

The Texas Commission on Environmental Quality (TCEQ or commission) adopts amendments to §§290.104, 290.106 - 290.108, 290.111, and 290.121. The commission also adopts the repeal of §290.115. Sections 290.106 and 290.108 are adopted *with changes* to the proposed text as published in the August 13, 2004 issue of the *Texas Register* (29 TexReg 7876). Sections 290.104, 290.107, 290.111, and 290.121 and the repeal of §290.115 are adopted *without changes* and will not be republished.

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE ADOPTED RULES

The primary purposes of the adopted amendments are to incorporate federal standards under Title 40 Code of Federal Regulations (CFR) Parts 141 and 142 for elevated levels of radionuclides and arsenic in drinking water and to address revisions to compliance and monitoring requirements, as promulgated by the United States Environmental Protection Agency (EPA) in the December 7, 2000, January 22, 2001, and March 25, 2003 issues of the *Federal Register* (65 FR 76708, 66 FR 6976, and 68 FR 14501).

The adopted amendments include a maximum contaminant level (MCL) for uranium, which is not currently regulated under state law, and revisions to the monitoring requirements for combined radium-226 and radium-228, gross alpha particle radioactivity, and beta particle and photon radioactivity. The adopted amendments also include a revised MCL for arsenic and revisions to compliance and new source monitoring requirements.

The federal Safe Drinking Water Act, §1413 establishes requirements that states must meet to maintain primary enforcement responsibility (i.e., primacy) for their public water systems, including adopting drinking water rules that are no less stringent than the corresponding federal regulations. This rulemaking is necessary in order to obtain federal approval to administer the arsenic and radionuclide drinking water standards and related compliance and monitoring requirements. Expiration of the extended rules adoption deadline granted by the EPA is December 7, 2004 for the regulations concerning radionuclides and January 21, 2005 for the regulations concerning arsenic and revisions to compliance and new source contaminants monitoring requirements.

One of the implementation issues with the adopted amendments involves the National Primary Drinking Water Regulations under 40 CFR §141.100, which covers criteria and procedures for public water systems using point-of-entry devices. The federal regulation sets limits on the use of point-of-entry devices. First, public water systems may use point-of-entry devices to comply with MCLs only if they meet the requirements of the aforementioned federal regulation. Second, it is the responsibility of the public water system to operate and maintain the point-of-entry treatment system. Third, the public water system must develop and obtain state approval for a monitoring plan before it may install point-of-entry devices for compliance. Under the plan approved by the state, point-of-entry devices must provide health protection equivalent to central water treatment. "Equivalent" means that the water would meet all National Primary Drinking Water Regulations and would be of acceptable quality similar to water distributed by a well-operated central treatment plant. Fourth, public water systems must apply effective technology under a plan approved by the state and maintain the microbiological safety of the water. In this regard, the state must require adequate certification of performance, field

testing, and, if not included in the certification process, a rigorous engineering design review of the point-of-entry devices. The state must also require that the design and application of the point-of-entry devices must consider the tendency for increase in heterotrophic bacteria concentrations in water treated with activated carbon. It may be necessary for public water systems to use frequent backwashing, post-contactor disinfection, and heterotrophic plate count monitoring to ensure that the microbiological safety of the water is not compromised. Finally, the public water system shall protect all consumers in its system. In other words, every building connected to the system must have a point-of-entry device installed, maintained, and adequately monitored.

Utilization of point-of-use devices is covered specifically in the National Primary Drinking Water Regulations in the promulgation of the radionuclide rule and the arsenic rule. Two types of point-of-use devices have been identified under 40 CFR §141.66(h) as acceptable as small systems compliance technologies for radionuclides (i.e., point-of-use ion exchange and point-of-use reverse osmosis). Two types of point-of-use devices have been identified under 40 CFR §141.62(d) as acceptable as small system compliance technologies for arsenic (i.e., point-of-use activated alumina and point-of-use reverse osmosis). The federal regulations require public water systems using point-of-use devices for compliance to provide programs for long-term operation, maintenance, and monitoring to ensure proper performance.

These adopted commission rules do not explicitly address point-of-use or point-of-entry as alternatives to centralized provision of compliant water. Point-of-use and point-of-entry are considered one type of best available treatment technology in the National Primary Drinking Water Regulations for certain

public water systems. The commission recognizes these treatment technologies and has included the reference to best available technology in the rules.

In the past, the agency addressed affordability issues with water systems through an enforcement tool called bilateral compliance agreements. Through these compliance agreements, water systems agreed to provide feasibility studies that addressed the provision of compliant water for the entire water system. In many instances, these feasibility studies demonstrated that centralized provision of water, which met the standards, was not economically feasible. When this occurred, public water systems were able to propose analysis of point-of-use or point-of-entry technologies. The agency then analyzed, on a case-by-case basis, the validity of the technology and costs of these alternatives.

Due to the high costs of compliance associated with the adoption of the national primary drinking water standards for arsenic, radionuclides, and uranium that are the subject of this rulemaking, the commission is changing its policies with regard to the use of the bilateral compliance agreements. With the adoption of these standards, the commission recognizes that some water systems, particularly small water systems, need maximum flexibility in order to comply with the federal drinking water regulations for arsenic, radionuclides, and uranium. Accordingly, the commission is approving the use of point-of-use and point-of-entry technologies as a means of compliance for small water systems with arsenic, radionuclides, and uranium federal drinking water standards. In order to utilize these technologies, small systems may obtain approval by the commission and develop programs for the devices' long-term operation, maintenance, and monitoring by the water utility. Bottled water may also be used with approval by the commission on a temporary basis only to avoid unreasonable risk to health.

The previous radionuclides draft rulemaking was remanded on July 23, 2003 to the executive director by the commission for a year. That rulemaking has been merged with the arsenic rules in this rulemaking.

As discussed in more detail later in the SECTION BY SECTION DISCUSSION of this preamble, the following is a brief summary of the amendments being adopted. The adoption specifies an arsenic MCL of 0.010 milligrams per liter (mg/L), and sets forth requirements for water systems to treat the source water to meet the arsenic standard or provide an alternate source of water that meets the standard. This adoption contains revisions concerning monitoring and demonstration of compliance for new systems or sources of drinking water. There are also revisions concerning monitoring requirements and subsequent compliance determinations after initial exceedances for inorganic, volatile organic, and synthetic organic contaminants.

With regard to radionuclides, this adoption specifies a new MCL for uranium of 30 micrograms per liter, and sets requirements for water systems to treat the source water to meet the uranium standard or provide an alternate source of water that meets the standard. This adoption contains revisions concerning the monitoring requirements for combined radium-226 and radium-228, gross alpha particle radioactivity, and beta particle and photon radioactivity.

Finally, throughout the sections, certain administrative changes are adopted regarding the organization and wording of the rules to make the rules more understandable and to be consistent with *Texas Register* requirements and other agency rules.

SECTION BY SECTION DISCUSSION

The adoption amends §290.104(b), Figure: 30 TAC §290.104(b), to incorporate the new MCL for arsenic of 0.010 mg/L contained in 40 CFR §141.62, add the date that the currently existing MCL will be eliminated, and add the date that the new MCL will become effective. The date for this transition is January 23, 2006, as specified in 40 CFR §141.6(j). This change is also adopted under §290.106(b), Figure: 30 TAC §290.106(b). Under §290.104(c)(1), the adoption corrects “(mg/l)” by changing it to “(mg/L).” This correction is also adopted under §290.107(b)(1). Under §290.104(d), the adoption replaces the word “radiological” with the word “radionuclides” for consistency with the federal regulations. Under §290.104(f), the adoption adds the phrase “Residual Disinfectant Concentrations” that was inadvertently omitted in a previous adoption.

