listed in the federal rules under 40 CFR §141.85(b)(2)(ii)(C)(-1-) - (-3-).

New §290.117(k)(2)(A)(iv) is adopted to contain the federal requirements for additional public activities under 40 CFR §141.85(b)(2)(vi). Section 290.117(k)(2)(A)(iv) is also adopted to list the additional activity requirements of the federal rule under 40 CFR §141.85(b)(2)(vi)(A) - (I). New §290.117(k)(2)(A)(v) is adopted to contain the requirement that community water systems provide public education information on water bills at least quarterly, as long as the system exceeds the lead action level, as required in the federal rule under 40 CFR §141.85(b)(2)(iii). New §290.117(k)(2)(A)(vi) is adopted to contain the federal requirement under 40 CFR §141.85(b)(2)(iv) that a community system serving more than 100,000 people must post public education materials on the water system's Web site. New §290.117(k)(2)(A)(vii) is adopted to contain the federal requirement under 40 CFR §141.85(b)(2)(v) that community systems must submit a press release to newspaper, television, and radio stations.

New §290.117(k)(2)(B) is adopted to contain the provision of the federal rule under 40 CFR §141.85(b)(8) that a small community water system serving 3,300 or fewer people may be allowed to limit certain aspects of their public education programs. New §290.117(k)(2)(B)(i) is adopted to contain the provision of the federal rule under 40 CFR §141.85(b)(8)(ii) that a small system may be allowed to deliver public education materials to only those potentially affected customers that are most likely to be visited regularly by pregnant women and children. New §290.117(k)(2)(B)(ii) is adopted to contain the federal provisions under 40 CFR §141.85(b)(8)(iii) that a small system may

be allowed to waive press releases. New §290.117(k)(2)(B)(iii) is adopted to contain the federal provisions under 40 CFR §141.85(b)(8)(i) that a small system may be allowed to perform only one of the required additional activities instead of all three activities.

New §290.117(k)(2)(C) is adopted to contain the provisions of 40 CFR §141.85(b)(7) for certain community systems to limit their public education activities. New §290.117(k)(2)(C)(i) is adopted to specify that in order to limit these public education activities, the system must be a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices as contained in the federal rule under 40 CFR §141.85(b)(7)(i). New §290.117(k)(2)(C)(ii) is adopted to specify that, in order to limit these public education activities, the system must provide water as part of the cost of services as provided by the federal rule under 40 CFR §141.85(b)(7)(ii).

New §290.117(k)(3) is adopted to contain the federal requirements of 40 CFR §141.85(b)(4) for delivery of public education materials by nontransient, noncommunity systems. New §290.117(k)(3)(A) is adopted to require that nontransient, noncommunity systems that exceed the lead action level must post informational posters as contained in the federal requirements under 40 CFR §141.85(b)(4)(i), consistent with the requirements of repealed §290.117(i)(3)(A). New §290.117(k)(3)(B) is adopted to require that these systems must distribute informational materials as contained in

repealed §290.117(i)(3)(B), consistent with the requirements of 40 CFR §141.85(b)(4)(ii).

New §290.117(k)(4) is adopted to contain the frequency and timing requirements for public education, as contained in the federal rules under 40 CFR §141.85(b)(2) and (2)(vii), (4) and (4)(iii), consistent with the state rules in repealed §290.117(i)(2). New §290.117(k)(4)(A) is adopted to contain the required frequency and timing of public education activities for community systems, as provided by the federal rules under 40 CFR §141.85(b)(3). New §290.117(k)(4)(A)(i) is adopted to contain the requirement that community systems provide informational statements every billing cycle, as required under the federal rule in 40 CFR §141.85(b)(3)(ii). New §290.117(k)(4)(A)(ii) is adopted to contain the requirement that a community system serving a population greater than 100,000 shall post and retain material on a publicly accessible Web site, as required in the federal rules under 40 CFR §141.85(b)(3)(iii). New §290.117(k)(4)(A)(iii) is adopted to ensure that press releases be delivered twice a year, as provided by the federal rule under 40 CFR §141.85(b)(3)(iv).

New §290.117(k)(4)(B) is adopted to contain the required frequency and timing of public education activities for nontransient, noncommunity systems, as required by the federal rule under 40 CFR §141.85(b)(5). New §290.117(k)(4)(C) is adopted to allow a system to delay the start date for public education, as provided in the federal rules under

40 CFR §141.85(b)(5), consistent with the state rules in repealed §290.117(i)(3)(D). New §290.117(k)(4)(D) is adopted to contain the requirements for discontinuing public education, as contained in the federal rules under 40 CFR §141.85(b)(6), consistent with the state rules in repealed §290.117(i)(4).

New §290.117(k)(5) is adopted to contain the requirements for notifying the TCEQ of public education activities, as contained in the federal rules under 40 CFR §141.90(f)(1). New §290.117(k)(5)(A) is adopted to require documentation that the system has delivered public education materials that meet the content requirements, as contained in the federal rules under 40 CFR §141.90(f)(1)(i). New §290.117(k)(5)(B) is adopted to require that systems document notification efforts, as contained in the federal rules under 40 CFR §141.90(f)(1)(ii). New §290.117(k)(5)(C) is adopted to require that systems submit certifications of delivery each time that it distributes materials, as contained in the federal rules under 40 CFR §141.90(f)(2).

New §290.117(l) is adopted to summarize the manner in which the TCEQ shall determine whether a system is in compliance with this section, consistent with the rules in repealed §290.117(a)(2), and with the federal rules under 40 CFR §141.80(k). This is adopted to be subsequent to the subsection relating to public education, because the most serious violation identified by the EPA is a failure to perform public education.

New §290.117(l)(1) is adopted to contain the compliance calculations for the lead and copper tap samples, consistent with repealed §290.117(a)(3) and (d), and consistent with the federal requirements of 40 CFR §141.80(c)(3). New §290.117(l)(1)(A) is adopted to contain the calculation methods for determining the 90th percentile, consistent with repealed §290.117(d) and the federal requirements of 40 CFR §141.80(c)(3). New §290.117(l)(1)(A)(i) is adopted to describe ranking the samples in order of their analytical results, from lowest to highest, as contained in the federal rules under 40 CFR §141.80(c)(3)(i), consistent with repealed §290.117(a)(3). New §290.117(l)(1)(A)(ii) is adopted to contain the requirements of the federal rule under 40 CFR §141.80(c)(3)(ii) and (iii) to multiply the number of samples collected by 0.9 to yield a number corresponding to the order number of samples, and designating that sample's analytical result as the 90th percentile level for systems that serve 100 or more people, consistent with the repealed §290.117(a)(3). New §290.117(l)(1)(A)(iii) is adopted to contain the 90th percentile level calculation method for systems serving fewer than 100 people, which collect only five tap samples, as contained in the federal rule under 40 CFR §141.80(c)(3)(iv), consistent with repealed §290.117(a)(3). New §290.117(l)(1)(A)(iv) is adopted to contain the 90th percentile level calculation method for systems that have been allowed to collect fewer than five samples, as contained in the federal rule under 40 CFR §141.80(c)(3)(v). New §290.117(l)(1)(B) is adopted to ensure that invalidated sample results are not included in compliance calculations, as contained in the federal rule under 40 CFR §141.86(f) and consistent with the existing state rule under

§290.117(f)(1). New §290.117(l)(1)(C) is adopted to ensure that the results of all valid samples are included in compliance calculations, as contained in the federal rule under 40 CFR §141.86(e), and consistent with repealed §290.117(c)(4). New §290.117(l)(1)(D) is adopted to provide a specific citation defining the conditions under which a system is in compliance, as contained in repealed §290.117(a)(3) and in the federal rule under 40 CFR §141.80(c)(1) and (2).

New §290.117(l)(2) is adopted to contain the compliance determination requirements for water quality parameters, as contained in repealed §290.117(h)(1)(K), consistent with the federal rules under 40 CFR §141.82(g). New §290.117(l)(2)(A) is adopted to specify the conditions under which a system is considered to have operated outside its approved optimal water quality parameter ranges as contained in 40 CFR §141.82(g), consistent with repealed §290.117(j)(1). New §290.117(l)(2)(A)(i) is adopted to specify that multiple water quality parameter samples in a single day be averaged for compliance determination, as contained in 40 CFR §141.82(g)(1), consistent with repealed §290.117(j)(1)(A). New §290.117(l)(2)(A)(ii) is adopted to specify that a single daily sample result will be used for compliance as contained in 40 CFR §141.82(g)(2), consistent with repealed §290.117(j)(1)(B). New §290.117(l)(2)(A)(iii) is adopted to specify that on days when no measurement is collected for the water quality parameter at the sampling location, the daily value last calculated on the most recent day shall serve as the daily value, as contained in the federal rule under 40 CFR §141.82(g)(3),

consistent with repealed §290.117(j)(1)(C). New §290.117(l)(2)(B) is adopted to contain the timing for compliance determination for water quality parameters, as contained in the federal rule under 40 CFR §141.82(g), consistent with repealed §290.117(j)(1). New §290.117(l)(2)(C) is adopted to ensure that the results of all samples be considered as part of compliance determination, as contained in the federal rule under 40 CFR §141.87(f). New §290.117(l)(2)(D) is adopted to ensure that the results of sampling errors will not be used in compliance calculations, consistent with the federal rules under 40 CFR §141.82(g).

New §290.117(l)(3) is adopted to contain the compliance determination requirements related to installation of source water treatment as contained in the federal rule under 40 CFR §141.83(b)(5) and §141.88(a)(2). New §290.117(l)(4) is adopted to specify that failure to deliver public education materials is a public notification violation, consistent with the federal regulations under 40 CFR §141.85(a)(1) and repealed §290.117(i), in order to provide a clear citation for referencing any such violation in TCEQ procedures for initiation of any enforcement action. New §290.117(l)(5) is adopted to specify what constitutes monitoring and reporting violations, as contained in repealed §290.117(a)(2)(B), consistent with the federal rule under 40 CFR §141.80(k).

New §290.117(m) is adopted to adopt the lead service line replacement requirements of 40 CFR §141.84 and §141.90(e) by reference, consistent with repealed §290.117(k).

Texas public water systems historically did not use lead pipe in distribution systems. Therefore, in the history of implementing the lead and copper rules in Texas, no public water systems have been required to perform lead service line replacement programs.

New §290.117(n) is adopted to contain the federal requirements of 40 CFR §§141.81(b)(3)(iii), 141.82(a), and 141.86(d)(4)(vii) specifying that the executive director has authority to require additional sampling as needed to determine whether systems are maintaining minimal levels of corrosion in the distribution system.

The commission adopts the amendment to §290.119(a) and (a)(1), Analytical Procedures, to replace the term "certified" laboratory with the term "accredited" laboratory consistent with the existing state rule under 30 TAC §25.4(f) and to correct the reference to accurately reflect that analyses performed under other subchapters within this chapter must be analyzed using the methods and at laboratories of the types described herein. Further, the commission amends §290.119(a)(1) to add microbial contaminants as a type of sample that must be analyzed at an accredited laboratory, consistent with the existing requirement in §290.109(d), to ensure that all applicable samples are listed in this context. The commission amends §290.119(a)(1)(A), (B), (F), and (G) to spell out terms in their first use in this section. The commission amends §290.119(a)(2) to spell out the term "maximum residual disinfectant level" in its first use in this section. The commission amends §290.119(a)(2)(E) to specify that dissolved

organic carbon is an analyte for which samples may be analyzed at an approved laboratory to maintain consistency between state and federal regulations. The commission also amends §290.119(a)(2)(E) and (b)(6) to remove the hyphen in the word "by-product" to be consistent with current federal usage standards. The commission amends §290.119(b)(8) to add dissolved organic carbon, which identifies acceptable EPA methods for analysis, to maintain consistency between state and federal regulations consistent with the federal rule in 40 CFR §141.131(d)(4)(i). In response to comment, §290.119(b)(10) is adopted, which adopts by reference the approved methods listed under federal rule language in 40 CFR Part 141, Subpart C, Appendix A.

The commission adopts §290.121(b)(1), Monitoring Plans, to remove the hyphen in the word "by-products" to be consistent with current federal usage standards. The commission also amends §290.121(b)(6) - (8) to correct references to meet agency syntax standards. The commission further amends §290.121(d)(1) to specify the date or conditions which, if not fulfilled, may cause a public water system to have a reporting violation for their monitoring plan. Additionally, the commission amends §290.121(e) to correct the reference for conditions triggering notification of a monitoring plan violation consistent with the federal rule in 40 CFR §141.153(f).

The commission adopts §290.122, Public Notification, to better establish public notification requirements for systems to follow when their drinking water fails to meet

one of the drinking water standards. The commission amends §290.122(a), (a)(1), and (1)(G) to recognize that there may be situations defined by rule that require public notice, but that are not defined as violations. Specifically, fecal contamination of a well is not defined as a violation under the GWR. The commission amends §290.122(a)(1)(B)(iv) to replace the word "ready" with the word "reading" in order to correctly specify that the triggering event for public notice in this clause is an analytical reading over 1.0 Nephelometric turbidity units. The commission amends §290.122(a)(1)(F) and (b)(1)(C) and (D) to correct the rule reference therein to meet agency syntax standards. The commission amends §290.122(b)(2)(B) to allow noncommunity water systems other options for delivering non-acute and non-monitoring related public notices, in order to be consistent with the federal rules under 40 CFR §141.203(c)(2). The commission moves the requirement for direct delivery or continuous posting from §290.122(b)(2)(B) to adopted §290.122(b)(2)(B)(i). The commission adopts §290.122(b)(2)(B)(ii) to encompass other federally-specified delivery methods. The federal rule under 40 CFR §141.203(c)(2)(ii) requires the state to allow alternative methods of public notice delivery such as e-mail. The change is adopted to assure the state rules are no less stringent than the federal rules. Likewise, the commission amends §290.122(c)(2)(A) to specify that mail or other direct delivery must be used by community water systems for non-acute violations, consistent with the federal rule under 40 CFR §141.204(c)(1)(i), and that posting, mail, or other direct delivery must be used by noncommunity water systems for non-acute violations,

consistent with the federal rule under 40 CFR §141.204(c)(2)(i). As adopted, the list of other delivery methods in the prior rule under §290.122(c)(2)(A) is moved to §290.122(c)(2)(B), consistent with the federal rule under 40 CFR §141.204(c)(1)(ii). The commission amends §290.122(c)(3)(B) to allow noncommunity systems to provide repeat public notices under in §290.122(c) at least every 12 months, consistent with federal rule under 40 CFR §141.204(b)(1). The commission amends §290.122(d)(1) to include the specifics of the federal requirements under 40 CFR §141.205(c)(1)(iii) that a system must not format their notification in a way that makes it hard to understand or defeats the purpose of the notice. The commission amends §290.122(d)(6) to specifically add the federal requirement of 40 CFR §141.205(a)(9) that each notice include the name and business address for contacting the water system. The commission adopts §290.122(d)(10) to include the consumer notification requirement of the federal LCSTR under 40 CFR §141.80(g) and §141.85(d) and the adopted state rule in §290.117(j). The commission amends §290.122(e) to include the ongoing notification requirement for noncommunity systems consistent with 40 CFR §141.206(b). The commission amends §290.122(g) to specify that notification be provided to the owner or operator of a public water system that receives and redistributes water from a system that is required to provide public notice, in accordance with the federal rule in 40 CFR §141.201(c)(1).

Subchapter H: Consumer Confidence Reports

Subchapter H contains the requirements for community water systems to deliver a report of drinking water quality, called a Consumer Confidence Report, to all of their customers annually. The commission adopts Subchapter H, Consumer Confidence Reports, to incorporate provisions of the federal rules. The commission adopts §290.271, Purpose and Applicability, by adding the definition of "detected" for contaminant groups to §290.271(c), consistent with the federal rule in 40 CFR §141.153(B). In response to comment, the words "equal to or" are added to the adopted rule in §290.271(c) in order to ensure that the adopted meaning of the term "detected" is the detection of a chemical at any level equal to or greater than the minimum detection level.

The commission adopts §290.272, Content of the Report. The commission amends §290.272(c)(1)(A) to add the word "and" and also amends §290.272(c)(1)(B) to add a period and remove "; and" to comply with agency numbering requirements for rules. Additionally, the commission amends §290.272(c)(1)(C) to remove a reference to nonexistent federal rules in 40 CFR §141.142 and §141.143. The commission amends §290.272(c)(3) to remove a reference to a nonexistent federal regulation, specifically the reference to information collection rules under 40 CFR §141.142 and §141.143. The commission amends §290.272(c)(4)(D)(iii) to include an opening phrase of "In accordance with date requirements included in the table entitled Date to Start Stage 2 Compliance," in order to provide a rule reference to the previous table in accordance

with the adopted state rule in §290.115(a)(2) and federal DBP2 rules under 40 CFR §141.153(B) and §141.64(b)(2). At adoption, the commission also amended §290.272(c)(4)(D)(iii) to remove the hyphen in the word "by-products" to instead refer to "byproducts" to be consistent with current federal usage standards. Additionally, the commission amends §290.272(e)(7) and (g)(1)(B)(iv) to remove the hyphen in the word "by-products" to be consistent with current federal usage standards. In response to comment, state regulations corresponding to the federal rule requiring lead-specific information in every Consumer Confidence Report which were inadvertently omitted from the proposed rules are included in adopted §290.272(g)(9). Specifically, §290.72(g)(9) is adopted, which states “Every report must include the following lead-specific information - a short informational statement about lead in drinking water and its effect on children.” Additionally, §290.72(g)(9)(A) is adopted, which states "The statement must include the information set forth in this example statement. 'If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. NAME OF UTILITY is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking

water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.'" Additionally, §290.72(g)(9)(B) is adopted, which states "A system may write its own educational statement, but only in consultation with the executive director."

Final Regulatory Impact Analysis Determination

The commission reviewed the adopted rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225 and determined that the rulemaking is not subject to §2001.0225. A "major environmental rule" means a rule with a specific intent to protect the environment or reduce risks to human health from environmental exposure, and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state.

First, the adopted rulemaking does not meet the statutory definition of a "major environmental rule" because its specific intent is not to protect the environment or reduce risks to human health from environmental exposure. The specific intent of the adopted rulemaking is to incorporate changes in the federal drinking water regulations in order to maintain the state's primary enforcement responsibility with regard to drinking water. This is accomplished by enacting state rules no less stringent than the federal regulations and adopting adequate procedures for implementation and

enforcement of these rules, while providing alternative approaches to compliance based in part on stakeholder input and taking into account special considerations related to the state's particular source water conditions. The federal regulations that would be implemented through the adopted rulemaking are designed to reduce risks to human health from environmental exposure by limiting exposure to lead and copper, microbial pathogens, and disinfection byproducts.

Second, the adopted rulemaking does not meet the statutory definition of a "major environmental rule" because the adopted rules would not adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. It is not anticipated that the cost of complying with the adopted rules will be significant with respect to the economy as a whole or with respect to a sector of the economy; therefore, the adopted rules will not adversely affect in a material way the economy, a sector of the economy, competition, or jobs.

Finally, the adopted rulemaking does not meet any of the four applicability requirements for a "major environmental rule" listed in Texas Government Code, §2001.0225(a). Texas Government Code, §2001.0225 only applies to a major environmental rule, the result of which is to: 1) exceed a standard set by federal law, unless the rule is specifically required by state law; 2) exceed an express requirement of

state law, unless the rule is specifically required by federal law; 3) exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; or 4) adopt a rule solely under the general powers of the agency instead of under a specific state law. This adopted rulemaking does not meet any of the preceding four applicability requirements because this rulemaking: does not exceed any standard set by federal law for public water systems and is adopted to be consistent with federal rules; does not exceed any express requirement of state law under Texas Health and Safety Code (THSC), Chapter 341, Subchapter C; does not exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government, but rather is adopted to be consistent with applicable federal rules in order to allow the state to maintain its authority to implement the federal SDWA, pursuant to agreements between the commission and the EPA; and is not adopted solely under the general powers of the agency, but specifically under THSC, §341.031, which allows the commission to adopt and enforce rules to implement the federal SDWA, as well as the other general powers of the commission.

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

Takings Impact Assessment

The commission evaluated this adopted rulemaking and performed an assessment of whether these adopted rules constitute a taking under Texas Government Code, Chapter 2007.

The commission adopts these rules for the specific purpose of maintaining the state's primary enforcement responsibility by incorporating federal drinking water regulations related to: 1) protecting public drinking water consumers from the risks of lead and copper in drinking water in response to the LCSTR, published by the EPA in the October 10, 2007, issue of the *Federal Register*; 2) providing increased public health protection from the risks of *Cryptosporidium* and other microbial pathogens in drinking water derived from surface water in response to the LT2 rule published by the EPA in the January 5, 2006, issue of the *Federal Register*; and 3) protecting public drinking water consumers from the risks of disinfectant byproducts in response to the DBP2 rule, published by the EPA in the January 4, 2006, issue of the *Federal Register*. In addition, the adopted rules correct typographical errors, formatting mistakes, incorrect references, and citation changes and make other non-substantive changes.

The commission's analysis indicates that Texas Government Code, Chapter 2007, does not apply to these adopted rules based upon exceptions to applicability in §2007.003(b). First, the adopted rulemaking is an action that is reasonably taken to fulfill an obligation

mandated by federal law, Texas Government Code, §2007.003(b)(4). In order to maintain primacy over public drinking water, the state must enact rules no less stringent than the federal drinking water regulations as required by 40 CFR §142.10. Second, the adopted rulemaking is an action that is taken in response to a real and substantial threat to public health and safety; that is designed to significantly advance the public health and safety purpose; and that does not impose a greater burden than is necessary to achieve the public health and safety purpose, Texas Government Code, §2007.003(b)(13). Lead and copper, *Cryptosporidium* and other microbial pathogens, and drinking water disinfection byproducts all constitute a real and substantial threat to public health and safety when present at certain levels in drinking water, and require appropriate governmental regulation. The adopted rules significantly advance the public health and safety purpose by ensuring appropriate governmental regulation of these items, and do so in a way that does not impose a greater burden than is necessary to achieve the public health and safety purpose.

Further, the commission has determined that promulgation and enforcement of these adopted rules 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 rule because the adopted rules neither relate to, nor have any impact on, the use or enjoyment of private real property, and there would be no reduction in property value as a result of these rules. The rules require public water systems to comply with drinking

water standards protective of human health and the environment, and the rules bring those standards into concurrence with the corresponding federal regulations. Therefore, the adopted rules would not constitute a taking under Texas Government Code, Chapter 2007.

Consistency with the Coastal Management Program

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

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

Public Comment

The commission held a public hearing on January 6, 2011. No comments were received at the public hearing. The comment period opened on December 10, 2010, and closed on January 14, 2011.

The commission received written comments during the comment period from the City of Houston (Houston) and the EPA, both of whom suggested specific changes. Houston generally supported the rule. The EPA submitted comments related to cross-referencing the federal regulations with the state regulations. The two agencies routinely use a crosswalk format to check cross-references; therefore, the commission has addressed the EPA's cross-referencing comments by providing revised crosswalks to the EPA.

Response Comments

The EPA recommended changes to 30 TAC §25.50, specifically providing up-to-date references to the Manual for the Certification of Laboratories Analyzing Drinking Water, Fifth Edition, EPA 815-R-05-004, January 2005, and the Supplement to the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-F-08-006, June 2008, to ensure consistency with 40 CFR §141.131(b)(2).

The commission responds that 30 TAC §25.50 no longer references these manuals, and notes that 30 TAC §25.50 is outside the scope of this rulemaking. Therefore, the commission respectfully disagrees, and no change has been made in response to this comment.

Houston commented that the proposed rule language under §290.39(j)(1)(G) extended the requirements of 40 CFR §141.86(g) that small systems notify the agency of lead and

copper-containing material within 60 days to large systems, which is more stringent than the federal regulation.

The commission agrees with the comment and in response has amended the adopted rule to remove the large system notification requirement from adopted §290.39(j)(1)(G). The requirement for small systems to notify the TCEQ of addition of lead or copper material in their distribution system remains under adopted §290.117(c)(2)(D)(vi).

The EPA recommended a change to ensure consistency with the federal rule under 40 CFR §141.33(f) relating to the required retention time for source water monitoring plans relating to LT2. The federal rule states that these source water monitoring plans must be retained for three years after bin classification. The EPA recommended that the commission modify §290.46(f)(3)(B)(vi) to say "the raw surface water monitoring results and source water monitoring plans related to §290.111 of this title (relating to Surface Water Treatment: LT2 ESWTR) must be retained for three years after bin classification." The EPA commented that inserting the reference in §290.111 to source water monitoring plans would ensure the Texas regulations are at least as stringent as federal regulations.

The commission agrees with the comment in general. However, the

requirements for record retention are contained in §290.46, not in §290.111. Therefore, in response to comment, the phrase "and source water monitoring plans required by §290.111 of this title (relating to Surface Water Treatment)" is added to §290.46(f)(3)(B)(vi) in the adopted rule language. Specifically, adopted §290.46(f)(3)(B)(vi) requires that "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."

Houston commented that proposed §290.46(f)(3)(F), which required attaching the 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 to the monitoring plan, was excessive.

The commission agrees with the comment that attaching such records to monitoring plans is not necessary. In response to this comment, the

commission has removed this requirement from §290.46(f)(3)(F) in the adopted rule. Adopted §290.46(f)(3)(F) no longer contains the sentence "These records shall be attached to the system's monitoring plan," and reads in full "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."

The EPA commented that changes were needed to proposed §290.112(a) to ensure consistency with 40 CFR §141.132(b)(1)(iii) under the DBP2. The EPA indicated that the

proposed Texas regulation of §290.112(a) was not as stringent as the federal regulations. The EPA recommended that Texas either delete the verbiage of "and use sedimentation and clarification facilities as part of the treatment process" or modify the verbiage to "and use coagulation or flocculation or sedimentation or clarification facilities as part of the treatment process" in order to meet the stringency of the federal rules.

The commission agrees with the comment. In response to this comment §290.112(a) is amended in the adopted version to include coagulation and flocculation as well as sedimentation and clarification. Specifically, adopted §290.112(a) reads "Applicability. All community and nontransient, noncommunity public water systems that treat surface water or groundwater under the direct influence of surface water and use coagulation or flocculation or sedimentation or clarification facilities as part of the treatment process must meet the provisions of this section."

The EPA recommended revision of the figure in §290.113(a)(2) for the purpose of clarity by adding the phrase "of any population" to form the phrase "Consecutive system or wholesale system of any population that is part of the combined distribution system."

The commission agrees with the comment. In response to the comment the recommendation is incorporated in the adopted language of the figure in

§290.113(a)(2). The phrase "of any population" is added to the heading of the schedule for systems in a combined distribution system, since without that placement the rule could imply that the generality of population applies only to the wholesale system.

The EPA commented that changes were needed to proposed §290.113 to ensure consistency with 40 CFR §141.132(b)(1)(iii). The EPA recommended Texas modify §290.113(c)(4)(B) and (C) by inserting the verbiage "...may remain on reduced monitoring as long as it meets the requirements in paragraph (4)(D) and as long as TTHM and HAA5. . ." for clarity.

The commission agrees with the comment. In response to this comment the recommended verbiage is added to the adopted rule, so that the adopted language in §290.113(c)(4)(B) is "A system that is on reduced monitoring and collects quarterly samples for TTHM and HAA5 may remain on reduced monitoring as long as the running annual average of quarterly averages for TTHM and HAA5 is no greater than 0.060 mg/L and 0.045 mg/L, respectively, and as long as it meets the requirements in subparagraph (D) of this paragraph." Likewise, the adopted language in §290.113(c)(4)(C) is "A system that is on reduced monitoring and monitors no more frequently than once each year may remain on reduced monitoring as long as TTHM

and HAA5 concentrations are no greater than 0.060 mg/L and 0.045 mg/L, respectively, and as long as it meets the requirements in subparagraph (D) of this paragraph."

The EPA commented that the Texas regulation under proposed §290.113(c)(6) was not as stringent as the federal regulations under 40 CFR §141.132(b)(1)(iv). The EPA recommended that the TCEQ clarify that "The system must being (*sic*) monitoring quarterly in the quarter immediately following the monitoring period..." in which an exceedance occurs.

The commission agrees with the comment. The commission responds that the word "immediately" has been added to adopted §290.113(c)(6) in response to this comment.

The EPA commented that, for clarity, §290.115(a)(2) should be modified by inserting the statement "Systems must complete the monitoring plan for the additional Stage 2 TTHM and HAA5 requirements according to §290.121 before the date shown in the table entitled 'Date to Start Stage 2 Compliance' in order to insure consistent stringency with federal rules in 40 CFR §141.622(a)(1)."

The commission agrees with the comment. In response to this comment,

the recommended language is included in the adopted rule under §290.115(a)(3), which reads "Systems must complete their monitoring plan for the additional Stage 2 TTHM and HAA5 requirements according to §290.121 of this title (relating to Monitoring Plans) before the date shown in the table entitled 'Date to Start Stage 2 Compliance.'"

The EPA recommended revision of the figure in §290.115(a)(2) for the purpose of clarity by adding the phrase "of any population" to form the phrase "Consecutive system or wholesale system of any population that is part of the combined distribution system."

The commission agrees with the comment. In response to this comment the recommendation is incorporated in the adopted language under §290.115(a)(2), but the phrase "of any population" is added to the heading of the schedule for systems in a combined distribution system, since without clarification the rule could imply that the generality of population applies only to the wholesale system.

The EPA commented that a colon should be inserted after the phrase "Systems in a combined distribution system" in the figure in §290.115(a)(2) to ensure clarity under 40 CFR §141.620. As proposed, the EPA believed that the Texas rule could be misconstrued in two ways. First, that the extension is only available to systems part of a combined

distributions system. Second, that the extension applies to both monitoring and maximum contaminant level (MCL) DBP2 requirements when there is only an extension for the operational evaluation level and DBP2 MCL requirements. Monitoring must still occur.

The commission agrees with the comment. In response to this comment a colon has been inserted into the adopted figure in §290.115(a)(2) as recommended.

The EPA recommended that the commission revise Footnote 1 in the figure in §290.115(a)(2) to say "For compliance with TTHM and HAA5 MCLs and operational evaluation levels, the executive director may grant up to a 24-month extension to the compliance dates shown in this table if a water system requires capital improvements to comply with the MCL." The EPA requested that the commission provide clarification that any system that receives an extension must comply with the TTHM and HAA5 MCL requirements based on the running annual average until the water system's extension expires and the system begins calculating compliance based on the locational running annual average. The EPA cited 40 CFR §141.620 as the basis for its recommendation, and indicated that the Texas regulations would not be as stringent as the federal regulations without this clarification.

The commission agrees that the referenced footnote in the figure in §290.115(a)(2) erroneously refers to 40 CFR §141.620(c)(5). The correct reference is 40 CFR §141.620(c), which has its own footnote reading, "The State may grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if you require capital improvements to comply with an MCL." Therefore, in response to this comment the commission has corrected the footnote in the figure in §290.115(a)(2) to adopt the footnote in 40 CFR §141.620(c). The state rule with this correction is no less stringent than the federal rule.

The EPA commented that the Texas regulations under §290.115(c)(2) and (5)(C)(iii)(IV), which references §290.115(c)(1), are not as stringent as the federal regulations under 40 CFR §141.605(b). The EPA commented that Texas did not allow itself the flexibility to choose different or additional monitoring locations and that the commission must retain this authority in order to be as stringent as the federal rule.

The commission agrees with the comment. The commission responds that the referenced authority is retained in adopted §290.115(c), which reads "Monitoring requirements for TTHM and HAA5. Monitoring shall be performed at locations and frequency specified in the system's monitoring plan as approved by the executive director. The executive director may

require changes to a system's sampling locations. The executive director may require sampling at additional sampling locations." In response to this comment the last two sentences are added to adopted §290.115(c) to retain the executive director's authority over the number and location of sampling locations.

The EPA commented that the Texas regulations in the figure in §290.115(c)(2) are not as stringent as the federal regulations under 40 CFR §141.621(a)(2). The EPA recommended that the TCEQ remove superscript #3 for groundwater systems serving 500 to 9,999 persons. This set of water systems is required to take dual samples at each of the 2 monitoring sites under the federal rules.

The commission agrees with the comment. The commission responds that the superscript is deleted from column three, "Routine Number of Sites[5]" under "Groundwater - 500 to 9,999."

The EPA recommends for clarity that the TCEQ modify §290.115(c)(3) by inserting the phrase "Monitoring may be reduced when. . ." and the phrase "and when the water system meets the requirements of §290.115(c)(3)(B)(iii)," to implement the federal rule in 40 CFR §141.623(b).

The commission respectfully disagrees with the comment. The commission responds that the hierarchical nature of regulatory language ensures that the subordinate requirements of §290.115(c)(3)(B)(iii) are implicitly required by §290.115(c)(3) and that the recommended language would be redundant. No change has been made in response to this comment.

The EPA commented that the Texas regulations in the figure in §290.115(c)(5)(C)(ii)(V), including footnote 2, are not as stringent as the federal regulations under 40 CFR §141.601(b)(1). The EPA recommended that the commission insert the #2 superscript beside the table column heading "Sampling Frequency and Timing" to reference the footnote about monitoring during the peak historical month.

The commission agrees with the comment. In response to this comment the commission added the footnote to the column heading and reworded footnote 2.

The EPA commented that the proposed Texas regulations under §290.115(c)(5)(A) - (C); §290.115(c)(5)(B)(iii) and (D) are not as stringent as federal regulations under 40 CFR §141.60(d) because the term "peak historical month" is not defined by the TCEQ. The EPA recommended that the commission revise Texas regulations to define that the peak historical month as the month with the highest TTHM or HAA5 levels or the warmest

water temperature month.

The commission agrees with the comment. In response to this comment the recommended language has been added to the figure in §290.115(c)(5)(C)(ii)(V) footnote 2, specifically stating that "The peak historical month is the month with the highest TTHM or HAA5 levels or the warmest water temperature month. Monitoring must be conducted during the peak historical month for TTHM levels or HAA5 levels. Available compliance, study, or operational data must be reviewed to determine the peak historical month for TTHM or HAA5 levels."

The EPA commented that changes to §290.115 are required to ensure consistency with 40 CFR §141.64(b)(2)(iii) under DBP2. The EPA requested that the TCEQ revise the proposed Texas regulations to incorporate the best available technology listed in 40 CFR §141.64(b)(2)(iii), noting that this is missing from the Texas regulations. The EPA commented that, as written, the Texas regulations are less stringent than the federal requirements.

The commission agrees with the comment. In response to this comment the reference to 40 CFR §141.64(b)(2)(iii) has been added to adopted §290.115(h). With the addition of the reference to 40 CFR

§141.64(b)(2)(iii), the adopted rule states "Best available technology for TTHM and HAA5. Best available technology for treatment of violations of MCLs in subsection (b) of this section are listed in 40 CFR §141.64(b)(2)(ii) and (iii)."

Houston requested information regarding whether the definition and requirements related to optimal water quality parameters under §290.117 were consistent with the existing rules or were new requirements.

The commission notes that this comment does not recommend any change to the adopted rule. The commission responds that the requirements are not changed, that they are part of the existing federal requirements of previous lead and copper rules, and are the same as existing state rules. No change has been made in response to this comment.

The EPA recommended changes to §290.119 to ensure consistency with 40 CFR §141.131(a)(2) related to EPA's expedited Method Approval process, under which there are a number of drinking water analytical methods that have been finalized and approved by EPA for compliance. The EPA commented that some of these methods are missing from Texas regulations. The EPA recommended that the TCEQ add a citation equivalent to "If a method is not contained in the §290.119, a drinking water quality

method can be approved for analysis if it is listed in Appendix A to Subpart C in Title 40 CFR 141." Additionally, the EPA commented that Texas drinking water regulations do not explicitly allow for the use of on-line (continuous) chlorine analyzers for the monitoring of free and total chlorine except through their "alternative technology" approval process. EPA suggested that TCEQ consider adopting EPA's approved method 334.0 ("ChloroSense") as well as all of "Appendix A to Subpart C of Part 141-Alternative Testing Methods Approved for Analyses Under the Safe Drinking Water Act." The EPA stated that this adoption would especially be important under the GWR for water systems required to provide 4-log treatment for viruses prior to the "first customer" which, for larger systems, means continuous monitoring for a chlorine or chloramine disinfectant residual is required.

The commission agrees with this comment and in response has adopted §290.119(b)(10), which adopts the approved methods under 40 CFR Part 141, Subpart C, Appendix A by reference. Adopted §290.119(b)(10) reads in full "if a method is not contained in this section, a drinking water quality method can be approved for analysis if it is listed in 40 CFR Part 141, Subpart C, Appendix A." In order to ensure that the rule language meets the syntax standards for lists, the final period in §290.119(b)(9) has been struck and a semi-colon followed by the word "and" has been added.

The EPA commented that the Texas regulation under §290.271(c) is not as stringent as the federal regulations under 40 CFR §141.151(d). The EPA requested that the TCEQ clarify that "detected" means at any level equal to or greater than the minimum detection limit.

The commission agrees with the comment. In response to this comment the words "equal to or" are added to the adopted rule in §290.271(c). In its adopted form, §290.271(c) reads "For the purposes of this section, the term 'detected' shall mean the detection of a chemical at any level equal to or greater than the minimum detection level."

The EPA commented that changes to the state rules are needed to ensure consistency with 40 CFR §141.154(d)(1) which amends the lead information to be reported in the consumer confidence report.

The commission agrees with the comment that a state regulation corresponding to the federal rule requiring lead-specific information in every Consumer Confidence Report was inadvertently omitted from the proposed rules. In response to this comment the commission amended the adopted rules to include the federal requirements in adopted §290.272(g)(9). Specifically, §290.272(g)(9) is adopted, which states "Every

report must include the following lead-specific information - a short informational statement about lead in drinking water and its effect on children." Additionally, §290.272(g)(9)(A) is adopted, which states "The statement must include the information set forth in this example statement. 'If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. NAME OF UTILITY is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.'" Additionally, §290.272(g)(9)(B) is adopted, which states "A system may write its own educational statement, but only in consultation with the executive director."

SUBCHAPTER D: RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS

§§290.38, 290.39, 290.41, 290.42, 290.46, 290.47

STATUTORY AUTHORITY

The amendments are adopted under Texas Water Code (TWC), §5.102, which establishes the commission's general authority necessary to carry out its jurisdiction; §5.103, which establishes the commission's general authority to adopt rules; §5.105, which establishes the commission's authority to set policy by rule; and Texas Health and Safety Code (THSC), §341.031, which allows the commission to adopt rules to implement the federal Safe Drinking Water Act, 42 United States Code, §§300f to 300j-26; and THSC, §341.0315, which requires public water systems to comply with commission rules adopted to ensure the supply of safe drinking water.

The adopted amendments implement TWC, §§5.102, 5.103, and 5.105, and THSC, §341.031 and §341.0315.

§290.38. Definitions.

The following words and terms, when used in this chapter shall have the following meanings, unless the context clearly indicates otherwise. If a word or term

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

(1) **Affected utility**--A retail public utility (§291.3 of this title (relating to Definitions of Terms)), exempt utility (§291.3 of this title), or provider or conveyor of potable or raw water service that furnishes water service to more than one customer:

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

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

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

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

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

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

(6) **ASTM International standards**--The standards of the American Society for Testing and Materials, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania, 19428 [1916 Race Street, Philadelphia, Pennsylvania 19102].

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

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

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

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

(11) **Certified laboratory**--A laboratory certified by the commission to analyze water samples to determine their compliance with maximum allowable constituent levels. <u>After June 30, 2008, laboratories must be accredited, not certified, in order to perform sample analyses previously performed by certified laboratories.</u>

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

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

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

(15) **Connection**--A single family residential unit or each commercial or industrial establishment to which drinking water is supplied from the system. As an example, the number of service connections in an apartment complex would be equal to the number of individual apartment units. When enough data is not available to accurately determine the number of connections to be served or being served, the population served divided by three will be used as the number of connections for calculating system capacity requirements. Conversely, if only the number of connections is known, the connection total multiplied by three will be the number used for

population served. For the purposes of this definition, a dwelling or business which is connected to a system that delivers water by a constructed conveyance other than a pipe shall not be considered a connection if:

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

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

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

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

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

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

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

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

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

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

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

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

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

(26) **Emergency power**--Either mechanical power or electric generators which can enable the system to provide water under pressure to the distribution system

in the event of a local power failure. With the approval of the executive director, dual primary electric service may be considered as emergency power in areas which are not subject to large scale power outages due to natural disasters.

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

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

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

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

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

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

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

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

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

(34) **Innovative/alternate treatment**--Any treatment process that does not have specific design requirements in §290.42(a) - (f) of this title (relating to Water Treatment). For example, the adjustment of fluoride ion content, special

treatment for metals, iron, manganese, organic and inorganic contaminant reduction, special methods for taste and odor control, demineralization, corrosion control processes, membrane filtration, bag/cartridge filters, ozone, chlorine dioxide, Ultraviolet (UV) light disinfection, and other treatment processes.

(35) **Interconnection**--A physical connection between two public water supply systems.

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

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

(38) **L/d ratio**--The dimensionless value that is obtained by dividing the length (depth) of a granular media filter bed by the weighted effective diameter "d" of

the filter media. The weighted effective diameter of the media is calculated based on the percentage of the total bed depth contributed by each media layer.

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

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

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

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

(43) **Membrane filtration**--A pressure or vacuum driven separation process in which particulate matter larger than one micrometer is rejected by an

engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test; includes the following common membrane classifications microfiltration (MF), ultrafiltration (UF), nanofiltration (NF), and reverse osmosis (RO), as well as any "membrane cartridge filtration" (MCF) device that satisfies this definition.

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

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

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

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

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

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

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

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

(52) **Noncommunity water system**--Any public water system which is not a community system.

(53) **Nonhealth hazard**--A cross-connection, potential contamination hazard, or other situation involving any substance that generally will not be a health

hazard, but will constitute a nuisance, or be aesthetically objectionable, if introduced into the public water supply.

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

(55) **psi**--Pounds per square inch.

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

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

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

(A) the International Plumbing Code; or

(B) the Uniform Plumbing Code.

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

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

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

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

(A) bypass arrangements;

(B) jumper connections;

(C) removable sections or spools; and

(D) swivel or changeover assemblies.

(63) **Process control duties**--Activities that directly affect the potability of public drinking water, including: making decisions regarding the day-to-day operations and maintenance of public water system production and distribution; maintaining system pressures; determining the adequacy of disinfection and disinfection procedures; taking routine microbiological samples; taking chlorine residuals and microbiological samples after repairs or installation of lines or

appurtenances; and operating chemical feed systems, filtration, disinfection, or pressure maintenance equipment; or performing other duties approved by the executive director.