The adoption amends §290.106(a) to indicate the aforementioned transition date for the arsenic MCL by adding a new paragraph (4) that states, “Public water systems shall comply with the 0.05 mg/L MCL for arsenic until January 23, 2006 and comply with the 0.010 mg/L MCL for arsenic starting January 23, 2006.” The adoption amends §290.106(c)(1) by adding the word “routine” because this paragraph relates to routine monitoring locations. The adoption splits the previously existing sentence under paragraph (1) into its correct component parts: the paragraph title and the initial sentence describing to which inorganic chemicals the paragraph applies, specifically all inorganic chemicals except for asbestos.

The adoption amends §290.106(c)(1) by adding subparagraph (D) to specify that public water systems must perform initial monitoring at a location that will allow them to establish whether a proposed new

source of water meets the MCL, as implicit in 40 CFR §141.23(c)(9). The commission has changed the word "shall" to "must" in §290.106(c)(1)(D), from proposal, to conform to the drafting rules in the *Texas Legislative Council Drafting Manual*, October 2002. The adoption adds §290.106(c)(3) to contain the initial monitoring frequency requirements for inorganic chemicals contained in 40 CFR §141.23(c)(9).

The adoption renumbers previously existing §290.106(c)(3) as §290.106(c)(4) to allow insertion of new paragraph (3). The adoption renumbers previously existing §290.106(c)(3)(A) as §290.106(c)(4)(A) and adds the catchline "Routine monitoring frequency" to identify its applicability, with no change in stringency. The adoption renumbers previously existing §290.106(c)(3)(A)(i) as §290.106(c)(4)(A)(i) and specifies that routine inorganic samples must be collected at entry points, not at water sources. The previously existing language implies that each and every well or groundwater source has a unique entry point, which is not the case. The adoption renumbers previously existing §290.106(c)(3)(A)(ii) as §290.106(c)(4)(A)(ii) and specifies that inorganic samples must be collected at entry points, not at water sources. The previously existing language implies that each and every surface water source has a unique entry point, which is not the case. The adoption renumbers previously existing §290.106(c)(3)(A)(iii), relating to the definition of a round of sampling, as §290.106(c)(4)(A)(iii). Additionally, the adoption rewords this clause to specify that sampling occurs at entry points.

The adoption renumbers previously existing §290.106(c)(3)(B) as §290.106(c)(4)(B) and adds the catchline "Reduced monitoring." The adoption renumbers previously existing §290.106(c)(3)(B)(ii) as

§290.106(c)(4)(B)(ii). Additionally, the sentence relating to sampling occurring since 1990 is removed since all systems that were in existence in 1990 have now been monitored.

The adoption renumbers previously existing §290.106(c)(3)(C) as §290.106(c)(4)(C) and adds the catchline “Increased monitoring.” The reference to systems that exceed an MCL is removed from this subparagraph, because monitoring occurs at specific sample sites, rather than in general for a system. In other words, a system may operate many entry points to the distribution system, but only those that exceed the MCL may be required to have increased monitoring, or increased monitoring may be required by rule at entry points that do not exceed the MCL. The adoption renumbers previously existing §290.106(c)(3)(C)(i) as §290.106(c)(4)(C)(i). Additionally, the term “violation” is replaced with the word “exceedance” since “violation” is a defined term and cannot be used to describe an otherwise undefined single sample exceedance of an MCL. Also, the adoption rewords this clause to make it clear that sampling occurs at a specific sample site, not system. The “system” is an entity with no physical location; the sample site is an actual geographic location. The adoption renumbers previously existing §290.106(c)(3)(C)(ii) as §290.106(c)(4)(C)(ii) and rewords it to specify that the sampling occurs at specific sampling sites.

The adoption renumbers previously existing §290.106(c)(4) and (5) as §290.106(c)(5) and (6). The adoption renumbers previously existing §290.106(c)(5)(A) as §290.106(c)(6)(A) and adds a catchline specifying that this paragraph relates to routine nitrate monitoring. The adoption adds the word “at” clarifying the sampling location for entry point monitoring in §290.106(c)(6)(A)(i). The adoption states that routine quarterly nitrate sampling occurs at each entry point to the distribution system that carries

treated surface water in §290.106(c)(6)(A)(ii). The adoption states that routine annual nitrate sampling occurs at each entry point to the distribution system that carries only treated groundwater in §290.106(c)(6)(A)(iii). The adoption adds a catchline specifying that this paragraph relates to reduced monitoring frequency in §290.106(c)(6)(B).

The adoption deletes §290.106(c)(6)(B)(iv) because the requirement that entry points with sample results showing levels of nitrate greater than one-half the MCL must be sampled quarterly is contained in §290.106(c)(6)(C). The adoption adds a catchline specifying that this subparagraph relates to increased nitrate monitoring frequency in §290.106(c)(6)(C). The adoption renumbers previously existing §290.106(c)(6) as §290.106(c)(7). The adoption renumbers previously existing §290.106(c)(7) as §290.106(c)(8) and rewords the catchline to make it clear that the provisions in this paragraph relating to confirmation sampling are applicable to all of the inorganic contaminants covered by this section. The adoption replaces the word “shall” with the words “may be required to,” as it relates to entry point confirmation sampling in §290.106(c)(8)(A). This will lessen the stringency of the requirement that any entry point sample result that exceeds an MCL be followed with a confirmation sample, and is consistent with the requirements of 40 CFR §141.23(f)(1). The adoption also adds the following phrase under §290.106(c)(8)(A) for clarity: “If an additional sample is required:”. The commission renumbers previously existing §290.106(c)(8) as §290.106(c)(9) and updates the internal references to paragraphs of this subsection to take into account renumbering of the preceding paragraphs.

The adoption amends §290.106(f)(3) to use the language of 40 CFR §141.23(i)(1), which makes it clear that a public water system's compliance with the MCLs must be determined based on results from each individual entry point that the system operates.

The adoption amends §290.106(f)(4) to specifically reference the method detection limits adopted in 40 CFR §141.23(a)(4) for inorganic contaminants. This change makes it clear that the method detection limits below which a result may be considered zero are not the laboratory-specific reporting limits, but instead are these federally determined regulatory values.

In response to comment, the adoption adds §290.106(f)(6) to contain the federal requirement of 40 CFR §141.23(i)(1) and (2) that compliance determination be based on the samples results that are available, whether that number is greater or less than the minimum number of required samples.

In response to comment, the adoption adds §290.106(f)(7) to contain the federal requirement of 40 CFR §141.23(i)(2) that arsenic analytical results be reported to the nearest 0.001 mg/L.

In response to comment, the adoption also adds §290.106(i) to adopt by reference the federally approved small system compliance technologies for arsenic contained in 40 CFR §141.62(d).

The commission also adopts new §290.106(j) to provide for the use of bottled water on a temporary basis only and with approval of the commission pursuant to 40 CFR §141.101.

The adoption amends §290.107, concerning monitoring requirements for organic contaminants, to reorganize it to specify the sites from which samples may be collected and to clarify routine, reduced, and increased monitoring frequencies. These changes are intended to be made with no resultant change in the stringency of the section.

The adoption amends §290.107(c) to delete the reference to periods of normal operations that occur when all sources of water are being used at a given entry point to the distribution system. Although this is the exact language of the federal rule, the commission considers it to be impracticable because normal operating conditions change during the year, including the sources of water that are used. In this regard, for example, the commission notes that certain wells may only be used in the summer during periods of high water usage.