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

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

(66) **Public water system**--A system for the provision to the public of water for human consumption through pipes or other constructed conveyances, which includes all uses described under the definition for drinking water. Such a system must have at least 15 service connections or serve at least 25 individuals at least 60 days out of the year. This term includes; any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Two or

more systems with each having a potential to serve less than 15 connections or less than 25 individuals but owned by the same person, firm, or corporation and located on adjacent land will be considered a public water system when the total potential service connections in the combined systems are 15 or greater or if the total number of individuals served by the combined systems total 25 or greater at least 60 days out of the year. Without excluding other meanings of the terms "individual" or "served," an individual shall be deemed to be served by a water system if he lives in, uses as his place of employment, or works in a place to which drinking water is supplied from the system.

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

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

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

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

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

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

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

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

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

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

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

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

§290.39. General Provisions.

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

(b) Reason for this subchapter and minimum criteria. This subchapter has been adopted to ensure regionalization and area-wide options are fully considered, the inclusion of all data essential for comprehensive consideration of the contemplated

project, or improvements, additions, alterations, or changes thereto and to establish minimum standardized public health design criteria in compliance with existing state statutes and in accordance with good public health engineering practices. In addition, minimum acceptable financial, managerial, technical, and operating practices must be specified to ensure that facilities are properly operated to produce and distribute [a] safe, potable water.

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

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

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

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

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

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

(A) plans and specifications for the system; and

(B) a business plan for the system.

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

(A) Each public water system that is also an affected utility, as defined by §290.38(1) of this title (relating to Definitions), is required to submit to the executive director, receive approval for, and adopt an emergency preparedness plan in accordance with §290.45 of this title (relating to Minimum Water System Capacity Requirements) using either the template in Appendix J of §290.47 of this title (relating to Appendices) or another emergency preparedness plan that meets the requirements of this section. Emergency preparedness plans are required to be prepared under the direction of a licensed professional engineer when an affected utility has been granted or is requesting an alternative capacity requirement in accordance with §290.45(g) of this title, or is requesting to meet the requirements of TWC, §13.1395, as an alternative to any rule requiring elevated storage, or as determined by the executive director on a case by case basis.

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

(C) The executive director shall review an emergency preparedness plan submitted under subparagraph (A) of this paragraph. If the executive director determines that the plan is not acceptable, the executive director shall recommend changes to the plan. The executive director must make its recommendations on or before the 90th day after the executive director receives the plan. In accordance with commission rules, an emergency preparedness plan must include one of the options listed in §290.45(h)(1)(A) - (H) of this title.

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

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

(d) Submission of plans.

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

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

(3) The limits of approval are as follows.

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

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

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

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

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

(A) statement of the problem or problems;

(B) present and future areas to be served, with population data;

(C) the source, with quantity and quality of water available;

(D) present and estimated future maximum and minimum water quantity demands;

(E) description of proposed site and surroundings for the water works facilities;

(F) type of treatment, equipment, and capacity of facilities;

(G) basic design data, including pumping capacities, water storage and flexibility of system operation under normal and emergency conditions; and

(H) the adequacy of the facilities with regard to delivery capacity and pressure throughout the system.

(2) All plans and drawings submitted may be printed on any of the various papers which give distinct lines. All prints must be clear, legible and assembled to facilitate review.

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

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

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

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

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

(4) A copy of each fully executed sanitary control easement and any other documentation demonstrating compliance with §290.41(c)(1)(F) of this title (relating to

Water Sources) shall be provided to the executive director prior to placing the well into service. Each original easement document, if obtained, must be recorded in the deed records at the county courthouse. Section 290.47(c) of this title includes a suggested form.

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

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

director. For community water systems, the business plan shall contain, at a minimum, the following elements:

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

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

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

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

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

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

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

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

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

(10) for retail public utilities as defined by TWC, §13.002:

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

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

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

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

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

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

(1) is a county;

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

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

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

(h) Beginning and completion of work.

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

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

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

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

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

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

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

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

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

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

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

(F) any other material changes specified by the executive director; and [.]

(G) examples of long-term treatment changes that could impact the corrosivity of the water include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants, and switching corrosion inhibitor products. Long-term changes can include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with

daily raw water quality changes. ~~Public water systems must notify the executive director of the addition of any lead-containing or copper containing material, in writing within 60 days of becoming aware of its presence.~~

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

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

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

(i) the internal review staff includes one or more licensed professional engineers that are employed by the political subdivision and must be

separate from, and not subject to the review or supervision of, the engineering staff or firm charged with the design of the distribution extension under review;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(C) If the executive director relies on rate increases or customer surcharges as the form of financial assurance, such funds shall be deposited in an escrow

account as specified in Chapter 37, Subchapter O of this title and released only with the approval of the executive director.

(o) Emergency Preparedness Plans for Affected Utilities.

(1) Each public water system that is also an affected utility and that exists as of December 1, 2009 is required to adopt and submit to the executive director an emergency preparedness plan in accordance with §290.45 of this title and using the template in Appendix J of §290.47 of this title or another emergency preparedness plan that meets the requirements of this subchapter no later than March 1, 2010. Emergency preparedness plans are required to be prepared under the direction of a licensed professional engineer when an affected utility has been granted or is requesting an alternative capacity requirement in accordance with §290.45(g) of this title, or is requesting to meet the requirements of TWC, §13.1395, as an alternative to any rule requiring elevated storage, or as determined by the executive director on a case by case basis.

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

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

(3) The executive director shall review an emergency preparedness plan submitted under this subsection. If the executive director determines that the plan is not acceptable, the executive director shall recommend changes to the plan. The executive director must make its recommendations on or before the 90th day after the executive director receives the plan. In accordance with the commission rules, an emergency preparedness plan must include one of the options listed in §290.45(h)(1)(A) - (H) of this title.

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

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

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

§290.41. 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).

(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

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 [approved by the Department of State Health Services].

(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 [a certified] 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 [certified] 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 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) ~~the Texas Water Code, §§321.1 - 321.18~~.

(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.

§290.42. Water Treatment.

(a) Capacity and location.

(1) Based on current acceptable design standards, the total capacity of the public water system's treatment facilities must always be greater than its anticipated maximum daily demand.

(2) The water treatment plant and all pumping units shall be located in well-drained areas not subject to flooding and away from seepage areas or where the groundwater water table is near the surface.

(A) Water treatment plants shall not be located within 500 feet of a sewage treatment plant or lands irrigated with sewage effluent. A minimum distance of 150 feet must be maintained between any septic tank drainfield line and any underground treatment or storage unit. Any sanitary sewers located within 50 feet of any underground treatment or storage unit shall be constructed of ductile iron or polyvinyl chloride (PVC) pipe with a minimum pressure rating of 150 pounds per square inch (psi) and have watertight joints.

(B) Plant site selection shall also take into consideration the need for disposition of all plant wastes in accordance with all applicable regulations and state statutes, including both liquid and solid waste or by-product material from operation and/or maintenance.

(3) Each water treatment plant shall be located at a site that is accessible by an all-weather road.

(b) Groundwater.

(1) Disinfection facilities shall be provided for all groundwater supplies for the purpose of microbiological control and distribution protection and shall be in conformity with applicable disinfection requirements in subsection (e) of this section.

(2) Treatment facilities shall be provided for groundwater if the water does not meet the drinking water standards. The facilities provided shall be in conformance with established and proven methods.

(A) Filters provided for turbidity and microbiological quality control shall be preceded by coagulant addition and shall conform to the requirements of subsection (d)(11) of this section. Filtration rates for iron and manganese removal, regardless of the media or type of filter, shall be based on a maximum rate of five gallons per square foot per minute.

(B) The removal of iron and manganese may not be required if it can be demonstrated that these metals can be sequestered so that the discoloration problems they cause do not exist in the distribution system.

(C) All processes involving exposure of the water to atmospheric contamination shall provide for subsequent disinfection of the water ahead of ground

storage tanks. Likewise, all exposure of water to atmospheric contamination shall be accomplished in a manner such that insects, birds, and other foreign materials will be excluded from the water. Aerators and all other such openings shall be screened with 16-mesh or finer corrosion-resistant screen.

(3) Any proposed change in the extent of water treatment required will be determined on the basis of geological data, well construction features, nearby sources of contamination, and on qualitative and quantitative microbiological and chemical analyses.

(4) Appropriate laboratory facilities shall be provided for controls as well as to check the effectiveness of disinfection or any other treatment processes employed.

(5) All plant piping shall be constructed to minimize leakage.

(6) All groundwater systems shall provide sampling taps for raw water, treated water, and at a point representing water entering the distribution system at every entry point.

(7) Air release devices shall be installed in such a manner as to preclude the possibility of submergence or possible entrance of contaminants. In this respect, all

openings to the atmosphere shall be covered with 16-mesh or finer corrosion-resistant screening material or an equivalent acceptable to the executive director.

(8) The executive director may require 4-log removal or inactivation of viruses based on raw water sampling results required by §290.116 of this title (relating to Groundwater Corrective Actions and Treatment Techniques).

(c) Springs and other water sources.

(1) Water obtained from springs, infiltration galleries, wells in fissured areas, wells in carbonate rock formations, or wells that do not penetrate an impermeable strata or any other source subject to surface or near surface contamination of recent origin shall be evaluated for the provision of treatment facilities. Minimum treatment shall consist of coagulation with direct filtration and adequate disinfection. In all cases, the treatment process shall be designed to achieve at least a 2-log removal of *Cryptosporidium* oocysts, a 3-log removal or inactivation of *Giardia* cysts, and a 4-log removal or inactivation of viruses before the water is supplied to any consumer. The executive director may require additional levels of treatment in cases of poor source water quality. Based on raw water monitoring results, the executive director may require additional levels of treatment for *Cryptosporidium* treatment as specified in §290.111 of this title (relating to Surface Water Treatment).

(A) Filters provided for turbidity and microbiological quality control shall conform to the requirements of subsection (d)(11) of this section.

(B) All processes involving exposure of the water to atmospheric contamination shall provide for subsequent disinfection of the water ahead of ground storage tanks. Likewise, all exposure of water to atmospheric contamination shall be accomplished in a manner such that insects, birds, and other foreign materials will be excluded from the water. Aerators and all other such openings shall be screened with 16-mesh or finer corrosion-resistant screen.

(2) Any proposed change in the extent of water treatment required will be determined on the basis of geological data, well construction features, nearby sources of contamination, and qualitative and quantitative microbiological and chemical analyses.

(3) Appropriate laboratory facilities shall be provided for controls as well as for checking the effectiveness of disinfection or any other treatment processes employed.

(4) All plant piping shall be constructed to minimize leakage. No cross-connection or interconnection shall be permitted to exist between a conduit carrying

potable water and another conduit carrying raw water or water in a prior stage of treatment.

(5) All systems using springs and other water sources shall provide sampling taps for raw water, treated water, and at a point representing water entering the distribution system at every entry point.

(6) Return of the decanted water or sludge to the treatment process shall be adequately controlled so that there will be a minimum of interference with the treatment process and shall conform to the applicable requirements of subsection (d)(3) of this section. Systems that do not comply with the provisions of subsection (d)(3) of this section commit a treatment technique violation and must notify their customers in accordance with the requirements of §290.122(b) of this title (relating to Public Notification [Notice]).

(7) Air release devices on treated waterlines 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 equivalent acceptable to the executive director.

(d) Surface water.

(1) All water secured from surface sources shall be given complete treatment at a plant which provides facilities for pretreatment disinfection, taste and odor control, continuous coagulation, sedimentation, filtration, covered clearwell storage, and terminal disinfection of the water with chlorine or suitable chlorine compounds. In all cases, the treatment process shall be designed to achieve at least a 2-log removal of *Cryptosporidium* oocysts, a 3-log removal or inactivation of *Giardia* cysts, and a 4-log removal or inactivation of viruses before the water is supplied to any consumer. The executive director may require additional levels of treatment in cases of poor source water quality. Based on raw water monitoring results, the executive director may require additional levels of treatment for *Cryptosporidium* treatment as specified in §290.111 of this title.

(2) All plant piping shall be constructed so as to be thoroughly tight against leakage. No cross-connection or interconnection shall be permitted to exist in a filtration plant between a conduit carrying filtered or post-chlorinated water and another conduit carrying raw water or water in any prior stage of treatment.

(A) Vacuum breakers must be provided on each hose bibb within the plant facility.

(B) No conduit or basin containing raw water or any water in a prior stage of treatment shall be located directly above, or be permitted to have a single common partition wall with another conduit or basin containing finished water.

(C) Make-up water supply lines to chemical feeder solution mixing chambers shall be provided with an air gap or other acceptable backflow prevention device.

(D) Filters shall be located so that common walls will not exist between them and aerators, mixing and sedimentation basins or clearwells. This rule is not strictly applicable, however, to partitions open to view and readily accessible for inspection and repair.

(E) Filter-to-waste connections, if included, shall be provided with an air gap connection to waste.

(F) Air release devices on treated waterlines 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 equivalent acceptable to the executive director.

(3) Return of the decanted water or solids to the treatment process shall be adequately controlled so that there will be a minimum of interference with the treatment process. Systems that do not comply with the provisions of this paragraph commit a treatment technique violation and must notify their customers in accordance with the requirements of §290.122(b) of this title [(relating to Public Notice)].

(A) Unless the executive director has approved an alternate recycling location, spent backwash water and the liquids from sludge settling lagoons, spent backwash water tanks, sludge thickeners, and similar dewatering facilities shall be returned to the raw waterline upstream of the raw water sample tap and coagulant feed point. The blended recycled liquids shall pass through all of the major unit processes at the plant.

(B) Recycle facilities shall be designed to minimize the magnitude and impact of hydraulic surges that occur during the recycling process.

(C) Solids produced by dewatering facilities such as sludge lagoons, sludge thickeners, centrifuges, mechanical presses, and similar devices shall not be returned to the treatment plant without the prior approval of the executive director.

(4) Reservoirs for pretreatment or selective quality control shall be provided where complete treatment facilities fail to operate satisfactorily at times of maximum turbidities or other abnormal raw water quality conditions exist. Recreational activities at such reservoirs shall be prohibited.

(5) Flow measuring devices shall be provided to measure the raw water supplied to the plant, the recycled decant water, the treated water used to backwash the filters, and the treated water discharged from the plant. Additional metering devices shall be provided as appropriate to monitor the flow rate through specific treatment processes. Metering devices shall be located to facilitate use and to assist in the determination of chemical dosages, the accumulation of water production data, and the operation of plant facilities.

(6) Chemical storage facilities shall comply with applicable requirements in subsection (f)(1) of this section.

(7) Chemical feed facilities shall comply with the applicable requirements in subsection (f)(2) of this section.

(8) Flash mixing equipment shall be provided.

(A) Plants with a design capacity greater than 3.0 million gallons per day must provide at least one hydraulic mixing unit or at least two sets of mechanical flash mixing equipment designed to operate in parallel. Public water systems with other surface water treatment plants, interconnections with other systems, or wells that can meet the system's average daily demand are exempt from the requirement for redundant mechanical flash mixing equipment.

(B) Flash mixing equipment shall have sufficient flexibility to ensure adequate dispersion and mixing of coagulants and other chemicals under varying raw water characteristics and raw water flow rates.

(9) Flocculation equipment shall be provided.

(A) Plants with a design capacity greater than 3.0 million gallons per day must provide at least two sets of flocculation equipment which are designed to operate in parallel. Public water systems with other surface water treatment plants,

interconnections with other systems, or wells that can meet the system's average daily demand are exempt from the requirement for redundant flocculation equipment.

(B) Flocculation facilities shall be designed to provide adequate time and mixing intensity to produce a settleable floc under varying raw water characteristics and raw water flow rates.

(i) Flocculation facilities for straight-flow and up-flow sedimentation basins shall provide a minimum theoretical detention time of at least 20 minutes when operated at their design capacity. Flocculation facilities constructed prior to October 1, 2000 are exempt from this requirement if the settled water turbidity of each sedimentation basin remains below 10.0 nephelometric turbidity unit (NTU) and the treatment plant meets with turbidity requirements of §290.111 of this title [(relating to Surface Water Treatment)].

(ii) The mixing intensity in multiple-stage flocculators shall decrease as the coagulated water passes from one stage to the next.

(C) Coagulated water or water from flocculators shall flow to sedimentation basins in such a manner as to prevent destruction of floc. Piping, flumes, and troughs shall be designed to provide a flow velocity of 0.5 to 1.5 feet per second.

Gates, ports, and valves shall be designed at a maximum flow velocity of 4.0 feet per second in the transfer of water between units.

(10) Clarification facilities shall be provided.

(A) Plants with a design capacity greater than 3.0 million gallons per day must provide at least two sedimentation basins or clarification units which are designed to operate in parallel. Public water systems with other surface water treatment plants, interconnections with other systems, or wells that can meet the system's average daily demand are exempt from the requirement for redundant sedimentation basins or clarification units.

(B) The inlet and outlet of clarification facilities shall be designed to prevent short-circuiting of flow or the destruction of floc.

(C) Clarification facilities shall be designed to remove flocculated particles effectively.

(i) When operated at their design capacity, basins for straight-flow or up-flow sedimentation of coagulated waters shall provide either a theoretical detention time of at least six hours in the flocculation and sedimentation

chambers or a maximum surface overflow rate of 0.6 gallons per minute per square foot of surface area in the sedimentation chamber.

(ii) When operated at their design capacity, basins for straight-flow or up-flow sedimentation of softened waters shall provide either a theoretical detention time of at least 4.5 hours in the flocculation and sedimentation chambers or a maximum surface overflow rate of 1.0 gallons per minute per square foot of surface area in the sedimentation chamber.

(iii) When operated at their design capacity, sludge-blanket and solids-recirculation clarifiers shall provide either a theoretical detention time of at least two hours in the flocculation and sedimentation chambers or a maximum surface overflow rate of 1.0 gallons per minute per square foot in the settling chamber.

(iv) A side wall water depth of at least 12 feet shall be provided in clarification basins that are not equipped with mechanical sludge removal facilities.

(v) The effective length of a straight-flow sedimentation basin shall be at least twice its effective width.

(D) Clarification facilities shall be designed to prevent the accumulation of settled solids.

(i) At treatment plants with a single clarification basin, facilities shall be provided to drain the basin within six hours. In the event that the plant site topography is such that gravity draining cannot be realized, a permanently installed electric-powered pump station shall be provided to dewater the basin. Public water systems with other potable water sources that can meet the system's average daily demand are exempt from this requirement.

(ii) Facilities for sludge removal shall be provided by mechanical means or by hopper-bottomed basins with valves capable of complete draining of the units.

(11) Gravity or pressure type filters shall be provided.

(A) The use of pressure filters shall be limited to installations with a treatment capacity of less than 0.50 million gallons per day.

(B) Filtration facilities shall be designed to operate at filtration rates which assure effective filtration at all times.

(i) The design capacity of gravity rapid sand filters shall not exceed a maximum filtration rate of 2.0 gallons per square foot per minute. At the beginning of filter runs for declining rate filters, a maximum filtration rate of 3.0 gallons per square foot per minute is allowed.

(ii) Where high-rate gravity filters are used, the design capacity shall not exceed a maximum filtration rate of 5.0 gallons per square foot per minute. At the beginning of filter runs for declining rate filters, a maximum filtration rate of 6.5 gallons per square foot per minute is allowed.

(iii) The design capacity of pressure filters shall not exceed a maximum filtration rate of 2.0 gallons per square foot per minute with the largest filter off-line

(iv) Except as provided in clause (vi) of this subparagraph, any surface water treatment plant that provides, or is being designed to provide, less than 7.5 million gallons per day must be able to meet either the maximum daily demand or the minimum required 0.6 gallons per minute per connection, whichever is larger, with all filters on-line.

(v) Any surface water treatment plant that provides, or is being designed to provide, 7.5 million gallons per day or more must be able to meet either the maximum daily demand or the minimum required 0.6 gallons per minute per connection, whichever is larger, with the largest filter off-line.

(vi) Any surface water treatment plant that uses pressure filters must be able to meet either the maximum daily demand or the minimum required 0.6 gallons per minute per connection, whichever is larger, with the largest filter off-line.

(C) The depth and condition of the media and support material shall be sufficient to provide effective filtration.

(i) The filtering material shall conform to American Water Works Association (AWWA) standards and be free from clay, dirt, organic matter, and other impurities.

(ii) The grain size distribution of the filtering material shall be as prescribed by AWWA standards.

(iii) The depth of filter sand, anthracite, granular activated carbon, or other filtering materials shall be 24 inches or greater and provide an L/d ratio of at least 1,000.

(I) Rapid sand filters typically contain a minimum of eight inches of fine sand with an effective size of 0.35 to 0.45 millimeter (mm), eight inches of medium sand with an effective size of 0.45 to 0.55 mm, and eight inches of coarse sand with an effective size of 0.55 to 0.65 mm. The uniformity coefficient of each size range should not exceed 1.6.

(II) High-rate dual media filters typically contain a minimum of 12 inches of sand with an effective size of 0.45 to 0.55 mm and 24 inches of anthracite with an effective size of 0.9 to 1.1 mm. The uniformity coefficient of each material should not exceed 1.6.

(III) High-rate multi-media filters typically contain a minimum of three inches of garnet media with an effective size of 0.2 to 0.3 mm, nine inches of sand with an effective size of 0.5 to 0.6 mm, and 24 inches of anthracite with an effective size of 0.9 to 1.1 mm. The uniformity coefficient of each size range should not exceed 1.6.

(IV) High-rate mono-media anthracite or granular activated carbon filters typically contain a minimum of 48 inches of anthracite or granular activated carbon with an effective size of 1.0 to 1.2 mm. The uniformity coefficient of each size range should not exceed 1.6.

(iv) Under the filtering material, at least 12 inches of support gravel shall be placed varying in size from 1/16 inch to 2.5 inches. The gravel may be arranged in three to five layers such that each layer contains material about twice the size of the material above it. Other support material may be approved on an individual basis.

(D) The filter shall be provided with facilities to regulate the filtration rate.

(i) With the exception of declining rate filters, each filter unit shall be equipped with a manually adjustable rate-of-flow controller with rate-of-flow indication or flow control valves with indicators.

(ii) Each declining rate filter shall be equipped with a rate-of-flow limiting device or an adjustable flow control valve with a rate-of-flow indicator.

(iii) The effluent line of each filter installed after January 1, 1996, must be equipped with a slow opening valve or another means of automatically preventing flow surges when the filter begins operation.

(E) The filters shall be provided with facilities to monitor the performance of the filter. Monitoring devices shall be designed to provide the ability to measure and record turbidity as required by §290.111 of this title.

(i) Each filter shall be equipped with a sampling tap so that the effluent turbidity of the filter can be individually monitored.

(ii) Each filter operated by a public water system that serves fewer than 10,000 people shall be equipped with an on-line turbidimeter and recorder which will allow the operator to measure and record the turbidity at 15-minute intervals. The executive director may allow combined filter effluent monitoring in lieu of individual filter effluent monitoring under the following conditions:

(I) The public water system has only two filters that were installed prior to October 1, 2000 and were never equipped with individual on-line turbidimeters and recorders; and

(II) The plant is equipped with an on-line turbidimeter and recorder which will allow the operator to measure and record the turbidity level of the combined filter effluent at a location prior to clearwell storage at 15-minute intervals.

(iii) Each filter operated by a public water system that serves at least 10,000 people shall be equipped with an on-line turbidimeter and recorder which will allow the operator to measure and record the turbidity at 15-minute intervals.

(iv) Each filter installed after October 1, 2000 shall be equipped with an on-line turbidimeter and recorder which will allow the operator to determine the turbidity at 15-minute intervals.

(v) Each filter unit that is not equipped with an on-line turbidimeter and recorder shall be equipped with a device to indicate loss of head through the filter. In lieu of loss-of-head indicators, declining rate filter units may be equipped with rate-of-flow indicators.

(F) Filters shall be designed to ensure adequate cleaning during the backwash cycle.

(i) Only filtered water shall be used to backwash the filters. This water may be supplied by elevated wash water tanks, by the effluent of other filters, or by pumps which take suction from the clearwell and are provided for backwashing filters only. For installations having a treatment capacity no greater than 150,000 gallons per day, water for backwashing may be secured directly from the distribution system if proper controls and rate-of-flow limiters are provided.

(ii) The rate of filter backwashing shall be regulated by a rate-of-flow controller or flow control valve.

(iii) The rate of flow of backwash water shall not be less than 20 inches vertical rise per minute (12.5 gallons per minute per square foot) and usually not more than 35 inches vertical rise per minute (21.8 gallons per minute per square foot).

(iv) The backwash facilities shall be capable of expanding the filtering bed during the backwash cycle.

(I) For facilities equipped with air scour, the backwash facilities shall be capable of expanding the filtering bed at least 15% during the backwash cycle.

(II) For mixed-media filters without air scour, the backwash facilities shall be capable of expanding the filtering bed at least 25% during the backwash cycle.

(III) For mono-media sand filters without air scour, the backwash facilities shall be capable of expanding the filtering bed at least 40% during the backwash cycle.

(v) The filter freeboard in inches shall exceed the wash rate in inches of vertical rise per minute.

(vi) When used, surface filter wash systems shall be installed with an atmospheric vacuum breaker or a reduced pressure principle backflow assembly in the supply line. If an atmospheric vacuum breaker is used it shall be installed in a section of the supply line through which all the water passes and which is located above the overflow level of the filter.

(vii) Gravity filters installed after January 1, 1996 shall be equipped with air scour backwash or surface wash facilities.

(G) Each filter installed after October 1, 2000 shall be equipped with facilities that allow the filter to be completely drained without removing other filters from service.

(12) Pipe galleries shall provide ample working room, good lighting, and good drainage provided by sloping floors, gutters, and sumps. Adequate ventilation to prevent condensation and to provide humidity control is also required.

(13) The identification of influent, effluent, waste backwash, and chemical feed lines shall be accomplished by the use of labels or various colors of paint. Where labels are used, they shall be placed along the pipe at no greater than five-foot intervals. Color coding must be by solid color or banding. If bands are used, they shall be placed along the pipe at no greater than five-foot intervals.

(A) A plant that is built or repainted after October 1, 2000 must use the following color code. The color code to be used in labeling pipes is as follows:

Figure: 30 TAC §290.42(d)(13)(A) (No change.)

LETTERS	COLOR OF PIPE
Potable Water	Light Blue
Compressed Air	Light Green

Instrument Air	Light Green with Dark Green Bands
Chlorine (gas, liquid, or vent)	Yellow
Chlorine (solution)	Yellow with Red Bands
Liquid Alum	Yellow with Orange Bands
Alum (solution)	Yellow with Green Bands
Ammonia	Yellow with Brown Bands
Chlorine Dioxide (solution)	Yellow with Blue Bands
Ferric chloride	Brown with Red Bands
Ferric sulfate	Brown with Yellow Bands
Polymers	White with Green Bands
Liquid caustic	White with Red Bands
Caustic (solution)	White with Orange Bands
Fluoride	White with Yellow Bands
Ozone	Stainless Steel with White Bands
Settled Water	Green
Filter Effluent	Light Blue
Backwash Supply	Light Blue
Backwash Waste	Dark Grey
Drain	Dark Grey
Raw Water	Tan

(B) A plant that was repainted before October 1, 2000 may use an alternate color code. The alternate color code must provide clear visual distinction between process streams.

(C) The system must maintain clear, current documentation of its color code in a location easily accessed by all personnel.

(14) All surface water treatment plants shall provide sampling taps for raw, settled, individual filter effluent, and clearwell discharge. Additional sampling taps shall be provided as appropriate to monitor specific treatment processes.

(15) An adequately equipped laboratory shall be available locally so that daily microbiological and chemical tests can be conducted.

(A) For plants serving 25,000 persons or more, the local laboratory used to conduct the required daily microbiological analyses must be accredited [certified] by the executive director to conduct coliform analyses.

(B) For plants serving populations of less than 25,000, the facilities for making microbiological tests may be omitted if the required microbiological samples can be submitted to a laboratory accredited [certified] by the executive director on a timely basis.

(C) All surface water treatment plants shall be provided with equipment for making at least the following determinations:

(i) pH;

(ii) temperature;

(iii) disinfectant residual;

(iv) alkalinity;

(v) turbidity;

(vi) jar tests for determining the optimum coagulant dose; and

(vii) other tests deemed necessary to monitor specific water quality problems or to evaluate specific water treatment processes.

(D) An amperometric titrator with platinum-platinum electrodes shall be provided at all surface water treatment plants that use chlorine dioxide.

(E) Each surface water treatment plant that uses sludge-blanket clarifiers shall be equipped with facilities to monitor the depth of the sludge blanket.

(F) Each surface water treatment plant that uses solids-recirculation clarifiers shall be equipped with facilities to monitor the solids concentration in the slurry.

(16) Each surface water treatment plant shall be provided with a computer and software for recording performance data, maintaining records, and submitting reports to the executive director. The executive director may allow a water system to locate the computer at a site other than the water treatment plant only if performance data can be reliably transmitted to the remote location on a real-time basis, the plant operator has access to the computer at all times, and performance data is readily accessible to agency staff during routine and special investigations.

(e) Disinfection.

(1) All water obtained from surface sources or groundwater sources that are under the direct influence of surface water must be disinfected in a manner consistent with the requirements of §290.110 of this title (relating to Disinfectant Residuals).

(2) All groundwater must be disinfected prior to distribution. The point of application must be ahead of the water storage tank(s) if storage is provided prior to distribution. Permission to use alternate disinfectant application points must be obtained in writing from the executive director.

(3) Disinfection equipment shall be selected and installed so that continuous and effective disinfection can be secured under all conditions.

(A) Disinfection equipment shall have a capacity at least 50% greater than the highest expected dosage to be applied at any time. It shall be capable of satisfactory operation under every prevailing hydraulic condition.

(B) Automatic proportioning of the disinfectant dosage to the flow rate of the water being treated shall be provided at plants where the treatment rate varies automatically and at all plants where the treatment rate varies more than 50% above or below the average flow. Manual control shall be permissible at surface water treatment plants or plants treating groundwater under the direct influence of surface water only if an operator is always on hand to make adjustments promptly.

(C) All disinfecting equipment in surface water treatment plants shall include at least one functional standby unit of each capacity for ensuring uninterrupted operation. Common standby units are permissible but, generally, more than one standby unit must be provided because of the differences in feed rates or the physical state in which the disinfectants are being fed (solid, liquid, or gas).

(D) Facilities shall be provided for determining the amount of disinfectant used daily as well as the amount of disinfectant remaining for use.

(E) When used, solutions of calcium hypochlorite shall be prepared in a separate mixing tank and allowed to settle so that only a clear supernatant liquid is transferred to the hypochlorinator container.

(F) Provisions shall be made for both pretreatment disinfection and post-disinfection in all surface water treatment plants. Additional application points shall be installed if they are required to adequately control the quality of the treated water.

(G) The use of disinfectants other than chlorine will be considered on a case-by-case basis under the exception guidelines of §290.39(l) of this title (relating to General Provisions).

(4) Systems that use chlorine gas must ensure that the risks associated with its use are limited as follows.

(A) When chlorine gas is used, a full-face self-contained breathing apparatus or supplied air respirator that meets Occupational Safety and Health Administration (OSHA) standards for construction and operation, and a small bottle of fresh ammonia solution (or approved equal) for testing for chlorine leakage shall be readily accessible outside the chlorinator room and immediately available to the operator in the event of an emergency.

(B) Housing for gas chlorination equipment and cylinders of chlorine shall be in separate buildings or separate rooms with impervious walls or partitions separating all mechanical and electrical equipment from the chlorine facilities. Housing shall be located above ground level as a measure of safety. Equipment and cylinders may be installed on the outside of the buildings when protected from adverse weather conditions and vandalism.

(C) Adequate ventilation, which includes both high level and floor level screened vents, shall be provided for all enclosures in which gas chlorine is being stored or fed. Enclosures containing more than one operating 150-pound cylinder of

chlorine shall also provide forced air ventilation which includes: screened and louvered floor level and high level vents; a fan which is located at and draws air in through the top vent and discharges to the outside atmosphere through the floor level vent; and a fan switch located outside the enclosure. Alternately, systems may install negative pressure ventilation as long as the facilities also have gas containment and treatment as prescribed by the current International Fire Code (IFC)[ ].

(5) Hypochlorination solution containers and pumps must be housed in a secure enclosure to protect them from adverse weather conditions and vandalism. The solution container top must be completely covered to prevent the entrance of dust, insects, and other contaminants.

(6) Where anhydrous ammonia feed equipment is utilized, it must be housed in a separate enclosure equipped with both high and low level ventilation to the outside atmosphere. The enclosure must be provided with forced air ventilation which includes: screened and louvered floor level and high level vents; a fan which is located at and draws air in through the floor vent and discharges through the top vent; and a fan switch located outside the enclosure. Alternately, systems may install negative pressure ventilation as long as the facilities also have gas containment and treatment as prescribed by the current IFC[ ].

(f) Surface water treatment plant chemical storage and feed facilities.

(1) Chemical storage facilities shall be designed to ensure a reliable supply of chemicals to the feeders, minimize the possibility and impact of accidental spills, and facilitate good housekeeping.

(A) Bulk storage facilities at the plant shall be adequate to store at least a 15-day supply of all chemicals needed to comply with minimum treatment technique and maximum contaminant level (MCL) requirements. The capacity of these bulk storage facilities shall be based on the design capacity of the treatment plant. However, the executive director may require a larger stock of chemicals based on local resupply ability.

(B) Day tanks shall be provided to minimize the possibility of severely overfeeding liquid chemicals. Day tanks will not be required if adequate process control instrumentation and procedures are employed to prevent chemical overfeed incidents.

(C) Every chemical bulk storage facility and day tank shall have a label that identifies the facility's or tank's contents and a device that indicates the amount of chemical remaining in the facility or tank.

(D) Dry chemicals shall be stored off the floor in a dry room that is located above ground and protected against flooding or wetting from floors, walls, and ceilings.

(E) Bulk storage facilities and day tanks must be designed to minimize the possibility of leaks and spills.

(i) The materials used to construct bulk storage and day tanks must be compatible with the chemicals being stored and resistant to corrosion.

(ii) Except as provided in this clause, adequate containment facilities shall be provided for all liquid chemical storage tanks.

(I) Containment facilities for a single container or for multiple interconnected containers must be large enough to hold the maximum amount of chemical that can be stored with a minimum freeboard of six vertical inches or to hold 110% of the total volume of the container(s), whichever is less.

(II) Common containment for multiple containers that are not interconnected must be large enough to hold the volume of the largest

container with a minimum freeboard of six vertical inches or to hold 110% of the total volume of the container(s), whichever is less.

(III) The materials used to construct containment structures must be compatible with the chemicals stored in the tanks.

(IV) Incompatible chemicals shall not be stored within the same containment structure.

(V) No containment facilities are required for hypochlorite solution containers that have a capacity of 35 gallons or less.

(VI) On a site-specific basis, the executive director may approve the use of double-walled tanks in lieu of separate containment facilities.

(F) Chemical transfer pumps and control systems must be designed to minimize the possibility of leaks and spills.

(G) Piping, pumps, and valves used for chemical storage and transfer must be compatible with the chemical being fed.

(2) Chemical feed and metering facilities shall be designed so that chemicals shall be applied in a manner which will maximize reliability, facilitate maintenance, and ensure optimal finished water quality.

(A) Each chemical feeder that is needed to comply with a treatment technique or MCL requirement shall have a standby or reserve unit. Common standby feeders are permissible, but generally, more than one standby feeder must be provided due to the incompatibility of chemicals or the state in which they are being fed (solid, liquid, or gas).

(B) Chemical feed equipment shall be sized to provide proper dosage under all operating conditions.

(i) Devices designed for determining the chemical feed rate shall be provided for all chemical feeders.

(ii) The capacity of the chemical feeders shall be such that accurate control of the dosage can be achieved at the full range of feed rates expected to occur at the facility.

(iii) Chemical feeders shall be provided with tanks for chemical dissolution when applicable.

(C) Chemical feeders, valves, and piping must be compatible with the chemical being fed.

(D) Chemical feed systems shall be designed to minimize the possibility of leaks and spills and provide protection against backpressure and siphoning.

(E) If enclosed feed lines are used, they shall be designed and installed so as to prevent clogging and be easily maintained.

(F) Dry chemical feeders shall be located in a separate room that is provided with facilities for dust control.

(G) Coagulant feed systems shall be designed so that coagulants are applied to the water prior to or within the mixing basins or chambers so as to permit their complete mixing with the water.

(i) Coagulant feed points shall be located downstream of the raw water sampling tap.

(ii) Coagulants shall be applied continuously during treatment plant operation.

(H) Chlorine feed units, ammonia feed units, and storage facilities shall be separated by solid, sealed walls.

(I) Chemical application points shall be provided to achieve acceptable finished water quality, adequate taste and odor control, corrosion control, and disinfection

(g) Other treatment processes. Innovative/alternate treatment processes will be considered on an individual basis, in accordance with §290.39(l) of this title. Where innovative/alternate treatment systems are proposed, the licensed professional engineer must provide pilot test data or data collected at similar full-scale operations demonstrating that the system will produce water that meets the requirements of Subchapter F of this chapter (relating to Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems). Pilot test data must be representative of the actual operating conditions which can be expected over the

course of the year. The executive director may require a pilot study protocol to be submitted for review and approval prior to conducting a pilot study to verify compliance with the requirements of §290.39(l) of this title and Subchapter F of this chapter [(relating to Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems)]. The executive director may require proof of a one-year manufacturer's performance warrantee or guarantee assuring that the plant will produce treated water which meets minimum state and federal standards for drinking water quality.

(1) Package-type treatment systems and their components shall be subject to all applicable design criteria in this section.

(2) Bag and cartridge filtration systems or modules installed or replaced after April 1, 2012, and used for microbiological treatment, can receive [*Cryptosporidium* and *Giardia* removal credit of] up to 3.0-log *Giardia* removal credit, up to 2.0-log *Cryptosporidium* removal credit for individual bag or cartridge filters, and up to 2.5-log *Cryptosporidium* removal credit for bag or cartridge filters operated in series only if the cartridges or bags meet [by meeting] the criteria in subparagraphs (A) - (C) of this paragraph.

(A) The filter system must treat the entire plant flow.

(B) To be eligible for this credit, systems must receive approval from the executive director based on the results of challenge testing that is conducted according to the criteria established by 40 Code of Federal Regulations (CFR) [CFR] §141.719 (a) and the executive director.

(i) A factor of safety equal to 1.0-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal credit.

(ii) Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the system will use for removal of *Cryptosporidium* and *Giardia*.

(iii) Bag or cartridge filters must be challenge tested in the same configuration that the system will use, either as individual filters or as a series configuration of filters.

(iv) Systems may use results from challenge testing conducted prior to January 5, 2006, if prior testing was consistent with 40 CFR

§141.719, submitted by the system's licensed professional engineer, and approved by the executive director.

(v) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, additional challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and results submitted to the executive director for approval.

(C) Pilot studies must be conducted using filters that will meet the requirements of this section.

(3) Membrane filtration systems or modules installed or replaced after April 1, 2012 and used for microbiological treatment, can receive *Cryptosporidium* and *Giardia* removal credit for membrane filtration only if the systems or modules meet the criteria in subparagraphs (A) - (F) of this paragraph.

(A) The membrane module used by the system must undergo challenge testing to evaluate removal efficiency. Challenge testing must be conducted according to the criteria established by 40 CFR §141.719(b)(2) and the executive director.

(i) All membrane module challenge test protocols and results, the protocol for calculating the representative Log Removal Value (LRV) for each membrane module, the removal efficiency, calculated results of $LRV_{C\text{-}Test}$, and the non-destructive performance test with its Quality Control Release Value (QCRV) must be submitted to the executive director for review and approval prior to beginning a membrane filtration pilot study at a public water system.

(ii) Challenge testing must be conducted on either a full-scale membrane module identical in material and construction to the membrane modules to be used in the system's treatment facility, or a smaller-scale membrane module identical in material and similar in construction to the full-scale module if approved by the executive director.

(iii) Systems may use data from challenge testing conducted prior to January 5, 2006, if prior testing was consistent with 40 CFR §141.719, submitted by the system's licensed professional engineer, and approved by the executive director.

(iv) If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane product line or the applicability of the non-destructive performance test and associated QCRV, additional

challenge testing to demonstrate the removal efficiency of the modified membrane and determine a new QCRV for the modified membrane must be conducted and results submitted to the executive director for approval.

(B) The membrane system must be designed to conduct and record the results of direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration system approved by the executive director and meets the requirements in clauses (i) - (ii) of this subparagraph.

(i) The design must provide for direct integrity testing of each membrane unit.

(ii) The design must provide direct integrity testing that has a resolution of 3 micrometers or less.

(iii) The design must provide direct integrity testing with a sensitivity sufficient to verify the log removal credit approved by the executive director. Sensitivity is determined by the criteria in 40 CFR §141.719(b)(3)(iii).

(iv) The executive director may reduce the direct integrity testing requirements for membrane units.

(C) The membrane system must be designed to conduct and record continuous indirect integrity monitoring on each membrane unit. The turbidity of the water produced by each membrane unit must be measured using the Hach FilterTrak Method 10133. The executive director may approve the use of alternative technology to monitor the quality of the water produced by each membrane unit.

(D) The level of removal credit approved by the executive director shall not exceed the lower of:

(i) the removal efficiency demonstrated during challenge testing conducted under the conditions in subparagraph (A) of this paragraph [§290.42(g)(3)(A) of this title], or

(ii) the maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process under the conditions in subparagraph (B) of this paragraph [§290.42(g)(3)(B) of this title].

(E) Pilot studies must be conducted using membrane modules that will meet the requirements of this section.

(F) Membrane systems must be designed so that membrane units' feed water, filtrate, backwash supply, waste and chemical cleaning piping shall have cross-connection protection to prevent chemicals from all chemical cleaning processes from contaminating other membrane units in other modes of operation. This may be accomplished by the installation of a double block and bleed valving arrangement, a removable spool system or other alternative methods approved by the executive director.

(4) Bag, cartridge or membrane filtration systems or modules installed or replaced before April 1, 2012 and used for microbiological treatment, can receive up to a 2.0-log removal credit for *Cryptosporidium* and up to a 3.0-log removal credit for *Giardia* based on site specific pilot study results, design, operation, and reporting requirements.

(5) Ultraviolet (UV) light reactors used for microbiological inactivation can receive *Cryptosporidium*, *Giardia* and virus inactivation credit if the reactors meet the criteria in subparagraphs (A) - (C) of this paragraph.

(A) UV light reactors can receive inactivation credit only if they are located after filtration.

(B) In lieu of a pilot study, the UV light reactors must undergo validation testing to determine the operating conditions under which a UV reactor delivers the required UV dose. Validation testing must be conducted according to the criteria established by 40 CFR §141.720(d)(2) and the executive director.

(i) The validation study must include the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps and other critical system components; inlet and outlet piping or channel configuration of the UV reactor; lamp and sensor locations; and other parameters determined by the executive director.

(ii) Validation testing must be conducted on a full-scale reactor that is essentially identical to the UV reactor(s) to be used by the system and using waters that are essentially identical in quality to the water to be treated by the UV reactor.

(C) The UV light reactor systems must be designed to monitor and record parameters to verify the UV reactors operation within the validated conditions approved by the executive director. The UV light reactor must be equipped with facilities to monitor and record UV intensity as measured by a UV sensor, flow rate, lamp status, and other parameters designated by the executive director.

(h) Sanitary facilities for water works installations. Toilet and hand washing facilities provided in accordance with established standards of good public health engineering practices shall be available at all installations requiring frequent visits by operating personnel.

(i) Permits for waste discharges. Any discharge of wastewater and other plant wastes shall be in accordance with all applicable state and federal statutes and regulations. Permits for discharging wastes from water treatment processes shall be obtained from the commission, if necessary.

(j) Treatment chemicals and media. All chemicals and any additional or replacement process media used in treatment of water supplied by public water systems must conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 60 for direct additives and ANSI/NSF Standard 61

for indirect additives. Conformance with these standards must be obtained by certification of the product by an organization accredited by ANSI.

(k) Safety.

(1) Safety equipment for all chemicals used in water treatment shall meet applicable standards established by the OSHA or Texas Hazard Communication Act, Texas Health and Safety Code, Title 6, Chapter 502.

(2) Systems must comply with United States Environmental Protection Agency (EPA) requirements for Risk Management Plans.

(l) Plant operations manual. A thorough plant operations manual must be compiled and kept up-to-date for operator review and reference. This manual should be of sufficient detail to provide the operator with routine maintenance and repair procedures, with protocols to be utilized in the event of a natural or man-made catastrophe, as well as provide telephone numbers of water system personnel, system officials, and local/state/federal agencies to be contacted in the event of an emergency.

(m) Security. Each water treatment plant and all appurtenances thereof shall be enclosed by an intruder-resistant fence. The gates shall be locked during periods of

darkness and when the plant is unattended. A locked building in the fence line may satisfy this requirement or serve as a gate.

(n) Corrosion control treatment. Systems must install any corrosion control or source water treatment required by §290.117(f) and (g) of this title (relating to Regulation of Lead and Copper), respectively. Such treatment must be designed and installed consistent with the requirements of this subchapter. The requirements of 40 CFR §141.82(i) and §141.83(b)(7) relating to EPA involvement in treatment determination are adopted by reference.

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

(a) General. When a public drinking water supply system is to be established, plans shall be submitted to the executive director for review and approval prior to the construction of the system. All public water systems are to be constructed in conformance with the requirements of this subchapter and maintained and operated in accordance with the following minimum acceptable operating practices. Owners and operators shall allow entry to members of the commission and employees and agents of the commission onto any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to public water systems in

the state. Members, employees, or agents acting under this authority shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his presence and shall exhibit proper credentials.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(C) Systems which serve no more than 1,000 connections and utilize coagulant addition and direct filtration must employ an operator who holds a Class "C" or higher surface water license and has completed the Groundwater Production course or who holds a Class "C" or higher groundwater license and has completed a Surface Water Production course. Effective January 1, 2007, the public water system must employ at least one operator who has completed the Surface Water Unit I course and the Surface Water Unit II course.

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

operators who have completed the Surface Water Unit I course and the Surface Water Unit II course.

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

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

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

(A) Surface water systems that serve no more than 1,000 connections must employ at least one operator who holds a Class "B" or higher surface water license. Part-time operators may be used to meet the requirements of this subparagraph if the operator is completely familiar with the design and operation of the plant and spends at least four consecutive hours at the plant at least once every 14 days

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

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

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

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

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

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

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

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

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

(i) the amount of chemicals used:

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

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

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

(ii) the volume of water treated:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(v) [(vi)] the records of backflow prevention device programs;

(vi) [(vii)] 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 ~~(relating to Surface Water Treatment)~~;

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

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

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

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

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

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

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

(vii) Consumer Confidence Report compliance documentation.

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

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

(ii) the results of chemical analyses;

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

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

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

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

(vii) copy of any 40/30 certification required by §290.115 of this title;

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

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

(F) A public water system shall maintain records relating to 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 shall be attached to the system's monitoring plan.~~ 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) [(F)] A public water system shall maintain records relating to special studies and pilot projects, special monitoring, and other system-specific matters as directed by the executive director.

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

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

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

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

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

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

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

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

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

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

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

(j) Customer service inspections. A customer service inspection certificate shall be completed prior to providing continuous water service to new construction, on any existing service either when the water purveyor has reason to believe that cross-connections or other potential contaminant hazards exist, or after any material

improvement, correction, or addition to the private water distribution facilities. Any customer service inspection certificate form which varies from the format found in §290.47(d) of this title must be approved by the executive director prior to being placed in use.

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

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

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

(2) As potential contaminant hazards are discovered, they shall be promptly eliminated to prevent possible contamination of the water supplied by the public water system. The existence of a health hazard, as identified in §290.47(i) of this title, shall be considered sufficient grounds for immediate termination of water service. Service can be restored only when the health hazard no longer exists, or until the health

hazard has been isolated from the public water system in accordance with §290.44(h) of this title (relating to Water Distribution).

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

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

inspections, the customer service inspector shall report any violations immediately to the local entity's plumbing inspection department.

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

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

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

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

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

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

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

(2) When pressure filters are used, a visual inspection of the filter media and internal filter surfaces shall be conducted annually to ensure that the filter media is

in good condition and the coating materials continue to provide adequate protection to internal surfaces.

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

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

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

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

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

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

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

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

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

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

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

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

(q) Special precautions. Special precautions must be instituted by the water system owner or responsible official in the event of low distribution pressures (below 20 pounds per square inch (psi)), water outages, microbiological samples found to contain *E. coli* or fecal coliform organisms, failure to maintain adequate chlorine residuals, elevated finished water turbidity levels, or other conditions which indicate that the potability of the drinking water supply has been compromised.

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

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

samples collected for microbiological analysis are found negative for coliform organisms.

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

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

(r) Minimum pressures. All public water systems shall be operated to provide a minimum pressure of 35 psi throughout the distribution system under normal operating conditions. The system shall also be operated to maintain a minimum pressure of 20 psi during emergencies such as fire fighting. As soon as safe and practicable following the occurrence of a natural disaster, a public water system that is an affected utility shall maintain a minimum of 35 psi throughout the distribution system during an extended power outage.

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

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

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

(A) pH meters shall be properly calibrated.

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

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

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

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

(B) Turbidimeters shall be properly calibrated.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(1) In this subsection:

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

(B) "Public utility" means any person, corporation, cooperative corporation, affected county, or any combination of these persons or entities, other than a municipal corporation, water supply or sewer service corporation, or a political

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

(C) "Residential area" means:

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

(ii) a subdivision for which a plat is recorded in the real property records of the county and that contains or is bounded by public streets or parts

of public streets that are abutted by residential property occupying at least 75 percent of the front footage along the block face; or

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

(2) 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.

§290.47. Appendices.

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

Figure: 30 TAC §290.47(a)

[Figure: 30 TAC §290.47(a)]

APPENDIX A

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(b) Appendix B. Sample Retail Service Agreement.

Figure: 30 TAC §290.47(b)

[Figure: 30 TAC §290.47(b)]

RETAIL SERVICE AGREEMENT

I. PURPOSE. The NAME OF WATER SYSTEM is responsible for protecting the drinking water supply from contamination or pollution which could result from improper [private water distribution] system construction or configuration on the retail connection owner's side of the meter. The purpose of this service agreement is to notify each customer of the restrictions which are in place to provide this protection. The public water system [utility] enforces these restrictions to ensure the public health and welfare. Each retail customer must sign this agreement before the NAME OF WATER SYSTEM will begin service. In addition, when service to an existing retail connection has been suspended or terminated, the water system will not re-establish service unless it has

a signed copy of this agreement.

II. RESTRICTIONS. The following unacceptable practices are prohibited by State regulations.

A. No direct connection between the public drinking water supply and a potential source of contamination is permitted. Potential sources of contamination shall be isolated from the public water system by an air-gap or an appropriate backflow prevention device.

B. No cross-connection between the public drinking water supply and a private water system is permitted. These potential threats to the public drinking water supply shall be eliminated at the service connection by the installation of an air-gap or a reduced pressure-zone backflow prevention device.

C. No connection which allows water to be returned to the public drinking water supply is permitted.

D. No pipe or pipe fitting which contains more than 8.0% lead may be used for the installation or repair of plumbing at any connection which provides water for human use.

E. No solder or flux which contains more than 0.2 percent lead can be used for the installation or repair of plumbing at any connection which provides water for human use.

III. SERVICE AGREEMENT. The following are the terms of the service agreement between the NAME OF WATER SYSTEM (the Water System) and NAME OF CUSTOMER (the Customer).

A. The Water System will maintain a copy of this agreement as long as the Customer and/or the premises is connected to the Water System.

B. The Customer shall allow his property to be inspected for possible cross-connections and other potential contamination hazards. These inspections shall be conducted by the Water System or its designated agent prior to initiating new water service; when there is reason to believe that cross-connections or other potential contamination hazards exist; or after any major changes to the private water distribution facilities. The inspections shall be conducted during the Water System's normal business hours.

C. The Water System shall notify the Customer in writing of any cross-connection or other potential contamination hazard which has been identified during the initial inspection or the periodic reinspection.

D. The Customer shall immediately remove or adequately isolate any potential cross-connections or other potential contamination hazards on his premises.

E. The Customer shall, at his expense, properly install, test, and maintain any backflow prevention device required by the Water System. Copies of all testing and maintenance records shall be provided

to the Water System.

IV. ENFORCEMENT. If the Customer fails to comply with the terms of the Service Agreement, the Water System shall, at its option, either terminate service or properly install, test, and maintain an appropriate backflow prevention device at the service connection. Any expenses associated with the enforcement of this agreement shall be billed to the Customer.

CUSTOMER'S SIGNATURE:_____
DATE:_____

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

Figure: 30 TAC §290.47(c)

[Figure: 30 TAC §290.47(c)]

SANITARY CONTROL EASEMENT

DATE: _____, 2____

GRANTOR(S):
GRANTOR'S ADDRESS:
GRANTEE:
GRANTEE'S ADDRESS:
SANITARY CONTROL EASEMENT:

Purpose, Restrictions, and Uses of Easement:
1. The purpose of this easement is to protect the water supply of the well described and located below by means of sanitary control.
2. The construction, existence, and/or operation of the following within a 150-foot radius of the well described and located below are prohibited: septic tank or sewage treatment perforated drainfields; areas irrigated by low dosage, low angle spray on-site sewage facilities; absorption beds; evapotranspiration beds; abandoned,

inoperative or improperly constructed water wells of any depth; underground petroleum and chemical storage tanks or liquid transmission pipelines; sewage treatment plants; sewage wet wells; sewage pumping stations; drainage ditches which contains industrial waste discharges or wastes from sewage treatment systems; animal feed lots; solid waste disposal sites, landfill and dump sites; lands on which sewage plant or septic tank sludge is applied; lands irrigated by sewage plant effluent; military facilities; industrial facilities; wood-treatment facilities; liquid petroleum and petrochemical production, storage, and transmission facilities; Class 1, 2, 3, and 4 injection wells; pesticide storage and mixing facilities; and all other constructions or operations that could pollute the groundwater sources of the well that is the subject of this easement. For the purpose of this easement, improperly constructed water wells are those wells which do not meet the surface and subsurface construction standards for a public water supply well. [The construction and operation of underground petroleum and chemical storage tanks and liquid transmission pipelines, stock pens, feedlots, dump grounds, privies, cesspools, septic tank or sewage treatment drainfields, improperly constructed water wells of any depth, and all other construction or operation that could create an unsanitary condition within, upon, or across the property subject to this easement are prohibited within this easement. For the purpose of the easement, improperly constructed water wells are those wells which do not meet the surface and subsurface construction standards for a public water supply well.]

3. The construction, existence and/or operation of tile or concrete sanitary sewers, sewer appurtenances, septic tanks, storm sewers, [and] cemeteries, and/or the existence of livestock in pastures is specifically prohibited within a 50-foot radius of the water well described and located below.

4. This easement permits the construction of homes or buildings upon the Grantor's property, and farming and ranching operations, as long as all items in Restrictions Nos. 2 and 3 are recognized and followed.

[5. This easement permits normal farming and ranching operations, except that livestock shall not be allowed within 50 feet of the water well.]

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

Volume ___, Pages ___ of the Real Property Records of _____ County, Texas.

PROPERTY SUBJECT TO EASEMENT:

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

TERM:

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

ENFORCEMENT:

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

INVALIDATION:

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

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

GRANTOR(S)

By:

ACKNOWLEDGMENT

STATE OF TEXAS §

§

COUNTY OF §

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

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

Typed or Printed
Name of Notary

Recorded in _____ Courthouse, _____ Texas on _____, 2____

(d) Appendix D. Customer Service Inspection Certification.

Figure: 30 TAC §290.47(d)

[Figure: 30 TAC §290.47(d)]

Customer Service Inspection Certificate

Name of PWS _____PWS I.D.# _____
Location of Service _____

Reason for Inspection: New construction..... ☐
Existing service where contaminant hazards are suspected..... ☐
Major renovation or expansion of distribution facilities..... ☐

I _____, upon inspection of the private water distribution facilities connected to the aforementioned public water supply do hereby certify that, to the best of my knowledge:

Compliance	Non-Compliance		
☐	☐	*(1)*	No direct connection between the public drinking water supply and a potential source of contamination exists. Potential sources of contamination are isolated from the public water system by an air gap or an appropriate backflow prevention assembly in accordance with Commission regulations.
☐	☐	(2)	No cross-connection between the public drinking water supply and a private water system exists. Where an actual air gap is not maintained between the public water supply and a private water supply, an approved reduced pressure-zone backflow prevention assembly is properly installed and a service agreement exists for annual inspection and testing by a certified backflow prevention assembly tester.
☐	☐	(3)	No connection exists which would allow the return of water used for condensing, cooling or industrial processes back to the public water supply.
☐	☐	(4)	No pipe or pipe fitting which contains more than 8.0% lead exists in private water distribution facilities installed on or after July 1, 1988.
☐	☐	(5)	No solder or flux which contains more than 0.2% lead exists in private water distribution facilities installed on or after July 1, 1988.

I further certify that the following materials were used in the installation of the private water distribution facilities:

Service lines Lead ☐ Copper ☐ PVC ☐ Other ☐
Solder Lead ☐ Lead Free ☐ Solvent Weld ☐ Other ☐

I recognize that this document shall become a permanent record of the aforementioned Public Water System and that I am legally responsible for the validity of the information I have provided.

Remarks _____

_____

Signature of Inspector	Registration Number
Title	Type of Registration
Date	

(e) Appendix E. Boil Water Notification.

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

BOIL WATER NOTIFICATION

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

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

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

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

INSTRUCTIONS:

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

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

Figure: 30 TAC §290.47(f)
[Figure: 30 TAC §290.47(f)]

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

BACKFLOW PREVENTION ASSEMBLY TEST AND MAINTENANCE REPORT

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

The backflow prevention assembly detailed below has been tested and maintained as required by commission regulations and is certified to be operating within acceptable parameters.

TYPE OF ASSEMBLY

☐ Reduced Pressure Principle ☐ Reduced Pressure Principle-Detector
☐ Double Check Valve ☐ Double Check-Detector

☐ Pressure Vacuum Breaker ☐ Spill-Resistant Pressure Vacuum Breaker

Manufacturer_____
Size_____
Model Number_____ Located At _____
Serial Number_____

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

	Reduced Pressure Principle Assembly			Pressure Vacuum Breaker	
	Double Check Valve Assembly		Relief Valve	Air Inlet	Check Valve
	1st Check	2nd Check			
Initial Test	Held at ___ psid Closed Tight ☐ Leaked ☐	Held at ___ psid Closed Tight ☐ Leaked ☐	Opened at ___ psid Did not open ☐	Opened at ___ psid Did not open ☐	Held at ___ psid Leaked ☐
Repairs and Materials Used					
Test After Repair	Held at ___ psid Closed Tight ☐	Held at ___ psid Closed Tight ☐	Opened at ___ psid	Opened at ___ psid	Held at ___ psid

Test gauge used: Make/Model_____ SN:_____ Date Tested for Accuracy:_____
Remarks:_____
_____

The above is certified to be true at the time of testing.
Firm Name _____ Certified Tester (print)_____
Firm Address _____Certified Tester (signature)_____
Firm Phone #_____ Cert. Tester No. _____

Date_____

* TEST RECORDS MUST BE KEPT FOR AT LEAST THREE YEARS
** USE ONLY MANUFACTURER'S REPLACEMENT PARTS

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

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

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

Operator and/or Employment Notice Form

Name of Operator or Operating Company	For Operators		For Companies
	License No.	Class of License	Registration No.
1.			
2.			
3.			

4.			
5.			
6.			
7.			
8.			
9.			
10.			

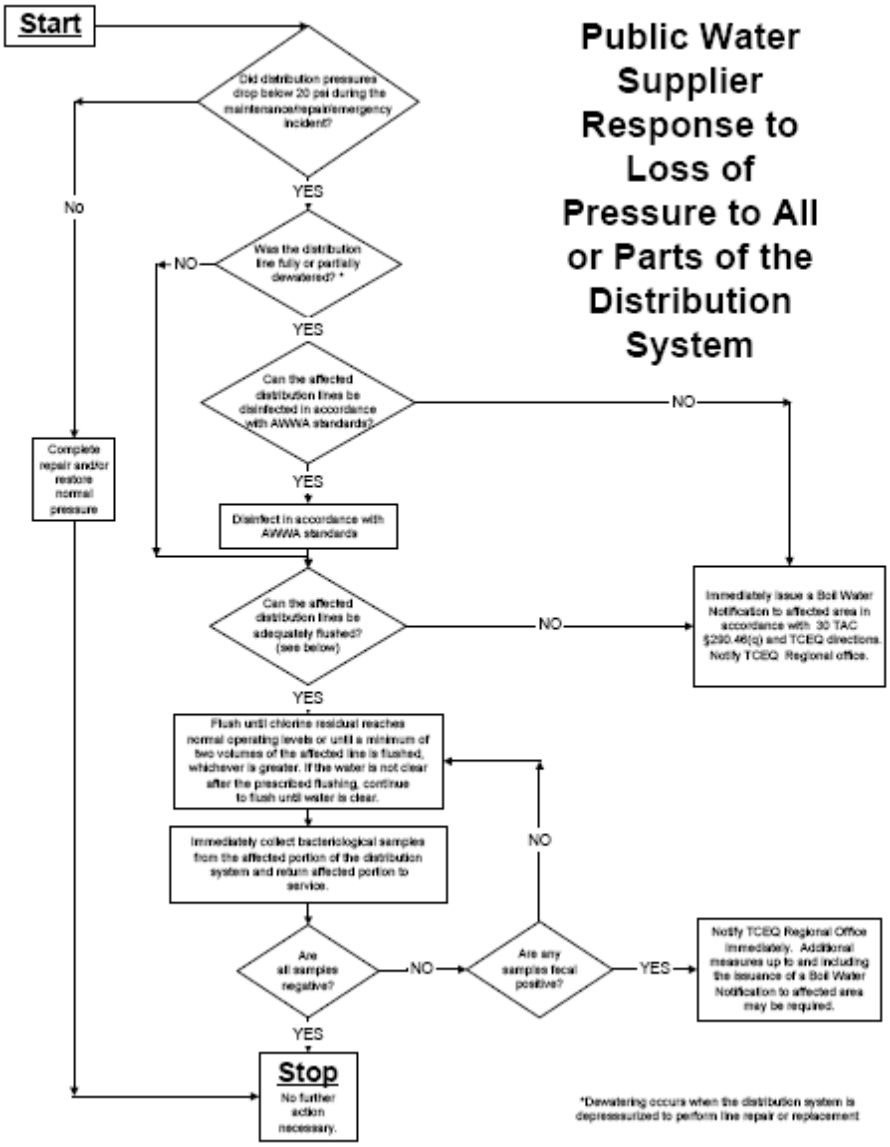
_____
_____
Signature of Water System Owner or Responsible Official Date

_____
_____
Name of Water System Owner or Responsible Official Title of Owner or Responsible Official

(h) Appendix H. Special Precautions.

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

Figure: 30 TAC §290.47(h)



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

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

Appendix I: Assessment of Hazards and Selection of Assemblies

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

Premises Isolation: Description of Premises	Assessment of Hazard	Required Assembly
Aircraft and missile plants	Health	RPBA or AG
Animal feedlots	Health	RPBA or AG
Automotive plants	Health	RPBA or AG
Breweries	Health	RPBA or AG
Canneries, packing houses and rendering plants	Health	RPBA or AG
Commercial car wash facilities	Health	RPBA or AG
Commercial laundries	Health	RPBA or AG
Cold storage facilities	Health	RPBA or AG
Connection to sewer pipe	Health	RPBA or AG
Dairies	Health	RPBA or AG

Docks and dockside facilities	Health	RPBA or AG
Dye works	Health	RPBA or AG
Food and beverage processing plants	Health	RPBA or AG
Hospitals, morgues, mortuaries, medical clinics, dental clinics, veterinary clinics, autopsy facilities, sanitariums, and medical labs	Health	RPBA or AG
Metal manufacturing, cleaning, processing, and fabrication plants	Health	RPBA or AG
Microchip fabrication facilities	Health	RPBA or AG
Paper and paper products plants	Health	RPBA or AG
Petroleum processing or storage facilities	Health	RPBA or AG
Photo and film processing labs	Health	RPBA or AG
Plants using radioactive material	Health	RPBA or AG
Plating or chemical plants	Health	RPBA or AG
Pleasure-boat marinas	Health	RPBA or AG
Private/Individual/Unmonitored wells	Health	RPBA or AG
Rainwater harvesting system	Health	RPBA or AG

Reclaimed water systems	Health	RPBA or AG
Restricted, classified or other closed facilities	Health	RPBA or AG
Rubber plants	Health	RPBA or AG
Sewage lift stations	Health	RPBA or AG
Sewage treatment plants	Health	RPBA or AG
Slaughter houses	Health	RPBA or AG
Steam plants	Health	RPBA or AG
Tall buildings or elevation differences where the highest outlet is 80 feet or more above the meter	Nonhealth	DCVA

Internal Protection - Description of Cross-Connection	Assessment of Hazard	Required Assembly
Aspirators	Nonhealth†	AVB
Aspirator (medical)	Health	AVB or PVB
Autoclaves	Health	RPBA
Autopsy and mortuary equipment	Health	AVB or PVB
Bedpan washers	Health	AVB or PVB
Connection to industrial fluid	Health	RPBA

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

Swimming pools		
Private	Nonhealth†	PVB or AG
Public	Nonhealth†	RPBA or AG
Sewage pump	Health	AG
Sewage ejectors	Health	AG
Shampoo basins	Nonhealth†	AVB
Specimen tanks	Health	AVB or PVB
Steam generators	Nonhealth†	RPBA
Steam tables	Nonhealth†	AVB
Sterilizers	Health	RPBA
Tank vats or other vessels containing toxic substances	Health	RPBA
Trap primers	Health	AG
Vending machines	Nonhealth†	RPBA or PVB
Watering troughs	Health	AG or PVB

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

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

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

(j) Appendix J. Emergency Preparedness Plan Template.

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

Appendix J: Emergency Preparedness Plan Template

This appendix contains information to assist an affected utility in preparing an emergency preparedness plan. A comprehensive guide and shell form, TCEQ Form No. 20536, for preparing a plan is available from the executive director upon request. A cover letter containing the name of the affected utility and, if applicable, public water system identification number (PWS ID), district number and water certificate of convenience and necessity (CCN) must be included with the plan submittal. Also, the letter must include the affected utility representative's name, title and contact telephone number.

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

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

Definitions: §290.38(1), (26), and (28)

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

Water Distribution: §290.44(d)

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

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

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

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

(1) Auxiliary generators equipped with automatic starting generators and switch over equipment. This equipment must have the ability to detect the failure of normal power from the electric grid; automatically start the generator; isolate necessary water equipment from the normal power grid; and switch the running generator's power to power the necessary water equipment to maintain the required minimum pressure.

(2) Two or more affected utilities may propose the sharing of auxiliary generator power. Necessary electrical and/or water connections equipped with automatic switch over and opening valves must be presented in the plan to demonstrate how one or more affected utilities will be able to maintain the required minimum pressure. Describe which equipment will share the auxiliary generator power and which equipment, if any, would receive power from only a single affected utility's auxiliary power equipment.

(3) Copies of negotiated leasing and contract agreements for emergency power equipment and any necessary fuel. This includes mutual aid agreements with other retail public utilities, exempt utilities, or providers or conveyors of potable or raw water service if the agreements provide for coordination with the division of emergency management in the governor's office. Consideration must be given to the location of where the other water supplier(s) are located as they may also be affected by the same natural disaster. In addition, when entering into a contract for leasing of emergency power equipment and necessary fuel, the contractual commitments of the supplier to other water suppliers and businesses within an area subject to the same natural disaster event must be taken into consideration.

(4) Use of portable generators capable of serving multiple facilities. The portable generator(s) and the necessary water equipment must be pre-equipped with quick-connect, mating electrical connectors to facilitate the rapid implementation of the emergency preparedness plan. The plan must address whether there is an adequate number of portable generators to operate all of the necessary water equipment in order to maintain the required minimum pressure in multiple pressure plans or at multiple systems, if affected by the same natural disaster event.

(5) In lieu of generators, alternative on-site electrical generation, or distributed electrical generation facilities, may be used. This may include the use of wind, solar or other power as a means of providing sufficient emergency power to

operate the necessary water equipment to maintain the required minimum pressure.

(6) Hardening of the electric transmission and distribution system serving the affected utility. One alternative is to relocate electric transmission lines for the system from overhead to underground and protect them from flooding. Another alternative is to replace overhead transmission lines, poles, and related appurtenances with ones that can withstand historical hurricane-force wind velocities, and trim or remove any trees next to and above the overhead transmission lines. Either alternative must include documentation on the ability of applicable power plant(s) and station(s) to withstand hurricane-force winds.

(7) Engines equipped with direct or right angle drives can be used as auxiliary power sources. Each pump or other equipment must be equipped with appropriate mechanical fittings to facilitate the use of engines. The plan must address the operation of chemical feed pumps using a generator(s).

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

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

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

□ List all ground, surface, and purchased water sources, with locations and individual capacities.

□ List all interconnections with other water providers; whether normally open or closed; size; whether wholesale, purchase, or both; available capacity; and any other pertinent information. Include the names of each interconnection and their contact information, including names, titles, telephone and pager numbers, and email addresses.

□ List the capacity and power requirements of all treatment equipment.

□ For each chemical, list the type of storage, volume, and volume required per day during emergency operations.

□ Provide a copy of all water distribution and transmission piping maps.

- □ Provide the maximum and average daily demands. If the emergency preparedness plan is for a proposed affected utility, the minimum specified capacities in §290.45 of this subchapter shall be used for the maximum daily demand.

- □ List all primary electrical power sources.

- □ List all equipment necessary to provide water to customers at the required minimum pressure and adequate flow rate, and the power requirements for each piece of equipment.

- □ List the size, location and fuel requirement in gallons per hour at the load necessary to maintain emergency operations for all on-site manual and automatic auxiliary power equipment, and provide information as to how the affected utility determined the necessary fuel quantity.

- □ Provide documentation as to how the affected utility will ensure that it maintains an adequate supply of fuel during emergency operations.

- □ List the size, location, fuel requirement in gallons per hour at the load necessary to maintain emergency operations, and the name of the system sharing the equipment for all shared auxiliary power equipment. Include the other system's contact persons with their emergency telephone and pager numbers and email addresses.

- □ Provide a copy of any leasing and contracting agreements, including mutual aid agreements with other retail public utilities, exempt utilities, or providers or conveyors of potable or raw water service, if the agreements provide for coordination with the division of emergency management in the governor's office. If leasing, include the vendor's name, location, and contact information.

- □ List all portable generators' power, phase, type of quick-connect, fuel type, and fuel demand in gallons per hour.

- □ Provide specifications, a description, and detailed capacity information for all on-site electrical generation or distributive generation equipment. Include all fuel demands for this equipment.

- □ List all direct or right angle drive emergency power equipment with the name, type of engine, fuel type, and fuel demand in gallons per hour.

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

SUBCHAPTER F: DRINKING WATER STANDARDS GOVERNING DRINKING WATER QUALITY AND REPORTING REQUIREMENTS FOR PUBLIC WATER SYSTEMS

§§290.111 - 290.115, 290.117, 290.119, 290.121, 290.122

STATUTORY AUTHORITY

The amendments and new section are adopted under Texas Water Code (TWC), §5.102, which establishes the commission's general authority necessary to carry out its jurisdiction; §5.103, which establishes the commission's general authority to adopt rules; §5.105, which establishes the commission's authority to set policy by rule; and Texas Health and Safety Code (THSC), §341.031, which allows the commission to adopt rules to implement the federal Safe Drinking Water Act, 42 United States Code, §§300f to 300j-26; and THSC, §341.0315, which requires public water systems to comply with commission rules adopted to ensure the supply of safe drinking water.

The adopted amendments and new section implement TWC, §§5.102, 5.103, and 5.105, and THSC, §341.031 and §341.0315.

§290.111. Surface Water Treatment.

(a) Applicability. A public water system that treats surface water or groundwater under the direct influence of surface water must comply with the requirements of this section.

(1) A public water system that treats surface water must comply with the requirements of this section beginning on the effective date of the rule.

(2) A public water system that treats groundwater under the direct influence of surface water must comply with the requirements of this section beginning on a date specified by the executive director. This compliance date shall not exceed 18 months from the date that the executive director first notifies the system that the groundwater source is under the direct influence of surface water.

(3) A public water system that treats both surface water and groundwater under the direct influence of surface water must meet the compliance date in paragraph (1) of this subsection at plants that treat any surface water and must meet the compliance date in paragraph (2) of this subsection at plants that treat only groundwater under the direct influence of surface water.

(b) Raw surface water monitoring. A public water system that treats surface water or groundwater under the direct influence of surface water must conduct <u>at least</u> two

rounds of special raw surface water monitoring at each surface water intake and at each well producing groundwater under the direct influence of surface water for the purpose of establishing minimum treatment technique requirements for *Cryptosporidium* and other pathogens. The executive director may waive the raw surface water monitoring requirements for an intake or a well if the combination of pathogen removal and disinfection processes used to treat the raw water achieves at least a 5.5-log total removal and inactivation of *Cryptosporidium parvum*.

(1) Raw water monitoring plans. A system must submit a proposed raw surface water monitoring plan when requested by the executive director. The proposed plan must identify all of the system's intakes and wells; provide the location of each raw water sampling point; include the parameters that will be monitored and the frequency and dates that samples will be collected; and specify the laboratories that will perform the analyses. Raw surface water monitoring must be conducted in accordance with a monitoring plan that has been approved by the executive director. The executive director shall not approve a raw surface water monitoring plan unless it indicates that the system will meet the requirements of 40 Code of Federal Regulations (CFR) §§141.701- 141.707.

(2) Sampling location. A system must collect each raw water sample at a location approved by the executive director. Samples must be collected from the raw

water line prior to any treatment and before the first point where a recycled stream is returned to the treatment process.

(3) Sampling parameters and frequency. A system must collect raw water samples at a frequency approved by the executive director.

(A) Unless the executive director approves an alternate sampling regimen, a system must monitor turbidity, *E. coli*, and *Cryptosporidium* levels in the raw water at least once each month for a period of not less than 24 consecutive months if the system:

(i) serves at least 10,000 people; or

(ii) is part of combined distribution system in which one or more systems serve at least 10,000 people and the system with the well or intake regularly provides water to another public water supply.

(B) A system that is not required to monitor under subparagraph (A) of this paragraph must either monitor in accordance with the requirements of subparagraph (A) of this paragraph or monitor *E. coli* levels in their raw water at least once every two weeks for a period of not less than 12 consecutive months. A system that

does not initially monitor for *Cryptosporidium* and has elevated *E. coli* levels must conduct additional raw water monitoring.

(i) A system must conduct additional monitoring if the average *E. coli* level exceeds 50 colony-forming units per 100 milliliters in the raw water produced by a surface water intake located on a river or flowing stream or the raw water from a well producing groundwater under the direct influence of surface water located closest to a river or flowing stream.

(ii) A system must conduct additional monitoring if the average *E. coli* level exceeds 10 colony-forming units per 100 milliliters in the raw water from a surface water intake not located on a river or flowing stream or the raw water produced by a well producing groundwater under the direct influence of surface water not located on a river or flowing stream.

(iii) A system that must conduct additional monitoring must monitor *Cryptosporidium* levels in the raw water at least twice each month for a period of not less than 12 consecutive months, or at least once each month for a period of not less than 24 consecutive months.

(C) The executive director may approve an alternate sampling frequency for intakes and wells that operate only part of the year.

(4) Sampling schedule and dates. A system must collect raw water samples in accordance with a schedule approved by the executive director.

(A) Except as provided in subparagraph (B) of this paragraph [paragraph (B)], a system must begin each round of raw source water monitoring no later than the date shown in the following table titled "Raw Source Water Monitoring Schedule."

Figure: 30 TAC §290.111(b)(4)(A) (No change.)

Raw Source Water Monitoring Schedule

Systems that are not part of a combined distribution system[(1)] and serve . . .	must begin the first round of source water monitoring no later than the month beginning . . .	and must begin the second round of source water monitoring no later than the month beginning . . .
At least 100,000 people	October 1, 2006	April 1, 2015
From 50,000 to 99,999 people	April 1, 2007	October 1, 2015
From 10,000 to 49,999 people	April 1, 2008	October 1, 2016
Fewer than 10,000 people and monitor for *E. coli*	October 1, 2008	October 1, 2017
Fewer than 10,000 and monitor for *Cryptosporidium*	April 1, 2010	April1, 2019

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(1) Systems that provide treated surface water to another system and are part of a combined distribution system must begin monitoring at the same time as the system in the combined distribution system that has the earliest compliance date.

(B) If a system installs a new well or intake after the date the first round of raw source water monitoring must begin, the system must:

(i) submit a proposed monitoring schedule for the first round of special raw surface water monitoring no later than three months after first placing the new source in operation; and

(ii) begin the second round of special raw surface water monitoring no later than six years after initial bin classification.

(C) A system must collect a raw water sample no sooner than two days before the date approved by the executive director and no later than two days after the approved date, unless an extreme condition or situation exists that poses a danger to the sample collector.

(D) A system which is unable to collect a sample within this five-day period must collect the sample as close as possible to the approved date and must notify the executive director in writing why the sample was not collected on the approved date.

(5) Replacement samples. If, for any reason, the laboratory is unable to report a valid analytical result for a scheduled sample, the system must submit a replacement sample on a date approved by the executive director.

(6) Analytical requirements. Raw water samples collected pursuant to this subsection must be analyzed at an approved or accredited [certified] laboratory.

(A) *Cryptosporidium* samples must be analyzed using one of the methods approved in 40 CFR [Title 40 Code of Federal Regulations (CFR)] §141.704(a) and by a laboratory that is approved under United States Environmental Protection Agency's (EPA) Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* in Water.

(B) *E. coli* samples must be analyzed using one of the methods approved in 40 CFR §136.3(a) for the enumeration of *E. coli* in source water and by a laboratory that is certified or accredited by the executive director.

(i) Systems must ensure that samples are maintained between 0° C and 10° C during storage and transportation to the laboratory.

(ii) The time between sample collection and the initiation of the analysis may not exceed 30 hours without the prior approval of the executive director.

(iii) The executive director may allow up to 48 hours between sample collection and the initiation of the analysis if the analysis is conducted by the Colilert reagent version of Standard Method 9223B.

(C) Turbidity samples must be analyzed using a method and at a laboratory approved by the executive director.

(7) Reporting requirements for raw surface water sample results. The owner or operator of a public water system must provide to the executive director with a copy of the results of any test, measurement, or analysis required by this subsection.

(A) Results must be submitted using the Raw Surface Water Sampling Report (commission Form 20358) or in another format that is approved by the executive director and contains the information required by 40 CFR §141.706(e).

(i) If the sample was not collected within the five-day [5-day] window described in paragraph (4)(C) [(4)(A)] of this subsection, the result must be

accompanied by the information required in paragraph (4)(D) [(4)(B)] of this subsection.

(ii) If the laboratory report indicates that a valid analytical result could not be reported, the laboratory report must be accompanied by a request to collect a replacement sample.

(B) The results must be submitted within ten [10] days of their receipt by the public water system and no later than 10 days after the end of the first month following the month that the sample was collected.

(C) The results and any additional information must be mailed to the Water Supply Division, MC 155, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087.

(c) Treatment technique requirements. A system that treats surface water or groundwater under the direct influence of surface water must meet minimum treatment technique requirements before the water reaches the entry point to the distribution system.

(1) The combination of pathogen removal and disinfection processes used by a public water system must achieve at least a 4.0-log removal/inactivation of viruses.

(2) The combination of pathogen removal and disinfection processes used by a public water system must achieve at least a 3.0-log removal/inactivation of *Giardia lamblia*.

(3) A public water system that is required by subsection (b) of this section to conduct raw surface water monitoring must comply with the requirements of this paragraph.

(A) The average *Cryptosporidium* level and Bin Classification shall be determined in accordance with the requirements established by 40 CFR §141.710.

(i) For systems that collect a total of at least 48 *Cryptosporidium* samples, the average concentration is equal to the arithmetic mean of all sample concentrations.

(ii) For systems that collect a total of at least 24 samples, but not more than 47 *Cryptosporidium* samples, the average concentration is equal to the

highest arithmetic mean of all sample concentrations in any 12 consecutive months during which *Cryptosporidium* samples were collected.

(iii) For systems that serve fewer than 10,000 people and monitor for *Cryptosporidium* for only one year (i.e., collect 24 samples in 12 months), the average concentration is equal to the arithmetic mean of all sample concentrations.

(iv) For systems with plants operating only part of the year that monitor fewer than 12 months per year under 40 CFR §141.701(e), the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of *Cryptosporidium* monitoring.

(v) If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification in paragraphs.

(B) Unless otherwise specified in this paragraph, the combination of pathogen removal and disinfection processes must achieve the removal/inactivation of *Cryptosporidium parvum* specified in the following table titled "Treatment Technique

Requirements for *Cryptosporidium*," beginning 36 months after being assigned a Bin Classification by the executive director.

Figure: 30 TAC §290.111(c)(3)(B)

[Figure: 30 TAC §290.111(c)(3)(B)]

Treatment Technique Requirements for *Cryptosporidium* (1)

Average *Cryptosporidium* Level in the Raw Water	**Bin Classification**	**Minimum Removal/Inactivation Requirement**
Cryptosporidium < 0.075 oocysts/L	Bin 1	2.0-log
0.075 oocysts/L ≤ *Cryptosporidium* < 1.0 oocysts/L	Bin 2	4.0-log
1.0 oocysts/L ≤ *Cryptosporidium* < 3.0 oocysts/L	Bin 3	5.0-log
Cryptosporidium ≥ 3.0 oocysts/L	Bin 4	5.5-log

(1)The executive director will assign *Cryptosporidium* removal credit based on the treatment processes used at the plant:

a) Treatment plants utilizing coagulation, flocculation, and granular media filtration will receive a 2.5-log *Cryptosporidium* removal credit.

b) Treatment plants utilizing coagulation, flocculation, clarification, and granular media filtration will receive a 3.0-log *Cryptosporidium* removal credit.

c) The executive director will assign *Cryptosporidium* removal credit to treatment plants utilizing bag, cartridge, or membrane filters on an individual basis.

(i) A system that conducts the first round of special raw surface water monitoring according to the schedule contained in subsection (b)(4)(A) of this section [§291.114(b)(4)(A) of this title] must comply with the requirements of this

paragraph no later than the date shown in the following table, titled "Compliance Date for Existing Sources."

Figure: 30 TAC §290.111(c)(3)(B)(i) (No change.)

Compliance Date for Existing Sources

A system that serves . . .	Must comply with the requirements of this paragraph no later than . . .
At least 100,000 people	April 1, 2012
From 50,000 to 99,999 people	October 1, 2012
From 10,000 to 49,999 people	October 1, 2013
Fewer than 10,000 people	October 1, 2014

(ii) A system that conducts the first round of special raw surface water monitoring according to the schedule contained in subsection (b)(4)(B)(i) of this section [§291.114(b)(4)(B) of this title] must comply with the requirements of this paragraph no later than six years after beginning the first round of monitoring on the new source.

(iii) The executive director may allow a system making capital improvements an additional two years to comply with the treatment requirement of this paragraph.

(C) A system that has been assigned to Bin 3 or Bin 4 must achieve at least 1.0-log removal/inactivation of *Cryptosporidium* using one or a combination of the following: bag filters, cartridge filters, chlorine dioxide, membranes, ozone, or ultraviolet light (UV).

(D) Prior to the effective date of subparagraph (B) of this paragraph, the combination of disinfection and filtration processes used by a public water system to treat for *Cryptosporidium* must achieve at least a 2.0-log removal/inactivation of *Cryptosporidium parvum*.

(4) The combination of disinfection and filtration processes at plants that do not monitor each source in accordance with the requirements of subsection (b) of this section must achieve at least a 5.5-log removal /inactivation of *Cryptosporidium parvum*.

(5) The executive director may require additional levels of treatment in cases of poor source water quality.

(6) The executive director may establish minimum design, operational, and reporting requirements for watershed control programs and treatment processes used to meet the treatment technique requirements of this subsection.

(d) Microbial inactivation requirements. A system that treats surface water or groundwater under the direct influence of surface water must meet minimum disinfection requirements before the water is supplied to any consumer.

(1) Inactivation table. The disinfection process must achieve the minimum microbial inactivation levels shown in the following table.

Figure: 30 TAC §290.111(d)(1)

[Figure: 30 TAC §290.111(d)(1)]

Microbial Inactivation Requirements

	Filter Technology Used			
	Conventional Filters [1]		**Membrane Filters and Cartridge Filters [2]**	
Pretreatment Provided	*Giardia*	Virus	*Giardia*[3]	Virus
No coagulation	NA[4]	NA[4]	0.0-log[3]	4.0-log
Coagulation and flocculation	1.0-log	3.0-log	0.0-log	3.0-log
Coagulation, flocculation, and clarification	0.5-log	2.0-log	0.0-log	2.0-log

[1] Filters in which water passes through a porous granular media and which utilize depth filtration processes.
[2] Filters in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism.
[3] The executive director will determine the required *Giardia* inactivation on a case-by-case basis.

[4] NA = Not Allowed. Conventional filtration with no coagulation is not allowed to receive *Giardia* or viral treatment credit.

(A) The disinfection process at treatment plants not described in the Microbial Inactivation Requirements table must provide the level of disinfection required by the executive director.