The adoption reorganizes the previously existing elements of §290.107(c)(1)(A) to avoid redundancy. The adoption amends §290.107(c)(1)(A)(i) to revise it to clearly state that routine samples shall be collected at entry points to the distribution system. Section 290.107(c)(1)(A)(ii) is revised to replace redundant requirements with the previously existing language of §290.107(c)(1)(A) requiring that subsequent sampling occur at the same sampling point. The adoption amends §290.107(c)(1)(A)(iii) to add the previously existing language of §290.107(c)(1)(A) requiring that the executive director approve any change in sampling point.

The adoption adds §290.107(c)(1)(B) to specify the initial monitoring frequency requirements for new sources of drinking water, as contained in 40 CFR §141.24(h)(20). The adoption renumbers previously

existing §290.107(c)(1)(B) as §290.107(c)(1)(C) and rewords the catchline to make it clear that this subparagraph relates to routine sampling frequency for synthetic organic chemicals. The adoption renumbers previously existing §290.107(c)(1)(B)(ii) as §290.107(c)(1)(C)(ii). Additionally, the adoption makes it clear that a change in sampling frequency applies only to a given sampling point, not to all sampling points operated by a public water system in §290.107(c)(1)(C)(ii). The adoption renumbers previously existing §290.107(c)(1)(B)(iii) as §290.107(c)(1)(C)(iii) and makes it clear that a change in sampling frequency applies only to a given sampling point, not to all sampling points operated by a public water system.

The adoption renumbers previously existing §290.107(c)(1)(C) as §290.107(c)(1)(D). The adoption renumbers previously existing §290.107(c)(1)(C)(i) as §290.107(c)(1)(D)(i) and amends it to make it clear that increased monitoring applies to specific entry points, not a system in general, and that increased monitoring is initiated when results for a specific entry point exceed the MCL, a condition that is not necessarily synonymous with a violation. Additionally, the apostrophe is removed from “MCL’s” since the final “s” in this context is meant to denote the plural, not ownership, and the word “monitor” is replaced by “be monitored” for grammatical consistency. The adoption renumbers previously existing §290.107(c)(1)(C)(ii) as §290.107(c)(1)(D)(ii) and makes it clear that sampling is based on the type of water that exists at a given entry point, rather than the water type used by the system as a whole, and that sampling occurs at specific entry points. The adoption renumbers previously existing §290.107(c)(1)(C)(ii)(I) as §290.107(c)(1)(D)(ii)(I). The adoption renumbers previously existing §290.107(c)(1)(C)(ii)(II) as §290.107(c)(1)(D)(ii)(II) and clarifies the sampling frequency modification requirements that are applicable to specific groundwater entry point sampling

sites. The adoption renumbers previously existing §290.107(c)(1)(C)(ii)(III) as §290.107(c)(1)(D)(ii)(III) and clarifies the sampling frequency modification requirements that are applicable to entry point sampling sites that carry surface water or groundwater under the direct influence of surface water. The adoption renumbers previously existing §290.107(c)(1)(C)(ii)(IV) as §290.107(c)(1)(D)(ii)(IV) and amends it to make it clear that the determination of whether sample results are reliably and consistently below the MCL shall be made at each individual sampling site, and for grammatical consistency. The adoption renumbers previously existing §290.107(c)(1)(C)(ii)(V) as §290.107(c)(1)(D)(ii)(V). The adoption amends this subclause to make it clear that monitoring waivers apply to specific entry point sampling sites, rather than to the public water system as a whole. The adoption renumbers previously existing §290.107(c)(1)(C)(ii)(VI), (iii), and (iv) as §290.107(c)(1)(D)(ii)(VI), (iii), and (iv).

The adoption renumbers previously existing §290.107(c)(1)(D) as §290.107(c)(1)(E) and updates references to subparagraphs (B) and (C) of this paragraph. The adoption renumbers previously existing §290.107(c)(1)(E) as §290.107(c)(1)(F). The adoption renumbers previously existing §290.107(c)(1)(E)(i) as §290.107(c)(1)(F)(i) and rewrites the sentence to simplify the grammar. The adoption renumbers previously existing §290.107(c)(1)(E)(ii) as §290.107(c)(1)(F)(ii). The adoption renumbers previously existing §290.107(c)(1)(E)(iii) as §290.107(c)(1)(F)(iii) and replaces the incorrect word “Composting” with the correct term “Compositing.”

The adoption deletes previously existing §290.107(c)(1)(F), and moves the requirements related to initial monitoring for synthetic organic contaminants to subparagraph (B) of this paragraph.

The adoption reorganizes the elements of §290.107(c)(2)(A)(i) to clarify the routine sampling requirements for volatile organic chemicals. The adoption rewords §290.107(c)(2)(A)(i) to establish that samples must be collected at entry points to the distribution system. The adoption amends §290.107(c)(2)(A)(ii) to contain the requirement for subsequent sampling contained in previously existing §290.107(c)(2)(A)(i) and (ii). The adoption adds §290.107(c)(2)(A)(iii) to contain the requirement for executive director approval of sampling site changes contained in previously existing §290.107(c)(2)(A)(i) and (ii).

The adoption adds §290.107(c)(2)(B) to contain the initial monitoring requirements for new sources of drinking water of 40 CFR §141.24(f)(22). The adoption renumbers previously existing §290.107(c)(2)(B) as §290.107(c)(2)(C) and rewords the catchline to make it clear that this subparagraph relates to routine sampling frequency.

The adoption renumbers previously existing §290.107(c)(2)(B)(i) - (v) as §290.107(c)(2)(C)(i) - (v). The adoption updates a rule reference; adds the word “noncommunity” so that the rule correctly reads “nontransient, noncommunity”; and makes a typographical correction by replacing the word “triannual” with the word “triennial” in §290.107(c)(2)(C)(iv). The adoption renumbers previously existing §290.107(c)(2)(C) as §290.107(c)(2)(D). The adoption renumbers previously existing §290.107(c)(2)(C)(i) as §290.107(c)(2)(D)(i) and establishes that sampling shall be performed at entry point, and that increased sampling will be based on results exceeding the MCL rather than results violating the MCL, conditions that are not synonymous. The adoption renumbers previously existing §290.107(c)(2)(C)(ii), (iii), and (iii)(I) as §290.107(c)(2)(D)(ii), (iii), and (iii)(I). The adoption

renumbers previously existing §290.107(c)(2)(C)(iii)(II) as §290.107(c)(2)(D)(iii)(II) and updates a rule reference. The adoption renumbers previously existing §290.107(c)(2)(C)(iii)(III) as §290.107(c)(2)(D)(iii)(III). The adoption renumbers previously existing §290.107(c)(2)(C)(iii)(IV) as §290.107(c)(2)(D)(iii)(IV) and updates a reference. The adoption renumbers previously existing §290.107(c)(2)(C)(iii)(V) and (iv) as §290.107(c)(2)(D)(iii)(V) and (iv).

The adoption renumbers previously existing §290.107(c)(1)(D) as §290.107(c)(2)(E). Previously existing §290.107(c)(2)(D)(i) - (vii) is renumbered as §290.107(c)(2)(E)(i) - (vii). The adoption renumbers previously existing §290.107(c)(2)(E) as §290.107(c)(2)(F). Previously existing §290.107(c)(2)(E)(i) - (iv) is renumbered as §290.107(c)(2)(F)(i) - (iv).

The adoption amends §290.107(f) to conform with 40 CFR §141.25(f) in order to adopt the plainer language relating to compliance determination as promulgated in the federal arsenic regulation. The adoption amends §290.107(f)(1) to contain the provisions of 40 CFR §141.24(f)(15) and (h)(11) concerning MCL violations. The adoption adds §290.107(f)(1)(A) - (E) to contain the provisions of 40 CFR §141.24(f)(15) and (h)(11), concerning compliance with the MCL and detection limits. The adoption deletes previously existing §290.107(f)(2), because the federal requirements contained in §290.107(f)(1) supercede these previously existing requirements.

The adoption renumbers previously existing §290.107(f)(3) as §290.107(f)(2). The adoption amends §290.107(h) to add the appropriate mail code for the Water Supply Division.

The adoption amends §290.108 to incorporate requirements of the federal radionuclides regulation and to correct minor typographical requirements. The adoption amends §290.108(a) to incorporate the federal requirements contained in 40 CFR §141.66(f), related to the compliance dates for entry point sampling and the new MCL for uranium. Also under §290.108(a), (b), and (d), the adoption replaces the word “radiological” with the word “radionuclide” for consistency with the federal regulations. In response to comment, the adoption amends §290.108(a)(1)(A) to clarify that the quantity “combined radium-226 and radium-228” is defined as the sum of the analytical results for the two chemicals, consistent with 40 CFR §141.66(b).

The adoption amends §290.108(b)(1) by replacing the reference to the existing regulated radionuclides with a reference to naturally occurring radionuclides. The specific regulated radionuclide MCLs are then set out individually in the subordinate subparagraphs. The adoption amends §290.108(b)(1)(A) and (B) for grammatical consistency, replacing “pCi/l” with “pCi/L.” The adoption adds §290.108(b)(1)(C) to contain the new MCL for uranium consistent with 40 CFR §141.66(e).

The adoption amends §290.108(b)(2) in order to adopt by reference the MCLs for beta particle and photon radioactivity from man-made radionuclides in drinking water contained in 40 CFR §141.66(d). Therefore, the adoption deletes previously existing §290.108(b)(2)(A) and (B), and Table A (Figure: 30 TAC §290.108(b)(2)(B)). Adoption by reference is a streamlining measure and no public water systems in Texas are affected by these provisions.

The adoption amends §290.108(c) to change the word “radiochemicals” to “radionuclides” for consistency with the federal regulations. The adoption amends the monitoring requirements of §290.108(c)(1) to address the monitoring requirements of 40 CFR §141.26(a) and to better organize the monitoring frequency requirements. The word “combined” in the first sentence is added before “radium-226 and radium-228” for consistency, and the phrase “and uranium” is added to adopt the new MCL. The adoption deletes the remaining previously existing language and replaces it with the updated requirements of the federal radionuclides regulation.

The adoption amends §290.108(c)(1)(A) to incorporate the initial monitoring requirements of 40 CFR §141.26(a)(1)(ii). The adoption adds §290.108(c)(1)(A)(i) to contain the initial monitoring frequency of 40 CFR §141.26(a)(2)(iv) for results that exceed the MCL. The adoption adds §290.108(c)(1)(A)(ii) to contain the initial monitoring frequency of 40 CFR §141.26(a)(2) for results that do not exceed the MCL. In response to comment, the adoption adds §290.108(c)(1)(A)(iii) to contain the requirements for use of historical data to meet initial monitoring requirements, consistent with 40 CFR §141.26(a)(2)(ii)(A) - (C).

The adoption amends §290.108(c)(1)(B) to incorporate the routine monitoring requirements in 40 CFR §141.26(a)(3). The adoption adds §290.108(c)(1)(B)(i) to implement the monitoring frequencies stipulated in 40 CFR §141.26(a)(3)(i) and (iv). The adoption adds Table A (Figure: 30 TAC §290.108(c)(1)(B)(i)) to contain the minimum detection levels for the applicable chemicals as contained in 40 CFR §141.25(c)(1), Table B. In response to comments, the uranium minimum detection level contained in this table is amended to replace the term “reserved” with the uranium minimum detection

level, as federally adopted in 40 CFR §141.25(c)(1). The adoption adds §290.108(c)(1)(B)(ii) to implement the monitoring frequencies stipulated in 40 CFR §141.26(a)(3)(ii) and (iv), adds §290.108(c)(1)(B)(iii) to implement the monitoring frequencies stipulated in 40 CFR §141.26(a)(3)(iii) and (iv), and adds §290.108(c)(1)(B)(iv) to implement the monitoring frequencies stipulated in 40 CFR §141.26(a)(3)(v).

The adoption amends §290.108(c)(1)(C) to incorporate the increased monitoring requirements of 40 CFR §141.26(a) and (c). The adoption adds §290.108(c)(1)(C)(i) to incorporate the monitoring frequencies for a system with any sample results exceeding one of the MCLs stipulated in 40 CFR §141.66(b), (c), and (e). In response to comments, the adoption adds the term “consecutive” in the language of §290.108(c)(1)(C)(i) to clarify that reduced monitoring is based on the results of four consecutive quarterly sampling events, rather than four non-consecutive quarters of monitoring. The adoption adds §290.108(c)(1)(C)(ii) to incorporate the return to routine monitoring frequencies stipulated in 40 CFR §141.26(a)(3)(iv). The adoption adds §290.108(c)(1)(C)(iii) to incorporate the compositing requirements of 40 CFR §141.26(a)(4); adds §290.108(c)(1)(C)(iv) to address the use of composite sample results in determining monitoring frequencies, as stipulated in 40 CFR §141.26(a)(4); adds §290.108(c)(1)(C)(v) to contain the previously existing language of §290.108(c)(1)(A); and adds §290.108(c)(1)(C)(vi) to contain the previously existing language of §290.108(c)(1)(E). In response to comments, the adoption amends §290.108(c)(1)(C)(vi) to remove the reference to increased sampling for systems with radium-226 concentrations greater than 3 pCi/L, and thereby incorporates more exactly the federal requirements of 40 CFR §141.26(a)(1)(i).

The adoption amends §290.108(c)(1)(D) to incorporate the monitoring requirements related to the use of historical data of 40 CFR §141.26(a)(2). The adoption adds §290.108(c)(1)(D)(i) to contain the requirements of 40 CFR §141.26(a)(2)(ii)(A), adds §290.108(c)(1)(D)(ii) to contain the requirements of 40 CFR §141.26(a)(2)(ii)(B), and adds §290.108(c)(1)(D)(iii) to contain the requirements of 40 CFR §141.26(a)(2)(ii)(C).

The adoption amends §290.108(c)(1)(E) to incorporate the provision of 40 CFR §141.26(c)(4) allowing the state to invalidate the results of obvious sampling or analytical errors, adds §290.108(c)(1)(F) to incorporate the provision of 40 CFR §141.26(c)(1) establishing that the state may require confirmation samples, and adds §290.108(c)(1)(G) to incorporate the provision of 40 CFR §141.26(c)(2) establishing that the state shall designate the sampling schedule.

The adoption amends §290.108(c)(2) by adopting by reference the monitoring requirements for beta particle and photon radioactivity from man-made radionuclides in drinking water contained in 40 CFR §141.66(d). Adoption by reference is a streamlining measure and is used because no public water systems in Texas are currently impacted by these provisions.

The adoption amends §290.108(c)(3) to contain the requirements for sampling locations and to require that sampling sites be included in a system's monitoring plan, as required by 40 CFR §141.132(f). The adoption adds §290.108(c)(3)(A) to specify initial monitoring locations consistent with 40 CFR §141.26(a)(1)(ii) and adds §290.108(c)(3)(B) to specify routine monitoring locations consistent with 40

CFR §141.26(a)(1)(i). The adoption amends §290.108(e) to correct an internal reference and to update the name of the commission.