(B) The executive director may require additional levels of treatment in cases of poor source water quality.

(C) The executive director may reduce the inactivation requirement for plants that meet the individual filter effluent performance criteria contained in subsection (g)(1) of this section and have been assigned a Bin 1 classification under the provisions of subsection (c)(3) of this section.

(D) A system that fails to meet the inactivation requirements of this section for a period of longer than four consecutive hours commits a nonacute treatment technique violation. A system that fails to conduct the additional testing required by paragraph (2)(C) of this subsection [subsection (d)(2)(C) of this section] also commits a nonacute treatment technique violation.

(E) A system that has a plant assigned a Bin 2, 3, or 4 classification under the provisions of subsection (c)(3) of this section and uses UV [ultraviolet light (UV)] disinfection facilities to meet the treatment technique requirements for *Cryptosporidium* must meet the inactivation requirements of this subsection in at least 95% of the water treated each month.

(2) Monitoring requirements for chemical disinfectants. Public water systems must monitor the performance of the disinfection facilities to ensure that appropriate disinfectant levels are maintained. All monitoring conducted pursuant to the requirements of this subsection must be conducted at sites designated in the public water system's monitoring plan.

(A) The disinfectant residual, pH, temperature, and flow rate of the water in each disinfection zone must be measured at least once each day during a time when peak hourly raw water flow rates are occurring.

(B) Disinfection contact time will be based on tracer study data or a theoretical analysis submitted by the system owner or their designated agent and approved by the executive director and the actual flow rate that is occurring at the time that monitoring occurs.

(C) Treatment plants that fail to demonstrate an appropriate level of treatment must repeat these tests at four-hour or shorter intervals until compliance has been reestablished.

(3) Monitoring requirements for UV disinfection facilities. Public water systems must monitor the performance of the UV disinfection facilities.

(A) A system must continuously monitor and record UV intensity as measured by a UV sensor, lamp status, the flow rate through the unit, and other parameters prescribed by the executive director to ensure that the units are operating within validated conditions.

(B) A system with a plant that has been assigned a Bin 2, 3, or 4 classification under the provisions of subsection (c)(3) of this section must also monitor and record the amount of water treated by each UV unit each month and the amount of water produced each month when the unit was not operating within validated conditions.

(4) Analytical requirements. All monitoring required by this subsection must be conducted at a facility approved by the executive director and using methods

that conform to the requirements of §290.119 of this title (relating to Analytical Procedures).

(A) The pH analysis must be conducted using a pH meter with a minimum accuracy of plus or minus 0.1 pH units.

(B) The temperature of the water must be measured using a thermometer or thermocouple with a minimum accuracy of plus or minus 0.5 degrees Celsius.

(C) The free chlorine residual must be measured to a minimum accuracy of plus or minus 0.1 milligrams per liter (mg/L) using one of the following methods:

(i) Amperometric titration;

(ii) DPD Ferrous titration;

(iii) a DPD method that uses a colorimeter or spectrophotometer; or

(iv) Springaldizine (FACTS).

(D) The chloramine residual must be measured to a minimum accuracy of plus or minus 0.1 mg/L using one of the following methods:

(i) Amperometric titration;

(ii) DPD Ferrous titration; or

(iii) a DPD method that uses a colorimeter or spectrophotometer.

(E) The chlorine dioxide residual must be measured to a minimum accuracy of plus or minus 0.05 mg/L using one of the following methods:

(i) Amperometric titrator with platinum-platinum electrodes; or

(ii) Lissamine Green B.

(F) The ozone residual must be measured to a minimum accuracy of plus or minus 0.05 mg/L using the Indigo Method and using a colorimeter or spectrophotometer.

(G) The UV dose must be measured by a calibrated sensor approved by the executive director.

(e) Filtration requirements for conventional filters. A system that uses granular media filters to treat surface water or groundwater under the direct influence of surface water must meet minimum filtration requirements before the water is supplied to any consumer.

(1) Treatment technique requirements for combined filter effluent. Treatment plants using conventional media filtration must meet the following turbidity requirements.

(A) The turbidity level of the combined filter effluent must never exceed 1.0 nephelometric turbidity unit (NTU).

(B) The turbidity level of the combined filter effluent must be 0.3 NTU or less in at least 95% of the samples tested each month.

(2) Performance criteria for individual filter effluent. The filtration techniques must ensure the public water system meets the following performance criteria.

(A) The turbidity from each individual filter effluent should never exceed 1.0 NTU.

(B) At a public water system that serves 10,000 people or more, the turbidity from each individual filter effluent should not exceed 0.5 NTU at four hours after the individual filter is returned to service after backwash or shutdown.

(3) Routine turbidity monitoring requirements. A system must monitor the performance of its filtration facilities.

(A) A system that serves fewer than 500 people and continuously monitors the turbidity level of each individual filter must measure and record the turbidity level of the combined filter effluent at least once each day that the plant is in operation.

(B) A system that serves at least 500 people and continuously monitors the turbidity level of each individual filter must measure and record the turbidity level of the combined filter effluent at least every four hours that the system serves water to the public.

(C) Except as provided in subparagraph (D) of this paragraph, a system must continuously monitor the filtered water turbidity at the effluent of each individual filter and record the turbidity value every 15 minutes.

(D) A system that serves fewer than 10,000 people and monitors combined filter effluent turbidity in lieu of individual filter effluent turbidity under the provisions of §290.42(d)(11)(E)(ii) of this title (relating to Water Treatment) must:

(i) continuously monitor the turbidity of the combined filter effluent and record the turbidity value every 15 minutes; and

(ii) measure and record the turbidity level at the effluent of each filter at least once each day the plant is in operation.

(4) Special investigation requirements. A system which fails to produce water with acceptable turbidity levels must investigate the cause of the problem and take

appropriate corrective action. The executive director can waive these special monitoring requirements for systems that have a corrective action schedule approved by the executive director.

(A) A public water system that fails to meet the turbidity criteria specified in paragraph (2) of this subsection [subsection (e)(2) of this section] must conduct additional monitoring.

(i) Each time a filter exceeds an applicable filtered water turbidity level specified in paragraph (2) of this subsection [subsection (e)(2) of this section] for two consecutive 15-minute readings, the public water system must either identify the cause of the exceedance or produce a filter profile on the filter within seven days of the exceedance.

(ii) Each time a filter exceeds the filtered turbidity level specified in paragraph (2)(A) of this subsection [subsection (e)(2)(A) of this section] for two consecutive 15-minute readings on three separate occasions during any consecutive three-month period, the public water system must conduct a filter assessment on the filter within 14 days of the third exceedance.

(iii) Each time the filtered water turbidity level for a specific filter or any combination of individual filters exceeds 2.0 NTU on two consecutive 15-minute readings during two consecutive months, the public water system must participate in a third-party comprehensive performance evaluation (CPE). If the system serves at least 10,000 people, the CPE must be conducted within 90 days of the first exceedance in the second month. If the system serves fewer than 10,000 people, the CPE must be conducted within 120 days of the first exceedance in the second month.

(B) A system that serves fewer than 10,000 people, monitors combined filter effluent turbidity in lieu of individual filter effluent turbidity, and fails to meet the turbidity criteria in paragraph (1)(A) of this subsection [subsection (e)(1)(A) of this section] must conduct additional monitoring. The executive director may waive these special monitoring requirements for systems that have a corrective action schedule approved by the executive director.

(i) Each time the combined filter effluent turbidity level exceeds 1.0 NTU for two consecutive 15-minute readings, the public water system must either identify the cause of the exceedance or complete a filter profile on the combined filter effluent within seven days of the exceedance.

(ii) Each time the combined filter effluent turbidity level exceeds 1.0 NTU for two consecutive 15-minute readings on three separate occasions during any consecutive three-month period, the public water system must conduct a filter assessment on each filter within 14 days of the third exceedance.

(iii) Each time the combined filter effluent turbidity level exceeds 2.0 NTU on two consecutive 15-minute readings during two consecutive months, the public water system must participate in a third-party comprehensive performance evaluation within 120 days of the first exceedance in the second month.

(5) Analytical requirements for turbidity. All monitoring required by this subsection must be conducted by a facility approved by the executive director and using methods that conform to the requirements of §290.119 of this title [(relating to Analytical Procedures)]. Equipment used for compliance measurements must be maintained and calibrated in accordance with §290.46(s) of this title (relating to Minimum Acceptable Operating Practices for Public Drinking Water Systems).

(A) Turbidity must be measured with turbidimeters that use one of the following methods:

(i) EPA Method 180.1 and Standard Method 2130B;

(ii) Great Lakes Instruments Method 2; or

(iii) Hach FilterTrak Method 10133.

(B) A system monitoring the performance of individual filters with on-line turbidimeters and recorders may monitor combined filter effluent turbidity levels by either continuously monitoring turbidity levels with an on-line turbidimeter or measuring the turbidity level in grab samples with a bench-top turbidimeter.

(C) Continuous turbidity monitoring must be conducted using a continuous, on-line turbidimeter and a device that records the turbidity level reading at least once every 15 minutes.

(i) Turbidity data may be recorded electronically by a supervisory control and data acquisition system (SCADA) or on a strip chart. The recorder must be designed so that the operator can accurately determine the turbidity level readings at 15-minute intervals.

(ii) If there is a failure in the continuous turbidity monitoring equipment at a system serving 10,000 people or more, the system must conduct grab

sampling every four hours in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment.

(iii) If the continuous turbidity monitoring equipment at a system serving fewer than 10,000 people malfunctions, the system must conduct grab sampling every four hours in lieu of continuous monitoring, but for no more than 14 working days following the failure of the equipment.

(D) A system that monitors combined filter effluent turbidity in lieu of individual filter effluent turbidity under §290.42(d)(11)(E)(ii) of this title must monitor the performance of individual filters using a bench-top turbidimeter.

(f) Filtration requirements for other filters. A system that uses cartridge filters, membrane filters, or other unconventional filtration systems to treat surface water or groundwater under the direct influence of surface water must meet minimum filtration requirements before the water is supplied to any consumer.

(1) Treatment technique requirements. A system that uses unconventional filtration technologies such as membrane filters or cartridge filters must meet treatment technique requirements prescribed by the executive director.

(A) The filtration facilities must meet combined filter effluent and individual filter effluent turbidity limits established by the executive director.

(B) The filtration facilities must be operated and maintained in accordance with requirements that the executive director determines are needed to demonstrate the amount of *Giardia* and *Cryptosporidium* removal achieved.

(2) Monitoring requirements. A system must monitor the performance of its filtration facilities.

(A) A system that serves fewer than 500 people and continuously monitors the turbidity level of each individual cartridge or membrane unit must measure and record the turbidity level of the combined effluent at least once each day that the plant is in operation.

(B) A system that serves at least 500 people and continuously monitors the turbidity level of each individual cartridge or membrane unit must measure and record the turbidity level of the combined effluent at least every four hours that the system serves water to the public.

(C) A system using membranes must use a method approved by the executive director to continuously monitor the quality of the water produced by each membrane unit and record the monitoring results at least once every five minutes. The executive director may approve monitoring parameters other than turbidity and decrease the frequency to once every 15 minutes if the approved operating parameters will allow consecutive readings to be obtained between backwash or backflush cycles.

(D) A system using membranes must conduct direct integrity testing on each membrane unit using a procedure approved by the executive director.

(i) Direct integrity tests must be conducted in a manner that will detect a membrane defect of 3 microns or smaller and demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration process by the executive director.

(ii) Direct integrity test method must calculate the log removal value for a 3-micron size particle and establish an upper control limit which assures that the unit is capable of meeting the removal credit approved by the executive director.

(iii) A system that has been assigned a Bin 1 classification under the provisions of subsection (c)(3)(B) of this section must conduct direct integrity tests at least once every seven days. The executive directed may reduce the testing requirements for other membrane units.

(iv) A system that has been assigned a Bin 2, 3, or 4 classification under the provisions of subsection (c)(3)(B) of this section must conduct direct integrity tests at least once each day that the membrane unit is used for filtration. The executive director may approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for *Cryptosporidium* removal or inactivation, or reliable process safeguards.

(v) A system must immediately conduct a direct integrity test on any membrane unit that produces filtered water with turbidity level above 0.15 NTU on two consecutive readings. The executive director must establish alternate site-specific control limits for systems that use other approved technology in lieu of turbidimeters to continuously monitor the performance of membrane units.

(vi) A system must immediately remove any membrane unit that fails a direct integrity test from service until the membrane modules in that unit are

inspected and, if necessary, repaired. A membrane unit that has been removed from service may not be returned to service until it has passed a direct integrity test.

(E) A system that uses cartridge filters must continuously monitor the performance of the filtration process in a manner approved by the executive director.

(3) Analytical requirements. All monitoring required by this subsection must be conducted by a facility approved by the executive director and using methods that conform to the requirements of §290.119 of this title. Equipment used for compliance measurements must be maintained and calibrated in accordance with §290.46(s) of this title.

(A) Turbidity of the combined effluent must be measured with turbidimeters that meet the requirements of subsection (e)(5)(A) of this section.

(B) The turbidity of the water produced by each membrane unit must be measured using the Hach FilterTrak Method 10133. The executive director may approve the use of alternative technology to monitor the quality of the water produced by each membrane unit.

(C) A system continuously monitoring the performance of individual cartridges or membrane units may monitor combined effluent turbidity levels by either continuously monitoring turbidity levels with an on-line turbidimeter, or by measuring the turbidity level in grab samples with a bench-top turbidimeter.

(D) Data collected from on-line instruments may be recorded electronically by a SCADA system or on a strip chart recorder. The recorder must be designed so that the operator can accurately determine the value of readings at the monitoring interval approved by the executive director.

(i) If there is a failure in the continuous monitoring equipment at a system serving 10,000 people or more, the system must conduct grab sampling every four hours in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment.

(ii) If there is a failure in the continuous monitoring equipment at a system serving fewer than 10,000 people, the system must conduct grab sampling every four hours in lieu of continuous monitoring, but for no more than 14 working days following the failure of the equipment.

(E) A system that uses cartridge filters and does not continuously monitor the turbidity of each filter unit must monitor the performance of individual filters at least once each day using a bench-top turbidimeter.

(g) Other treatment credits for systems in Bins 2 through 4. The executive director may grant additional pathogen removal and inactivation credit to systems that meet enhanced design, operational, maintenance, and reporting requirements.

(1) Individual filter effluent. The executive director may approve an additional 1.0-log removal credit for *Giardia* and *Cryptosporidium* to a treatment plant that uses conventional granular media filters.

(A) The executive director will approve the additional credit for a plant if:

(i) the system continuously monitored the filtered water turbidity at the effluent of each individual filter and recorded the turbidity value every 15 minutes that the filter was sending water to the clearwell;

(ii) the turbidity level at each individual filter effluent is less than or equal to 0.15 NTU in at least 95% of the measurements recorded during the month; and

(iii) no individual filter produced water with turbidity level above 0.3 NTU in two consecutive 15-minute readings.

(B) The executive director may also approve the additional credit for a plant that does not meet the requirements of subparagraph (A) of this paragraph if:

(i) the executive director determines that the failure to meet the requirements of subparagraph (A) of this paragraph could not have been prevented through optimizing plant operations, design, or maintenance; and

(ii) the system has experienced no more than two such failures within the most recent 12 months.

(2) Combined filter effluent. The executive director may approve an additional 0.5-log removal credit for *Cryptosporidium* to a treatment plant that uses conventional granular media filters if:

(A) the system continuously monitored the filtered water turbidity at the effluent of each individual filter and recorded the turbidity value every 15 minutes that the filter was sending water to the clearwell;

(B) the turbidity level at the combined filter effluent is less than or equal to 0.15 NTU in at least 95% of the measurements recorded during the month; and

(C) the plant does not receive additional treatment credit under paragraph (1) of this subsection.

(3) Second stage filtration. The executive director will approve an additional 0.5-log removal credit for *Giardia* and *Cryptosporidium* to a treatment plant that uses a second, separate stage of conventional granular media filters if:

(A) the filters in both stages meet minimum design criteria approved by the executive director;

(B) all of the water produced by the plant passes through both stages of filtration;

(C) the system continuously monitored the filtered water turbidity at the effluent of each individual filter in the first stage of filtration and recorded the turbidity value every 15 minutes that the filter was sending water to the clearwell; and

(D) no individual filter in the first stage of filtration produced water with turbidity level above 1.0 NTU in two consecutive 15-minute readings.

(4) Other pathogen control strategies. The executive director may approve an additional removal or inactivation credit for other pre-filtration, filtration, or post-filtration strategies that can demonstrate effective, consistent levels of enhanced pathogen control.

(A) The alternative strategy must achieve a quantifiable reduction in the risk of waterborne disease in all of the treated water produced by the plant.

(B) The alternative strategy must conform to any applicable requirement of 40 CFR §§141.715 - 141.720.

(C) The executive director may establish minimum site-specific design, operational, maintenance, and reporting requirements for any alternative

strategy used to meet minimum treatment technique requirements of subsection (c) of this section.

(D) The executive director may not approve additional removal credit under the provisions of this paragraph to any strategy that includes a treatment process has been assigned additional removal or inactivation credit under any other provision of this subsection.

(h) Reporting requirements. Public water systems must properly complete and submit periodic reports to demonstrate compliance with this section.

(1) A system that has a turbidity level exceeding 1.0 NTU in the combined filter effluent must consult with the executive director within 24 hours.

(2) A system that continuously monitors the performance of individual filters must submit a Surface Water Monthly Operating Report (commission Form 0102C) each month for each plant that treats surface water sources or groundwater sources under the direct influence of surface water.

(3) A system that monitors combined filter effluent turbidity in lieu of individual filter effluent turbidity under §290.42(d)(11)(E)(ii) of this title must submit a

Surface Water Monthly Operating Report for 2-Filter Plants (commission Form 0103) each month for each plant that treats surface water or groundwater under the direct influence of surface water.

(4) A system that must complete the additional monitoring required by subsection (e)(4)(A)(i) or (B)(i) [(e)(4)(B)(i)] of this section must submit a Filter Profile Report for Individual Filters (commission Form 10276) with its Surface Water Monthly Operating Report.

(5) A system that must complete the additional monitoring required by subsection (e)(4)(A)(ii) or (B)(ii) [(e)(4)(B)(ii)] of this section must submit a Filter Assessment Report for Individual Filters (commission Form 10277) with its Surface Water Monthly Operating Report.

(6) A system that must complete the additional monitoring required by subsection (e)(4)(A)(iii) or (B)(iii) [(e)(4)(B)(iii)] of this section must submit a Comprehensive Performance Evaluation Request Form (commission Form 10278) with its Surface Water Monthly Operating Report.

(7) A system that uses membranes must submit a Membrane Monthly Operating Report (commission Form 20356) for each plant that treats surface water or

groundwater under the direct influence of surface water. The report must accompany the plant's Surface Water Monthly Operating Report.

(8) A system that uses UV disinfection to meet the minimum treatment technique requirements for surface water or groundwater under the direct influence of surface water must submit a UV Monthly Operating Report (commission Form 20357) with its Surface Water Monthly Operating Report. The report must accompany the plant's Surface Water Monthly Operating Report.

(9) A system must submit any additional reports required by the executive director to verify the level of pathogen removal or inactivation achieved by the system's treatment plants.

(10) A system must submit its *Cryptosporidium* bin classification.

(11) A system must submit reports required by subsection (b)(7) of this section.

(12) [(11)] Periodic reports required by this section must be submitted to the Water Supply Division, Texas Commission on Environmental Quality, MC 155, P.O.

Box 13087, Austin, Texas 78711-3087 by the tenth day of the month following the end of the reporting period.

(i) Compliance determination. Compliance with the requirements of this section must be determined using the criteria of this subsection.

(1) A public water system that fails to complete source water monitoring or conduct the routine monitoring tests and any applicable special investigations required by this section commits a monitoring violation.

(2) A public water system that fails to submit a report required by subsection (h) of this section commits a reporting violation.

(3) A public water system using conventional filters that has a turbidity level exceeding 5.0 NTU in the combined filter effluent commits an acute treatment technique violation.

(4) A public water system using membrane filters that has a turbidity level exceeding 1.0 NTU in the combined filter effluent commits an acute treatment technique violation.

(5) Except as provided in paragraphs (3) and (4) of this subsection, a public water system that violates the requirements of subsections (c), (d)(1), (e)(1), and (f)(1) of this section commits a nonacute treatment technique violation.

(6) A system that fails to request a Bin Classification within six months of completing a round of source water monitoring commits a treatment technique violation.

(7) A system that fails to correct the performance-limiting factors identified in a comprehensive performance evaluation conducted under the requirements of subsection (e)(4)(A)(iii) or (B)(iii) [(e)(4)(B)(iii)] of this section commits a violation.

(8) A system that fails to properly issue a public notice required by subsection (j) of this section commits a violation.

(j) Public notification. The owner or operator of a public water system that violates the requirements of this section must notify the executive director and the people served by the system.

(1) A public water system that commits an acute treatment technique violation must notify the executive director and the water system customers of the acute violation within 24 hours in accordance with the requirements of §290.46(q) of this title and §290.122(a) of this title (relating to Public Notification).

(2) A public water system that has a turbidity level exceeding 1.0 NTU in the combined filter effluent must consult with the executive director within 24 hours of the violation.

(A) Based on the results of the consultation, the executive director will determine whether the water system must notify its customers in accordance with the requirements of §290.122(a) or (b) of this title.

(B) A water system that fails to consult with the executive director as required by this paragraph must notify its customers in accordance with the requirements of §290.122(a) of this title.

(3) Except as provided in paragraphs (1) and (2) of this subsection, a public water system that fails to meet the treatment technique requirements of subsections (c), (d)(1), (e)(1), or (f)(1) <u>of this section</u> must notify the executive director

by the end of the next business day and the water system customers in accordance with the requirements of §290.122(b) of this title.

(4) A public water system that fails to conduct the monitoring required by this section must notify its customers of the violation in accordance with the requirements of §290.122(c) of this title.

§290.112. Total Organic Carbon (TOC).

(a) Applicability. All community and nontransient, noncommunity public water systems that treat surface water or groundwater under the direct influence of surface water and use coagulation or flocculation or sedimentation or clarification facilities as part of the treatment process must meet the provisions of this section.

(b) Treatment technique. Systems must achieve the Step 1 removal requirements in paragraph (1) of this subsection, meet one of the alternative compliance criteria described in paragraph (2) of this subsection, or apply for the alternative Step 2 removal requirements described in paragraph (3) of this subsection.

(1) Systems must determine their ability to meet the Step 1 removal requirements given in the following table. A water treatment plant's Step 1 total organic

carbon (TOC) required percent removal is based upon plant's source water TOC and alkalinity. Step 1 TOC percent removal requirements are indicated in the following table. Systems practicing softening are evaluated based on the Step 1 TOC removal in the far-right column (Source water alkalinity >120 milligrams per liter (mg/L)) for the specified source water TOC.

Figure: 30 TAC §290.112(b)(1) (No change.)

Figure: 30 TAC §290.112(b)(1)

Step 1 TOC Removal Requirements

Source-water TOC (mg/L)	Source-water alkalinity (mg/L as $CaCO_3$) Less than or Equal to...		
	0 - 60	≥60 - 120	≥120
≥ 2.0 - 4.0	35.0% Removal	25.0% Removal	15.0% Removal
≥ 4.0 - 8.0	45.0% Removal	35.0% Removal	25.0% Removal
≥ 8.0	50.0% Removal	40.0% Removal	30.0% Removal

(2) Systems may determine their ability to meet one of the eight alternative compliance criteria listed in this paragraph.

(A) A system meets alternative compliance criteria Number 1 if the system's source water TOC level is less than 2.0 mg/L, calculated quarterly as a running annual average.

(B) A system meets alternative compliance criteria Number 2 if the system's treated water TOC level is less than 2.0 mg/L, calculated quarterly as a running annual average.

(C) A system meets alternative compliance criteria Number 3 if: the system's source water TOC level is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity is greater than 60 mg/L (as calcium carbonate (CaCO3), calculated quarterly as a running annual average; and the total trihalomethanes (TTHM) and haloacetic acid-group of five (HAA5) running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively.

(D) The system meets alternative compliance criteria Number 4 if the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

(E) The system meets alternative compliance criteria Number 5 if the system's source water specific ultraviolet absorbance (SUVA), prior to any treatment, measured monthly, is less than or equal to 2.0 liters per milligram-meter (L/mg-m), calculated quarterly as a running annual average.

(F) The system meets alternative compliance criteria Number 6 if the system's finished water SUVA, measured monthly at a point prior to any disinfection, is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(G) The system meets alternative compliance criteria Number 7 if the system practices softening, cannot achieve the Step 1 TOC removals required by paragraph (1) of this subsection, and has treated water alkalinity less than 60 mg/L (as CaCO3) and calculated quarterly as a running annual average.

(H) The system meets alternative compliance criteria Number 8 if the system practices softening, cannot achieve the Step 1 TOC removals required by paragraph (1) of this subsection, and has magnesium hardness removal greater than or equal to 10 mg/L (as CaCO3), measured monthly calculated quarterly as a running annual average.

(3) If a system fails to meet the Step 1 TOC removal requirement required by paragraph (1) of this subsection and does not meet one of eight alternative compliance criteria described in paragraph (2) of this subsection, the system must apply to the executive director for approval of Step 2 removal requirements.

(A) The plant must perform Step 2 jar testing to determine the coagulant dose at which the removal of TOC is less than 0.3 mg/L for an increase in coagulant of 10 mg/L alum or its equivalent. This dose is referred to as the point of diminishing returns (PODR).

(B) The system must submit the results of the Step 2 jar testing to the executive director for approval of the alternative removal requirements at least 15 days before the end of the applicable quarter.

(C) The executive director may approve Step 2 alternative removal requirements.

(i) If approved, the removal achieved at the PODR becomes the alternative full-scale TOC removal requirement for the plant.

(ii) The alternate removal requirements may be applied to the quarter in which the jar test results are received and for the following quarter.

(c) TOC monitoring requirements. Systems must conduct required TOC monitoring during normal operating conditions at sites and at the frequency designated in the system's monitoring plan.

(1) Systems must monitor for TOC and alkalinity in the source water prior to any treatment. Between one and eight hours after taking the source water sample, systems must measure each treatment plant TOC after filtration in the combined filter effluent stream. These samples (source water alkalinity, source water TOC, and treated water TOC) are referred to as a TOC sample set.

(2) Systems must take one TOC sample set monthly (every 30 days) at a time representative of normal operating conditions and influent water quality. <u>With the executive director's approval, a system may reduce monitoring according to subparagraphs (A) - (C) of this paragraph.</u>

(A) Systems with a running annual average treated water TOC of less than 2.0 mg/L for two consecutive years may reduce monitoring to one TOC sample set per plant per quarter (every 90 days). The system must revert to routine monitoring

in the month following the quarter when the running annual average treated water TOC is greater than or equal to 2.0 mg/L.

(B) Systems with a running annual average treated water TOC of less than 1.0 mg/L for one year may reduce monitoring to one TOC sample set per plant per quarter (every 90 days). The system must revert to routine monitoring in the month following the quarter when the running annual average treated water TOC is greater than or equal to 2.0 mg/L.

(C) Systems with a running annual average source water TOC at each plant of less than or equal to 4.0 mg/L based on the running annual average of the most recent four quarters of monitoring may reduce source TOC monitoring to one source TOC sample [set] per quarter (every 90 days) if they also meet criteria for reduced disinfection byproduct [by-product] monitoring. In order to remain on quarterly source TOC monitoring, the system must also meet the criteria for reduced trihalomethane and haloacetic acid monitoring given in §290.113(c)(4) of this title (relating to Stage 1 Disinfection Byproducts [By-products] (TTHM and HAA5) [(Trihalomethanes and Haloacetic Acids)]) until the date shown in table §290.113(a)(2) of this title. After the date shown in §290.115(a)(2) of this title (relating to Stage 2 Disinfection Byproducts [By-products] (TTHM and HAA5) [(Trihalomethanes and Haloacetic Acids)]), the system must also meet the criteria for reduced trihalomethane

and haloacetic acid monitoring in §290.115(c)(3) of this title in order to remain on quarterly source TOC monitoring. The system must revert to routine monitoring in the first month following the quarter when the running annual average source water TOC is greater than 4.0 mg/L, or the system no longer meets the reduced monitoring criteria for disinfection byproducts [by-products].

(3) A public water system attempting to meet the treatment technique requirements for TOC using alternative compliance criteria Number 5 (as defined in subsection (b)(2)(E) of this section) must monitor for SUVA in the source water prior to any treatment at least once each month.

(4) A public water system attempting to meet the treatment technique requirements for TOC using alternative compliance criteria Number 7 (as defined in subsection (b)(2)(G) of this section) must monitor for alkalinity in the treated water at any point prior to distribution system at least once each month.

(5) A public water system attempting to meet the treatment technique requirements for TOC using alternative compliance criteria Number 8 (as defined in subsection (b)(2)(H) of this section) must monitor for magnesium in both the source water prior to any treatment at and the treated water at any point prior to the distribution system least once each month.

(d) Analytical requirements for TOC treatment. Analytical procedures required by this section must be conducted at a facility approved by the executive director and using methods that conform to the requirements of §290.119 of this title (relating to Analytical Procedures).

(e) Reporting requirements for TOC. Systems treating surface water or groundwater under the direct influence of surface water shall properly complete and submit periodic reports to demonstrate compliance with this section.

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

(2) Public water systems must submit a Monthly Operational Report for Total Organic Carbon (commission Form 0879) each month.

(3) A system that does not meet the Step 1 removal requirements must submit a Request for Alternate TOC Requirements at least 15 days before the end of the quarter.

(A) If the system meets alternative compliance criterion Number 3, subsection (b)(2)(C) of this section, the system must report the running annual average TTHM and HAA5 concentrations as determined under the requirements of §290.113 of this title [(relating to Stage 1 Disinfection By-products (TTHM and HAA5)) or §290.115 of this title (relating to Stage 2 Disinfection By-products (TTHM and HAA5))].

(B) If the system meets alternative compliance criterion Number 4, subsection (b)(2)(D) of this section, the system must report the running annual average TTHM and HAA5 concentrations as determined under the requirements of §290.113 of this title or §290.115 of this title, and report all disinfectants used by the system during last 12 months.

(C) If the system meets alternative compliance criterion Number 5, subsection (b)(2)(E) of this section, the system must report the average source water SUVA for each of the preceding 12 months.

(D) If the system meets alternative compliance criterion Number 6, subsection (b)(2)(F) of this section, the system must report the average treated water SUVA for each of the preceding 12 months.

(E) If the system practices softening and meets alternative compliance criterion Number 8, subsection (b)(2)(H) of this section, the system must report the source water and treated water magnesium concentrations and the average percent removal of magnesium obtained during each of the preceding 12 months.

(F) A system that does not meet any of the alternative compliance criteria must apply for the Step 2 alternative removal requirements and must submit the results of Step 2 jar testing.

(f) Compliance determination. Compliance with the requirements of this section shall be based on the following criteria:

(1) A system that fails to conduct the monitoring tests required by this section commits a monitoring violation. Failure to monitor will be treated as a violation for the entire period covered by the annual average.

(2) A system that fails to report the results of monitoring tests required by this section commits a reporting violation. Systems may use only data collected under the provisions of this section to qualify for reduced monitoring.

(3) A system that does not meet any of the alternative compliance criteria and does not achieve the required TOC removal commits a treatment technique violation. Compliance shall be determined quarterly by determining an annual average removal ratio using the following method:

(A) The actual monthly TOC percent removal must be determined for each month. The actual removal for a TOC sample set is equal to (1 - treated water TOC/source water TOC). The actual monthly percent removal is calculated by taking average removal for all TOC sample sets collected in the month, and expressing that value as a percent.

(B) The required monthly Step 1 or Step 2 TOC percent removal must be determined as provided in subsection (b) of this section. The executive director will approve or disapprove Step 2 requirements based on jar or pilot data. Until the executive director approves the Step 2 TOC removal requirements, the system must meet the Step 1 TOC removals contained in subsection (b)(1) of this section.

(C) The monthly removal ratio must be determined. The monthly removal ratio is determined by dividing the actual monthly TOC percent removal for each month by the required monthly Step 1 or approved Step 2 TOC percent removal for

the month. The alternative compliance criteria may be used on a monthly basis as described in clauses (i) - (iv) of this subparagraph.

(i) If the monthly average source or treated water TOC is less than 2.0 mg/L, a monthly removal ratio value of 1.0 may be assigned (in lieu of the value calculated in subparagraph (C) of this paragraph [subsection (f)(3)(C) of this section]) when calculating compliance under the provisions of this section.

(ii) If the monthly average water source or treated SUVA level is less than 2.0 L/mg-m, a monthly removal ratio value of 1.0 may be assigned (in lieu of the value calculated in subparagraph (C) of this paragraph [subsection (f)(3)(C) of this section]) when calculating compliance under the provisions of this section.

(iii) In any month that a softening system lowers alkalinity below 60 mg/L (as CaCO3), a monthly removal ratio value of 1.0 may be assigned (in lieu of the value calculated in subparagraph (C) of this paragraph [subsection (f)(3)(C) of this section]) when calculating compliance under the provisions of this section.

(iv) In any month that a softening system removes at least 10 mg/L of magnesium hardness (as CaCO3) a monthly value of 1.0 may be assigned (in

lieu of the value calculated in subparagraph (C) of this paragraph [subsection (f)(3)(C) of this section]) when calculating compliance under the provisions of this section.

(D) The yearly removal ratio must be determined. The yearly removal ratio is the running annual average of the quarterly averages of the monthly averages. To determine this value, for each quarter in the compliance year, determine the monthly removal ratio, add the removal ratios and divide by three. Then, add the quarterly removal ratio and divide by four.

(E) If the yearly removal ratio is less than 1.00, the system commits a treatment technique violation.

(4) A public water system that fails to do a required public notice or certify that the public notice has been performed commits a public notice violation.

(g) Public Notification. A public water system that violates the treatment technique requirements of this section must notify the executive director and the system's customers.

(1) A public water system that commits a TOC treatment technique violation shall notify the executive director and the water system customers in

accordance with the requirements of §290.122(b) of this title (relating to Public Notification).

(2) A public water system which fails to conduct the monitoring required by this section must notify its customers of the violation in accordance with the requirements of §290.122(c) of this title.

§290.113. Stage 1 Disinfection Byproducts [By-products] (TTHM and HAA5).

(a) Applicability for total trihalomethanes (TTHM) and haloacetic acids (group of five) (HAA5) [TTHM and HAA5]. All community and nontransient, noncommunity water systems shall comply with the requirements of this section.

(1) Systems must comply with the Stage 1 requirements in this section until the date shown in the table entitled "Date to Start Stage 2 Compliance."

(2) Until the date shown in the table in paragraph (1) of this subsection, systems must continue to monitor according to this section.

Figure: 30 TAC §290.113(a)(2)

~~Figure: 30 TAC §290.113(a)(2) (No change.)~~

Date to Start Stage 2 Compliance

This type of system:	**Must comply with Stage 2 starting:**
Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system:	
System serving 100,000 or more population	April 1, 2012
System serving 50,000 to 99,999 population	October 1, 2012
System serving 10,000 to 49,999 population	October 1, 2013
System serving fewer than 10,000 population if the system distributes only treated groundwater or potable water purchased from another system	October 1, 2013
System serving fewer than 10,000 population that treats surface water (or groundwater under the direct influence of surface water) if no *Cryptosporidium* monitoring is required under §290.111(b)(3)(B)	October 1, 2013
System serving fewer than 10,000 population that treats surface water (or groundwater under the direct influence of surface water) if *Cryptosporidium* monitoring is required under §290.111(b)(3)(B)	October 1, 2014
Systems of any population that are part of a combined distribution system:	
Consecutive system or wholesale system that is part of a combined distribution system	-at the same time as the system with the earliest compliance date in the combined distribution system

(b) Maximum contaminant level (MCL) for TTHM and HAA5. The running annual average concentration of TTHM and HAA5 [total trihalomethanes (TTHM) and haloacetic acids (five) (HAA5)] shall not exceed the MCLs [maximum contaminant levels].

(1) The MCL for TTHM is 0.080 milligrams/liter (mg/L).

(2) The MCL for HAA5 is 0.060 mg/L [milligrams/liter].

(c) Monitoring requirements for TTHM and HAA5. Systems must take all TTHM and HAA5 samples during normal operating conditions. Monitoring shall be performed at locations and frequency specified in the system's monitoring plan.

(1) The minimum number of samples required to be taken shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer shall be considered as one treatment plant for determining the minimum number of samples.

(2) All samples taken within one sampling period shall be collected within a 24-hour period.

(3) Systems must routinely sample at the frequency and locations given in the following table entitled "Stage 1 Routine Monitoring Frequency and Locations for TTHM and HAA5."

Figure: 30 TAC §290.113(c)(3) (No change.)

STAGE 1
ROUTINE MONITORING FREQUENCY AND LOCATIONS FOR TTHM AND HAA5

Type of system	Minimum Monitoring Frequency	Sample Location in the distribution system
Surface water or groundwater under the direct influence of surface water system serving at least 10,000 persons	four water samples per quarter per treatment plant	At least 25 % of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods[1].
Surface water or groundwater under the direct influence of surface water system serving from 500 to 9,999 persons	one water sample per quarter per treatment plant	Locations representing maximum residence time[1].

Surface water or groundwater under the direct influence of surface water system serving fewer than 500 persons	one sample per year per treatment plant during month of warmest water temperature	Locations representing maximum residence time[1]. If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in subsection (c) of this section.
System using only groundwater not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons	one water sample per quarter per treatment plant [2]	Locations representing maximum residence time[1].
System using only groundwater not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons	one sample per year per treatment plant[2] during month of warmest water temperature	Locations representing maximum residence time[1]. If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets criteria in subsection (c) of this section for reduced monitoring.

1 If a system elects to sample more frequently than the minimum required, at least 25 % of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

2 With approval of the executive director, multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required.

(4) The executive director may reduce the monitoring frequency for TTHM and HAA5 as indicated in the following table entitled "[ ]Stage 1 Reduced Monitoring Frequency and Locations for TTHM and HAA5."

Figure: 30 TAC §290.113(c)(4) (No change.)

STAGE 1
REDUCED MONITORING FREQUENCY AND LOCATIONS FOR TTHM AND HAA5

IF YOU ARE A...	YOU MAY REDUCE MONITORING IF YOU HAVE MONITORED AT LEAST ONE YEAR AND YOUR...	TO THIS LEVEL
Surface water or groundwater under the direct influence of surface water system serving at least 10,000 persons which has a source water annual average TOC level, before any treatment, less than or equal to 4.0 mg/L[1]	TTHM annual average less than or equal to 0.040 mg/L and HAA5 annual average less than or equal to 0.030mg/L	one sample per treatment plant per quarter at distribution system location reflecting maximum residence time
Surface water or groundwater under the direct influence of surface water system serving from 500 to 9,999 people which has a source water annual average TOC level, before any treatment, less than or equal to 4.0 mg/L[1]	TTHM annual average less than or equal to 0.040 mg/L and HAA5 annual average less than or equal to 0.030mg/L	one sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature.

Surface water or groundwater under the direct influence of surface water system serving fewer than 500 people		Any surface water or groundwater under the direct influence of surface water system serving fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year.
System using only groundwater not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons	TTHM annual average less than or equal to 0.040 mg/L and HAA5 annual average less than or equal to 0.030mg/L	one sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature
System using only groundwater not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons	TTHM annual average less than or equal to 0.040 mg/L and HAA5 annual average less than or equal to 0.030mg/L for two consecutive years OR TTHM annual average less than or equal to 0.020 mg/L and HAA5 annual average less than or equal to 0.015mg/L for one year	one sample per treatment plant per three year monitoring cycle at distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following quarter in which system qualifies for reduced monitoring.

[1] TOC sampling must be performed in accordance with §290.112(c)(2)(C) of this title (relating to Total Organic Carbon (TOC))

(A) The executive director may not reduce the routine monitoring requirements for TTHM and HAA5 until a system has completed one year of routine monitoring in accordance with the provisions of paragraph (3) of this subsection.

(B) A system that is on reduced monitoring and collects quarterly samples for TTHM and HAA5 may remain on reduced monitoring as long as the running

annual average of quarterly averages for TTHM and HAA5 is no greater than 0.060 mg/L and 0.045 mg/L, respectively, and as long as it meets the requirements in subparagraph (D) of this paragraph.

(C) A system that is on ~~a~~ reduced monitoring and monitors no more frequently than once each year may remain on reduced monitoring as long as TTHM and HAA5 concentrations are no greater than 0.060 mg/L and 0.045 mg/L, respectively, and as long as it meets the requirements in subparagraph (D) of this paragraph.

(D) To remain on reduced TTHM and HAA5 monitoring, systems that treat surface water or groundwater under the direct influence of surface water must also maintain a source water annual average total organic carbon (TOC) level, before any treatment, less than or equal to 4.0 mg/L (based on the most recent four quarters of monitoring) on a continuing basis at each plant.

(5) The executive director may require a system to return to the routine monitoring frequency described in paragraph (3) of this subsection.

(A) A system that does not meet the requirements of paragraph (4)(B), (C) or (D) [or (C)] of this subsection must return to routine monitoring in the quarter immediately following the quarter in which the results exceed 0.060 mg/L or

0.045 mg/L for TTHMs and HAA5, respectively, or when the source water annual average TOC level, before any treatment, exceeds 4.0 mg/L at any plant.

(B) A system that is on reduced monitoring and makes any significant change to its source of water or treatment program shall return to routine monitoring in the quarter immediately following the quarter when the change was made.

(C) If a system is returned to routine monitoring, routine monitoring shall continue for at least one year before a reduction in monitoring frequency may be considered.

(D) The executive director may return a system on reduced monitoring to routine monitoring at any time.

(6) Systems monitoring no more frequently than once each year must increase their monitoring frequency to quarterly if either the TTHM annual average is >0.080 mg/L or the HAA5 annual average is >0.060 mg/L. The system must begin monitoring quarterly immediately following the monitoring period in which the system exceeds 0.080 mg/L or 0.060 mg/L for TTHMs or HAA5, respectively.

(d) Analytical requirements for TTHM and HAA5. Analytical procedures required by this section shall be performed in accordance with §290.119 of this title (relating to Analytical Procedures). Testing for TTHM and HAA5 shall be performed at a laboratory accredited [certified] by the executive director.

(e) Reporting requirements for TTHM and HAA5. Upon the request of the executive director, the owner or operator of a public water system must provide the executive director with a copy of the results of any test, measurement, or analysis required by this subsection. The copies must be submitted within ten days of the request or within ten days of their receipt by the public water system, whichever is later. The copies must be mailed to the Water Supply Division, MC 155, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087.

(f) Compliance determination for TTHM and HAA5. Compliance with the provisions of this section shall be determined as follows.

(1) A system that fails to monitor in accordance with this section commits a monitoring violation. Failure to monitor will be treated as a violation for the entire period covered by the annual average.

(2) A public water system that fails to report the results of the monitoring tests required by subsection (e) of this section commits a reporting violation.

(3) Compliance with the MCLs for TTHM and HAA5 shall be based on the running annual average of all samples collected during the preceding 12 months.

(A) A public water system that samples for TTHM and HAA5 each quarter must calculate the running annual average of the quarterly averages.

(B) A public water system that samples for TTHM and HAA5 no more frequently than once each year must calculate the annual average of all samples collected during the year.

(C) All samples collected at the sampling sites designated in the public water system's monitoring plan shall be used to compute the quarterly and annual averages unless the analytical results are invalidated by the executive director for technical reasons.

(4) A public water system violates the MCL for TTHM if the running annual average for TTHM exceeds the MCL specified in subsection (b)(1) of this section.

(5) A public water system violates the MCL for HAA5 if the running annual average for HAA5 exceeds the MCL specified in subsection (b)(2) of this section.

(6) If a public water system is routinely sampling in accordance with the requirements of subsection (c)(3) of this section and an individual sample or quarterly average will cause the system to exceed the MCL for TTHM or HAA5, the system is in violation of the respective MCL at the end of that quarter.

(7) If a public water system's failure to monitor makes it impossible to determine compliance with the MCL for TTHM or HAA5, the system commits an MCL violation for the entire period covered by the annual average.

(g) Public Notification Requirements for TTHM and HAA5. A public water system that violates the treatment technique requirements of this section must notify the executive director and the system's customers.

(1) A public water system that violates an MCL given in subsection (b)(1) or (2) of this section shall report to the executive director and the water system customers in accordance with the requirements of §290.122(b) of this title (relating to Public Notification).

(2) A public water system which fails to conduct the monitoring required by subsection (c) of this section must notify its customers of the violation in accordance with the requirements of §290.122(c) of this title.

(h) Best available technology for TTHM and HAA5. Best available technology for treatment of violations of MCLs in subsection (b) of this section are listed in 40 Code of Federal Regulations §141.64(b)(1)(ii).

§290.114. Other Disinfection Byproducts [By-products] (Chlorite and Bromate).

(a) Chlorite. All [community and nontransient noncommunity] public water systems that use chlorine dioxide must comply with the requirements of this subsection.

(1) Maximum contaminant level (MCL) for chlorite. The chlorite concentration in the water in the distribution system shall not exceed an MCL of 1.0 milligrams per liter (mg/L).

(2) Monitoring requirements for chlorite. Public water systems shall measure the chlorite concentration at locations and intervals specified in the system's monitoring plan. All samples must be collected during normal operating conditions.

(A) Each plant using chlorine dioxide must monitor the chlorite concentration in the water entering the distribution system at least once each day. The monitoring frequency at the entry point to the distribution system may not be reduced.

(B) Each plant using chlorine dioxide must monitor the chlorite concentration in the water within the distribution system at each of the following three locations: at a location near the first customer of a plant using chlorine dioxide; at a location representative of the average residence time in the distribution system; and at a location reflecting maximum residence time in the distribution system. The group of three samples must be collected on the same day and is called a "three-sample set."

(i) Each system must collect at least one three-sample set each month.

(ii) If the chlorite concentration entering the distribution system exceeds 1.0 mg/L, the system must collect a three-sample set within 24 hours.

(iii) The frequency of chlorite monitoring in the distribution system may be reduced to one three-sample set per quarter if none of the entry point or distribution system samples tested during the preceding 12 months contained a chlorite

concentration above 1.0 mg/L. A system must revert to the monthly monitoring frequency if the chlorite concentration exceeds 1.0 mg/L in any sample.

(3) Analytical requirements for chlorite. Analytical procedures required by this section shall be performed in accordance with the requirements of §290.119 of this title (relating to Analytical Procedures).

(A) The chlorite concentration of the water entering the distribution system must be analyzed at a facility approved by the executive director. The analysis must have a minimum accuracy of 0.05 mg/L and use one of the following methods:

(i) amperometric titration using a unit with platinum-platinum electrodes; or

(ii) ion chromatography.

(B) The chlorite concentration of the water within the distribution system must be analyzed using ion chromatography at a facility <u>accredited</u> [certified] by the executive director.

(4) Reporting requirements for chlorite. Public water systems that are subject to the provisions of this subsection must provide the executive director with the results of any test, measurement, or analysis required by this section.

(A) Systems using chlorine dioxide must submit a Chlorine Dioxide Monthly Operating Report (commission Form 0690) by the tenth day of the month following the end of the reporting period.

(B) Upon the request of the executive director, systems shall provide the executive director with a copy of the results of any chlorite test, measurement, or analysis required by paragraph (2)(B) of this subsection [subsection (a)(2)(B) of this section] within ten days following receipt of the results of such test, measurement, or analysis.

(C) Reports and analytical results must be mailed to the Water Supply Division, MC 155, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087.

(5) Compliance determination for chlorite. Compliance with the requirements of this subsection shall be based on the following criteria.

(A) A public water system that fails to conduct the monitoring tests required by this subsection commits a monitoring violation.

(B) A public water system that fails to report the results of the monitoring tests required by this subsection commits a reporting violation.

(C) A public water system commits an MCL violation if the arithmetic average of any three-sample set collected in the distribution system exceeds the MCL for chlorite.

(D) A public water system that fails to do a required public notice or certify that the public notice has been performed commits a public notice violation.

(6) Public notification requirements for chlorite. A public water system that violates the requirements of this subsection must notify the executive director and the system's customers.

(A) A public water system that violates the MCL for chlorite shall notify the executive director by the end of the next business day and the customers in accordance with the requirements of §290.122(b) of this title (relating to Public Notification).

(B) A public water system which fails to conduct the monitoring required by this subsection must notify its customers of the violation in accordance with the requirements of §290.122(c) of this title.

(b) Bromate. Community and nontransient, noncommunity public water systems that use ozone must comply with the requirements of this subsection beginning on January 1, 2002.

(1) MCL [Maximum contaminant level] for bromate. The concentration of bromate at the entry point to the distribution system shall not exceed an MCL of 0.010 mg/L.

(2) Monitoring requirements for bromate. Each plant using ozone must measure the bromate concentration in the water entering the distribution system at least once each month. The monitoring frequency at the entry point to the distribution system may not be reduced. Samples shall be collected when the ozonation system is operating under normal conditions and at locations and intervals specified in the system's monitoring plan.

(3) Analytical requirements for bromate. Analytical procedures required by this section shall be performed in accordance with §290.119 of this title. Testing for bromate shall be performed at a laboratory certified by the executive director.

(4) Reporting requirements for bromate. Upon the request of the executive director, the owner or operator of a public water system must provide the executive director with a copy of the results of any test, measurement, or analysis required by this subsection. The copies must be submitted within ten days of the request or within ten days of their receipt by the public water system, whichever is later. The copies must be mailed to the Water Supply Division, MC 155, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087.

(5) Compliance determination for bromate. Compliance with the requirements of this subsection shall be determined using the following criteria.

(A) A system that fails to monitor in accordance with this section commits a monitoring violation. Failure to monitor will be treated as a violation for the entire period covered by the annual average.

(B) A public water system that fails to report the results of the monitoring tests required by this subsection commits a reporting violation.

(C) A public water system violates the MCL for bromate if, at the end of any quarter, the running annual average of monthly averages, computed quarterly, exceeds the maximum contaminant level specified in paragraph (1) of this subsection.

(D) A public water system that fails to do a required public notice or certify that the public notice has been performed commits a public notice violation.

(E) A public water system that fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(6) Public notification requirements for bromate. A public water system that violates the requirements of this subsection must notify the water system's customers and the executive director.

(A) A public water system that violates the MCL for bromate shall notify the customers in accordance with the requirements of §290.122(b) of this title.

(B) A public water system which fails to conduct the monitoring required by this subsection must notify its customers of the violation in accordance with the requirements of §290.122(c) of this title.

§290.115. Stage 2 Disinfection Byproducts [By-products] (TTHM and HAA5).

(a) Applicability for total trihalomethanes (TTHM) and haloacetic acids (group of five) (HAA5) [TTHM and HAA5]. All community and nontransient, noncommunity water systems shall comply with the requirements of this section for TTHM and HAA5 [total trihalomethanes (TTHM) and haloacetic acids (group of five) (HAA5)].

(1) Systems must comply with the initial monitoring requirements starting on the dates given in subsection (c) of this section.

(2) Systems must comply with all of the additional requirements in this section starting on the date shown in the table entitled "Date to Start Stage 2 Compliance."

Figure: 30 TAC §290.115(a)(2)

~~Figure: 30 TAC §290.115(a)(2) (No change.)~~

Date to Start Stage 2 Compliance[1]

This type of system:	**Must comply with Stage 2 starting:**
Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system:	
System serving 100,000 or more population	April 1, 2012
System serving 50,000 to 99,999 population	October 1, 2012
System serving 10,000 to 49,999 population	October 1, 2013
System serving fewer than 10,000 population if the system distributes only treated groundwater or potable water purchased from another system	October 1, 2013
System serving fewer than 10,000 population that treats surface water (or groundwater under the direct influence of surface water) if no *Cryptosporidium* monitoring is required under §290.111(b)(3)(B) of this title (relating to Surface Water Treatment)	October 1, 2013
System serving fewer than 10,000 population that treats surface water (or groundwater under the direct influence of surface water) if *Cryptosporidium* monitoring is required under §290.111(b)(3)(B) of this title	October 1, 2014
Systems of any population that are part of a combined distribution system:	
Consecutive system or wholesale system that is part of a combined distribution system	At the same time as the system with the earliest compliance date in the combined distribution system

[1] The executive director may grant up to an additional 24 months for compliance with maximum contaminant levels (MCLs) and operational evaluation levels if the system requires capital improvements to comply with an MCL ~~The executive director may grant a two-year extension to the compliance dates shown in this table~~ in accordance with 40 CFR §141.620(c)~~(5)~~.

(A) Systems required to conduct quarterly monitoring, must begin monitoring in the first full calendar quarter that includes the compliance date in the table titled "Date to Start Stage 2 Compliance."

(B) Systems required to conduct routine monitoring less frequently than quarterly must begin monitoring in the calendar month approved by the executive director in their Initial Distribution System Evaluation (IDSE) [IDSE] report or revised monitoring plan identifying Stage 2 sample sites.

(3) Systems must complete their monitoring plan for the additional Stage 2 TTHM and HAA5 requirements according to §290.121 of this title (relating to Monitoring Plans) before the date shown in the table entitled "Date to Start Stage 2 Compliance."

(b) Maximum contaminant levels (MCL) and operational evaluation levels (OELs) for TTHM and HAA5. Systems shall comply with MCLs and OELs.

(1) The locational running annual average (LRAA) concentration of TTHM and HAA5 shall not exceed the maximum contaminant levels. A public water system that exceeds a MCL shall determine compliance as described in subsection (f) of this section.

(A) The MCL for TTHM is 0.080 milligrams/liter (mg/L).

(B) The MCL for HAA5 is 0.060 mg/L.

(2) The OEL at any monitoring location is the sum of the two previous quarters' results plus twice the current quarter's result, divided by 4 to determine an average. A public water system that exceeds an OEL shall perform operation evaluation monitoring and reporting described in subsection (e) of this section.

(A) The OEL for TTHM is 0.080 mg/L.

(B) The OEL for HAA5 is 0.060 mg/L.

(c) Monitoring requirements for TTHM and HAA5. Monitoring shall be performed at locations and frequency specified in the system's monitoring plan as approved by the executive director. The executive director may require changes to a

system's sampling locations. The executive director may require sampling at additional sampling locations.

(1) Monitoring locations. Systems must establish Stage 2 compliance monitoring sites throughout the distribution system at locations with the potential for relatively high disinfection byproduct [by-product] formation. Systems must determine Stage 2 compliance monitoring locations by the dates shown in the table titled "Date to Establish Stage 2 Sites."

Figure: 30 TAC §290.115(c)(1) (No change.)

Date to Establish Stage 2 Sites

This type of system:	**Must Establish Stage 2 sites by:**
Systems that are not in a combined distribution system:	
System serving 100,000 or more people	January 1, 2009
System serving 50,000 to 99,999 people	July 1, 2009
System serving 10,000 to 49,999 people	January 1, 2010
System serving fewer than 10,000 people	July 1, 2010
Systems in a combined distribution system	
Consecutive or wholesale system of any population	at the same time as the largest system in the combined distribution system

(A) Systems that perform IDSE [initial distribution system evaluation (IDSE)] sampling in accordance with paragraph (5) of this subsection [subsection (c)(5) of this section] must use the IDSE and Stage 1 results to set Stage 2 compliance monitoring sites.

(B) Systems that do not perform IDSE sampling must set Stage 2 compliance monitoring sites through consultation with the executive director in accordance with this subparagraph.

(i) Systems required to sample at the same number of sites under Stage 1 and Stage 2, can use the Stage 1 sites for Stage 2 compliance monitoring.

(ii) Systems required to sample at more sites under Stage 2 than Stage 1 must identify Stage 2 sites in addition to the existing Stage 1 sites. Systems must identify additional sites representing areas of the distribution system with potentially high TTHM or HAA5 levels and provide the rationale for identifying these locations as having high levels of TTHM or HAA5. The required number of compliance monitoring locations must be identified.

(iii) Systems required to sample at fewer sites under Stage 2 than Stage 1 must identify which locations will be used for Stage 2. Stage 2 sites will be selected by alternating selection of Stage 1 locations representing the highest TTHM levels and highest HAA5 levels until the required number of compliance monitoring locations have been identified.

(C) The protocol given in Title 40 Code of Federal Regulations (40 CFR) §141.605(c) - (e) for selecting Stage 2 sample sites is hereby adopted by reference.

(D) To change monitoring locations, a system must replace existing compliance monitoring locations with the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels. Changes must be approved by the executive director and included in the monitoring plan.

(2) Monitoring frequency and number of sample sites. Routine sampling frequency and number of sample sites are given in the following table, titled "Routine Stage 2 Monitoring Frequency and Number of Sites." Systems must take all routine compliance TTHM and HAA5 samples during normal operating conditions.

Figure: 30 TAC §290.115(c)(2)

[Figure: 30 TAC §290.115(c)(2)]

Routine Stage 2 Monitoring Frequency and Number of Sites

Water Type	Retail Population	Routine Frequency [1]	Routine Number of Sites [5]
Surface Water (or Groundwater Under the Direct Influence of Surface Water) [2]	fewer than 500	annual	1 or 2 [3]
	500 to 3,300	quarterly	1 or 2 [3]
	3,301 to 9,999	quarterly [4]	2
	10,000 to 49,999	quarterly [4]	4
	50,000 to 249,999	quarterly [4]	8
	250,000 to 999,999	quarterly [4]	12
	1,000,000 to 4,999,999	quarterly [4]	16
	5,000,000 or more	quarterly [4]	20
Groundwater	fewer than 500	Annual	1 or 2 [3]
	500 to 9,999	Annual	2 [3]
	10,000 to 99,999	quarterly [4]	4
	100,000 to 499,999	quarterly [4]	6
	500,000 or more	quarterly [4]	8

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[1] All systems must monitor during month of highest disinfection byproduct [by-product] concentrations.

[2]A system that uses any treated surface water or groundwater under the direct influence of surface water shall be considered a surface water system for purposes of this section.

[3]Systems serving fewer than 500 people [on annual monitoring] and surface water systems serving 500 to 3,300 people must identify two sample sites in accordance with 40 Code of Federal Regulations §141.605(b) and may sample at a single site if the highest total trihalomethanes (TTHM) and haloacetic acids (group of five) (HAA5) concentrations occur at the same time and place [will use a single site if the highest TTHM and HAA5 concentrations occur at the same time and place. If highest TTHM and HAA5 concentrations occur at the same time and location, one dual sample set must be collected at that location]. If highest TTHM and HAA5 concentrations occur at the same time and location, one dual sample set must be collected at that location. If highest TTHM and HAA5 concentrations occur at different locations, then a single TTHM sample must be collected at the location with higher historical TTHM, and a single HAA5 sample must be collected at the location with higher historical HAA5.

[4]Systems on quarterly monitoring must take dual sample sets every 90 days.

[5]Monitoring locations must be approved by the executive director.

(3) Reduced monitoring for TTHM and HAA5. Monitoring may be reduced when the LRAA is less than or equal to 0.040 mg/L for TTHM and less than or equal to 0.030 mg/L for HAA5 at all Stage 2 compliance monitoring locations. The Stage 2 reduced sampling frequency and number of sample sites are given in the following table, titled "Reduced Stage 2 Monitoring Frequency and Number of Sites."

Figure: 30 TAC §290.115(c)(3) (No change.)

Reduced Stage 2 Monitoring Frequency and Number of Sites

Source Water Type	Population Size Category	Monitoring Frequency [1]	Distribution System Monitoring Location Total per Monitoring Period
Surface or GUI	less than 500	Annual	Monitoring may not be reduced.
	500 to 3,300	Annual	1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter. [2]
	3,301 to 9,999	Annual	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement.
	10,000 to 49,999	quarterly	2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs
	50,000 to 249,999	quarterly	4 dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs
	250,000 to 999,999	quarterly	6 dual sample sets at the locations with the three highest TTHM and three highest HAA5 LRAAs
	1,000,000 to 4,999,999	quarterly	8 dual sample sets at the locations with the four highest TTHM and four highest HAA5 LRAAs
	5,000,000 or more	quarterly	10 dual sample sets at the locations with the five highest TTHM and five highest HAA5 LRAAs
Ground-water	less than 500	every third year (triennial)	1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter. [2]
	500 to 9,999	Annual	1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter. [2]
	10,000 to 99,999	Annual	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement
	100,000 to 499,999	quarterly	2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs

	500,000 or more	quarterly	4 dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs

1 Systems on quarterly monitoring must take dual sample sets every 90 days.
2 Systems on annual monitoring and surface water systems serving 500 to 3,300 people will use a single site if the highest TTHM and HAA5 concentrations occur at the same time and place. Any such system may be required to take individual TTHM and HAA5 samples (instead of a dual sample set) at sites identified as the highest TTHM and HAA5 sites, respectively. If separate sites for individual TTHM and HAA5 samples are used, then the TTHM sample must be collected during the quarter with highest historical TTHM levels and the HAA5 sample must be collected during the quarter with the highest historical HAA5 level.

(A) Only data collected under the provisions of §290.113 of this title (relating to Stage 1 Disinfection Byproducts [By-products] (TTHM and HAA5)) and under this section may be used to qualify for reduced monitoring.

(B) In order to remain on [qualify for] reduced monitoring, a system must meet the applicable conditions of this subparagraph.

(i) Systems with annual or less frequent reduced [routine] monitoring qualify to remain on reduced monitoring as long as each TTHM sample is less than or equal to 0.060 mg/L and each HAA5 sample is less than or equal to 0.045 mg/L.

(ii) Systems on quarterly reduced monitoring qualify to remain on reduced monitoring as long as the TTHM LRAA is less than or equal to 0.040 mg/L and the HAA5 LRAA is less than or equal to 0.030 mg/L at each monitoring location.

(iii) To qualify for and remain on reduced monitoring, the source water annual average Total Organic Carbon (TOC) [TOC] level, before any treatment, must be less than or equal to 4.0 mg/L at each treatment plant treating surface water or groundwater under the direct influence of surface water, based on monitoring conducted under §290.112(c)(2)(C) of this title (relating to Total Organic Carbon (TOC)).

(C) Systems will be returned to routine monitoring:

(i) if the LRAA at any monitoring location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 based on quarterly monitoring, or

(ii) if the annual (or triennial) sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5, or

(iii) if the source water annual average TOC level, before any treatment, exceeds 4.0 mg/L at any treatment plant treating surface water or groundwater under the direct influence of surface water.

(D) The executive director may return a system on reduced monitoring to routine monitoring at any time.

(E) A system that is on reduced Stage 1 monitoring in accordance with §290.113(c)(4) of this title that has monitoring locations for Stage 2 different from those under Stage 1 must initiate routine monitoring in accordance with paragraph (2) of this subsection [subsection (c)(2) of this section] on the schedule given in subsection (a) of this section.

(F) A system that is on reduced monitoring in accordance with §290.113(c)(4) of this title may remain on reduced monitoring after the dates identified in subsection (a)(2) of this section only if the system:

(i) received a very small system (VSS) IDSE [Initial Distribution System Evaluation (IDSE)] waiver under paragraph (5)(A) of this subsection [subsection (c)(5)(A) of this section] or received a 40/30 IDSE waiver under paragraph (5)(B) of this subsection [subsection (c)(5)(B) of this section], and

(ii) meets the reduced monitoring criteria in subparagraph (B) of this paragraph [(c)(3)(B)], and

(iii) is approved to use the same monitoring locations under Stage 1 and Stage 2.

(G) The executive director may choose to perform calculations and determine whether the system is eligible for reduced monitoring in lieu of having the system report that information.

(4) Increased monitoring for TTHM and HAA5. The executive director may increase monitoring in accordance with this paragraph.

(A) A system required to routinely monitor at a particular location annually or less frequently than annually under paragraph (2) of this subsection [subsection (c)(2) of this section] must increase monitoring to quarterly dual sample sets (every 90 days) at all locations if any TTHM compliance sample is greater than 0.080 mg/L or if any HAA5 compliance sample is greater than 0.060 mg/L at any location.

(B) The executive director may return a system on increased quarterly monitoring to routine monitoring after at least four consecutive quarters if the LRAA for every monitoring location is less than or equal to 0.060 mg/L for TTHM and less than or equal to 0.045 mg/L for HAA5.

(C) A system that is on increased monitoring under §290.113 of this title must remain on increased monitoring until the system qualifies for a return to routine monitoring under subparagraph (B) of this paragraph [subsection (c)(4)(B) of this section]. The increased monitoring schedule must be conducted at the Stage 2 monitoring locations approved under paragraph (1) of this subsection [subsection (c)(1) of this section], beginning on the date identified in subsection (a)(2) of this section.

(5) Initial Distribution System Evaluation (IDSE) requirements. All community systems of any size and nontransient noncommunity systems that serve at least 10,000 people must comply with these IDSE [Initial Distribution System Evaluation (IDSE)] requirements.

(A) The executive director may grant a VSS IDSE monitoring waiver to systems that serve fewer than 500 people. Systems that receive a VSS IDSE monitoring waiver are not required to do IDSE monitoring. Systems must be compliant

with all of the Stage 1 monitoring requirements of §290.113 of this title to be eligible for a VSS IDSE waiver.

(B) The executive director may grant a 40/30 IDSE monitoring waiver to IDSE monitoring to systems with levels for TTHM less than 0.040 mg/L and levels for HAA5 less than 0.030 mg/L. Systems that receive a 40/30 IDSE monitoring waiver are not required to do IDSE monitoring. Systems must be compliant with all of the Stage 1 monitoring requirements of §290.113 of this title to be eligible for a 40/30 IDSE waiver. The timing of samples that all need to be less than 0.040 mg/L and 0.030 mg/L respectively for TTHM and HAA5 are given in the following table, titled "Timing of Stage 1 Samples Evaluated for 40/30 Waiver."

Figure: 30 TAC §290.115(c)(5)(B)

[Figure: 30 TAC §290.115(c)(5)(B)]

Timing of Stage 1 Samples Evaluated for 40/30 Initial Distribution System Evaluation (IDSE) Waiver

This type of system:	40/30 certification is based on eight consecutive calendar quarters of Stage 1 compliance monitoring results beginning no earlier than [1]
Systems that are not in a combined distribution system:	
System serving 100,000 or more people	January 2004

System serving 50,000 to 99,999 people	
System serving 10,000 to 49,999 people	January 2005
System serving fewer than 10,000 people	
Systems in a combined distribution system	
Consecutive or wholesale system of any population	at the same time as the largest system in the combined distribution system

[1] A system that did not monitor during the specified period must base eligibility on compliance samples taken during the 12 months preceding [preceeding] the specified period.

(i) To qualify for a 40/30 IDSE waiver a system must certify to the executive director that every individual sample taken under §290.113 of this title were less than 0.040 mg/L for TTHM and less than 0.030 mg/L for HAA5, and must have not had any TTHM or HAA5 monitoring violations during the period specified in subsection (a) of this section.

(ii) To qualify for a 40/30 IDSE waiver, a system must submit compliance monitoring results, distribution system schematics, and recommended Stage 2 compliance monitoring locations to the executive director upon request. The executive director may require a system that fails to submit the requested information to perform IDSE sampling.

(iii) The executive director may still require a system that meets the 40/30 IDSE waiver or VSS IDSE waiver requirements to do IDSE sampling under subparagraph (C) of this paragraph.

(C) Systems that must perform IDSE sampling must submit any needed documentation for waivers, produce an IDSE Plan, do IDSE sampling, and report the IDSE results to the executive director on the schedule in the following table titled "IDSE Schedule."

Figure: 30 TAC §290.115(c)(5)(C)

[Figure: 30 TAC §290.115(c)(5)(C)]

Initial Distribution System Evaluation (IDSE) [IDSE] Schedule

Retail population	**Submit IDSE plan or waiver documentation by [1, 2]:**	**Complete IDSE by:**	**Submit IDSE report by: [3]**
Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system			
100,000 or more	October 1, 2006	September 30, 2008	January 1, 2009
50,000 through 99,999	April 1, 2007	March 31, 2009	July 1, 2009
10,000 through 49,999	October 1, 2007	September 30, 2009	January 1, 2010
less than 10,000 (Community Only)	April 1, 2008	March 31, 2010	July 1, 2010

Other systems that are part of a combined distribution system:	
Any population	At the same time as the system with the earliest compliance date in the combined distribution system

[1] If, within 12 months after the date identified in this column, the executive director does not approve a system's IDSE plan or notify the system that review is incomplete, the IDSE plan will be considered approved. The system must implement that plan and must complete standard IDSE monitoring or a system specific study no later than the date identified in the third column.
[2] Waiver documentation must be submitted by the date indicated.
[3] If the executive director does not approve an IDSE report or notify a system that review is incomplete within three months after the IDSE report is due to be submitted, or within nine months of the date that waiver documentation must be submitted for systems receiving waivers, the submitted report or waiver documentation will be considered approved and must be implemented.

(i) The IDSE plan has required elements.

(I) The IDSE plan must include a schematic of the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating locations and dates of all projected standard monitoring, and also Stage 1 compliance monitoring under §290.113 of this title.

(II) The IDSE plan must include justification of IDSE monitoring location selection and a summary of data used to justify IDSE monitoring location selection.

(III) The IDSE plan must include the system type and population served by the system.

(ii) Systems must do required IDSE sampling in accordance with this clause.

(I) Systems must monitor at the number and type of sites indicated in the following table titled "Number and Type of IDSE Sample Sites:"

Figure: 30 TAC §290.115(c)(5)(C)(ii)(I)

~~Figure: 30 TAC §290.115(c)(5)(C)(ii)(I) (No change.)~~

Number and Type of IDSE Sample Sites [1]

Population and water type	**IDSE Site Type**				
	Near Entry Points	**Average Residence Time**	**Potential High TTHM Locations**	**Potential High HAA5 Locations**	**Total Number of Sites**
Systems distributing surface water or groundwater under the direct influence of surface water (GUI)					
less than 500 that purchase treated surface water or GUI	1	-	1	-	2
less than 500 with no purchased water source	-	-	1	1	2
500 to 3,300 that purchase treated surface water or GUI	1	-	1	-	2

500 to 3,300 with no purchased water source	-	-	1	1	2
3,301 to 9,999	-	1	2	1	4
10,000 to 49,999	1	2	3	2	8
50,000 to 249,999	3	4	5	4	16
250,000 to 999,999	4	6	8	6	24
1,000,000 to 4,999,999	6	8	10	8	32
5,000,000 or more	8	10	12	10	40
Systems that only use groundwater not under the direct influence of surface water					
less than 500 that purchase treated groundwater	1	-	1	-	2
less than 500 with no purchased water source nonconsecutive systems	-	-	1	1	2
500 to 9,999	-	-	1	1	2
10,000 to 99,999	1	1	2	2	6
100,000 to 499,999	1	1	3	3	8
500,000 or more	2	2	4	4	12

1 If the number of entry points to the distribution system is fewer than the specified number of entry point monitoring locations, excess entry point samples must be replaced equally at high TTHM and HAA5 locations. If there is an odd extra location number, the system must take a sample at a high TTHM location. If the number of entry points to the distribution system is more than the specified number of entry point monitoring locations, the system must take samples at entry points to the distribution system having the highest annual water flows.

(II) Systems must collect dual sample sets at each monitoring location. One sample in the dual sample set must be analyzed for TTHM. The other sample in the dual sample set must be analyzed for HAA5.

(III) IDSE sample locations must be different than the existing Stage 1 monitoring locations established under §290.113 of this title.

(IV) IDSE sample locations must be distributed throughout the distribution system.

(V) Systems must monitor at the frequency indicated in the following table titled "Frequency of IDSE Monitoring:"

Figure: 30 TAC §290.115(c)(5)(C)(ii)(V)

[Figure: 30 TAC §290.115(c)(5)(C)(ii)(V)]

Frequency of Initial Distribution System Evaluation (IDSE) [IDSE] Monitoring

Population and Type of Water	Sampling Frequency and Timing [2]
Systems distributing surface water or groundwater under the direct influence of surface water (GUI)	
less than 500 that purchase treated surface water or GUI	one (during peak historical month[2])
less than 500 with no purchased water source	
500 to 3,300 that purchase treated surface water or GUI	four (every 90 days)
500 to 3,300 with no purchased water source	
3,301 to 9,999	
10,000 to 49,999	six (every 60 days)
50,000 to 249,999	
250,000 to 999,999	
1,000,000 to 4,999,999	
5,000,000 or more	
Systems that only use groundwater not under the direct influence of surface water	
less than 500 that purchase treated groundwater	one (during peak historical month[2]) [(during hottest month[2])]

less than 500 with no purchased water source nonconsecutive systems	
500 to 9,999	four (every 90 days)
10,000 to 99,999	
100,000 to 499,999	
500,000 or more	

[1] A dual sample set with both a total trihalomethanes (TTHM) and an haloacetic acids (group of five (HAA5) [TTHM and an HAA5] sample must be taken at each monitoring location during each monitoring period.

[2] The peak historical month is the month with the highest TTHM or HAA5 levels or the warmest water temperature month. [The hottest month is the historical month is the month with the highest TTHM or HAA5 levels or the warmest water temperature.] Monitoring must be conducted during the peak historical month for TTHM levels or HAA5 levels [or the month of warmest water temperature]. Available compliance, study, or operational data must be reviewed to determine the peak historical month for TTHM or HAA5 levels [or warmest water temperature].

(VI) The IDSE monitoring frequency and locations may not be reduced.

(iii) The IDSE report must comply with the elements in this clause.

(I) The IDSE report must include all TTHM and HAA5 analytical results from Stage 1 compliance monitoring under §290.113 of this title and all IDSE sample results and locational running annual averages presented in a tabular or

spreadsheet format acceptable as described in TCEQ regulatory guidance number 384: "How to Develop a Monitoring Plan for a Public Water System."

(II) If changed from the IDSE plan submitted under clause (ii) of this subparagraph, the IDSE report must also include an updated distribution system map, documentation verifying the population served, and an updated list of sources including their water type.

(III) The IDSE report must include an explanation of any deviations from the approved IDSE plan.

(IV) The IDSE report must recommend and justify Stage 2 compliance monitoring locations consistent with paragraph (1) of this subsection [subsection (c)(1) of this section]. The recommended Stage 2 compliance monitoring locations must be listed in a Stage 2 sample plan as part of the system's monitoring plan.

(V) The IDSE report must include recommendations and justification for when Stage 2 samples should be collected.

(iv) The executive director may approve a system specific study that meets the requirements in 40 CFR §141.602 to comply with IDSE sampling requirements. The commission hereby adopts the requirements of 40 CFR §141.602 by reference.

(D) The executive director may require a system to perform IDSE sampling or a system specific study for any reason. The executive director may require a system to perform IDSE sampling or a system specific study even if the system meets the criteria for an IDSE waiver. The executive director may require new systems and systems with a change in population or system type to perform IDSE sampling or a system specific study.

(d) Analytical requirements for TTHM and HAA5. Analytical procedures required by this section shall be performed in accordance with §290.119 of this title (relating to Analytical Procedures). Testing for TTHM and HAA5 shall be performed at a laboratory accredited [certified] by the executive director.

(e) Reporting requirements for TTHM and HAA5. Public water systems must submit reports related to TTHM and HAA5 to the executive director. Reports must be mailed to the Water Supply Division, MC 155, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087.

(1) Upon the request of the executive director, the owner or operator of a public water system must provide the executive director with a copy of the results of any test, measurement, or analysis required by this subsection. The copies must be submitted within ten days of the request or within ten days of their receipt by the public water system, whichever is later.

(A) The owner or operator of a public water system is responsible for reporting the following information for each monitoring location to the executive director within ten days of the end of any quarter in which monitoring is required:

(i) number of samples taken during the last quarter;[,]

(ii) date and results of each sample taken during the last quarter;[,]

(iii) arithmetic average of quarterly results for the last four quarters for each monitoring location (LRAA), beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter;[,]

(iv) whether the MCL was violated at any monitoring location;[,] and

(v) any OELs that were exceeded during the quarter and, if so, the location and date, and the calculated TTHM and HAA5 levels.

(B) If the LRAA based on fewer than four quarters would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the system must report a potential MCL violation as part of the first report due following the compliance date or anytime thereafter that this determination is made. A system required to conduct monitoring at a frequency that is less than quarterly must make compliance calculations beginning with the first compliance sample taken after the compliance date, unless the system is required to conduct increased monitoring under subsection (c)(4) of this section.

(C) A system that treats surface water or groundwater under the direct influence of surface water that seeks to qualify for or remain on reduced TTHM and HAA5 monitoring must measure and report TOC monthly in accordance with §290.112 of this title [(relating to Total Organic Carbon)] and distribution system disinfection levels in accordance with §290.110 of this title (relating to Disinfectant Residuals [Disinfection]).

(2) A system that exceeds an OEL described in subsection (b)(2) of this section must conduct an operation evaluation and submit a written operation evaluation report that meets the requirements of this paragraph.

(A) The operation evaluation report must be submitted to the executive director no later than 90 days after being notified of the analytical result that causes the exceedance of the OEL.

(B) The operation evaluation report must document an examination of system treatment and distribution operation practices that may contribute to TTHM and HAA5 formation, including:

(i) storage tank operations;

(ii) excess storage capacity;

(iii) distribution system flushing;

(iv) changes in sources or source water quality;

(v) treatment changes or problems; and

(vi) what steps could be considered to minimize future exceedances.

(C) If the cause of the OEL exceedance is identifiable the scope of the report may be limited with the approval of the executive director. A request to limit the scope of the evaluation does not extend the schedule in subparagraph (A) of this paragraph [paragraph (2)(A) of this subsection] for submitting the written report. The executive director's approval to limit the scope of the operation evaluation report must be in writing. The system must keep a copy of the executive director's approval with the completed operation evaluation report.

(D) The operation evaluation report must be submitted and approved in writing.

(f) Compliance determination for TTHM and HAA5. Compliance with the provisions of this section shall be determined as follows.

(1) A public water system violates the MCL for TTHM if any locational running annual average for TTHM exceeds an MCL specified in subsection (b)(1)(A) of

this section. A public water system violates the MCL for HAA5 if any locational running annual average for HAA5 exceeds the MCL specified in subsection (b)(1)(B) of this section.

(A) Compliance with the MCLs for TTHM and HAA5 shall be based on the LRAA of all samples collected during four consecutive quarters of monitoring. If a single quarterly sample would cause an LRAA exceedance regardless of the results of subsequent quarters, compliance may be based on fewer than four quarters of data. Should a system fail to collect all required samples, compliance will be based on the available data. All samples collected at the sampling sites designated in the public water system's monitoring plan shall be used to compute the quarterly and annual averages unless the analytical results are invalidated by the executive director for technical reasons.

(B) Stage 2 MCL compliance determination with LRAAs will start after Stage 2 samples are collected.

(i) For systems required to conduct routine quarterly monitoring, compliance calculations will be made starting at the end of the fourth calendar quarter that follows the compliance date in subsection (a)(2) of this section and at the end of each subsequent quarter.

(ii) For systems on quarterly monitoring, where the LRAA based on fewer than four quarters would exceed the MCL regardless of the monitoring results of subsequent quarters, compliance will be calculated beginning with the first sample that causes that exceedance.

(iii) For systems that are required to monitor less frequently than quarterly, compliance shall be calculated beginning with the first compliance sample taken after the compliance date.

(iv) For systems monitoring annually or triennially that start monitoring quarterly in the quarter following an LRAA exceedance, compliance shall be calculated based on the results of all available samples.

(C) If a public water system's failure to monitor makes it impossible to determine compliance with the MCL for TTHM or HAA5, the system commits an MCL violation for the entire period covered by the annual average.

(D) The executive director may choose to perform calculations and determine MCL exceedances in lieu of having the system report that information.

(E) IDSE results will not be used for the purpose of determining compliance with MCLs.

(2) A system that fails to monitor in accordance with this section commits a monitoring violation. A system on a quarterly monitoring schedule is in violation of the monitoring requirements for each quarter that it fails to monitor.

(3) A system that fails to perform a required operation evaluation under subsection (e)(2) of this section commits a monitoring violation.

(4) A public water system that fails to report the results of the monitoring tests required by subsection (e) of this section commits a reporting violation.

(5) A system that fails to submit an operation evaluation report as required under subsection (e)(2) of this section commits a reporting violation.

(6) A system that fails to perform a required public notification commits a public notification violation.

(g) Public notification requirements [Notification Requirements] for TTHM and HAA5. A public water system that violates the treatment technique requirements of this section must notify the executive director and the system's customers.

(1) A public water system that commits an MCL violation described in subsection (f)(1) of this section shall report to the executive director and the water system customers in accordance with the requirements of §290.122(b) of this title (relating to Public Notification).

(2) A public water system which fails to conduct the monitoring required by subsection (c) of this section must notify its customers of the violation in accordance with the requirements of §290.122(c) of this title.

(3) Any IDSE compliance documents required under subsection (c)(5) of this section must be made available to the executive director or the public upon request.

(4) Any operation evaluation report required under subsection (e)(2) of this section must be made available to the executive director or the public upon request.

(h) Best available technology for TTHM and HAA5. Best available technology for treatment of violations of MCLs in subsection (b) of this section are listed in 40 CFR

§141.64(b)(2)(ii) and (iii).

§290.117. Regulation of Lead and Copper.

(a) Applicability. The requirements of this section apply to community and nontransient, noncommunity public water systems. These regulations establish requirements for monitoring, reporting, corrosion control studies and treatment, source water treatment, lead service line replacement, and public education. Public water systems must control the levels of lead and copper in drinking water by controlling the corrosivity of the water. New water systems will be required to meet the requirements of this section when notified by the executive director.

(b) Compliance levels and ranges. Community and nontransient, noncommunity systems must meet designated lead and copper levels and water quality parameter ranges.

(1) Lead and copper action levels. Public water systems must meet action levels for lead and copper in drinking water.

(A) Lead action level. The lead action level is 0.015 milligrams per liter (mg/L). The action level is exceeded if the "90th percentile" lead level exceeds 0.015

mg/L in any monitoring period. The 90th percentile lead level is exceeded when more than 10% of tap water samples have a concentration over the action level.

(B) Copper action level. The copper action level is 1.3 mg/L. The action level is exceeded if the concentration of copper in more than 10% of tap water samples collected during any monitoring period is greater than 1.3 mg/L.

(2) Reduced lead and copper monitoring levels. Systems with levels of lead and copper less than the reduced monitoring levels may be eligible for reduced monitoring under subsections (c) - (e) of this section.

(A) The reduced monitoring level for lead is 0.005 mg/L.

(B) The reduced monitoring level for copper is 0.65 mg/L.

(C) A system with 90th percentile levels of lead and copper less than or equal to the reduced monitoring levels in two consecutive six-month initial or routine tap sampling periods may be eligible for reduced monitoring under subsections (c) - (e) of this section.

(3) Lead and copper Practical Quantitation Levels (PQLs). The PQLs for lead and copper are defined by this paragraph.

(A) The PQL for lead is 0.005 mg/L.

(B) The PQL for copper is 0.050 mg/L.

(4) Optimal water quality parameter (OWQP) ranges. The executive director shall set approved OWQP ranges for systems based on corrosion control studies described in subsection (f)(1) of this section. All systems that exceed an action level for lead or copper based on the 90th percentile are required to have approved OWQP ranges. Systems that serve more than 50,000 people that exceed the PQL for lead based on the 90th percentile are required to have approved OWQP ranges. Systems with approved water quality parameter ranges shall operate within the approved OWQP ranges at all times.

(A) OWQP ranges shall include all elements contained in this subparagraph.

(i) OWQPs shall include a minimum value or a range of

values for negative log of hydrogen ion concentration (pH) measured at each entry point to the distribution system.

(ii) OWQPs shall include a minimum pH value, measured in all tap samples. Such value shall be equal to or greater than 7.0, unless the executive director determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the system to optimize corrosion control.

(iii) If a corrosion inhibitor is used, OWQPs shall include a minimum concentration or a range of concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, that the executive director determines is necessary to form a passivating film on the interior walls of the pipes of the distribution system.

(iv) If alkalinity is adjusted as part of optimal corrosion control treatment, OWQPs shall include a minimum concentration or a range of concentrations for alkalinity, measured at each entry point and in all distribution samples.

(v) If calcium carbonate stabilization is used as part of

corrosion control, OWQPs shall include a minimum concentration or a range of concentrations for calcium, measured in all distribution samples.

(B) Systems that must perform corrosion controls studies under subsection (f) of this section shall submit proposed system-specific OWQP ranges in writing for the executive director's approval.

(C) The executive director shall review and designate OWQPs in writing within six months after receipt of the system's recommended OWQPs.

(5) Deemed to have optimized corrosion control. A system may be considered deemed to have optimized corrosion control if it meets the requirements of this paragraph.

(A) A system that serves 50,000 or fewer people may be deemed to have optimized corrosion control if the system meets the lead and copper action levels in two consecutive initial or routine monitoring periods.

(B) A system that serves more than 50,000 people may be deemed to have optimized corrosion control if the difference between the 90th percentile lead

level and the highest entry point lead level is less than the PQL and the system meets the copper action levels in two consecutive initial or routine monitoring periods.

(C) Those systems whose highest source water lead level is below the method detection limit may also be deemed to have optimized corrosion control under this paragraph if the 90th percentile tap water lead level is less than or equal to the PQL for lead for two consecutive six-month monitoring periods.

(D) Any water system may be deemed by the executive director to have optimized corrosion control treatment if the system demonstrates, to the satisfaction of the executive director, that it has conducted activities equivalent to the corrosion control requirements of this section, including all applicable monitoring requirements.