Also, the commission has changed the word "shall" to "must" in §290.108(c)(1)(C)(v) and (3)(A) and (B), from proposal, to conform to the drafting rules in the *Texas Legislative Council Drafting Manual*, October 2002.

The adoption amends §290.108(f) to add elements of the federal radionuclide regulation, to reorganize the subsection for clarity, and to correct grammatical and typographical errors. The adoption amends §290.108(f)(1) to use consistent language when referring to combined radium-226 and radium-228. In response to comment, the adoption amends §290.108(f)(1) to change the term "average annual" level of a constituent to the term "running average annual" level to accurately adopt the requirements of 40 CFR §141.26(c)(3)(i). The adoption amends §290.108(f)(1)(A) and (B) to replace "pCi/l" with "pCi/L." In response to comment, the adoption amends §290.108(f)(1)(B) to incorporate the federal requirement of 40 CFR §141.26(a)(5) that radium-228, in addition to radium-226, must be analyzed whenever the analytical result for gross alpha particle activity does not exceed 5 pCi/L. The adoption adds §290.108(f)(1)(C) to contain the direction for use of results less than the minimum detection limit as specified by 40 CFR §141.26(c)(3)(v), adds §290.108(f)(1)(D) to specify that all sample results will be used in calculating compliance, as contained in 40 CFR §141.26(c)(3)(iii), and adds §290.108(f)(1)(E) to specify that all sample results will be used in calculating compliance, even if the system fails to complete required increased monitoring, as contained in 40 CFR §141.26(c)(3)(iv). The adoption adds §290.108(f)(1)(F) to specify that if a system violates the MCL at one sample site, the

system is out of compliance, as contained in 40 CFR §141.26(c)(3). In response to comments, the adoption adds §290.108(f)(1)(G) to add the requirement of 40 CFR §141.26(c)(1) that confirmation sample results be averaged with initial sample results when determining compliance. In response to comments, the adoption adds §290.108(f)(1)(H) to contain the requirement of 40 CFR §141.25(d) that analytical results be rounded to the same number of significant figures when determining compliance.

The adoption amends §290.108(f)(2) for consistency with the federal regulations by replacing the word “radioactivity” with the word “radionuclides” and by deleting the reference to monitoring frequency for man-made radionuclides. The adoption amends §290.108(g)(1) for consistent use of the term “combined radium-226 and radium-228” and to add the reference to uranium. The adoption also amends §290.108(g)(2) for consistency with the federal regulations by replacing the word “radioactivity” with the word “radionuclides.”

In response to comment, the amendment adds §290.108(h) to adopt by reference the federal best available treatment technologies contained in 40 CFR §141.66(g). The commission also adds §290.108(i) to adopt by reference the federally approved small system compliance technologies for radionuclides contained in 40 CFR §141.66(h). The commission also adopts new §290.108(j) for the use of bottled water on a temporary basis only and with approval of the commission pursuant to 40 CFR §141.101.

The adoption amends §290.111(c)(4)(C) to correct an error introduced in the previous adoption of amendments to Chapter 290, which was published in the February 13, 2004 issue of the *Texas Register*

(29 TexReg 1373). The section erroneously referenced combined filter effluent monitoring requirements instead of the individual filter effluent monitoring requirements that were in the version of the rules (i.e., prior to February 2004) originally contained in §290.111(c)(4).

The adoption amends §290.111(g) to make corrections noted by EPA, Region 6 during review of the aforementioned rulemaking, which incorporated the Long Term Stage 1 Enhanced Surface Water Treatment Rule. The adoption amends §290.111(g)(1) to correctly reference the 24-hour time frame for notification when a turbidity exceedance occurs, as contained in 40 CFR §141.202(a)(6). The adoption adds §290.111(g)(2), (g)(2)(A), and (g)(2)(B) to correctly reference the notification provisions of 40 CFR §141.202 and §141.203. The adoption renumbers previously existing §290.111(g)(2) and (3) as §290.111(g)(3) and (4).

The adoption amends §290.121(b)(2)(A), concerning monitoring plans, to add the phrase “or less frequent.” This amendment addresses the allowance in the federal regulations that sampling frequency may be longer than one year in certain circumstances.

Finally, the adoption repeals §290.115 because this section is a transition rule for disinfection by-products that would be obsolete by the time this adoption becomes effective.

FINAL REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the rulemaking does not meet the definition of a “major environmental rule” as defined in that statute. A “major environmental rule” means a rule, the specific intent of which, is to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. The adopted amendments to Chapter 290 are intended to protect the environment or reduce risks to human health from exposure to arsenic and certain radionuclides emanating from naturally occurring radioactive material in excess of federal health standards in community drinking water systems and could materially affect certain systems. However, the amendments to Chapter 290 will not 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 because they will apply only to a limited number of water systems.

Furthermore, the rulemaking does not meet any of the four applicability requirements listed in Texas Government Code, §2001.0225(a). This section only applies to a major environmental rule, the result of which is to: 1) exceed a standard set by federal law, unless the rule is specifically required by state law; 2) exceed an express requirement of state law, unless the rule is specifically required by federal law; 3) exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; or 4) adopt a rule solely under the general powers of the agency instead of under a specific state law. This rulemaking

does not meet any of these four applicability requirements because this rulemaking: 1) does not exceed any standard set by federal law for acceptable exposure levels of arsenic or naturally occurring radioactive material in public drinking water systems and is consistent with federal rules; 2) does not exceed the requirements of state law under Texas Health and Safety Code, Chapter 341, Subchapter C; 3) does not exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement any state and federal program on arsenic or radionuclides in public drinking water systems, but rather is consistent with federal rules in order to allow the state to maintain its authority to implement the federal Safe Drinking Water Act; and 4) is not solely under the general powers of the agency, but rather specifically under Texas Health and Safety Code, §341.031, which allows the commission to adopt and enforce rules to implement the federal Safe Drinking Water Act, as well as the other general powers of the agency.

TAKINGS IMPACT ASSESSMENT

The commission evaluated the amendments and performed an assessment of whether they constitute a takings under Texas Government Code, Chapter 2007. The primary purposes of the amendments are to incorporate federal standards under 40 CFR, Parts 141 and 142 for elevated levels of radionuclides and arsenic in drinking water and to address revisions to compliance and monitoring requirements, as promulgated by EPA in the December 7, 2000, January 22, 2001, and March 25, 2003 issues of the *Federal Register* (65 FR 76708, 66 FR 6976, and 68 FR 14501).

The adopted amendments will substantially advance these stated purposes by adopting an MCL for uranium, which is not currently regulated under state law, and revisions to the monitoring requirements

for combined radium-226 and radium-228, gross alpha particle radioactivity, and beta and photon radioactivity. The amendments will also advance the stated purpose by adopting a revised MCL for arsenic and revisions to compliance and new source monitoring requirements.