(E) Any system that fails to perform required monitoring or reporting, operates outside any approved OWQP ranges, or exceeds a lead or copper action level shall no longer be deemed to have optimized corrosion control.

(6) Maximum permissible levels (MPLs) for source water lead. The executive director shall designate MPLs for lead and copper at entry points to the

distribution system for systems that are required to install source water treatment under subsection (g) of this section. Such MPLs shall reflect the contaminant-removal capability of the source water treatment properly operated and maintained. The executive director shall determine MPLs based on source water samples taken by the water system before and after the system installs the approved source water treatment. The executive director will set MPLs in writing, explaining the basis of that decision, within six months after the system completes follow-up tap sampling for lead and copper after source water treatment installation under subsection (g) of this section.

(c) Lead and copper tap sampling locations and frequency. Community and nontransient, noncommunity public water systems shall sample at sites approved by the executive director and at a frequency set by the executive director. Systems shall conduct initial tap sampling until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring.

(1) Lead and copper tap sampling locations. Systems shall sample at sites approved by the executive director and documented in the system's monitoring plan required under §290.121 of this title (relating to Monitoring Plans).

(A) Number of tap sample sites. The minimum number of sample sites required for initial, routine, or reduced lead and copper tap sampling are listed in

the following table, entitled "Required Number of Lead and Copper Tap Sample Sites:"

Figure: 30 TAC §290.117(c)(1)(A)

Required Number of Lead and Copper Tap Sample Sites

System size (number of people served)	Number of sites for initial/routine monitoring	Number of sites for reduced monitoring: annual, three-year, and nine-year
more than 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
100 or fewer	5	5

(B) Suitable sample taps. All sites from which lead and copper tap samples are collected shall be selected from a pool of targeted sampling sites identified through a materials survey of the distribution system. Sample sites shall be selected first at tier 1, then tier 2, then tier 3 locations as defined in subparagraph (D) of this paragraph. Sampling sites may not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic chemicals.

(C) Material survey and sample site selection form. Sample sites shall be representative of the distribution system and specifically represent areas of the

system most vulnerable to corrosion of lead and copper into the water. The system must maintain a current copy of their Material Survey Form with the monitoring plan.

(i) Material survey. Systems shall perform a materials survey to select sample appropriate tap sampling sites using the Material Survey Form and Instructions (TCEQ Form Number 20467). The material survey shall be submitted in writing for executive director review and approval. In performing the material survey, the system shall review the sources of information listed in this clause in order to identify sampling sites. In addition, the system shall seek to collect such information where possible in the course of its normal operations (for example, while checking service line materials when reading water meters or performing maintenance activities). Sources of information that must be reviewed include:

(I) All plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system; and

(II) All inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system; and

(III) All existing water quality information, which includes the results of all prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations; and

(IV) A water system shall use the information on lead, copper, and galvanized steel that it is required to collect when performing a corrosion control study that is required under subsection (f) of this section.

(ii) Sample site selection form. After completing sample site selection, the system will submit the Lead and Copper Sample Site Selection form (TCEQ Form Number 20467) to the executive director for approval. Systems shall identify routine and reduced monitoring sites on their Lead and Copper Sample Site Selection form.

(I) Selecting tier 1, 2, and 3 sites. Systems shall identify tier 1, tier 2, and tier 3 sites as described in subparagraph (D) of this paragraph.

(II) Sites for community systems with insufficient tier

1, 2, or 3 sites. A community water system with insufficient tier 1, tier 2, and tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system.

(III) Sites for nontransient, noncommunity systems with insufficient tier 1, 2, or 3 sites. A nontransient, noncommunity water system with insufficient tier 1 sites shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the nontransient, noncommunity water system shall use representative sites throughout the distribution system.

(IV) Sites for systems with lead service lines. Any water system whose distribution system contains lead service lines shall draw 50% of the samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and 50% of the samples from sites served by a lead service line. A water system that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first-draw samples from all of the sites identified as being served by such lines.

(V) Supplemental information with Site Selection Form. Systems shall submit supplemental explanatory information as part of the sample

site selection documentation.

(D) Tier 1, 2, and 3 sites. Tier 1, 2, and 3 sites representing potential for leaching lead or copper under corrosive conditions shall be defined as described in this subparagraph.

(i) Definition of community tier 1. The sampling sites selected for a community water system's sampling pool, called "tier l sampling sites," shall consist of single family structures that:

(I) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; or

(II) Are served by a lead service line. When multiple-family residences comprise at least 20% of the structures served by a water system, the system may include these types of structures in its sampling pool.

(ii) Definition of community tier 2. Any community water system with insufficient tier 1 sampling sites shall complete its sampling pool with "tier 2 sampling sites", consisting of buildings, including multiple-family residences that:

(I) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; or

(II) Are served by a lead service line.

(iii) Definition of community tier 3. Any community water system with insufficient tier 1 and tier 2 sampling sites shall complete its sampling pool with tier 3 sampling sites consisting of single family structures that contain copper pipes with lead solder installed before 1983.

(iv) Definition of community "other representative sites". A representative site is a site in which the plumbing materials used at that site would commonly be found at other sites served by the water system.

(v) Definition of nontransient, noncommunity tier 1 sites. Tier 1 sampling sites selected for a nontransient, noncommunity water system shall consist of buildings that:

(I) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; or

(II) Are served by a lead service line.

(vi) Nontransient, noncommunity representative sites. For the purpose of this paragraph, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(E) Sites for systems missing first-draw sites. A water system may request approval of non-first-draw sample sites if it meets the requirements in this paragraph. The executive director will use all written documentation provided by the system in reviewing the request.

(i) Type of system for non-first-draw sites. In order to request use of non-first-draw sites, the system must be either a nontransient, noncommunity system, or a community system where:

(I) The system is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices; and

(II) The system provides water as part of the cost of services provided and does not separately charge for water consumption.

(ii) The request for approval of non-first-draw sites must provide written documentation identifying standing times and locations for enough non-first-draw samples to make up its sampling pool. A system must update their sample sites when system conditions changes, such as changes in population and destruction of previously used sites.

(F) Sites for systems with less than five taps. A public water system that has fewer than five drinking water taps that can be used for human consumption may request a five-tap waiver to collect samples at fewer than five locations. The executive director may allow these public water systems to collect a number of samples less than the number of sites specified in paragraph (1) of this subsection, provided that all taps that can be used for human consumption are sampled. The system must request this reduction of the minimum number of sample sites in writing based on a request from the system or on-site verification. In no case can the system reduce the number of samples required below the minimum of one sample per available tap.

(G) Use of same taps each round. A water system must collect tap samples from the same sampling sites in each sampling round.

(i) If a water system changes a sampling site for any reason allowed in this section, the water system must provide the executive director with a written explanation showing which sampling site will be abandoned and the sampling site that replaces the abandoned sampling site. The water system's report shall include an explanation as to why a sampling site was changed from the previous round of sampling,

(ii) If a water system cannot collect a sample from a previously used site, the water system shall provide a written explanation to the executive director. The water system must select an alternate sampling site from the system's sampling pool which meets similar criteria and is within reasonable proximity to the original sampling site.

(2) Lead and copper tap sampling frequency. Water systems shall collect at least one sample from the number of sites listed the table in paragraph (1) of this subsection during each monitoring period. Systems shall sample on the schedule determined by the executive director.

(A) Initial and routine tap sampling. New systems, systems that exceed any action level, systems that install corrosion control treatment, systems that exceed a reduced monitoring level, and systems that operate outside an approved OWQP range shall collect tap samples in two consecutive six-month monitoring periods at the initial/routine number of sample sites.

(i) Initial tap sampling. New systems shall collect tap samples in two consecutive six-month monitoring periods at the initial/routine number of sample sites. A new community or nontransient, noncommunity water system begins the first six-month initial monitoring period in the year after it becomes active. Initial tap sampling shall be conducted after the executive director has determined that a system has had sample sites approved based on the materials survey and sample site selection form required by subsection (b)(2) of this section.

(ii) Routine tap sampling. Systems on reduced monitoring may be required to return to routine sampling in two consecutive six-month periods.

(I) Systems that exceed the lead action level during any 4-month monitoring period shall return to routine tap sample monitoring.

(II) Systems required to perform biweekly WQP

sampling that have WQP levels that are outside the system's approved OWQP range for more than nine days in any six-month period shall return to routine tap sample monitoring.

(III) Systems that are required to return to routine tap sampling because of an action level, reduced monitoring level, or OWQP range exceedance shall start the two consecutive six-month periods in the next calendar year after the exceedance or event that triggers routine monitoring.

(IV) Within 36 months after the executive director designates optimal corrosion control treatment, systems that serve fewer than 50,000 people shall return to routine tap sampling.

(V) Any system that installs corrosion control treatment shall return to routine tap sampling.

(VI) Any system that installs source treatment shall return to routine tap sampling.

(B) Reduced annual tap sampling. Systems that meet the requirements of this paragraph shall collect tap samples every year. Systems on annual

reduced monitoring shall collect tap samples at the number of sites in the table entitled "Required Number of Lead and Copper Tap Sample Sites" in paragraph (1) of this subsection. Systems shall collect samples at sites approved by the executive director and documented in the monitoring plan. Reduced annual monitoring shall be performed during June, July, August, or September. This annual sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period. The executive director shall notify each water system if it is eligible for reduced annual tap sample monitoring.

(i) Systems serving more than 50,000 people that meet the lead action levels, and operate within any approved OWQP ranges, during two consecutive six-month periods may have their sampling frequency reduced to once a year.

(ii) Systems serving 50,000 or fewer people that meet the lead and copper action levels during two consecutive six-month periods may have their sampling frequency reduced to once a year.

(iii) Systems serving 50,000 or fewer people that meet the lead action level, and operate within any approved OWQP ranges, during two consecutive six-month periods may have their sampling frequency reduced to once a

year.

(iv) Systems that meet the action levels, but whose 90th percentile levels exceed 0.005 mg/L for lead or 0.65 for copper during two consecutive six-month initial or routine sampling periods must perform two consecutive years of annual monitoring.

(v) Systems monitoring annually, that have been collecting samples during the months of June through September and that receive approval from the executive director to alter their sample collection period under subparagraph (E) of this paragraph must collect their next round of samples during a time period that ends no later than 21 months after the previous round of sampling.

(vi) Systems with approved OWQP ranges that operate outside those ranges are not eligible for reduced annual monitoring.

(C) Reduced three-year tap sampling. Systems which meet the requirements of this paragraph, shall collect tap samples every three years. Systems on reduced three-year monitoring shall collect tap samples at the reduced number of sites in the table entitled "Required Number of Lead/Copper Tap Sample Sites" in paragraph

(1) of this subsection. Systems shall collect samples at the sites approved by the executive director and documented in the monitoring plan. Reduced three-year monitoring shall be performed during June, July, August, or September, unless the executive director has designated a different four-month period under subparagraph (E) of this paragraph.

(i) Any system that demonstrates during two consecutive six-month initial or routine monitoring periods that the 90th percentile lead level is less than or equal to 0.005 mg/L and the 90th percentile copper level is less than or equal to 0.65 mg/L shall have the required frequency of sampling reduced to once every three years.

(ii) A system that serves 50,000 or fewer people that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years.

(iii) A system with approved OWQP ranges must operate within those ranges to remain eligible for reduced three-year monitoring.

(iv) Samples collected once every three years shall be collected no later than every third calendar year.

(v) Systems on reduced three-year monitoring that have been collecting samples during the months of June through September, and receive approval from the executive director to alter the sampling collection period as per subparagraph (E) of this paragraph must collect their next round of samples during a time period that ends no later than 45 months after the previous round of sampling.

(D) Reduced nine-year tap sampling. Systems that meet the requirements of this paragraph and serve 3,300 or fewer people shall be eligible for reduced nine-year tap sampling. Systems on reduced monitoring shall collect tap samples at the number of sites in the table entitled "Required Number of Lead and Copper Tap Sample Sites" in paragraph (1) of this subsection. Systems shall collect samples at the sites approved by the executive director and documented in the monitoring plan. Reduced nine-year monitoring shall be performed during June, July, August, or September, unless the executive director has designated a different four-month period under subparagraph (E) of this paragraph. The executive director shall notify a system that it is eligible for reduced monitoring.

(i) Initiation of nine-year tap sampling. The first round of

nine-year reduced tap sampling shall be completed no later than nine years after the last time the system monitored for lead and copper at the tap.

(ii) Materials requirement for nine-year tap sampling. In order to be eligible for reduced nine-year monitoring, a system must provide the executive director with an updated materials survey certifying that the system meets the requirements of this clause.

(I) The water system must demonstrate on the Materials Survey and Lead/Copper Sample Site Selection form (TCEQ Form Number 20467) that its distribution system, service lines, and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials and/or copper-containing materials to demonstrate the risk from lead and/or copper exposure is negligible throughout the water system.

(II) To qualify for nine-year reduced monitoring, the water system must certify in writing and provide supporting documentation that the system is free of all lead-containing materials. The system must contain no plastic pipes that contain lead plasticizers, or plastic service lines that contain lead plasticizers. The system must be free of lead service lines, lead pipes, lead soldered pipe joints, and

leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of any standard established pursuant to 42 United States Code, §300g-6(e) (Safe Drinking Water Act, §1417(e)).

(III) To qualify for nine-year reduced monitoring the water system must provide certification and supporting documentation to the executive director that the system contains no copper pipes or copper service lines.

(IV) The executive director shall not issue any "partial waivers" for lead and copper monitoring.

(iii) Lead and copper levels for nine-year tap sampling eligibility. To qualify for nine-year reduced monitoring, the water system must have completed at least one six-month period of initial tap water monitoring. Also, all of the system's 90th percentile lead and copper levels must have been less than or equal to 0.005 mg/L for lead and 0.65 for copper in all sampling performed by the system.

(iv) Conditions for nine-year tap sampling eligibility. As a condition of the waiver, the executive director may require the system to perform specific activities to avoid the risk of lead or copper concentration of concern in tap

water. For example, additional monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver, or other activities may be required.

(v) Nine-year tap sampling revocation. If a water system with a nine-year tap sampling waiver adds a new source of water, changes any water treatment, or no longer meets the requirements of this subparagraph, the water system must notify the executive director in writing within 60 days of the change as required by §290.39(j) of this title (relating to General Provisions). The executive director has the authority to add or modify the monitoring waiver conditions to address changes.

(vi) Notification of change in lead or copper materials. If a system on nine-year tap sampling becomes aware that the system is no longer free of lead-containing or copper-containing materials, the system shall notify the executive director in writing no later than 60 days after becoming aware of such a change. If the system met both the lead and the copper action levels in all previous lead and copper tap sampling results, the system must return to three-year tap sampling schedule contained in subparagraph (C) of this paragraph.

(vii) Grandfathered nine-year tap sampling. Systems with nine-year tap sampling waivers approved in writing by the executive director prior to

January 1, 2002 shall remain in effect if the system continues to meet the requirements of this paragraph.

(viii) Tap sampling frequency sequence. Subsequent rounds of sampling, after a return to routine monitoring, must be collected once a year, every three years, or every nine years, as required by this section.

(E) Alternate months for reduced lead and copper tap sampling. The executive director may approve a different period, other than June through September, for systems conducting reduced lead and copper tap sampling. Such a period shall be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. For a nontransient, noncommunity water system that does not operate during the months of June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known, the executive director shall designate a period that represents a time of normal operation for the system. This sampling shall begin during the period designated by the executive director in the calendar year immediately following the end of the second consecutive six-month monitoring period for systems initiating annual monitoring and during the three-year period following the end of the third consecutive calendar year of annual monitoring for systems initiating three-year reduced monitoring.

(F) Tap sampling monitoring period. For systems on annual or less frequent schedules, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the executive director has established an alternate monitoring period, the last day of that period.

(G) Return to initial/routine tap sampling frequency. The executive director shall determine whether a system continues to meet the requirements to remain on reduced annual, three-year, or nine-year monitoring. A system on reduced monitoring may be required to return to routine monitoring as described in subparagraph (A)(i) of this paragraph. Systems required to return to routine monitoring shall sample at the number of routine sites listed in the table entitled "Required Number of Lead/Copper Tap Sample Sites" under paragraph (1) of this subsection.

(H) Replacement tap samples. The water system must collect replacement samples for any samples invalidated under subsection (h) of this section. Any such replacement samples must be collected as soon as possible, but no later than twenty days after receiving notification of sample invalidation approval from the executive director. If a water system discovers that a sample has been collected at an inappropriate sampling site, the water system may request in writing that the sample be invalidated. The replacement samples shall be taken at the same locations as the

invalidated samples or, if that is not possible, at locations other than those with valid results for the monitoring period.

(I) Nontransient, noncommunity systems with less than five taps. A nontransient, noncommunity system that has fewer than five drinking water taps meeting the sample site criteria of this paragraph must collect at least one sample from each tap and then must collect additional samples from those same taps on different days during the monitoring period to meet the required number of samples unless the system has received a five-tap waiver from the executive director under paragraph (1)(F) of this subsection.

(3) Consumer sampling for lead action level exceeders. Water systems that exceed the lead action level must arrange to sample the tap water of any customer who requests it. Analytical costs may be borne by the consumer.

(d) Lead and copper entry point sampling. Systems must perform entry point lead and copper sampling after the system exceeds a lead or copper action level, installs source water treatment, or exceeds any MPLs set by the executive director. Systems must routinely monitor lead and copper in conjunction with monitoring for inorganic contaminants other than asbestos or nitrate under section §290.106 of this title (relating to Inorganic Contaminants).

(1) Lead and copper entry point sampling locations. Systems required to perform entry point sampling under this subsection shall sample at every entry point to the distribution system including purchased water entry points. The system shall take each subsequent sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. The system must seek executive director approval to modify an entry point sample location, and must revise its monitoring plan.

(2) Lead and copper entry point sampling frequency. If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions when water is representative of all sources being used.

(A) Entry point lead and copper sampling after an action level exceedance. Any system which exceeds the lead or copper action level shall collect one sample from each entry point no later than 180 days after the end of the monitoring period during which the lead or copper action level was exceeded. For systems on annual or less frequent schedules, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the executive director has established an alternate monitoring period, the last day of that period.

(B) Entry point lead and copper sampling for systems that meet the action levels. A system is not required to conduct entry point lead and copper sampling if the system meets the lead and copper action levels during the entire entry point sampling period.

(C) Entry point lead and copper monitoring frequency after installing source water treatment. Any system that installs source water lead or copper removal treatment shall collect entry point samples during two consecutive six-month periods within 36 months after source water treatment begins.

(D) Entry point lead and copper sampling frequency after specification of MPLs. A system shall monitor at the frequency specified below.

(i) Starting the year after the executive director specifies MPLs, water systems using any surface water shall collect annual samples once during each calendar year.

(ii) Starting the year after the executive director specifies MPLs, a water system using only groundwater shall collect samples once during the

three-year compliance period in effect at that time. Such systems shall collect samples once during each subsequent compliance period. Triennial samples shall be collected every third calendar year.

(iii) A water system using only groundwater may sample entry points every ninth year if the system meets one of the following criteria.

(I) The entry point lead and copper levels are below the lead and copper MPLs during at least three consecutive compliance periods; or

(II) The executive director has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive annual or three-year compliance periods, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(iv) A water system using surface water (or a combination of surface water and ground water) may reduce the lead and copper entry point monitoring frequency to once during every ninth year if the system meets one of the following criteria:

(I) The entry point lead and copper levels are below the MPLs for lead and copper for at least three consecutive years; or

(II) The executive director has determined that source water treatment is not needed and the concentration of lead at all entry points was less than or equal to 0.005 mg/L and the concentration of copper at all entry points was less than or equal to 0.65 mg/L during at least three consecutive years.

(v) A water system that uses a new source of water is not eligible for reduced entry point monitoring for lead and copper until concentrations in samples collected from the new source during three consecutive monitoring periods are below the lead and copper MPLs.

(vi) Where the results of sampling indicate an exceedance of a lead or copper MPL, one additional sample must be collected within two weeks after the initial sample was taken at the same entry point. Samples will be averaged for compliance determination.

(E) All water systems shall notify the executive director in writing of

any proposed change in treatment or the addition or deletion of a source of water. The executive director may require any such system to conduct additional monitoring or to take other action to ensure that the system maintains minimal levels of corrosion in the distribution system.

(e) WQP monitoring requirements. Systems shall monitor WQPs to determine the potential for corrosion. The WQP monitoring requirements are summarized in the table entitled "WQP Entry Point and Distribution Monitoring Summary." All systems that serve more than 50,000 people shall monitor in accordance with this subsection. Systems that serve 50,000 or fewer people that exceed a lead or copper action level shall monitor in accordance with this section, during the monitoring period in which the system exceeds the action level. Sites shall be submitted to the executive director for approval in conjunction with the system's monitoring plan.

(1) WQP monitoring locations. Systems that are required to monitor WQPs must sample at all entry points and at the number of distribution sites shown in the table entitled "Number of WQP Distribution Sample Sites." Distribution sample sites must represent the entire distribution system. Systems on initial or routine monitoring must sample at the number of sample sites in the column entitled "Initial and Routine WQP Distribution Sites." Systems on reduced monitoring must sample at the number of sites in the column entitled "Reduced WQP Distribution Sites."

Figure: 30 TAC §290.117(e)(1)

Number of Water Quality Parameter (WQP) Distribution Sample Sites

System Size (Number of people served)	Initial and Routine Number of WQP Distribution Sites	Reduced Number of WQP Distribution Sites
more than 100,000	25	10
10,001 - 100,000	10	7
3,301 - 10,000	3	3
501 - 3,300	2	2
101 - 500	1	1
less than 101	1	1

(A) Entry point WQP sites. Systems that are required to perform entry point WQP monitoring under this subsection must perform monitoring at every entry point to the distribution system. The executive director may allow systems using only groundwater to forego entry point monitoring, and monitor only at representative distribution system locations according to paragraph (6) of this subsection.

(B) Distribution WQP sites. Sites normally used for bacteriological monitoring or other appropriate sites may be used for WQP sampling. Samples need not be collected inside a customer's home. These sites shall represent water quality throughout the entire distribution system.

(2) Initial and routine WQP monitoring. New systems must perform at

least one initial WQP monitoring round in the year following the year that the system is identified as active. Systems that exceed lead or copper action levels shall perform two consecutive six-month periods of routine WQP monitoring. Systems must monitor in accordance with the table entitled "Initial or Routine WQP Entry Point and Distribution Monitoring."

Figure: 30 TAC §290.117(e)(2)

Initial or Routine Water Quality Parameter (WQP)
Entry Point and Distribution Monitoring

Monitoring period	Initial/Routine WQP List	Location	Frequency
Initial or routine monitoring	pH, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica[1]	Routine number of distribution sites and all entry point(s)	Every six months

[1] Orthophosphate (measured as phosphate-phosphorous (PO_4-P)) must be measured only when an inhibitor containing a phosphate compound is used; inhibitors that contain phosphate include orthophosphate and polyphosphate. Silica must be measured only when an inhibitor containing silicate compound is used.

(A) Locations for initial and routine WQP monitoring. Systems must conduct WQP monitoring at all entry points and at the number of distribution sites specified in paragraph (1) of this subsection, entitled "Number of WQP Distribution Sample Locations."

(B) Frequency of initial and routine WQP monitoring. Systems serving 50,000 or fewer people shall measure the WQPs listed in this paragraph during each six-month monitoring period in which the system exceeds the lead or copper action level. Systems serving more than 50,000 people must perform two consecutive six-month periods of sampling.

(3) WQP monitoring after installation of corrosion control treatment. Any system that installs optimal corrosion control treatment as required by subsection (f) of this section shall measure the list of WQPs at the locations and frequencies specified in the table entitled "WQP Entry Point and Distribution Monitoring After Installing Corrosion Control." Any system serving more than 50,000 people that installs optimal corrosion control treatment shall monitor once during each six-month period. Any system serving 50,000 or fewer people that installs corrosion control treatment shall monitor during each six-month monitoring period specified in which the system exceeds the lead or copper action level.

Figure: 30 TAC §290.117(e)(3)

Water Quality Parameter (WQP) Entry Point and Distribution Monitoring After Installing Corrosion Control

Monitoring period	Corrosion Control Installation WQP List	Location	Frequency
After	pH, alkalinity,	Routine number	Quarterly

installation of corrosion control	orthophosphate or silica[1], and calcium[2]	of distribution sites	
	pH, alkalinity dosage rate and concentration[3], and inhibitor dosage rate and inhibitor residual[4]	All entry points	At least every two weeks.

[1] Orthophosphate must be measured if an inhibitor containing a phosphate compound is used. Silica must be measured if an inhibitor containing silicate compound is used.

[2] Calcium must be measured if calcium carbonate stabilization is used as part of corrosion control.

[3] Alkalinity must be measured if alkalinity is adjusted as part of corrosion control.

[4] Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured if an inhibitor is used.

(A) Frequency of WQP monitoring after installation of corrosion control treatment. After a system installs corrosion control treatment, it must collect least one sample every two weeks (biweekly) at every entry point to the distribution system, except as provided under paragraph (6) of this subsection.

(B) Documentation for WQP sample locations after installation of corrosion control treatment. Prior to the starting date of the monitoring period for any monitoring under this paragraph, the system shall provide the executive director with an updated list of entry points and their sources, a list of distribution sites, and information on seasonal variability of water usage to demonstrate that the sites are representative of water quality and treatment conditions throughout the system. The system shall submit this information to the executive director upon request or when circumstances change

and retain a copy of the submittal and approval with the system's monitoring plan.

(C) Additional monitoring when determining optimal corrosion control treatment. The executive director may require the system to conduct additional WQP monitoring in to assist in evaluating the system's sample sites.

(4) WQP monitoring after designation of OWQP ranges. After the executive director approves OWQP ranges, systems shall measure the list of WQPs at the frequency and locations in the table entitled "WQP Entry Point and Distribution Monitoring After OWQP Determination."

Figure: 30 TAC §290.117(e)(4)

Water Quality Parameter (WQP) Entry Point and Distribution Monitoring After Optimal Water Quality Parameter (OWQP) Determination

Monitoring period	Post-OWQP Designation WQP List	Location	Frequency
After determination of approved OWQP ranges by the executive director,	pH, alkalinity, orthophosphate or silica[1], and calcium[2]	Routine number of distribution sites	Quarterly
	pH, alkalinity dosage rate and concentration[3], and inhibitor dosage rate and inhibitor residual[4]	All entry points	At least every two weeks.

[1] Orthophosphate must be measured if an inhibitor containing a phosphate compound is used. Silica must be measured if an inhibitor containing silicate compound is used.

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[2] Calcium must be measured if calcium carbonate stabilization is used as part of corrosion control.

[3] Alkalinity must be measured if alkalinity is adjusted as part of corrosion control.

[4] Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured if an inhibitor is used.

(A) After the executive director approves OWQP ranges, systems serving more than 50,000 people shall measure the WQPs listed in this paragraph and determine compliance with the OWQP ranges quarterly starting with the first six-month period after the executive director specifies the OWQPs beginning on either January 1 or July 1, whichever comes first.

(B) Any system serving 50,000 or fewer people shall conduct WQP monitoring during each six-month period specified in this paragraph in which the system exceeds the lead or copper action level. If the system is eligible for reduced lead and copper tap sampling, the system shall collect WQPs during the same monitoring periods that it collects lead and copper tap samples.

(C) The system shall complete follow-up sampling within 36 months after the executive director designates optimal corrosion control treatment.

(D) Systems shall measure WQPs at every entry point to the distribution system, except as allowed under paragraph (6) of this subsection.

(5) Reduced WQP monitoring. The executive director may reduce monitoring for systems that demonstrate a low risk of corrosion of lead and copper into the drinking water. Water systems on reduced schedules shall monitor the list of WQPs at the locations and frequency given in the table entitled "Reduced WQP Entry Point and Distribution Monitoring."

Figure: 30 TAC §290.117(e)(5)

Reduced Water Quality Parameter (WQP) Entry Point and Distribution Monitoring

Monitoring Period	Reduced WQP List	Location	Frequency
Reduced monitoring	pH, alkalinity, orthophosphate or silica[1], calcium[2]	Reduced number of distribution sites.	Quarterly, annually[5], or every 3 years[6];
	pH, alkalinity dosage rate and concentration[3], inhibitor dosage rate and inhibitor residual[4]	All entry point(s)	Every two weeks.

[1] Orthophosphate must be measured if an inhibitor containing a phosphate compound is used. Silica must be measured if an inhibitor containing silicate compound is used.

[2] Calcium must be measured if calcium carbonate stabilization is used as part of corrosion control.

[3] Alkalinity must be measured if alkalinity is adjusted as part of corrosion control.

[4] Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured if an inhibitor is used.

[5] In accordance with subparagraph (B) of this paragraph, the executive director may allow a system to sample WQPs in distribution annually if it has operated within approved

Optimal Water Quality Parameters (OWQPs)three consecutive years of monitoring.

[6] In accordance with subparagraph (C) of this paragraph, the executive director may allow systems to sample WQP in distribution once every three years if the system has operated within approve OWQP ranges during three consecutive years of annual monitoring. The executive director may allow a system to sample WQPs in the distribution once every three years if it has maintained 90th percentile lead levels less than or equal to 0.005 milligrams per liter (mg/L), 90th percentile copper levels less than or equal to 0.65 mg/L, and has operated within approved OWQP ranges during two consecutive six-month monitoring periods.

(A) Reduced quarterly WQP distribution monitoring. A system that operates within approved OWQP ranges in all samples taken during two consecutive six-month initial or routine monitoring periods under paragraph (2) of this subsection may collect tap samples for applicable WQPs from the reduced number of sites quarterly. A water system sampling quarterly shall collect samples evenly throughout the year so as to reflect seasonal variability.

(B) Reduced annual WQP distribution monitoring. Any water system that operates within approved OWQP ranges during three consecutive years of quarterly monitoring may reduce the frequency with which it collects distribution WQP samples to annually. Annual WQP sampling shall begin during the calendar year immediately following the end of the monitoring period in which the third consecutive year of quarterly monitoring occurs. A water system sampling annually shall collect samples evenly throughout the year so as to reflect seasonal variability.

(C) Reduced triennial WQP distribution monitoring. The executive director may reduce the WQP monitoring frequency to once every three years if a system meets the criteria of this subparagraph. Triennial monitoring shall be done no later than every third calendar year.

(i) A system that operates within approved OWQP ranges during three consecutive years of annual monitoring is eligible to reduce the frequency of distribution WQP monitoring to once in every third year. This sampling shall begin no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

(ii) A system that demonstrates during two consecutive six-month periods that the entry point 90th percentile lead level is less than or equal to the PQL for lead in subsection (b)(3) of this section, and that operates within approved OWQP ranges during that time may reduce the frequency of distribution monitoring to once every third year. This sampling shall begin no later than the third calendar year following the end of the year in which the second consecutive six-month period occurs.

(D) Return to routine WQP monitoring. The executive director may return a system to monitoring at the routine frequency and routine number of sample sites. Any water system on reduced monitoring that fails to operate within the approved

OWQP range for more than nine days in any six-month monitoring period shall resume routine WQP distribution system sampling in accordance with the number and frequency requirements in paragraph (2) of this subsection. Any system required to return to routine frequency for lead and copper tap sampling under subsection (c)(2)(A)(ii) of this section shall also return to routine WQP monitoring.

(E) Entry point WQP monitoring. Systems on reduced WQP monitoring shall measure WQPs at every entry point to the distribution system, except as provided under paragraph (6) of this subsection.

(6) Distribution system sampling for systems using only groundwater. The executive director may allow a system using only groundwater to perform WQP sampling required by paragraphs (3), (4), or (5) of this subsection to sample only at representative distribution system sites, and to forego sampling at entry points. Prior to foregoing entry point monitoring, the system shall provide written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system to the executive director for approval.

(f) Corrosion control. Systems may be required to perform corrosion control

studies to determine whether treatment is necessary to reduce the corrosivity of the water. Systems may be required to install optimal corrosion control treatment in order to control corrosion in the system. The executive director may modify the designated corrosion control treatment or parameters. A system's request for changes and executive director response pursuant to modification shall be in writing.

(1) Corrosion control studies. Systems may be required to perform corrosion control studies to determine whether treatment is necessary to reduce the corrosivity of the water.

(A) Corrosion control studies applicability. Systems that meet the conditions in this subparagraph are required to perform corrosion control studies.

(i) Corrosion control studies for systems serving more than 50,000 people. Systems serving more than 50,000 people are required to conduct corrosion control studies unless the executive director has determined that the system is currently deemed to have optimized corrosion control, as defined in subsection (b)(5) of this section.

(I) Systems serving more than 50,000 people that exceed either the lead or copper action level during any a reduced tap sampling

monitoring round must perform a corrosion control study within six months.

(II) Systems serving more than 50,000 people that have not been deemed at any previous time that exceed lead or copper action levels must conduct a demonstration study as described in subparagraph (C) of this paragraph.

(III) The corrosion control study must be conducted and submitted within 12 months after the end of the monitoring period in which the system exceeded the action level.

(ii) Corrosion control studies for systems serving 50,000 or fewer people. Any system serving 50,000 or fewer people that exceeds the lead or copper action level must perform a corrosion control study to identify optimal corrosion control treatment for the system. The system must conduct the study within 12 months after the end of the monitoring period in which the system exceeded the action level.

(B) Scope of corrosion control study. A system required to perform a corrosion control study shall include evaluation of treatment methods and potential constraints to treatment.

(i) Corrosion control treatment methods. Any public water

system performing a corrosion control study shall evaluate the effectiveness of each of the following treatments (or combinations of treatments) to identify the optimal control treatment:

(I) Alkalinity and pH adjustment;

(II) Calcium hardness adjustment; and

(III) The addition of a phosphate or silicate based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

(ii) Potential constraints to corrosion control treatment methods. The system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment. The system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes. The system shall document treatment considerations with at least one of the following:

(I) Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes

when used by another water system with comparable water quality characteristics, or

(II) Data and documentation demonstrating that the water system has previously attempted to evaluate a particular corrosion control treatment and has found that the treatment is ineffective or adversely affects other water quality treatment processes.

(C) Demonstration corrosion control study requirements. The water system shall conduct this evaluation using pipe rig/loop tests, metal coupon tests, or partial systems tests called a demonstration study. The water system shall measure the parameters in this clause in any tests conducted under this subparagraph before and after evaluating the corrosion control treatments listed above:

(i) Lead;

(ii) Copper;

(iii) pH;

(iv) Alkalinity;

(v) Calcium;

(vi) Conductivity;

(vii) Orthophosphate (when an inhibitor containing a phosphate compound is used);

(viii) Silicate (when an inhibitor containing a silicate compound is used);

(ix) Water temperature.

(D) Desk-top corrosion control study requirements. A desk-top corrosion control study shall recommend treatment and OWQPs based on data for treatments in documented analogous systems called a desk-top study. Analogous system means a system of similar size, water chemistry, and distribution system configuration. The water system shall evaluate each of the corrosion control treatments in subparagraph (B)(i) of this paragraph.

(2) Setting approved OWQP ranges based on corrosion control study data. On the basis of the corrosion control study evaluation, the water system shall

recommend to the executive director, in writing, an OWQP range based on normal system operating conditions. Systems must recommend OWQPs consistent with subsection (b)(4) of this section. The executive director will review the study and designate OWQPs. The executive director shall designate OWQP ranges based on the results of lead, copper, and WQP monitoring by the system, both before and after the system installs optimal corrosion control treatment. The executive director may designate values for additional water quality control parameters determined to reflect optimal corrosion control for the system. The executive director shall notify the system in writing of these determinations and will provide the basis for the decision.

(3) Optimal corrosion control treatment designation. A system exceeding the action level for lead or copper based on the 90th percentile level shall submit recommendations for optimal corrosion control treatment within six months after the end of the monitoring period during which it exceeds one of the action levels. The executive director shall designate the optimal corrosion control treatment method.

(A) On the basis of the corrosion control study in paragraph (1) of this subsection, lead and copper tap sampling, and WQP sampling the water system shall recommend to the executive director, in writing, the treatment option that constitutes optimum corrosion control. The system shall submit all corrosion control data and shall provide sufficient documentation as required by the executive director to

establish the validity of the evaluation procedure.

(B) The executive director shall designate optimal corrosion control treatment. The executive director shall either approve the corrosion control treatment option recommended by the system, or designate alternative corrosion control treatment(s) from among those listed in paragraph (1)(B)(i) of this subsection. When designating optimal treatment the executive director shall consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes. If the executive director requests additional information, the water system shall provide the information.

(C) Upon its own initiative or in response to a request by a water system or other interested party, the executive director may modify the determination of the optimal corrosion control treatment. A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The executive director may modify the determination when the change is necessary to ensure that the system continues to optimize corrosion control treatment. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the decision, and provide an implementation schedule for completing the treatment modifications.

(D) The executive director shall notify the system of the decision on optimal corrosion control treatment in writing and will provide the basis for this determination. The executive director will review the study and designate optimal corrosion control treatment and water quality parameters.

(i) For systems serving more than 50,000 customers, optimal corrosion control treatment and OWQPs shall be designated within six months of submittal.

(ii) For systems serving 3,300 to 50,000 customers, optimal corrosion control treatment and OWQPs shall be designated within 18 months of submittal.

(iii) For systems serving fewer than 3,300, optimal corrosion control treatment and OWQPs shall be designated within 24 months of submittal.

(4) Installation of optimal corrosion control treatment. A system shall perform corrosion control activities identified in their approved corrosion control study. A system shall install optimal corrosion control treatment within 24 months after the executive director designates optimal corrosion control treatment and notifies the water system. All applicable water systems shall operate optimal corrosion control treatment

in a manner that minimizes lead and copper concentrations at users' taps while ensuring that the treatment does not cause the system to violate any other drinking water standard.

(5) Operation of corrosion control treatment. All systems optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including operating within approved OWQP ranges and complying with all other requirements of this section.

(A) The executive director shall evaluate the results of all lead and copper tap samples and WQP samples submitted by the water system to determine whether the corrosion control treatment was properly installed and if the system is properly operating the designated optimal corrosion control treatment.

(B) The system shall operate in such a manner as to meet any requirements that the executive director determines appropriate to ensure optimal corrosion control treatment is maintained.

(6) Small system activities cessation. A system serving 50,000 or fewer people that is required to perform corrosion control activities because of an action level exceedance may cease the corrosion control activities if it conducts two consecutive six-

month lead and copper monitoring rounds and meets the lead and copper action levels based on the 90th percentile in both rounds.

(g) Treatment of source water lead and copper. Systems may be required to perform treatment to remove lead or copper from source water. Any system exceeding the lead or copper action level shall implement all applicable source water treatment requirements specified by the executive director under this subsection. The executive director will determine whether such treatment is required.

(1) Determination of need for source water treatment. Any system which exceeds the lead or copper action level shall recommend in writing to the executive director the installation and operation of ion exchange, reverse osmosis, lime softening or coagulation/filtration. The executive director shall evaluate all entry point water sample results, along with the corrosion control study, to determine if source water treatment is necessary. If source water treatment is required by the executive director, the system must install the treatment in accordance with the scheduling requirements specified in this subsection.

(A) The system shall submit the results for all source water samples to aid in the executive director's evaluation of whether source water treatment is necessary.

(B) The executive director may approve the treatment recommended by the system or may require installation and operation of another source water treatment from among the following: ion exchange, reverse osmosis, lime softening or coagulation/filtration.

(C) If the executive director requests additional information to aid in its review, the water system shall provide the information by the date specified by the executive director in the request.

(D) A system may recommend that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

(E) The executive director shall notify the system in writing of the determination and will provide the basis for the decision.

(2) Schedule for installation of treatment of source water lead and copper. If source water treatment is required, the system must install the treatment in accordance with the scheduling requirements specified in this subsection.

(A) A system exceeding the lead or copper action level shall recommend treatment to the executive director no later than 180 days after the end of the monitoring period during which the lead or copper action level was exceeded.

(B) The executive director shall make a determination regarding source water treatment within six months after the system submits the treatment recommendation and supporting data under subparagraph (A) of this paragraph.

(C) The system shall properly install and operate the source water treatment approved by the executive director within 24 months after the executive director's determination under subparagraph (B) of this paragraph.

(D) The system shall complete follow-up tap sampling under subsection (c) of this section and entry point monitoring under subsection (d) of this section within 36 months after the executive director's determination of source water treatment under subparagraph (B) of this paragraph.

(3) Operation of source water lead and copper treatment. If source water treatment is required, the system shall properly operate the treatment in compliance with the specified MPLs for lead and copper and continue entry point monitoring under subsection (d) of this section.

(A) A water system shall operate the source water treatment in a manner that maintains lead and copper levels below the MPLs designated by the executive director at each entry point.

(B) The executive director may review the system's data and determine whether the system has properly installed and operated the source water treatment.

(4) Modification of source water treatment decisions. Upon its own initiative or in response to a request by a water system or other interested party, the executive director may modify the determination of the source water treatment under paragraph (1) of this subsection, or MPLs for lead and copper at entry points under subsection (b)(6) of this section. A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The executive director may modify the determination when the change is necessary to ensure that the system continues to minimize lead and copper concentrations in water entering the distribution system. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the executive director's decision, and provide an implementation schedule for completing the treatment modifications.

(h) Analytical methods, sample collection, and sample invalidation. All methods used for analysis under this section shall be consistent with 40 Code of Federal Regulations (CFR) Part 141, Subpart I, concerning Lead and Copper.

(1) Lead and copper tap sample collection method. A first draw tap sample means a one liter or one quart sample of tap water collected from a cold water, frequently used interior tap, after the water has been standing in the plumbing for at least six hours without first flushing the tap. The kitchen cold water faucet is the preferred sampling tap at residential sites. It is recommended that the water not be allowed to stand in the plumbing for more than 18 hours prior to a sample collection. A sample collection may be conducted by either water system personnel or the residents. If the resident is allowed to collect samples for lead and copper monitoring, the water system must provide written instructions for sample collection procedures.

(2) Lead and copper tap sample analytical methods. Analysis for lead and copper shall be conducted using methods stated in 40 CFR §141.89, in laboratories accredited by the executive director. Analysis for pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature may be conducted in any laboratory approved by the executive director under §290.121 of this title utilizing the United States Environmental Protection Agency (EPA) methods prescribed in 40 CFR §141.89.

(A) The PQLs and the Method Detection Limits (MDLs) must comply with 40 CFR §141.89. The laboratory accredited for the analysis of lead and copper tap samples must achieve the MDL of 0.001 mg/L for lead if composited entry point water samples are analyzed for lead.

(B) The executive director may allow the use of previously collected monitoring data if the data were collected in accordance with 40 CFR §141.89.

(C) All lead levels measured between the PQL and MDL must either be reported as measured or reported as one-half the PQL. All levels below the lead MDLs must be reported as zero.

(D) All copper levels measured between the PQL and the MDL must be either reported as measured or reported as one-half the PQL. All levels below the copper MDL must be reported as zero.

(E) First-draw-tap samples must be received in the laboratory within 14 days after the collection date.

(3) Lead and copper tap sample invalidation. The executive director may

invalidate a lead or copper tap sample if one of the conditions in subparagraphs (A) - (D) of this paragraph is met:

(A) The laboratory establishes that improper sample analysis caused erroneous results.

(B) The executive director determines that the sample was taken from an inappropriate site.

(C) The sample was damaged in transit.

(D) The executive director determines that the sample was subject to tampering, as based on substantial documentation.

(E) The executive director shall not invalidate a sample based solely on the fact that a follow-up sample result is higher or lower than the original sample.

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(F) The water system must provide written documentation to the executive director for samples the water system believes should be invalidated. The executive director must document any decision to invalidate a sample in writing.

(4) Water quality parameter analytical methods. Water quality parameter testing must be conducted at a laboratory that uses the methods described in 40 CFR §141.89, and it is the responsibility of the water system to collect, submit, and report these values.

(A) Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted in accordance with 40 CFR §141.23(k)(1).

(B) Analyses for alkalinity, calcium, conductivity, orthophosphate and phosphate compounds, pH, silica, and temperature must be performed by a lab approved by the executive director under the TCEQ Regulatory Guidance 384 "How to Develop a Monitoring Plan for a Public Water System." Analyses under this section for lead and copper shall only be conducted by laboratories that have been accredited by the executive director under 30 TAC Chapter 25, Subchapter B (relating to Environmental Testing Laboratory Accreditation).

(C) The executive director may allow the use of previously collected monitoring data for purposes of monitoring, if the data were collected and analyzed in accordance with the requirements of this section and 40 CFR Part 141, Subpart I.

(i) Reporting**.** Systems shall report any information required by this section and 40 CFR Part 141, Subpart I to the executive director.

(1) Reporting lead and copper tap sample results. Tap sample results shall be reported within ten days following the end of each monitoring period as specified by the executive director. For systems on annual or less frequent schedules, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the executive director has established an alternate monitoring period, the last day of that period.

(A) A system shall provide documentation for each tap water lead or copper sample for which the water system requests invalidation.

(B) The system shall provide the following information to the executive director:

(i) The results of all tap samples for lead and copper including the location of each site and the criteria under which the site was selected for the system's sampling pool.

(ii) An identification of sampling sites utilized during the

current monitoring period that were not sampled during previous monitoring periods, and an explanation why sampling sites have changed.

(2) Reporting entry point lead and copper sample results. A water system shall report the sampling results for all source water samples collected in accordance with subsection (e) of this section within the first 10 days following the end of each source water monitoring period.

(3) Reporting WQP results. Systems must report all results of WQP analyses including the location/address of each distribution system sampling point. This report must include each WQP specified in subsection (e) of this section, as well as all sample results from entry points to the distribution system. WQP reports should be submitted to the executive director within the first ten days following the end of each applicable monitoring period. For monitoring periods with a duration less than six months, the end of the monitoring period is the last date samples can be collected during that period.

(A) Systems shall report the results of all distribution samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica.

(B) Systems shall report the results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters.

(C) A system using only groundwater that is allowed to limit WQP monitoring to a subset of entry points shall report, by the commencement of such monitoring, written correspondence to the executive director that identifies the sources flowing to each of the system's entry points and report information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(4) Reporting distribution material and sample site data. New systems shall submit the first material survey by December 31 of the year in which they are assigned a Public Water System Identification Number. The executive director may allow a system to submit the first material survey by December 31 of the year in which the system's status becomes active.

(A) All systems shall submit Materials Survey and Site Selection Forms (TCEQ Form Number 20467) describing the entire system before performing tap sampling.

(B) Any system seeking reduced nine-year tap sampling under

subsection (c)(2)(D) of this section shall submit current documentation showing that there are no lead- or copper-containing materials within the distribution system.

(i) Prior to starting nine-year tap sampling, a system shall submit documentation showing that there are no lead- or copper- containing materials within the distribution system and that the system complies with all drinking water standards of this subchapter.

(ii) No later than nine years after the first nine-year tap samples are collected, any system desiring to remain on nine-year tap sampling shall provide updated documentation showing that there are no lead- or copper- containing materials within the distribution system and that the system complies with all drinking water standards of this subchapter.

(iii) No later than 60 days after detecting lead-containing and/or copper-containing material, as appropriate, each system with a nine-year tap sampling waiver shall provide written notification to the executive director, setting forth the circumstances resulting in the lead-containing or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(C) Water systems requesting a change to previously approved sample sites shall report supporting information, including an explanation as to why a sampling site was changed from the previous round of sampling, if applicable. If a water system changes a sampling site for any reason allowed in this section, the water system must provide the executive director with a written explanation showing which sampling site will be abandoned and the sampling site that replaces the abandoned sampling site.

(5) Reporting public education. A system that is required to perform public education must provide copies of public education materials and certification that distribution of said materials is being conducted in accordance with this subsection to the executive director within ten days after the delivery of the materials to the public.

(6) Reporting consumer notification. No later than three months following the end of the monitoring period, each system must mail a sample copy of the consumer notification of tap results to the executive director along with a certification that the notification has been distributed in a manner consistent with the requirements of subsection (j) of this section.

(7) Corrosion control reporting. Systems that are required to perform corrosion control studies and install corrosion control treatment shall report all information required under subsection (f) of this section. Corrosion control treatment

data shall be reported as required by the executive director. Systems shall report the following information listed in this paragraph.

(A) Systems demonstrating that they have already optimized corrosion control, must provide all information required in subsection (f) of this section.

(B) Systems that are recommending optimal corrosion control treatment must provide all supporting documentation for their recommendation regarding optimal corrosion control treatment under 40 CFR §141.82(a).

(C) Systems that are required to evaluate the effectiveness of corrosion control treatments under subsection (f) of this section, must submit the information required by that section.

(D) Systems required to install optimal corrosion control designated by the executive director under 40 CFR §141.82(d), must submit a letter certifying that the system has completed installing that treatment.

(8) Reporting source treatment. A system that is required to install source water lead or copper removal treatment must certify in writing that the system has completed installing the approved treatment within 24 months after the executive

director approved that treatment.

(9) Reporting system conditions and facility changes. Systems must report changes of system conditions and facilities that may impact corrosion to the executive director.

(A) The water system must inform the executive director of the identity of treated and non-treated entry points and their seasonal use, if any, and demonstrate that the WQPs represent water quality and treatment conditions throughout the system.

(B) At a time specified by the executive director, or if no specific time is designated by the executive director, then as early as possible prior to the addition of a new source or any long-term change in water treatment, a water system deemed to have optimized corrosion control or subject to reduced tap sampling shall submit written documentation to the executive director describing the change or addition. The water system may not implement the addition of a new source or long-term change in treatment until notified in writing that the change is approved by the executive director. Examples of long-term treatment changes include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants (for

example, alum to ferric chloride), and switching corrosion inhibitor products (for example, orthophosphate to blended phosphate). Long-term changes can include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily raw water quality changes.

(10) Other reporting. Any system which collects sampling data in addition to that required by this section shall report the results to the executive director within the first ten days following the end of the applicable monitoring period during which the samples are collected.

(11) Reporting lead service line replacement. A water system that is replacing lead service lines must certify that lead service lines have been replaced in accordance with directives of the executive director.

(j) Consumer notification. All water systems must provide a consumer notice of lead tap water monitoring results to persons served at the sites (taps) that are tested.

(1) Timing of consumer notification. A water system must provide the consumer notice as soon as practical, but no later than 30 days after the system receives the tap sampling results.

(2) Content of consumer notification. The consumer notice must include the results of lead tap sampling for the tap that was tested, an explanation of the health effects of lead, list steps consumers can take to reduce exposure to lead in drinking water, and contact information for the water utility. The notice must also provide the maximum contaminant level goal and the action level for lead and the definitions for these two terms from 40 CFR §141.153(c).

(3) Delivery of consumer notification. The consumer notice must be provided to persons served at the tap that was tested, either by mail or by another method approved by the executive director. Upon approval by the executive director, a nontransient noncommunity water system may post the results on a bulletin board in the facility to allow users to review the information. The system must provide the notice to customers at sample taps tested, including consumers who do not receive water bills.

(k) Public education. A water system that exceeds the lead action level based on tap water samples collected in accordance with subsection (c) of this section shall deliver the public education materials in accordance with the requirements of this subsection.

(1) Content of public education materials. Water systems must include the elements in this paragraph in their printed materials in the same order as listed.

Language in subparagraphs (A), (B), and (F) of this paragraph must be included in the materials, exactly as written, except for the text in brackets for which the water system must include system-specific information. Any additional information presented by a water system must be consistent with the information below and be in plain language that can be understood by the general public. Water systems must submit all written public education materials to the executive director prior to delivery. Public education materials must be approved by the executive director prior to delivery.

(A) "IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. <INSERT NAME OF WATER SYSTEM> found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water."

(B) "***Health effects of lead***. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is

stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development."

(C) Sources of lead.

(i) Explain what lead is.

(ii) Explain possible sources of lead in drinking water and how lead enters drinking water. Include information on home and building plumbing materials and service lines that may contain lead.

(iii) Discuss other important sources of lead exposure in addition to drinking water such as lead-based paint or lead-contaminated soils.

(D) Discuss the steps the consumer can take to reduce their exposure to lead in drinking water.

(i) Encourage running the water to flush out the lead.

(ii) Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

(iii) Explain that boiling water does not reduce lead levels.

(iv) Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.

(v) Suggest that parents have their child's blood tested for lead.

(E) Explain why there are elevated levels of lead in the system's drinking water (if known) and what the water system is doing to reduce the lead levels in homes and buildings in this area.

(F) "For more information, call us at <INSERT YOUR SYSTEM'S PHONE NUMBER> <(if applicable) or visit our Web site at <INSERT YOUR WEB SITE HERE>>. For more information on reducing lead exposure around your home or building and the health effects of lead, visit EPA's Web site at *www.epa.gov/lead* or contact your health care provider."

(G) In addition to including the elements specified in subparagraphs (A) - (F) of this paragraph, community water systems must:

(i) Tell consumers how to get their water tested, and

(ii) Discuss lead in plumbing components and the difference between low lead and lead free.

(H) For public water systems serving a large proportion of non-English speaking consumers, as determined by the executive director, the public education materials must contain information in the appropriate language(s) regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

(2) Delivery of public education materials by community systems. Systems must provide public education materials meeting the criteria of paragraph (1) of this subsection to the public in accordance with this paragraph.

(A) A community system must directly deliver printed public education materials to all bill paying customers.

(i) The community system must deliver public education

materials to local public health agencies even if they are not located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users. The system must contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community based organizations serving target populations, which may include organizations outside the service area of the water system. If such lists are provided, systems must deliver public education materials to all organizations on the provided lists.

(ii) The community system must contact customers who are most at risk by delivering public education materials to the organizations listed in this clause that are located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users.

(I) Public and private schools or school boards;

(II) Women, Infants and Children (WIC) and Head Start programs;

(III) Public and private hospitals and medical clinics;

(IV) Pediatricians;

(V) Family planning clinics; and

(VI) Local welfare agencies.

(iii) The community system must make a good faith effort to locate organizations of the types listed in this clause within the service area and deliver public education materials to them, along with an informational notice that encourages distribution to all potentially affected customers or users. The good faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the water system's service area.

(I) Licensed childcare centers;

(II) Public and private preschools; and

(III) Obstetricians-Gynecologists and Midwives.

(iv) The community system must implement at least three activities from one or more categories listed in this clause. The educational content and selection of these activities must be determined in consultation with the executive director.

(I) Public service announcements;

(II) Paid advertisements;

(III) Public area information displays;

(IV) E-mails to customers;

(V) Public meetings;

(VI) Household deliveries;

(VII) Targeted Individual Customer Contact;

(VIII) Direct material distribution to all multi-family homes and institutions; or

(IX) Other methods approved by the executive director.

(v) At least quarterly, the community system must provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill must include the following statement exactly as written except for the text in brackets for which the water system must include system-specific information: "<INSERT NAME OF WATER SYSTEM> found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information please call <INSERT NAME OF WATER SYSTEM>" Upon written request, the executive director may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

(vi) A community system serving more than 100,000 people must post public education materials on the water system's Web site.

(vii) The community system must submit a press release to newspaper, television and radio stations.

(B) With executive director approval, a community water system

serving 3,300 or fewer people may limit certain aspects of their public education programs.

(i) The system may be allowed to deliver public education materials to only those potentially affected customers listed in subparagraph (A)(ii) of this paragraph served by the system that are most likely to be visited regularly by pregnant women and children.

(ii) The executive director may waive the requirement of subparagraph (A)(vi) of this paragraph to submit press releases to the media as long as system distributes notices to every household served by the system.

(iii) The system may be allowed to perform only one of the additional activities in subparagraph (A)(vii) of this paragraph instead of three activities.

(C) A community water system may apply to the executive director, in writing, to use only the text specified in paragraph (1)(A) - (F) of this subsection, omitting the text specified in paragraph (1)(G) of this subsection, and to post public education materials as described in paragraph (3) of this subsection, omitting the tasks in subparagraph (A) of this paragraph if:

(i) The system is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices; and

(ii) The system provides water as part of the cost of services provided and does not separately charge for water consumption.

(3) Delivery of public education materials by nontransient, noncommunity systems. Systems must provide public education materials meeting the criteria of paragraph (1) of this subsection to the public in accordance with this paragraph.

(A) The system must post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system.

(B) The system must distribute informational brochures on lead in drinking water to each person served by the nontransient noncommunity water system. The executive director may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

(4) Frequency and timing of public education. A system that exceeds the lead action level must provide educational materials meeting the content requirements of paragraph (1) of this subsection to the public within 60 days after the end of the monitoring period in which the exceedance occurred. For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the executive director has established an alternate monitoring period, the last day of that period.

(A) Frequency and timing of public education activities for community systems. As long as a community water system exceeds the action level, it must repeat the activities of this paragraph at the frequency contained in this paragraph.

(i) A community system shall repeat tasks contained in paragraph (2)(A)(v) of this subsection every billing cycle.

(ii) A community system serving a population greater than 100,000 shall post and retain material on a publicly accessible Web site.

(iii) The community system shall repeat the press release task in paragraph (2)(A)(vii) of this subsection twice every 12 months on a schedule

agreed upon with the executive director.

(B) Frequency and timing of public education activities for nontransient, noncommunity systems. A nontransient, noncommunity water system shall maintain the posting required by repeat the tasks contained in paragraph (3) of this subsection at least once during each calendar year in which the system exceeds the lead action level. Posted materials must remain posted until the system no longer exceeds the lead action level, and the executive director informs the system that the posting may be discontinued.

(C) Extension to public education start date. A nontransient, noncommunity system may request, and the executive director can approve, an extension for starting public education beyond the 60-day requirement on a case-by-case basis. The request and approval must be made in writing prior to the 60-day deadline.

(D) Discontinuing public education. A system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month monitoring period conducted pursuant to subsection (c) of this section. Such a system shall recommence public education in accordance with this section if it subsequently exceeds the lead action level during any monitoring period.

(5) Notifying the executive director of public education activities. Any water system that is subject to the public education requirements of this subsection shall, within ten days after the end of each period in which the system is required to perform public education, send written documentation to the executive director containing all the elements in this paragraph.

(A) The system must provide documentation that the system has delivered the public education materials that meet the content requirements in paragraph (1) of this subsection and the delivery requirements in paragraph (2) or (3) of this subsection.

(B) The system must provide a list of all the newspapers, radio stations, television stations, and facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(C) The system must resubmit certification of delivery of public education materials every time it distributes materials. Unless required by the executive director, a system that previously has submitted the information required by

subparagraphs (A) and (B) of this paragraph need not resubmit the information as long as there have been no changes in the distribution list.

(l) Compliance determination. All applicable water systems shall determine compliance based on monitoring and reporting requirements established in this section or contained in 40 CFR Part 141, Subpart I.

(1) Compliance determination with action levels of subsection (b) of this section for lead and copper shall be based on the 90th percentile as described in this paragraph.

(A) The 90th percentile lead and copper levels shall be computed as provided in this subparagraph:

(i) Determination of 90th percentile levels shall be obtained by ranking the results of lead and copper samples collected during a monitoring period in ascending order (lowest concentration is sample Number 1; highest concentration are samples Numbers 10, 20, 30, 40, 50, and so on), up to the total number of samples collected.

(ii) The number of samples collected during the monitoring period shall be multiplied by 0.9. The concentration of lead and copper in sample with the number yielded by this calculation is the 90th percentile level, for systems serving 100 or more people.

(iii) For water systems serving fewer than 100 people, the 90th percentile level is computed by taking the average of the highest two sample results.

(iv) For a public water system that has been allowed by the executive director to collect fewer than five samples in accordance with subsection (c)(1)(F) of this section, the sample result with the highest concentration is considered the 90th percentile value.

(B) A sample invalidated under this section does not count toward determining lead or copper 90th percentile levels or toward meeting the minimum number of tap sample requirements.

(C) Monitoring approved by the executive director and conducted by systems in addition to the minimum requirements of this section shall be considered

by the executive director in making any determination of compliance.

(D) The system is in compliance with the lead or copper action levels if the 90th percentile level of lead or copper, respectively, is equal to or less than the action levels specified in subsection (b)(1) of this section.

(2) Compliance determination for water quality parameters. If a water system fails to meet the OWQP values or ranges approved by the executive director, it is out of compliance with this section. WQP confirmation sample results will be included in compliance determination.

(A) A OWQP-range excursion occurs whenever the daily value for one or more WQPs measured at a sampling location is below a minimum value or outside a range approved by the executive director. The executive director has the discretion to delete results of obvious sampling errors from this calculation. Daily values are calculated as follows.

(i) Water systems that collect more than one WQP measurement in one day must record the daily value as an average of all WQP values collected during the day regardless of whether the measurements are collected through

continuous monitoring, grab sampling, or a combination of both.

(ii) On days when only one measurement for the WQP is collected at the sampling location, the daily value shall be the result of that measurement.

(iii) On days when no measurement is collected for the WQP at the sampling location, the daily value last calculated on the most recent day shall serve as the daily value.

(B) Compliance periods for this paragraph are two six-month periods, January 1 to June 30, and July 1 to December 31. A water system is out of compliance with this subsection for a six-month period if the water system has OWQP excursions for any approved range for more than nine days during that period.

(C) The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the executive director in making any determinations under this section.

(D)The executive director may delete results of obvious sampling

errors from this calculation.

(3) Compliance determination for source water treatment. A system required to install and operate source water treatment for lead or copper under subsection (g) of this section is out of compliance if the level of lead or copper in any sample collected under subsection (d)(2)(D)(v) of this section is greater than the MPL designated by the executive director. The initial and confirmation sample shall be averaged in determining compliance. Any sample value below the method detection limit shall be considered to be zero. Any value above the method detection limit but below the PQL shall either be considered as the measured value or be considered one-half the PQL.

(4) Compliance determination for public education. Failure to deliver public education materials required under subsection (k) of this section to customers is a public notification violation. Failure to certify delivery of public education materials to the executive director is a reporting violation.

(5) Failure to conduct or report any requirements of this section shall constitute a monitoring, reporting or treatment technique violation and shall be a violation of these standards.

(m) Lead service line replacement. The provisions of 40 CFR §141.84 and §141.90(e) relating to lead service line replacement are adopted by reference. Any system exceeding the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in 40 CFR §141.84. Any such water system shall submit reports required under 40 CFR §141.90(e).

(n) Additional sampling. The executive director may require systems to sample at additional times or locations in order to ensure that systems maintain minimal levels of corrosion in the distribution system.

§290.119. Analytical Procedures.

(a) Acceptable laboratories. Samples collected to determine compliance with the requirements of this chapter [subchapter] shall be analyzed at accredited [certified] or approved laboratories.

(1) Samples used to determine compliance with the maximum contaminant levels, samples used to determine compliance with [and] action level requirements of this subchapter, and samples for microbial contaminants must be analyzed by a laboratory accredited [certified] by the executive director in accordance

with Chapter 25 of this title (relating to Environmental Testing Laboratory Accreditation and Certification). These samples include:

(A) compliance samples for synthetic organic chemicals [SOCs];

(B) compliance samples for volatile organic chemicals [VOCs];

(C) compliance samples for inorganic contaminants;

(D) compliance samples for radiological contaminants;

(E) compliance samples for microbial contaminants;

(F) compliance samples for total trihalomethanes (TTHM);

(G) compliance samples for haloacetic acid-group of five (HAA5);

(H) compliance samples for chlorite;

(I) compliance samples for bromate; and

(J) compliance samples for lead and copper.

(2) Samples used to determine compliance with the treatment technique requirements and maximum residual disinfectant levels (MRDLs) of this subchapter must be analyzed by a laboratory approved by the executive director. These samples include:

(A) compliance samples for turbidity treatment technique requirements;

(B) compliance samples for the chlorine MRDL;

(C) compliance samples for the chlorine dioxide MRDL;

(D) compliance samples for the combined chlorine (chloramine) MRDL;

(E) compliance samples for the disinfection byproduct [by-product] precursor treatment technique requirements, including alkalinity, total organic carbon, dissolved organic carbon analyses, and specific ultraviolet absorbance;

(F) samples used to monitor chlorite levels at the point of entry to the distribution system; and

(G) samples used to determine pH.

(3) Non-compliance tests, such as control tests taken to operate the system, may be run in the plant or at a laboratory of the system's choice.

(b) Acceptable analytical methods. Methods of analysis shall be as specified in 40 Code of Federal Regulations (CFR) or by any alternative analytical technique as specified by the executive director and approved by the Administrator under 40 CFR §141.27. Copies are available for review in the Water Supply Division, MC 155, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087. The following National Primary Drinking Water Regulations set forth in Title 40 CFR are adopted by reference:

(1) section 141.21(f) for microbiological analyses;

(2) section 141.74(a)(1) for turbidity analyses;

(3) section 141.23(k) for inorganic analyses;

(4) section 141.24(e), (f), and (g) for organic analyses;

(5) section 141.25 for radionuclide analyses;

(6) section 141.131(a) and 141.131(b) for disinfection byproduct [by-product] methods and analyses;

(7) section 141.131(c) for disinfectant analyses other than ozone, and 141.74(b) for ozone disinfectant;

(8) section 141.131(d) for alkalinity analyses, bromide and magnesium, total organic carbon analyses, dissolved organic carbon analyses, specific ultraviolet absorbance analyses, and pH analyses; and

(9) section 141.89 for lead and copper analyses and for water quality parameter analyses that are performed as part of the requirements for lead and copper; and.

(10) if a method is not contained in this section, a drinking water quality method can be approved for analysis if it is listed in 40 CFR Part 141, Subpart C,

Appendix A.

(c) The definition of detection contained in 40 CFR §141.151(d) is adopted by reference.

§290.121. Monitoring Plans.

(a) Applicability. All public water systems shall maintain an up-to-date chemical and microbiological monitoring plan. Monitoring plans are subject to the review and approval of the executive director. A copy of the monitoring plan must be maintained at each water treatment plant and at a central location.

(b) Monitoring plan requirements. The monitoring plan shall identify all sampling locations, describe the sampling frequency, and specify the analytical procedures and laboratories that the public water system will use to comply with the monitoring requirements of this subchapter.

(1) The monitoring plan shall include information on the location of all required sampling points in the system. Required sampling locations for regulated chemicals are provided in §290.106 of this title (relating to Inorganic Contaminants), §290.107 of this title (relating to Organic Contaminants), §290.108 of this title (relating to Radionuclides Other than Radon), §290.109 of this title (relating to Microbial

Contaminants), §290.110 of this title (relating to Disinfectant Residuals), §290.111 of this title (relating to Surface Water Treatment), §290.112 of this title (relating to Total Organic Carbon (TOC)), §290.113 of this title (relating to Stage 1 Disinfection Byproducts [By-products] (TTHM and HAA5)), §290.114 of this title (relating to Other Disinfection Byproducts [By-products] (Chlorite and Bromate)), §290.115 of this title (relating to Stage 2 Disinfection Byproducts [By-products] (TTHM and HAA5)), §290.116 of this title (Relating to Groundwater Corrective Actions and Treatment Techniques), §290.117 of this title (relating to Regulation of Lead and Copper), and §290.118 of this title (relating to Secondary Constituent Levels).

(A) The location of each sampling site at a treatment plant or pump station must be designated on a plant schematic. The plant schematic must show all water pumps, flow meters, unit processes, chemical feed points, and chemical monitoring points. The plant schematic must also show the origin of any flow stream that is recycled at the treatment plant, any pretreatment that occurs before the recycle stream is returned to the primary treatment process, and the location where the recycle stream is reintroduced to the primary treatment process.

(B) Each entry point to the distribution system shall be identified in the monitoring plan as follows:

(i) a written description of the physical location of each entry point to the distribution system shall be provided; or

(ii) the location of each entry point shall be indicated clearly on a distribution system or treatment plant schematic.

(C) The address of each sampling site in the distribution system shall be included in the monitoring plan or the location of each distribution system sampling site shall be designated on a distribution system schematic. The distribution system schematic shall clearly indicate the following:

(i) the location of all pump stations in the distribution system;

(ii) the location of all ground and elevated storage tanks in the distribution system; and

(iii) the location of all chemical feed points in the distribution system.

(D) The system must revise its monitoring plan if changes to a plant or distribution system require changes to the sampling locations.

(2) The monitoring plan must include a written description of sampling frequency and schedule.

(A) The monitoring plan must include a list of all routine samples required on a daily, weekly, monthly, quarterly, annual, or less frequent basis and identify the sampling location where the samples will be collected.

(B) The system must maintain a current record of the sampling schedule.

(3) The monitoring plan must identify the analytical procedures that will be used to perform each of the required analyses.

(4) The monitoring plan must identify all laboratory facilities that may be used to analyze samples required by this chapter.

(5) The monitoring plan shall include a written description of the methods used to calculate compliance with all maximum contaminant levels, maximum residual disinfectant levels, and treatment techniques that apply to the system.

(6) The monitoring plan shall include any groundwater source water monitoring plan developed under §290.109(c)(4) of this title [(relating to Microbial Contaminants)] to specify well sampling for triggered coliform monitoring.

(7) The monitoring plan shall include any initial distribution system evaluation compliance documentation required by §290.115(c)(5) of this title [(relating to Stage 2 Disinfection By-products (TTHM and HAA5))]. The monitoring plan must be revised to show Stage 2 sample sites by the date shown in Figure: 30 TAC §290.115(a)(2) titled "Date to Start Stage 2 Compliance."

(8) The monitoring plan shall include any raw surface water monitoring plan required under §290.111 of this title [(relating to Surface Water Treatment)].

(c) Reporting requirements. All public water systems shall maintain a copy of the current monitoring plan at each treatment plant and at a central location. The water system must update the monitoring plan when the water system's sampling requirements or protocols change.

(1) Public water systems that treat surface water or groundwater under the direct influence of surface water must submit a copy of the monitoring plan to the executive director upon development and revision.

(2) Public water systems that treat groundwater that is not under the direct influence of surface water or purchase treated water from a wholesaler must develop a monitoring plan and submit a copy of the monitoring plan to the executive director upon request.

(3) All water systems must provide the executive director with any revisions to the plan upon request.

(d) Compliance determination. Compliance with the requirements of this section shall be determined using the following criteria.

(1) A public water system that fails to submit an administratively complete monitoring plan by the required date documented in a request from the executive director or fails to submit updates to a plan when changes are made to a system's surface water treatment [required] commits a reporting violation.

(2) A public water system that fails to maintain an up-to-date monitoring plan commits a monitoring violation.

(e) Public notification. A community system that commits a violation described in subsection (d) of this section [§290.122(d) of this title (relating to Public Notification)] shall notify its customers of the violation in the next consumer confidence report that is issued by the system.

§290.122. Public Notification.

(a) Public notification requirements for acute violations. The owner or operator of a public water system must notify persons served by their system of any maximum contaminant limit (MCL), maximum residual disinfectant level (MRDL), [or] treatment technique violation, or other situation that poses an acute threat to public health. Each notice required by this section must meet the requirements of subsection (d) of this section.

(1) Situations [Violations] that pose an acute threat to public health include:

(A) a violation of the acute MCL for microbial contaminants as defined in §290.109(f)(1) of this title (relating to Microbial Contaminants);

(B) an acute turbidity issue at a treatment plant that is treating surface water or groundwater under the direct influence of surface water, specifically:

(i) a combined filter effluent turbidity level above 5.0 nephelometric turbidity units (NTU);

(ii) a combined filter effluent turbidity level above 1.0 NTU at a treatment plant using membrane filters; or

(iii) a combined filter effluent turbidity level above 1.0 NTU at a plant using other than membrane filters at the discretion of the executive director after consultation with the system; or

(iv) failure of a system with treatment other than membrane filters to consult with the executive director within 24 hours after a combined filter effluent <u>reading</u> [ready] of 1.0 NTU;

(C) a violation of the MCL for nitrate or nitrite as defined in §290.106(f)(2) of this title (relating to Inorganic Contaminants);

(D) a violation of the acute MRDL for chlorine dioxide as defined in §290.110(f)(5)(A) or (B) of this title (relating to Disinfectant Residuals);

(E) occurrence of a waterborne disease outbreak;

(F) Detection of *E. coli* or other fecal indicators in source water samples as specified in §290.109(b)(2) of this title [(relating to Microbial Contaminants)]; and

(G) other <u>situations</u> [violations] deemed by the executive director to pose an acute risk to human health.

(2) The initial acute public notice and boil water notice required by this subsection shall be issued as soon as possible, but in no case later than 24 hours after the violation is identified. The initial public notice for an acute violation shall be issued in the following manner.

(A) The owner or operator of a water system with an acute microbiological or turbidity violation as described in paragraph (1)(A) or (B) of this subsection shall include a boil water notice issued in accordance with the requirements of §290.46(q) of this title (relating to Minimum Acceptable Operating Practices for Public Drinking Water Systems).

(B) The owner or operator of a community water system shall furnish a copy of the notice to the radio and television stations serving the area served by the public water system.

(C) The owner or operator of a community water system shall publish the notice in a daily newspaper of general circulation in the area served by the system. If the area is not served by a daily newspaper of general circulation, notice shall instead be issued by direct delivery or by continuous posting in conspicuous places within the area served by the system.

(D) The owner or operator of a noncommunity water system shall issue the notice violation by direct delivery or by continuously posting the notice in conspicuous places within the area served by the water system.

(E) If notice is provided by posting, the posting must remain in place for as long as the violation exists or seven days, whichever is longer.

(3) The owner or operator of a water system required to issue an initial notice for an acute MCL or treatment technique violation shall issue additional notices. The additional public notices for acute violations shall be issued in the following manner.

(A) Not later than 45 days after the violation, the owner or operator of a community water system shall notify persons served by the system using mail (by direct mail or with the water bill) or hand delivery. The executive director may waive mail or hand delivery if it is determined that the violation was corrected within the 45-day period. The executive director must make the waiver in writing and within the 45-day period.

(B) The owner or operator of a community water system must issue a notice at least once every three months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation exists.

(C) If the owner or operator of a noncommunity water system issued the initial notice by continuous posting, posting must continue for as long as the

violation exists and in no case less than seven days. If the owner or operator of a noncommunity water system issued the initial notice by direct delivery, notice by direct delivery must be repeated at least every three months for as long as the violation exists.

(4) The owner or operator of the public water system must issue a notice when the public water system has corrected the acute violation. This notice must be issued in the same manner as the original notice was issued.

(5) Copies of all notifications required under this subsection must be submitted to the executive director within ten days of its distribution.

(b) Public notification requirements for other MCL, MRDL, or treatment technique violations and for variance and exemption violations. The owner or operator of a public water system must notify persons served by their system of any MCL, MRDL, or treatment technique violation other than those described in subsection (a)(1) of this section and of any violation involving a variance or exemption requirement. Each notice required by this section must meet the requirements of subsection (d) of this section.

(1) Violations that require notification under this subsection include:

(A) any violation of an MCL, MRDL, or treatment technique not listed under subsection (a) of this section;

(B) failure to comply with the requirements of any variance or exemption granted under §290.102(d) of this title (relating to General Applicability);

(C) failure for a groundwater system to take corrective action or failure to maintain at least 4-log treatment of viruses (using inactivation, removal, or a combination of 4-log virus inactivation and removal approved by the executive director) before or at the first customer under §290.116 of this title (relating to Groundwater Corrective Actions and Treatment Techniques); or

(D) failure to perform any 3 months of raw surface water monitoring as required by §290.111(b) of this title (relating to Surface Water Treatment) or request bin classification from the executive director under §290.111(c)(3)(A) of this title; or

(E) other violations deemed appropriate by the executive director that pose a non-acute risk to human health.

(2) The initial public notice for any violation identified in this subsection must be issued as soon as possible, but in no case later than 30 days after the violation is identified. The initial public notice shall be issued in the following manner.

(A) The owner or operator of a community water system shall issue the notice by:

(i) mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

(ii) any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by the notice required in clause (i) of this subparagraph. Such persons may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.) Other methods may include: publication in a local newspaper; delivery of multiple copies for distribution by customers that provide drinking water to others (e.g., apartment building owners or large private employers); continuous posting in conspicuous public places within the area served by the system or on the Internet; or delivery to community organizations.

(B) The owner or operator of a noncommunity water system shall issue the notice by: [direct delivery or by continuously posting the notice in conspicuous places within the area served by the system.]

(i) posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

(ii) any other method reasonably calculated to reach other persons served by the system if they would not normally be reached by the notice. Such persons may include those served who may not see a posted notice because the posted notice is not in a location they routinely pass by. Other methods may include: publication in a local newspaper or newsletter distributed to customers; use of e-mail to notify employees or students; or, delivery of multiple copies in central locations (e.g., community centers).

(C) If notice is provided by posting, the posting must remain in place for as long as the violation exists or seven days, whichever is longer.

(3) The owner or operator of a system required to issue an initial violation notice shall issue additional notices. The additional notices shall be issued in the following manner.

(A) The owner or operator of a community water system must issue a notice at least once every three months by mail delivery (by direct mail or with the water bill) or by direct delivery, for as long as the violation exists.

(B) If the owner or operator of a noncommunity water system issued the initial notice by continuously posting the notice, the posting must continue for as long as the violation exists, and in no case less than seven days. If the owner or operator of a noncommunity water system issued the initial notice by direct delivery, notice by direct delivery must be repeated at least every three months for as long as the violation exists.

(4) The owner or operator of the public water system must issue a notice when the public water system has corrected the violation. This notice must be issued in the same manner as the original notice was issued.

(c) Public notification requirements for other violations, variances, exemptions. The owner or operator of a public water system who fails to perform monitoring

required by this chapter, fails to comply with a testing procedure established by this chapter, or is subject to a variance or exemption granted under §290.102(b) of this title shall notify persons served by the system. Each notice required by this section must meet the requirements of subsection (d) of this section.

(1) Violations that require notification as described in this section include:

(A) exceedance of the secondary constituent levels (SCL) for fluoride;

(B) failure to perform monitoring or reporting required by this subchapter;

(C) failure to comply with the analytical requirements or testing procedures required by this subchapter;

(D) operating under a variance or exemption granted under §290.102(b) of this title; and

(E) failure to maintain records on recycle practices as required by §290.46(f)(3)(C)(iii) of this title.

(2) The initial public notice issued pursuant to this section shall be issued within three months of the violation or the granting of a variance or exemption. The initial public notice shall be issued in the following manner.

(A) The owner or operator of a community water system shall issue the notice by mail or other direct delivery to each customer receiving a bill and to other service connections. The owner or operator of a noncommunity water system shall issue the notice by either posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection. [The owner or operator of a community water system shall publish the notice in a daily newspaper of general circulation in the area served by the system. If the area served by the public water system is not served by a daily newspaper of general circulation, the notice shall instead be published in a weekly newspaper of general circulation serving the area. If the area is not served by a either a daily or weekly newspaper of general circulation, notice shall instead be given by direct delivery or by continuous posting in conspicuous places within the area served by the system.]

(B) The owner or operator of any public water system shall also notify the public using another method reasonably calculated to reach other persons

regularly served by the system, if they would not normally be reached by the notice required in subparagraph (A) of this paragraph. Such persons may include people who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). These other methods may include publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers); posting in public places or on the Internet; or delivery to community organizations. [The owner or operator of a noncommunity water system shall issue the notice by direct delivery or by continuously posting the notice in conspicuous places within the area served by the system.]

(C) If notice is provided by posting, the posting must remain in place for as long as the violation exists or seven days, whichever is longer.

(3) The owner or operator of a system required to issue an initial violation notice shall issue additional notices. The additional notices shall be issued in the following manner.

(A) The owner or operator of a community water system shall issue repeat notices at least once every 12 months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation exists or variance or

exemption remains in effect. Repeat public notice may be included as part of the Consumer Confidence Report.

(B) If the owner or operator of a noncommunity water system issued the initial notice by continuously posting the notice, the posting must continue for as long as the violation exists, and in no case less than seven days. If the owner or operator of a noncommunity water system issued the initial notice by direct delivery, notice by direct delivery must be repeated at least every 12 [three] months for as long as the violation exists.

(4) The owner or operator of the public water system must issue a notice when the public water system has corrected the violation. This notice must be issued in the same manner as the original notice was issued.

(d) Each public notice must conform to the following general requirements.

(1) The notice must contain a clear and readily understandable explanation of the violation or situation that lead to the notification. The notice must not contain very small print, unduly technical language, formatting, or other items that frustrate or defeat the purpose of the notice.

(2) If the notice is required for a specific event, it must state when the event occurred.

(3) For notices required under subsections (a), (b), or (c)(1)(A) of this section, the notice must describe potential adverse health effects.

(A) For MCL, MRDL, or treatment technique violations, the notice must contain the mandatory federal contaminant-specific language contained in 40 Code of Federal Regulations (CFR) Subpart Q, Appendix B, in addition to any language required by the executive director.

(B) For fluoride SCL violations, the notice must contain the mandatory federal contaminant-specific language contained in 40 CFR §141.208, in addition to any language required by the executive director.

(C) For failure to perform any 3 months of raw surface water monitoring or request bin classification from the executive director, the notice must contain the mandatory federal contaminant specific language contained in 40 CFR §141.211(d)(1) and 40 CFR §141.211(d)(2), respectively, in addition to any language required by the executive director.

(D) The notice must describe the population at risk, especially subpopulations particularly vulnerable if exposed to the given contaminant.

(4) The notice must state what actions the water system is taking to correct the violation or situation, and when the water system expects to return to compliance.

(5) The notice must state whether alternative drinking water sources should be used, and what other actions consumers should take, including when they should seek medical help, if known.

(6) Each notice must contain the name, business address and telephone number at which consumers may contact the owner, operator, or designee of the public water system for additional information concerning the notice.

(7) Where appropriate, the notice must be multilingual.

(8) The notice shall include a statement to encourage the notice recipient to distribute the public notice to the other persons served.

(9) Systems with variances or exemptions must notify in accordance with 40 CFR §141.205(b).

(10) Systems must notify customers at sampled taps of the results of any required lead or copper analyses and certify completion of the notification to the executive director.

(e) Notice to new billing units. The owner or operator of a community water system must give a copy of the most recent public notice for any outstanding violation of any MCL, or any treatment technique requirement, or any variance or exemption schedule to all new billing units or new hookups prior to or at the time service begins. The owner or operator of a noncommunity water system must continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation, variance or exemption, or other situation requiring a public notice for as long as the violation, variance, exemption, or other situation persists.

(f) Proof of public notification. A copy of any public notice required under this section must be submitted to the executive director within ten days of its distribution as proof of public notification. The copies must be mailed to the Water Supply Division, MC 155, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087. Each proof of public notification must be accompanied with a signed Certificate of Delivery.

(g) Notice to consecutive systems. A public water system that is required to notify its customers must also provide a copy of the notification to the owner or operator of any public water systems that purchase or otherwise receive water from it in the same manner in which they inform their customers. Each public water system that is affected by the subject of the notification is responsible for notification to its own customers.

(h) Notices given by the executive director. The executive director may give the notice required by this section on behalf of the owner and operator of the public water system following the requirements of this section. The owner or operator of the public water system remains responsible for ensuring that the requirements of this section are met.

(i) If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the executive director may allow the system to limit distribution of the public notice to only persons served by that portion of the system which is out of compliance. Permission by the executive director for limiting distribution of the notice must be granted in writing.

SUBCHAPTER F: DRINKING WATER STANDARDS GOVERNING DRINKING WATER QUALITY AND REPORTING REQUIREMENTS FOR PUBLIC WATER SYSTEMS

[§290.117]

STATUTORY AUTHORITY

This repeal is adopted under Texas Water Code (TWC), §5.102, which establishes the commission's general authority necessary to carry out its jurisdiction; §5.103, which establishes the commission's general authority to adopt rules; §5.105, which establishes the commission's authority to set policy by rule; and Texas Health and Safety Code (THSC), §341.031, which allows the commission to adopt rules to implement the federal Safe Drinking Water Act, 42 United States Code, §§300f to 300j-26; and THSC, §341.0315, which requires public water systems to comply with commission rules adopted to ensure the supply of safe drinking water.

The adopted repeal implements TWC, §§5.102, 5.103, and 5.105, and THSC, §341.031 and §341.0315.

[§290.117. Regulation of Lead and Copper.]

[(a) General requirements.]

[(1) Applicability--The requirements of this section apply to community and nontransient noncommunity water systems. New water systems will be required to meet the requirements of this section when notified by the executive director.]

[(2) Compliance--The water system is not in compliance if it fails to meet any reporting, monitoring, public education, or other requirement in this section relating to the regulation of lead and/or copper.]

[(A) All applicable water systems shall determine compliance based on monitoring and reporting requirements for lead and copper established in this section or contained in 40 Code of Federal Regulations (CFR) §§141.85, 141.86, 141.87, 141.88, or 141.90.]

[(B) Failure to conduct or report any requirements of this section shall constitute a monitoring, reporting or treatment technique violation and shall be a violation of these standards.]

[(3) Action levels for lead and copper are 0.015 milligrams per liter (mg/L) and 1.3 mg/L, respectively. The action levels are exceeded if the concentration of lead and/or copper in more than 10% of the first draw tap water samples collected during any

monitoring period is greater that 0.015 mg/L for lead or 1.3 mg/L for copper. If collecting only five samples, the average of the two highest samples shall be used to determine compliance with the action level.]

[(b) Sample site selection and materials survey.]

[(1) By the applicable date for commencement of tap sample monitoring, each system shall complete a materials survey of its distribution system to identify a pool of tap sampling sites that meet the requirements of this section. All first draw tap samples are to be collected from this pool of sites. Sampling sites may not include faucets that have point-of-use or entry point treatment devices. After completing sample site selection, the system will submit the Lead and Copper Sample Site Selection form to the executive director for approval.]