Publication and enforcement of the adopted amendments will not affect private real property, which is the subject of the rules primarily because they amend and expand existing drinking water standards to authorize regulation of arsenic and radionuclides. The adopted amendments are not anticipated to affect private real property because they do not restrict or limit an owner's right to the property that would otherwise exist in the absence of this rulemaking. The rulemaking simply requires community water systems to comply with drinking water standards protective of human health and the environment. Furthermore, the rulemaking will make state standards for arsenic and radionuclides consistent with existing federal standards. Therefore, the adopted amendments do not constitute a takings under Texas Government Code, Chapter 2007.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed this rulemaking and found that the adoption is not a rulemaking subject to the Texas Coastal Management Program (CMP) because the rulemaking is neither identified in the Coastal Coordination Act Implementation rules, 31 TAC §505.11, nor will it affect any action or authorization identified in §505.11. Therefore, the rulemaking is not subject to the CMP. The purpose of the amendments is to bring community water systems into compliance with certain requirements concerning radionuclide and arsenic contaminants. The rulemaking does not govern air pollutant emissions, on-site

sewage disposal systems, or underground storage tanks, which would make it subject to the CMP under §505.11(b)(2). The rulemaking also does not govern or authorize actions listed in §505.11(a)(6).

PUBLIC COMMENT

A public hearing on these rules was held on September 8, 2004, in Austin and the public comment period closed on September 13, 2004. Comments were received from: Brown McCarroll L.L.P. on behalf of the City of Andrews (Andrews); City of Eden (Eden); City of Melvin (Melvin); Brown McCarroll L.L.P. on behalf of the City of Seminole (Seminole); Bickerstaff, Heath, Smiley, Pollan, Keever & McDaniel, L.L.P. on behalf of the El Paso Water Utilities Public Service Board (EPWU); Hickory Underground Conservation District No. 1 (HUWCD); McPhee Environmental Supply, LLC (McPhee); Richland Special Utility District (Richland); Rochelle Water Supply Corporation (Rochelle); Texas Rural Water Association (TRWA); Texas Travel Industry Association (TTIA); and EPA. All commenters disagreed with, or had suggestions for, changes to portions of the proposed rules.

RESPONSE TO COMMENTS

Andrews, El Paso, and Seminole commented that TCEQ should adopt an allowance for exemptions as they are allowed under EPA rules.

The commission already has allowances for exemptions as codified in 30 TAC §290.102(b). It is the commission's commitment to be no less flexible than the exemption criteria described in EPA guidance and reflected in the settlement agreement between EPA and the Western Coalition of Arid States. This flexibility may take the form of an exemption or approval by the commission

for small systems to utilize point-of-use or point-of-entry technologies for the long-term or bottled water on a temporary basis.

El Paso commented that TCEQ should incorporate alternative monitoring approaches as described in EPA's *Implementation Guidance*.

The commission agrees that alternate monitoring can be crafted to better determine exposure to a contaminant. These approaches are not codified in federal regulations but are mentioned in the adoption preamble of the arsenic rule in the *Federal Register*. The commission contends that it should approach review of alternate monitoring proposals based on guidance and not rule, similar to EPA's approach. This strategy will allow site-specific reviews on a case-by-case basis. It is the commission's commitment to be no less flexible than the alternative monitoring approaches discussed in the EPA guidance document and to develop guidance for water systems in Texas that may want to take advantage of alternative monitoring schemes.

Andrews and Seminole requested that the TCEQ put off rulemaking for one year in order to accurately assess and present the overall total cost of compliance with the rule.

The commission does not agree to a delay of one year for rule adoption. The commission has completed numerous studies through its staff and through contracts to accurately assess overall costs concerned with the rules. In addition, the commission has used studies completed by the EPA to help judge the accuracy of these costs. To delay the adoption would prohibit the

commission from its responsibility to work with the water systems to assure viability of the water system. The arsenic MCL becomes effective on the federal level on January 23, 2006. The commission contends that adoption of these rules at this time places an agency of the State of Texas in the appropriate regulatory role and responsibility to the citizens of the State of Texas. To not adopt these rules would essentially abdicate the commission's responsibility to its citizens and leave the water suppliers and the citizens subject to direct implementation of these rules by the federal government.

McPhee provided literature to the commission on products for arsenic removal.

The commission acknowledges receipt of the literature.

Rochelle commented that TCEQ has not worked cooperatively in the past with small rural water suppliers and that an additional \$1,200 per month would be an acceptable cost to achieve compliance.

The commission has worked with water systems to the extent practical through the use of compliance agreements to give water systems time to develop an affordable compliance option. One thousand two-hundred dollars per month is clearly an unaffordable water bill for a household.

Andrews, Eden, HUWCD, Richland, Seminole, and TRWA requested that any rulemaking that becomes final should include provisions for the use of point-of-use, point-of-entry, and bottled water as compliance methods.

The commission rules already reference federal regulations that list certain point-of-use and point-of-entry methods as best available treatment. This adoption by reference is found in §290.106(h) for inorganic chemicals including arsenic. This reference does not occur in the proposed revisions for radionuclide rules. The commission agrees to add this reference in §290.108(h). Limitations to the implementation are found in both the federal regulations and the federal Safe Drinking Water Act. Adoption of a state regulation that is contradictory to federal regulations and the federal Safe Drinking Water Act would not be acceptable to EPA and would render water systems in violation of the federal regulation and the federal Safe Drinking Water Act and subject to enforcement by EPA. In accordance with 40 CFR §141.101, bottled water may be used on a temporary basis to avoid an unreasonable risk to health. This option is provided to many water systems upon approval by the commission.

Andrews, Eden, HUWCD, Richland, Seminole, and TRWA requested that the rulemaking be remanded to the executive director to assess costs of compliance with this rule.

The commission contends that it has done an acceptable evaluation of the cost impacts to public water systems. The published cost impacts to water systems in Texas as an aggregate compare well to a national study of arsenic costs conducted by the American Water Works Association

Research Foundation on the national cost impacts. The commission has completed several internal studies and has incorporated cost estimates gathered through intensive studies by the EPA to assess overall costs concerned with the rules. The cost of compliance with the amendments to the existing radionuclide rules were analyzed through evaluations performed by commission contractors and treatment cost analysis by staff using EPA-developed cost curves. The treatment technologies were chosen on the basis of adequate disposal availability and those costs were included in the cost estimate. While the commission cannot know the exact cost of compliance to each individual water system, it contends that the aggregate range of costs for the water systems represent a fair approximation of the impact in these groups for the first five years that the rules are in effect.

Andrews, Eden, HUWCD, Richland, and Seminole commented that they were unable to locate the reference to 40 CFR §141.23(c)(9) and asked for that citation to be verified.

The citation is found in the CFR as cited as part of the National Primary Drinking Water Regulations.

Andrews, Eden, HUWCD, Richland, and Seminole asked that the phrase “entry point” be defined.

The phrase “entry point” is a short version of the phrase “entry point to the distribution system” that is defined in 30 TAC §290.103(a)(9).

Andrews, Eden, HUWCD, Richland, and Seminole asked for clarification of the statement in the preamble to the proposed rule: “In other words, a system may operate many entry points to the distribution system, but only those that exceed the MCL may be required to have increased monitoring, or increased monitoring may be required by rule at entry points that do not exceed the MCL.”

This statement clarifies that under the adopted rules, the executive director can impose increased monitoring at any entry point. This refers to two equivalent cites in the federal regulations, 40 CFR §141.23(g) for inorganic monitoring and §141.26(a)(1)(ii) for radionuclide monitoring, which give the state flexibility in requiring additional monitoring.

Eden, HUWCD, and Richland asked whether the water system may collect confirmation samples and commented that radionuclide results vary widely.

The commission responds that the water system may request that additional samples be collected to verify the level of a contaminant. However, compliance is based on an average of quarterly samples or composites in the case of radionuclides.

Andrews, Eden, HUWCD, Richland, and Seminole commented that some samples should be reasonably discarded.

The commission agrees that water samples that are truly not representative of the water for the time period allotted may need to be invalidated as found in §290.108(c)(1)(E) or reevaluated as to

the time period that the sample represents. However, all valid samples must be used in the compliance determination as required in the National Primary Drinking Water Regulations.