[(2) Information for conducting a materials survey and selecting sampling sites are provided to each system by the executive director before initial tap sampling is initiated. Procedural requirements set forth in 40 CFR §141.86 will be followed for sampling site selection activities except that reporting of tap sampling sites to the executive director shall be conducted using the materials survey and sampling site selection forms supplied by the executive director. Supplemental explanatory information from the system will be considered as part of the sampling site selection

document. Systems must make a good faith effort to conduct a thorough and complete materials survey and submit a valid sample site selection form before initial tap sampling may be conducted.]

[(3) A system that does not have enough Tier 1, 2, or 3 sites, as set forth in 40 CFR §141.86, must use other representative sites to complete its sampling pool. A representative site is one that uses plumbing materials commonly found at other sites to which the system provides water.]

[(c) Tap sampling.]

[(1) A first draw tap sample means a one liter or one quart sample of tap water collected from a cold water, frequently used interior tap, after the water has been standing in the plumbing for at least six hours and is collected without first flushing the tap. The kitchen cold water faucet is the preferred sampling tap at residential sites. It is recommended that the water not be allowed to stand in the plumbing for more than 18 hours prior to a sample collection.]

[(2) A sample collection may be conducted by either water system personnel or the residents. If the resident is allowed to collect samples for lead and

copper monitoring, the water system must provide written instructions for sample collection procedures.]

[(3) A water system shall collect each tap sample from the same sampling site from which it collected a previous sample. If this is not possible, the water system shall provide a written explanation to the executive director. The water system must select an alternate sampling site from the system's sampling pool which meets similar criteria and is within reasonable proximity to the original sampling site.]

[(4) Monitoring approved by the executive director and conducted by systems in addition to the minimum requirements of this section shall be considered by the executive director in making any determination of compliance.]

[(5) The system shall collect at least two sets of initial tap samples during two consecutive six-month monitoring periods, unless granted a monitoring waiver.]

[(6) The minimum number of sample sites required for initial monitoring are listed in Table Number 1, as well as the number of sites required of each system conducting reduced monitoring.]

[Figure: 30 TAC §290.117(c)(6)]

Table No. 1

SYSTEM SIZE (No. of People Served)	INITIAL MONITORING SITES	REDUCED MONITORING SITES
> 100,000	100	50
10,001 – 100,000	60	30
3,301 – 10,000	40	20
501 – 3,300	20	10
101 – 500	10	5
< 101	5	5

[(7) Initial tap sampling shall be conducted only after the executive director has determined that a system has successfully completed a materials survey and has obtained approval of its sample site selection form which is required to be submitted by subsection (b)(2) of this section.]

[(8) A new community or nontransient noncommunity water system begins the first six-month initial monitoring period in the year following a new water system's assignment of a Public Water System identification number.]

[(d) Computing 90th percentile lead and copper levels. Determination of 90th percentile levels shall be obtained by ranking the results of lead and copper samples collected during a monitoring period in ascending order (lowest concentration equal sample Number 1; highest concentration equal sample Numbers 10, 20, 30, 40, 50, etc.),

up to the total number of samples collected. The number of samples collected during the monitoring period shall be multiplied by 0.9 and the concentration of lead and copper in the numbered sample yielded by this calculation is the 90th percentile sample contaminant level. The system is in compliance with the lead and/or copper action levels if the 90th percentile sample contaminant level is equal to or less than the action levels specified in subsection (a)(3) of this section. For water systems serving fewer than 101 people, the 90th percentile level is computed by taking the average of the highest two sample results.]

[(e) Reduced tap monitoring.]

[(1) The executive director shall notify each water system that it is eligible for reduced monitoring of first draw tap samples if it is in compliance with the 90th percentile lead and copper action levels after completion of 12 consecutive months of initial tap sampling.]

[(2) Reduced monitoring shall be conducted annually during June, July, August, or September by collecting one set of samples from the appropriate number of reduced monitoring sites, after notification.]

[(3) The number of reduced monitoring sites required for each system are found in Table Number 1 located in subsection (c)(6) of this section, if not otherwise specified by the executive director.]

[(4) Any system that the 90th percentile lead level is greater than 0.005 mg/L and/or the 90th percentile copper level is greater than 0.65 mg/L during either of the two initial six-month monitoring periods must conduct two annual rounds of reduced monitoring the two calendar years following the completion of initial tap sampling.]

[(5) Any system that demonstrates during the initial 12-month monitoring periods that the 90th percentile lead level is less than or equal to 0.005 mg/L and the 90th percentile copper level is less than or equal to 0.65 mg/L shall have the required frequency of sampling reduced to once every three years and at the reduced number of sampling sites shown in subsection (c)(6) of this title, Table Number 1.]

[(f) Invalidation of lead or copper tap samples.]

[(1) A sample invalidated under this subsection does not count toward determining lead or copper 90th percentile levels or toward meeting the minimum number of tap sample requirements.]

[(2) The executive director may invalidate a lead or copper tap sample if one of the following conditions is met:]

[(A) the laboratory establishes that an analytical error has occurred or that an analytical method requirement has been violated;]

[(B) the executive director determines that the sample was taken from an inappropriate site;]

[(C) the sample was damaged in transit; or]

[(D) the executive director determines that the sample was subject to tampering.]

[(3) The water system must provide written documentation to the executive director for samples the water system believes should be invalidated.]

[(4) The water system must collect replacement samples for any samples invalidated under this section. Any such replacement samples must be collected as soon

as possible, but no later than ten days after receiving notification of sample invalidation from the executive director.]

[(g) Monitoring waivers for small water systems.]

[(1) Small water system monitoring waivers approved by the executive director prior to January 1, 2002, shall remain in effect subject to the provisions of paragraph (2)(E) of this subsection.]

[(2) Any water system serving a population of less than 3,301 people that meets the criteria of subparagraphs (A) and (B) of this paragraph may apply to the executive director to reduce the frequency of monitoring for lead and copper to once every nine years.]

[(A) The water system must demonstrate on the lead/copper sampling site selection form that its distribution system and the service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials and/or copper-containing materials to demonstrate the risk from lead and/or copper exposure is negligible throughout the water system.]

[(B) The water system must have completed at least one six-month series of initial tap water monitoring for lead and copper and have demonstrated that its 90th percentile lead level does not exceed 0.005 mg/L and the 90th percentile copper level does not exceed 0.65 mg/L.]

[(C) The executive director shall provide the water system with a waiver application setting forth the basis and conditions of the waiver after meeting the requirements of subparagraphs (A) and (B) of this paragraph.]

[(D) The executive director shall not issue any "partial waivers" for lead and copper monitoring.]

[(E) If a water system with a waiver adds a new source of water, changes any water treatment or no longer meets the requirements of subparagraph (A) of this paragraph, the water system must notify the executive director in writing within 60 days of the change. The executive director has the authority to add or modify the monitoring waiver conditions, if modifications are necessary to address changes that have occurred since approving the original waiver application.]

[(h) Monitoring requirements for water quality parameters (WQPs) and source water.]

[(1) Water quality parameters.]

[(A) All large water systems (serving populations greater than 50,000) are required to conduct monitoring beginning with the initial period of first draw tap samples and continuing until corrosion control is optimized.]

[(B) All medium and small water systems (serving populations of 3,301 to 50,000 and less than 3,301, respectively) that exceed the lead or copper action level shall conduct WQP monitoring beginning in the first calendar quarter following the calendar quarter in which the commission officially notified the water system of its exceedance status and shall continue monitoring and reporting as long as the water system exceeds the lead or copper action level.]

[(C) WQP monitoring shall be conducted quarterly for the following parameters: pH; alkalinity; calcium; conductivity; water temperature; orthophosphate (when an inhibitor containing a phosphate compound is used); and silica (when an inhibitor containing a silicate compound is used). Temperature and pH must be measured at the sampling site at the same time of sample collection.]

[(D) Large water systems must conduct WQP monitoring at all entry points and at the number of distribution sites specified in subsection (h)(1)(D) of this section, Table Number 2. Small and medium water systems that are required to conduct WQP monitoring must monitor at all entry points and at the required number of distribution sites as shown in subsection (h)(1)(D) of this section, Table Number 2.]

[Figure: 30 TAC §290.117(h)(1)(D)]

[TABLE NO. 2]

[SYSTEM SIZE (No. of people served)]	[INITIAL WQP DISTRIBUTION SITES]	[REDUCED WQP DISTRIBUTION SITES]	[NO. OF SITES FOR WQP MONITORING]
[>100,000]	[25]	[10]	[25]
[10,001 – 100,000]	[10]	[7]	[10]
[3,301 – 10,000]	[3]	[3]	[3]
[501 – 3,300]	[2]	[2]	[2]
[101 – 500]	[1]	[1]	[1]
[<101]	[1]	[1]	[1]

[(E) WQP distribution sites (exclusive of entry points) may be sites normally used for bacteriological monitoring and samples need not be collected inside

the home. These sites shall be representative of water quality throughout the distribution system.]

[(F) After corrosion control treatment is installed, water quality parameters shall be measured at the initial number of distribution sites as indicated in subsection (h)(1)(D) of this section, Table Number 2 quarterly and also at entry points biweekly (every two weeks).]

[(G) WQP monitoring after corrosion control treatment is installed shall be conducted for the following parameters: pH; alkalinity; orthophosphate (when an inhibitor containing a phosphate compound is used); silica (when an inhibitor containing a silicate compound is used); and calcium (when calcium carbonate stabilization is used as part of the treatment). These parameters must be measured at all entry points and initial distribution sites.]

[(H) Any water system that maintains the range of values for WQP's reflecting optimum corrosion control as approved by the executive director for one-year may collect quarterly distribution samples at the reduced number of distribution sites indicated in subsection (h)(1)(D) of this section, Table Number 2. WQP samples shall continue to be measured at entry points on a biweekly basis and results submitted to the executive director.]

[(I) Any water system that reflects optimal corrosion control treatment during three consecutive years may reduce the frequency at which it collects distribution samples for applicable WQPs to annually.]

[(J) Any water system that reflects optimal corrosion control treatment during three consecutive years of annual WQP distribution monitoring may reduce the frequency at which it collects the number of WQP distribution samples for applicable WQPs to once every three years. Additionally, the last two consecutive tap sample monitoring periods must have a 90th percentile lead value of less than or equal to 0.005 mg/L and a 90th percentile copper value of less than or equal to 0.65 mg/L. The water system must also have maintained the range of values for WQPs reflecting optimal corrosion control as specified in that system's state approved corrosion control study.]

[(K) Water quality parameter testing must be conducted at a laboratory that uses the methods described in 40 CFR §141.89, and it is the responsibility of the water system to collect, submit, and report these values. If a water system fails to meet the WQP values or ranges specified by the executive director, it is out of compliance with this section. WQP values may be confirmed by the system in

accordance with 40 CFR §141.82(g). The state requires that the values be reported, but is not responsible for supplying sample bottles and testing services to the water system.]

[(L) Any water system subject to the reduced monitoring frequency that fails to operate within the approved range of WQP values shall resume distribution sampling in accordance with the number and frequency requirements in subparagraph (F) of this paragraph.]

[(M) A water system conducting WQP monitoring may limit entry point sampling to each official entry point as designated in the database for Safe Drinking Water Act (SDWA) compliance sampling. The water system must monitor WQPs at all entry points regardless of whether corrosion control treatment is required at all entry points or not. The water system must inform the executive director of the identity of treated and non-treated entry points and their seasonal use, if any, and demonstrate that the WQPs represent water quality and treatment conditions throughout the system.]

[(N) Any water system subject to reduced monitoring frequency (which has completed installation of approved corrosion control treatment as proposed in the system's corrosion control study) that fails to operate at or above the minimum range of values the system proposed for more than nine days in a six-month period shall

resume distribution WQP sampling in accordance with the number and frequency requirements in this subsection. The system may resume distribution WQP sampling at the reduced number of sites as specified in this subsection after completing two consecutive six-month periods of distribution WQP sampling at the original frequency and then may follow subparagraphs (H) and (J) of this paragraph.]

[(O) Large water systems shall monitor applicable WQPs every calendar quarter beginning after installation of corrosion control treatment approved by the executive director. Small and medium water systems shall monitor WQPs every calendar quarter while the system is in exceedance status. The executive director will issue a reporting waiver to small and medium systems for WQPs after the system completes two follow-up rounds of tap sampling without exceeding either the lead or copper action level. The water system will continue to collect and record certain crucial parameters that will be available for inspection. If a small or medium water system exceeds the lead or copper action level during a reduced tap monitoring round (summer monitoring), the system shall conduct WQP monitoring until the exceedance status is resolved.]

[(P) The commission will not designate WQP ranges for any large water system that did not exceed 0.005 mg/L at the 90th percentile for lead during either initial tap sampling round. The commission will not designate WQP ranges for

any small or medium water system that never exceeded the lead or copper action level at the 90th percentile during either initial tap sampling round or any reduced monitoring tap sampling round. Systems that must conduct WQP monitoring shall submit proposed WQP ranges for the executive director's approval.]

[(Q) Using WQPs proposed by the water system or its representatives, the commission will issue an approval letter if the corrosion control study and treatment proposed meet the requirements of this rule. Water systems will operate within the approved WQP ranges at all times and will conduct lead and copper tap sampling under the requirements in subsection (c) of this section and WQP reporting in this paragraph.]

[(2) Entry point water sampling.]

[(A) Entry point water sampling for lead and copper shall be conducted by systems that exceed the lead or copper action levels to determine the lead or copper content of source water. Entry point water samples shall be collected using sample location, number of samples, and collection methods as specified in §290.106 of this title (relating to Inorganic Contaminants). A large water system is deemed to have optimized corrosion control if it submits results of tap water monitoring conducted according to the requirements in subsection (c) of this section and results of source

water monitoring conducted according to requirements in §290.106 of this title (relating to Inorganic Contaminants). The results must demonstrate for a 12-month monitoring period that lead at the 90th percentile is less than or equal to 0.005 mg/L.]

[(B) The executive director shall complete an evaluation of all entry point water sample results, along with the corrosion control study, to determine if source water treatment is necessary. If source water treatment is deemed necessary by the executive director, the system must install it in accordance with the scheduling requirements specified in 40 CFR §141.83(a).]

[(C) Any system that installs entry point water treatment shall collect an additional round of source water samples as described in subparagraph (A) of this paragraph during two consecutive six-month periods within 36 months after source water treatment begins.]

[(D) The monitoring frequency for lead and copper in source water, after the executive director determines that source water treatment is not required, or after the executive director has specified the maximum permissible source water levels for lead and copper, shall be in accordance with inorganic chemical monitoring practices and procedures as stated in §290.106 of this title.]

[(E) Reduced source water monitoring procedures as specified in 40 CFR §141.88(e) for lead and copper will be followed by the executive director.]

[(F) All water systems shall notify the executive director in writing of any proposed change in treatment or the addition or deletion of a source of water. The executive director may require any such system to conduct additional monitoring or to take other action the executive director deems appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system.]

[(i) Public education requirements.]

[(1) A water system that exceeds the lead action level at the 90th percentile tap sample shall deliver to the public the public education materials listed in 40 CFR §141.85(a), and according to the requirements in paragraph (2) of this subsection shall provide copies of the public education materials to the executive director within ten days after the delivery of the materials to the public.]

[(2) A community water system shall, within 60 days of notification by the commission:]

[(A) insert notices in each customer's water utility bill or by separate mailing, if approved in writing by the executive director, that includes the information in 40 CFR §141.85(a), and print the following alert on the water bill itself, or on a bill insert, in large print: "SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION.";]

[(B) submit the required information in 40 CFR §141.85(a) to the editorial departments of the major local daily or weekly newspaper circulated throughout the system;]

[(C) deliver pamphlets or brochures that contain the public education materials as specified in 40 CFR §141.85(a)(2) and (4) to city or county health departments, to public schools or local school boards, Women Infants and Children (WIC) or Head Start Programs when available, public and private hospitals or clinics, pediatricians, family planning clinics, and local welfare agencies, within their service area;]

[(D) submit the public service announcement in 40 CFR §141.85(b) to at least five radio or television stations broadcasting to the area served by the water system;]

[(E) a community water system serving 501 to 3,300 people may omit the task contained in subparagraph (D) of this paragraph;]

[(F) a community water system serving 500 or fewer people may omit the tasks contained in subparagraphs (B) - (D) of this paragraph;]

[(G) all community water systems must repeat the public education requirements every six months for as long as the system exceeds the lead action level; and]

[(H) if no lead service lines exist anywhere in the water system service area, all community water systems may delete information pertaining to lead service lines, and any additional information presented by a water system in the public education material shall be consistent with the information in 40 CFR §141.85(a) and be written in easily understood language.]

[(3) A nontransient noncommunity water system must within 60 days of notification by the executive director deliver the public education materials in 40 CFR §141.85(a)(2) as follows:]

[(A) post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system;]

[(B) distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the water system. The commission may allow the water system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage;]

[(C) a water system may delete or modify language relating only to community water systems that is not relevant to its particular facility; and]

[(D) a water system must repeat the tasks in subparagraphs (A) and (B) of this paragraph at least once during each calendar year for as long as the water system exceeds the lead action level.]

[(4) A water system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month monitoring

period. Such a system shall recommence public education in accordance with this section if it subsequently exceeds the lead action level during any monitoring period.]

[(5) A water system that fails to meet the lead action level as stated in subsection (a)(3) of this section shall make available to any customer who requests it, information as to how and where water samples may be submitted for lead and copper analysis.]

[(j) Corrosion control.]

[(1) All applicable water systems shall install and operate optimal corrosion control treatment, which means the corrosion control treatment that minimizes lead and copper concentrations at users' taps while insuring that the treatment does not cause the system to violate any other drinking water standard. All large water systems that exceeded 0.005 mg/L lead at the 90th percentile during initial monitoring or any system that exceeded the lead or copper action level at the 90th percentile during any tap monitoring sampling round and that has installed corrosion control treatment with approved WQP ranges, must operate and maintain optimal corrosion control within those ranges. Compliance periods for this paragraph are two six-month periods, January 1 to June 30, and July 1 to December 31. A water system is out of compliance with this subsection for a six-month period if the water system has

WQP excursions for any approved range for more than nine days. An excursion occurs whenever the daily value for one or more WQPs measured at a sampling location is below the minimum value or outside the range approved by the executive director. The executive director has the discretion to delete results of obvious sampling errors from this calculation. Daily values are calculated as follows.]

[(A) Water systems that collect more than one WQP measurement in one day must record the daily value as an average of all WQP values collected during the day regardless of whether the measurements are collected through continuous monitoring, grab sampling, or a combination of both.]

[(B) On days when only one measurement for the WQP is collected at the sampling location, the daily value shall be the result of that measurement.]

[(C) On days when no measurement is collected for the WQP at the sampling location, the daily value last calculated on the most recent day shall serve as the daily value.]

[(2) Large water systems (serving greater than 50,000 people) are required to conduct corrosion control studies unless they can demonstrate that corrosion control is already optimized to the satisfaction of the executive director. If

required to conduct a corrosion control study, a large water system must complete it by July 1, 1994, and the executive director shall designate optimal corrosion control treatment and parameters by January 1, 1995. The water system shall install corrosion control treatment by January 1, 1997. Large water systems that exceed lead and/or copper action levels must conduct a demonstration study as described in paragraph (4)(B) of this subsection. If a large water system exceeds either the lead or copper action level during a reduced tap sampling monitoring round, it will adhere to the schedule specified in the paragraph for medium systems, with time periods for completing each step being triggered by the date the executive director notifies the water system that it has exceeded an action level.]

[(3) Water systems are deemed to have optimized corrosion control if the water system meets the lead and copper action levels during each of two consecutive six-month monitoring periods. These systems will be required to conduct a desk-top corrosion control study to optimize corrosion control if at anytime the 90th percentile action level for lead and/or copper is exceeded. The study must be conducted and submitted within 12 months of a verified lead or copper exceedance. If a small or medium water system exceeds either the lead or copper action level during a reduced tap sampling monitoring round, it will adhere to the schedule specified in the paragraph for small and medium systems.]

[(4) Performance for corrosion control studies.]

[(A) Any public water system performing a corrosion control study shall evaluate the effectiveness of each of the following treatments (or combinations of treatments) to identify the optimal control treatment:]

[(i) alkalinity and pH adjustments;]

[(ii) calcium hardness adjustment; and]

[(iii) addition of phosphate or silicate corrosion inhibitor.]

[(B) The water system shall conduct this evaluation using either pipe rig/loop tests, metal coupon tests, partial systems tests (demonstration study), or analyses based on treatments in documented analogous systems (desk-top study). Analogous system means a system of similar size, water chemistry, and distribution system configuration.]

[(C) The water system shall measure the parameters listed in subsection (h)(1)(C) of this section.]

[(D) On the basis of the evaluation stated in subparagraphs (A) and (B) of this paragraph, the water system shall recommend to the executive director, in writing, the treatment option that constitutes optimum corrosion control or treatment along with sufficient documentation as required by the executive director to establish the validity of the evaluation procedure. Operational WQP ranges shall be proposed to the executive director where applicable.]

[(E) The executive director will, within six months after submittal of the corrosion control study by the water system, review the study and designate optimal corrosion control treatment and parameters.]

[(F) The water system shall install optimal corrosion control treatment within 24 months after the executive director designates optimal corrosion control treatment and notifies the water system.]

[(G) Large water systems that install corrosion control treatment shall conduct first-draw lead and copper tap sample monitoring as an initial monitoring during each of two consecutive six-month periods by January 1, 1998. Small and medium water systems shall complete the above stated monitoring within 36 months after the executive director designates optimal corrosion control treatment. Small and medium water systems are deemed to have optimized corrosion control if action levels

for lead and copper are not exceeded in two rounds of subsequent tap sample monitoring. Large water systems are deemed to have optimized corrosion control if they have demonstrated through first-draw tap monitoring conducted after treatment installation and water quality parameter sampling conducted in compliance with standards set by the executive director for optimum corrosion control that they are operating within executive director-designated parameters.]

[(H) Any system that has received approval for a corrosion control study and demonstrates optimal corrosion control and operates in compliance with the executive director-designated optimal water quality parameters, may conduct reduced tap sampling as described in subsection (e) of this section, when written permission is granted by the executive director after the executive director has evaluated all pertinent data. Systems that do not meet the action levels for lead and copper after receiving approval for a corrosion control study must continue to operate in accordance with WQP requirements established by the executive director and follow procedures specified in subsection (e)(4) of this section.]

[(I) The executive director may modify, upon his own initiative or in response to a water system request or a request from interested parties, his designated corrosion control treatment or parameters. The request and executive director response pursuant to modification shall be in writing.]

[(5) Optimization of corrosion control.]

[(A) Any water system may be deemed by the executive director to have optimized corrosion control treatment if the system demonstrates, to the satisfaction of the executive director, that it has conducted activities equivalent to the corrosion control steps listed in paragraph (4) of this subsection.]

[(B) Any large water system is deemed to have optimized corrosion control if it submits results of lead and copper tap water monitoring and entry point water monitoring in accordance with this section which demonstrates for two consecutive six-month monitoring periods that the 90th percentile tap sample lead level is less than 0.005 mg/L.]

[(k) Lead service line replacement. The provisions of 40 CFR §141.84 relating to lead service line replacement are adopted by reference.]

[(l) Analytical and sample preservation methods.]

[(1) Analysis for lead and copper shall be conducted using methods stated in 40 CFR §141.89, in laboratories certified by the executive director. Analysis for pH,

conductivity, calcium, alkalinity, or the phosphate, silica, and temperature may be conducted in any laboratory utilizing EPA methods prescribed in 40 CFR §141.89.]

[(2) The Practical Quantitation Limits (PQL) and the Method Detection Limits (MDL) shall be as stated in 40 CFR §141.89. The laboratory certified for the analysis of lead and copper tap samples must achieve the MDL of 0.001 mg/L for lead if composted entry point water samples are analyzed for lead.]

[(3) The executive director has the authority to allow the use of previously collected monitoring data if the data were collected in accordance with 40 CFR §141.89.]

[(4) All lead levels measured between the PQL and the MDL must be reported as measured, and all lead levels measured below the MDL must be reported as zero.]

[(5) First-draw-tap samples must be received in the laboratory within 14 days after the collection date.]

[(m) Reporting and recordkeeping requirements.]

[(1) Reporting requirements.]

[(A) Report all results of WQP analyses including the location/address of each distribution system sampling point. This report must include each WQP specified in subsection (h) of this section, as well as all sample results from entry points to the distribution system. Water Quality Parameter Reports should be submitted to the executive director no later than ten days after the end of each calendar quarter.]

[(B) Where applicable, the first-draw-tap monitoring shall be reported within ten days following the end of each monitoring period as specified by the executive director. (Analysis results from the approved laboratory are normally provided simultaneously to the water system and the executive director.) The results of first-draw-tap sampling shall be reported to the water system by the approved laboratory if the system's billing account is not delinquent. The executive director shall provide the water system with official notification of the results and the water system's calculated 90th percentile as the data is made available from the approved laboratory.]

[(C) As part of the site selection form, each water system shall justify the selection of sites other than Tier 1 sampling sites as defined on the site selection form and, if lead service lines are present, why the water system was not able

to locate a sufficient number to make up at least 50% of its required number of sampling sites, should this condition arise.]

[(D) Where applicable, the water system must certify that source water treatment has been installed as recommended by the executive director and that installation was done in accordance with the specified time requirements.]

[(E) Where applicable, the water system must certify that lead service lines have been replaced in accordance with directives of the executive director and in accordance with time schedules specified in subsection (k) of this section.]

[(F) Where applicable, the water system must provide copies of public education materials and certification that distribution of said materials is being conducted in accordance with subsection (i) of this section.]

[(G) A water system must collect tap samples from the same sampling sites selected during the initial monitoring period for all subsequent sampling periods. If a water system changes a sampling site for any reason allowed in this section, the water system must provide the executive director with a written explanation showing which sampling site will be abandoned and the sampling site that replaces the abandoned sampling site. The water system's report shall include an explanation as to

why a sampling site was changed from the previous round of sampling, if applicable. If a water system discovers that a sample has been collected at an inappropriate sampling site, the water system may request in writing that the sample be invalidated. The executive director may invalidate the sample and allow for recollection. If a water system has no sampling sites available that meet the first draw criteria specified in subsection (c) of this section, they shall proceed in accordance with 40 CFR §141.90(a)(2).]

[(H) Corrosion control treatment data shall be reported as required by the executive director for water systems that:]

[(i) have demonstrated optimum corrosion control;]

[(ii) are required to specify optimum corrosion control treatment (as part of the corrosion control study);]

[(iii) install corrosion control treatment as designated by the executive director; and]

[(iv) are required to evaluate effectiveness of corrosion control treatments.]

[(2) Recordkeeping requirements. Records of all sampling site data, sample submission forms, analysis results, reports, surveys, letters, evaluations, schedules, executive director recommendations, requirements or determinations, and any other information deemed appropriate by the water system shall be retained by the water system for a minimum of 12 years. These records include, but are not limited to, the following items:]

[(A) tap water monitoring results including the location of each site and date of collection;]

[(B) certification of the volume and validity of first-draw-tap sample criteria via a copy of the laboratory analysis request form;]

[(C) where residents collected the sample, certification that the water system informed the resident of proper sampling procedures;]

[(D) the analytical results for lead and copper concentrations (provided to each water system by the executive director) at each tap sample site; and]

[(E) designation of any substitute site not used in previous monitoring periods.]

SUBCHAPTER H: CONSUMER CONFIDENCE REPORTS

§290.271, §290.272

STATUTORY AUTHORITY

The amendments are adopted under Texas Water Code (TWC), §5.102, which establishes the commission's general authority necessary to carry out its jurisdiction; §5.103, which establishes the commission's general authority to adopt rules; §5.105, which establishes the commission's authority to set policy by rule; and Texas Health and Safety Code (THSC), §341.031, which allows the commission to adopt rules to implement the federal Safe Drinking Water Act, 42 United States Code, §§300f to 300j-26; and THSC, §341.0315, which requires public water systems to comply with commission rules adopted to ensure the supply of safe drinking water.

The adopted amendments implement TWC, §§5.102, 5.103, and 5.105, and THSC, §341.031 and §341.0315.

§290.271. Purpose and Applicability.

(a) The purpose of the sections in this subchapter is to establish the minimum requirements for the content of annual reports that community water systems must

deliver to their customers. These reports must contain information on the quality of the water delivered by the systems and characterize any risk from exposure to contaminants detected in the drinking water in an accurate and understandable manner. This subchapter applies only to community water systems.

(b) Each community water system must provide to its customers an annual report that contains the information specified in this subchapter.

(c) For the purposes of this section, the term "detected" shall mean the detection of a chemical at any level equal to or greater than the minimum detection level.

§290.272. Content of the Report.

(a) Information on the source of the water delivered must be included in the report.

(1) Each report must identify the source(s) of the water delivered by the community water system by providing information on the type of the water (such as surface water or groundwater) and any commonly used name and location of the body(ies) of water.

(2) If a source water assessment has been completed, the report must notify consumers of the availability of this information and the means to obtain it. In the reports, systems should highlight significant sources of contamination in the source water area if they have readily available information.

(3) If a system has received a source water assessment from the executive director, the report must include a brief summary of the system's susceptibility to potential sources of contamination using language provided by the executive director or written by a water system official and approved by the executive director.

(b) The following explanations must be included in the annual report.

(1) Each report must contain the following definitions.

(A) Maximum contaminant level goal (MCLG)--The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

(B) Maximum contaminant level (MCL)--The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to maximum contaminant level goals as feasible using the best available treatment technology.

(C) Maximum residual disinfectant level goal (MRDLG)--The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

(D) Maximum residual disinfectant level (MRDL)--The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

(2) The following terms and their descriptions must be included when they appear in the report:

(A) MFL--million fibers per liter (a measure of asbestos);

(B) mrem/year--millirems per year (a measure of radiation absorbed by the body);

(C) NTU--nephelometric turbidity units (a measure of turbidity);

(D) pCi/L--picocuries per liter (a measure of radioactivity);

(E) ppb--parts per billion, or micrograms per liter (µ/L);

(F) ppm--parts per million, or milligrams per liter (mg/L);

(G) ppt--parts per trillion, or nanograms per liter (ng/L); and

(H) ppq--parts per quadrillion, or picograms per liter (pg/L).

(3) A report for a community water system operating under a variance or an exemption of the Safe Drinking Water Act must include a description of the variance or the exemption granted under §290.102(b)(4) of this title (relating to General Applicability).

(4) A report that contains data on a contaminant for which the United States Environmental Protection Agency (EPA) has set a treatment technique or an action level must include, depending on the contents of the report, the following definitions.

(A) Treatment technique (TT)--A required process intended to reduce the level of a contaminant in drinking water.

(B) Action level (AL)--The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

(c) Information on detected contaminants.

(1) This subsection specifies the requirements for information to be included in each report for detected contaminants subject to mandatory monitoring, excluding *Cryptosporidium*. Mandatory monitoring is required for:

(A) regulated contaminants subject to an MCL, MRDL, action level, or treatment technique; and

(B) unregulated contaminants for which monitoring is required by 40 Code of Federal Regulations (CFR) §141.40, relating to Unregulated Contaminants and found in §290.275(4) of this title (relating to Appendices A - D). [; and]

[(C) disinfection by-products or microbial contaminants for which monitoring is required by 40 CFR §141.142, relating to Information Collection Requirements (ICR) for Public Water System--Disinfection by-product and related monitoring, and 40 CFR §141.143, relating to Microbial Monitoring Requirements.]

(2) The data relating to these detected contaminants must be displayed in one table or in several adjacent tables. Any additional monitoring results that a community water system chooses to include in its reports must be displayed separately.

(3) The data must be derived from data collected to comply with EPA and the commission monitoring and analytical requirements during the previous calendar year, except when a system is allowed to monitor for regulated contaminants less often than once per year. In that case, the table(s) must include the date and results of the most recent sampling, and the report must include a brief statement indicating that the data presented in the report is from the most recent testing done in accordance with the regulations. The report does not need to include data that is older than five years. [Furthermore, results of monitoring in compliance with 40 CFR §141.142 and §141.143 need only be included for five years from the date of the last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.]

(4) For detected regulated contaminants listed under §290.275 of this title, the table(s) must contain:

(A) the MCLs for those contaminants expressed as a number equal to or greater than 1.0 (as provided under §290.275 of this title);

(B) the MCLGs for those contaminants expressed in the same units as the MCLs (as provided for under §290.275 of this title);

(C) if there is no MCL for a detected contaminant, the treatment technique or specific action level applicable to that contaminant; and

(D) for contaminants subject to an MCL, except turbidity and total coliforms, the highest contaminant level used to determine compliance with National Primary Drinking Water Regulations and the range of detected levels.

(i) For contaminants subject to MCLs, except turbidity and total coliforms, when sampling takes place once per year or less often, the table(s) must contain the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL.

(ii) When sampling takes place more than once per year at each sampling point, the table(s) must contain the highest average of any of the

sampling points and the range of all sampling points expressed in the same units as the MCL.

(iii) In accordance with date requirements included in the table under §290.115(a) of this title (relating to Stage 2 Disinfection Byproducts ~~By-products~~ (TTHM and HAA5)), entitled "Date to Start Stage 2 Compliance," for [For] the MCLs for trihalomethanes (TTHM) and haloacetic acids (HAA5), systems must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If more than one location exceeds the TTHM or HAA5 MCL, the system must include the locational running annual averages for all sampling points that exceed the MCL.

(iv) When compliance with any MCL is determined on a system-wide basis by calculating a running annual average of all samples at all sampling points, the table(s) must include the average and range of detections expressed in the same units as the MCL.

(v) When the executive director allows the rounding of results to determine compliance with the MCL, rounding should be done after multiplying the results by the factor listed under §290.275 of this title.

(E) When turbidity is reported under §290.111 of this title (relating to Surface Water Treatment), the table(s) must contain the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in that section for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.

(F) When lead and copper are reported, the table(s) must contain the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level.

(G) When total coliform is reported, the table(s) must contain either the highest monthly number of positive samples for systems collecting fewer than 40 samples per month or the highest monthly percentage of positive samples for systems collecting at least 40 samples per month.

(H) When fecal coliform is reported, the table(s) must contain the total number of positive samples.

(I) The table(s) must contain information on the likely source(s) of detected contaminants based on the operator's knowledge. Specific information

regarding contaminants may be available in sanitary surveys or source water assessments and should be used when available. If the operator lacks specific information on the likely source, the report must include one or more typical sources most applicable to the system for any particular contaminant listed under §290.275 of this title.

(i) If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table(s) must contain a separate column for each service area, and the report must identify each separate distribution system. Systems may produce separate reports tailored to include data for each service area.

(ii) The table(s) must clearly identify any data indicating violations of MCLs, MRDLs, or treatment techniques. The report must contain a clear and readily understandable explanation of the violation. The explanation must include the length of the violation, the potential adverse health effects, and the actions taken by the system to address the violation. To describe the potential health effects, the system must use the relevant language contained under §290.275 of this title.

(5) For detected unregulated contaminants found under §290.275 of this title, for which monitoring is required (except *Cryptosporidium),* the table(s) must

contain the average and range of concentrations at which the contaminant was detected. The report must include the following explanation: "Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted."

(d) Information on *Cryptosporidium*, radon, and other contaminants.

(1) If the system has performed any monitoring for *Cryptosporidium*, the report must include a summary of the results of any detections and an explanation of the significance of the results.

(2) If the system has performed any monitoring for radon, which indicates that radon may be present in the finished water, the report must include the results of the monitoring and an explanation of the significance of the results.

(3) If the system has performed additional monitoring, which indicates the presence of other contaminants in the finished water, the executive director strongly encourages systems to report any results which may indicate a health concern. To determine if the results may indicate a health concern, the executive director

recommends that systems find out if the EPA has proposed a standard in the *National Primary Drinking Water Regulations* (NPDWR) or issued a health advisory for any particular contaminant. This information may be obtained by calling the Safe Drinking Water Hotline at (800) 426-4791. The executive director considers detections that are above a proposed MCL or health advisory level to indicate possible health concerns. For such contaminants, the executive director recommends that the report include the results of the monitoring and an explanation of the significance of the results. The explanation should note the existence of a health advisory or a proposed regulation.

(e) Compliance with NPDWR. In addition to the requirements in subsection (c)(4)(I)(ii) of this section, the report must note any violation that occurred during the year covered by the report of a requirement listed in paragraphs (1) - (8) of this subsection.

(1) The report must include a clear and readily understandable explanation of each violation of monitoring and reporting of compliance data and explain any adverse health effects and steps the system has taken to correct the violation.

(2) The report must include a clear and readily understandable explanation of each violation of filtration and disinfection prescribed by Subchapter F of this chapter (relating to Drinking Water Standards Governing Drinking Water Quality

and Reporting Requirements for Public Water Systems) and explain any adverse health effects and steps the system has taken to correct the violation. This applies both to systems that have failed to install adequate filtration, disinfection equipment, or processes, and to systems that have had a failure of such equipment or processes, each of which constitutes a violation. In either case, the report must include the following language as part of the explanation of potential adverse health effects: "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(3) The report must include a clear and readily understandable explanation of each violation of the lead and copper control requirements prescribed by §290.117 of this title (relating to Regulation of Lead and Copper). For systems that fail to take one or more actions prescribed by §290.117(g), (h), and (i) of this title, the report must include the applicable health effects language of §290.275(3) of this title for lead, copper, or both and the steps the system has taken to correct the violation.

(4) The report must include a clear and readily understandable explanation of each violation of treatment techniques for Acrylamide and Epichlorohydrin prescribed by §290.107 of this title (relating to Organic Contaminants). If a system violates these requirements, the report must include the relevant health

effects language from §290.275 of this title and the steps the system has taken to correct the violation.

(5) The report must include a clear and readily understandable explanation of each violation of recordkeeping of compliance data and explain any adverse health effects and steps the system has taken to correct the violation.

(6) The report must include a clear and readily understandable explanation of each violation of special monitoring requirements for unregulated contaminants and special monitoring for sodium as prescribed by 40 CFR §141.40 and §141.41 and explain any adverse health effects and steps the system has taken to correct the violation.

(7) For systems required to conduct initial distribution sampling evaluation (IDSE) sampling in accordance with §290.115(c)(5) of this title [(relating to Stage 2 Disinfection Byproducts [By-products] (TTHM and HAA5))], the system is required to include individual sample results for the IDSE when determining the range of TTHM and HAA5 results to be reported in the annual consumer confidence report for the calendar year that the IDSE samples were taken.

(8) The report must include a clear and readily understandable explanation of each violation of the terms of a variance, exemption, administrative order, or judicial order and explain any adverse health effects and steps the system has taken to correct the violation.

(f) Variances and exemptions. If a system is operating under the terms of a variance or exemption issued under §290.102(b) of this title, the report must contain:

(1) an explanation of the variance or exemption;

(2) the date on which the variance or exemption was issued and on which it expires;

(3) a brief status report on the steps the system is taking, such as installing treatment processes or finding alternative sources of water, to comply with the terms and schedules of the variance or exemption; and

(4) a notice of any opportunity for public input as the review or renewal of the variance or exemption.

(g) Additional information.

(1) The report must contain a brief explanation regarding contaminants that may reasonably be expected to be found in drinking water (including bottled water). This explanation may include the language contained within subparagraphs (A) - (C) of this paragraph, or systems may include their own comparable language. The report must include the language of subparagraphs (D) and (E) of this paragraph.

(A) The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

(B) Contaminants that may be present in source water include:

(i) microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

(ii) inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

(iii) pesticides and herbicides, which might have a variety of sources such as agriculture, urban storm water runoff, and residential uses;

(iv) organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts [by-products] of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; and

(v) radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

(C) In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

(D) Contaminants may be found in drinking water that may cause taste, color, or odor problems. These types of problems are not necessarily causes for health concerns. For more information on taste, odor, or color of drinking water, please contact the system's business office.

(E) Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

(2) The report must include the telephone number of the owner, operator, or designee of the community water system as an additional source of information concerning the report.

(3) Each English language report must include the following statement in a prominent place on the first page: "Este reporte incluye informacion importante sobre el agua para tomar. Para asistencia en español, favor de llamar al telefono (XXX) XXX-XXXX." In addition to this statement in Spanish, for communities with a large proportion of limited English proficiency residents, as determined by the executive director, the report must contain information in the appropriate language(s) regarding

the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

(4) The report must include information about opportunities for public participation in decisions that may affect the quality of the water (e.g., time and place of regularly scheduled board meetings). Investor-owned utilities are encouraged to conduct public meetings, but must include a phone number for public input.

(5) The systems may include such additional information for public education consistent with, and not detracting from, the purposes of the report.

(6) Systems that use an interconnect or emergency source to augment the drinking water supply during the calendar year of the report must provide the source of the water, the length of time used, an explanation of why it was used, and whom to call for the water quality information.

(7) Beginning December 1, 2009, any groundwater system that receives notice from a laboratory of a fecal indicator-positive groundwater source sample that is not invalidated by the executive director under §290.109(d) of this title (relating to Microbial Contaminants) must inform its customers of any fecal indicator-positive

groundwater source sample in the next report. The system must continue to inform the public annually until the executive director determines that the fecal contamination in the groundwater source is addressed under §290.116(a) of this title (relating to Groundwater Corrective Actions and Treatment Techniques). Each report must include the following elements:

(A) the source of the fecal contamination (if the source is known) and the dates of the fecal indicator-positive groundwater source samples;

(B) actions taken to address the fecal contamination in the groundwater source as directed by §290.116 of this title and the date of such action;

(C) for each fecal contamination in the groundwater source that has not been addressed under §290.116 of this title, the plan approved by the executive director and schedule for correction, including interim measures, progress to date, and any interim measures completed; and

(D) for a fecal indicator-positive groundwater source sample that is not invalidated by the executive director under §290.109(d) of this title, the potential health effects using the health effects language of §290.275(3) of this title.

(8) Beginning December 1, 2009, any groundwater system that receives notice from the executive director of a significant deficiency must inform its customers of any significant deficiency that is uncorrected at the time of the next report. The system must continue to inform the public annually until the executive director determines that particular significant deficiency is corrected under §290.116 of this title. Each report must include the following elements:

(A) the nature of the particular significant deficiency and the date the significant deficiency was identified by the executive director;

(B) for each significant deficiency, the plan approved by the executive director and schedule for correction, including interim measures, progress to date, and any interim measures completed; and

(C) if corrected before the next report, the nature of the significant deficiency, how the deficiency was corrected, and the date of the corrections.

(9) Every report must include the following lead-specific information - a short informational statement about lead in drinking water and its effect on children.

(A) The statement must include the information set forth in this

example statement. "If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. NAME OF UTILITY is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead."

(B) A system may write its own educational statement, but only in consultation with the executive director.