Andrews, Eden, HUWCD, Richland, and Seminole commented that an MCL violation at one sampling site that places the system out of compliance eliminates the possibility of blending to achieve compliance.

The commission disagrees with this interpretation. The violation calculation would be based on all valid samples that would be collected from the blended water entering the drinking water distribution system. A violation would occur only if the average blended water concentration was greater than the MCL. Additionally, this language is exactly consistent with the language of the federal rule contained in CFR §141.26(a)(1)(i) and (ii).

Eden, HUWCD, and Richland commented that the fiscal impact in the proposed rules does not address the cost of radionuclide compliance for water systems that are currently in violation of existing rules.

The commission only developed fiscal impacts of the rules that were proposed to be amended and did not estimate fiscal costs of the existing rules previously adopted by the commission. Since those commenters are not affected by these amendments, a fiscal impact statement in the proposed rules is not necessary. The commission has made evaluations to determine the fiscal impacts to those existing radionuclide violators incurred as a result of previous rulemaking and that information has been given stakeholders who have requested the information.

Andrews, Eden, HUWCD, Richland, and Seminole requested that the TCEQ quantify the increased costs that consumers are expected to see.

While this is not a required item of information for fiscal notes associated with rule proposals, the commission has looked at the potential increases in water bills to consumers based on the radionuclide rules. This evaluation shows that the cost to the consumer would range from less than \$1.00 per month to greater than \$100 per month depending on the technology employed to achieve compliance. Although a separate analysis was not done on costs to individual customers for the arsenic rules, the commission contends that the range of costs would be similar.

Eden, HUWCD, and Richland commented that it is disingenuous for the commission to imply that the fiscal implications for systems that must provide capital improvements could be significant.

The commission contends that the cost to water systems will be in a range of costs from very affordable to completely unaffordable.

Eden, HUWCD, and Richland commented that the regulations do not protect the health of all the citizens in Texas because they do not apply to every person and entity that may draw water from an affected aquifer.

The commission agrees that the rules do not apply to any entity other than those served by community public water systems. The commission has no statutory authority to regulate water that is not provided by a public water system.

Andrews and Seminole requested that TCEQ explain the sampling cost increase of \$100 per year per entry point that is above the MCL.

This calculation is based on the cost of analysis of \$25 per sample collected from the entry point four times per year.

Andrews and Seminole requested an explanation of the estimate of costs of arsenic compliance for local governments and nonprofit water systems.

The staff approximated the costs in a range based on: 1) information extrapolated from a survey of costs received from water systems that are, or may be, potentially in violation of the radionuclide standards; and 2) information extrapolated from a project cost estimate submitted by a water system proposing to treat for arsenic. These values were compared to the aggregate cost data collected by the American Water Works Association Research Foundation, which estimated a national compliance cost of approximately \$4 billion. Texas is estimated to have approximately 8% of the arsenic violators nationwide (8% of \$4 billion is \$360 million). Staff estimate the overall aggregate cost of capital and operations and maintenance, including disposal costs for the first five years, to be approximately \$425 million. The estimate of operations and maintenance costs,

including disposal for all water systems in Texas, is \$65 million for five years or \$13 million per year.

Andrews, Eden, HUWCD, Richland, and Seminole asked for the citation requiring water systems to sample every three years.

The existing sampling requirement for arsenic is found in renumbered §290.106(c)(4)(A)(i) and 40 CFR §141.23(c)(1) and §141.2, which define a *compliance period* as a three-year calendar year period within a compliance cycle. Each compliance cycle has 3 three-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; and the third from January 1, 1999 to December 31, 2001. This established the base monitoring requirement for a number of inorganic contaminants, including arsenic, where the source of water to the entry point is groundwater. The federal citation for radionuclides is found in 40 CFR §141.26(c)(3).

Andrews and Seminole commented that nowhere has it been cited that increased exposure to arsenic could affect cardiovascular, immunological, and neurological health.

There is sufficient evidence from human studies that arsenic exposure is associated with both cancer and non-cancer effects. These epidemiological studies have been reviewed and evaluated by scientific experts at the EPA (<http://www.epa.gov/iris/subst/0278.htm>); the National Academy of Sciences (Arsenic in Drinking Water: 2001 Update); and the Agency for Toxic Substances and

Disease Registry (<http://www.atsdr.cdc.gov/toxprofiles/tp2.html>). Studies link inorganic arsenic ingestion to a number of health effects. Cancerous effects include skin, bladder, and lung cancer. Non-cancerous effects include cardiovascular, pulmonary, immunological, neurological, and endocrine effects.

Eden, HUWCD, Richland, and Rochelle also commented that there is no public benefit in the adoption of the radionuclide amendments.

Radionuclides emit "ionizing radiation," a known human carcinogen, when they radioactively decay (<http://www.epa.gov/radiation/docs/ionize/ionize2.htm>). The likelihood of developing cancer or genetic mutations from short-term exposure to the concentrations of radionuclides found in drinking water supplies is negligible. However, long-term exposures may result in increased risks of genetic effects and other effects such as cancer, precancerous lesions, benign tumors, and congenital defects (<http://atsdr1.atsdr.cdc.gov/tfacts144.html>; <http://www.epa.gov/ttn/atw/hlthef/radionuc.html>). Ingestion of uranium can also damage the kidney (<http://atsdr1.atsdr.cdc.gov/toxprofiles/tp150.html>). It is the reduction in risk to these health effects through reduction in exposure to contaminants (arsenic and radionuclides) that produces the public benefit.

Andrews, Eden, HUWCD, Richland, and Seminole commented that TCEQ should not use cost estimates developed by EPA on a national level.

Where the commission did not perform an independent cost analysis, it is appropriate to use the EPA cost estimates. The commission does not project any large nonprofit or private water systems to be in violation of the amendments to these rules. EPA cost data is used as information in this section where Texas-specific data is not available.

Andrews, Eden, HUWCD, Richland, and Seminole commented that a local employment impact statement should be required.

The staff determined that compliance with the proposed rules would have adverse cost implications for some public water systems. The increased costs would be passed on to consumers, who may see an increase in water bills. However, for the households served by a typical large water system that must take corrective action to meet the new radionuclide standard, the increase in water bills was estimated to be less than \$3.00 per month (\$30 per year). Households served by typical small water systems (those serving 10,000 persons or fewer) would probably experience increased water bills of between \$4.00 and \$9.00 per month (\$50 - \$100 per year). For systems out of compliance with the arsenic standard, it was estimated that for systems serving populations of less than 10,000, consumers may have to pay an additional \$3.00 to \$28 per month (\$38 to \$327 per year) for water that meets the new standard. For systems that serve more than 10,000, it was estimated that water bills may increase between \$.07 and \$3.00 per month (\$.86 to \$32 per year). Based upon these factors, staff determined that the proposed rules will not affect a local economy and therefore, a local employment impact statement is not required.

Andrews, Eden, HUWCD, Richland, and Seminole commented that this rule proposal should be considered a “major environmental rule.”

These rules, which would regulate one additional radioactive parameter (uranium) and one additional metal (arsenic), do not satisfy the definition of a major environmental regulation because they do 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. Based on agency surveys and sampling data, a small fraction (about 6%) of the 4,500 community water systems in Texas may be out of compliance with the new uranium and arsenic standards, may need to make capital improvements to their systems, or may incur additional operational and maintenance expenses in order to comply with the proposed MCLs for the additional parameters for safe drinking water.

Andrews, Eden, HUWCD, Richland, and Seminole commented that the rule proposal may not physically take or seize property, but has the effect of negatively impacting private property. They also commented that the increased cost of water will negatively impact the price of real estate in rural Texas.

The commission disagrees that these rules are a taking of private property. The commission recognizes that the Texas Constitution and United States Constitution guarantee that private property shall not be taken for public use without just compensation. However, these rules are not a restriction on the use or development of private property to the benefit of the public.

Moreover, a decrease in property values does not constitute an automatic “taking” of the property. Courts have recognized that regulations may diminish property value to some extent without being compensable as long as the regulation does not significantly drop the property value, interfere with the use and enjoyment of the property, or deprive the property of all economical benefit or productive use. In this case, the governmental action does not impair the existing use of the property nor does it make the property incapable of earning a reasonable rate of return. Accordingly, the commission has determined that these rules do not represent a taking of private property.

Eden, HUWCD, and Richland asked that TCEQ confirm the effective date as December 8, 2003, and the end of the initial monitoring period as December 31, 2007.

These dates are as stated in federal regulations. While the sampling does not have to be completed until December 31, 2007, violations are to be determined based on any results reported after December 7, 2003. This language has been clarified by including specific requirements for using historical data in §290.108(c)(1)(A)(iii).

Andrews and Seminole commented that they are uncomfortable with the rule proposal in §290.106(c)(4)(C)(i) because it may subject a water system to arbitrary monitoring requirements by the executive director.

This provision of the rules indicates that new water sources must be sampled prior to being placed into service at a public water system. This would generally be one sample for inorganic contaminants; but, at the discretion of the executive director, more than one sample could be required. This would be exercised when there may be questions about the quality of the sample or where results may show a level of concern for any inorganic contaminant.

Andrews and Seminole commented that the increased monitoring requirement in §290.106(c)(4)(C)(i) is inconsistent and disproportionate to the alleged risks of consuming water less than 50 parts per billion of arsenic and implies that a dosage of arsenic over 10 parts per billion will cause an immediate health impact. Eden, HUWCD, and Richland also commented that increased monitoring for radionuclides implies that a dosage over the MCL will cause an immediate health impact.

The commission disagrees with these implications. In fact, the purpose of the required quarterly sample is to determine an exposure over a period of four quarters. It is the results over the four quarterly samples that would be used to determine if a violation exists and the potential for a health impact.

Eden, HUWCD, and Richland commented that the MCLs are based on a linear, no-threshold risk model and that the health effects have not been validated using epidemiological data or ingestion studies.

The commission agrees that the method of MCL development by EPA does rely on a linear, no-threshold model. The EPA classifies all radionuclides as known human carcinogens based on considerable epidemiological evidence that exposure to high doses of ionizing radiation causes cancer in humans and all radionuclides emit ionizing radiation. EPA's application of the linear, no-threshold model to estimate low-dose cancer risks from high-dose exposures is supported by groups of national and international radiation experts (e.g., International Commission on Radiological Protection, National Council on Radiation Protection and Measurements, National Academy of Sciences Committee on the Biological Effects of Ionizing Radiation, United Nations Scientific Committee on the Effects of Atomic Radiation, and the National Radiation Protection Board). Finally, the commission's public drinking water program is charged with administering EPA's standards, based on EPA's estimates of acceptable risk levels to the population. The EPA's final rule was adopted in December 2000. Public comment was sought prior to issuance of the rule and the validity and use of the linear, no-threshold model was addressed at that time. In addition, suit was brought in federal court which challenged the use of linear no-threshold models in the development of the federal rule. The Court upheld EPA's choice of model based upon the "rational relationship" standard. See *City of Waukesha v. EPA*, 320 F.3d 228, 249, 252 (D.C. Cir. 2003). In accordance with this standard, the court held that it may only reject an agency's choice of a scientific model when the model bears no rational relationship to the characteristics of the data to which it is applied. *Id.* at 248. The court held that EPA's use of the linear model met the "rational relationship" standard. *Id.* at 228 and 249.

Eden, HUWCD, and Richland commented that the detection limits for radionuclides listed in Table A are so low that the reduced monitoring would apply to very few, if any, water systems.

The commission's sampling data results indicate that about 50% of the entry points statewide would qualify for reduced monitoring on all radionuclides.

Eden, HUWCD, and Richland commented that the executive director's ability to require increased radionuclide monitoring based on changes to the operating conditions or when a source of water is in the vicinity of a mining operation, should be stricken from the rules.

The commission contends that this is necessary to determine the effect of changing events or when the source may be vulnerable to increases in contamination. This language (§290.108(c)(1)(C)(v)) is consistent with the language of the federal rule contained in 40 CFR §141.26(a)(1)(i) and (ii).

Eden, HUWCD, and Richland commented that the executive director's ability to require annual monitoring based on radium-226 results that are greater than 3 pCi/L is unnecessary and burdensome.

The commission notes that the federal rule allows the state discretion to schedule samples as needed, as described in CFR §141.26(a)(1)(ii) and has revised the rule language in §290.108(c)(1)(C)(vi) accordingly.

Eden, HUWCD, and Richland asked that appropriate historical data be further defined.

The commission agrees and will add language exactly analogous to 40 CFR §141.26(a)(2)(i) and (ii) as to the time period of acceptable data. This language has been clarified by including specific requirements for using historical data in §290.108(c)(1)(A)(iii).

Eden, HUWCD, and Richland commented that the ability of the executive director to require source monitoring when an entry point sample is greater than one-half of the MCL, should not be imposed.

This is consistent with 40 CFR §141.26(a)(3)(iii) in which the federal rule specifies exactly this monitoring frequency.

Eden, HUWCD, and Richland commented that the rules should address protocols for sampling and analysis.

The commission has previously adopted by reference 40 CFR §141.25 that prescribes analytical methods for radionuclides. This adoption by reference in §290.119 remains unchanged. The commission further prescribes sample collection procedures in the Public Water Supply Supervision Quality Assurance Project Plan, Chemical Sample Collection Contract Scope of Work, and Drinking Water Sampling Guide, all of which are subject to EPA review.

Andrews, Eden, HUWCD, Richland, Seminole, and TRWA commented that the rules should provide specificity as to the intended TCEQ actions and the ramifications of noncompliance with the rules.

The commission may assess administrative penalties for noncompliance with the rules in accordance with Texas Health and Safety Code, §341.049. As discussed in these responses to comments, however, the public drinking water program plans to work with public water systems to achieve compliance. For example, upon commission approval of point-of-use or point-of entry technologies or the use of bottled water on a temporary basis, alternative solutions may be worked out without the imposition of administrative penalties.

EPA commented that the proposed rules do not address compliance determination for arsenic when a system fails to collect one or more of the samples used to determine the running average of quarterly samples.

The commission agrees and has revised the rule language to add §290.106(f)(6) adopting the federal requirement of CFR §141.23(i)(1).

EPA commented that the proposed rules do not address averaging the results of the initial and confirmation sample results when a confirmation sample is collected for arsenic.

The commission disagrees, noting that the provision to use the average of an initial and confirmation sample for arsenic is contained in §290.106(f)(3)(B).

EPA commented that the proposal failed to address the rounding of arsenic sampling results to the nearest 0.001 mg/L.

The commission agrees and has added language to the rule to adopt the federal requirement of CFR §141.23(i)(4) regarding rounding of analytical results to §290.106(f)(7).

EPA commented that the uranium detection limit contained in §290.108(c)(1)(B)(i) should be 1 microgram per liter, rather than the word “reserved.”

The commission agrees with this comment and has modified the rule language of §290.108(c)(1)(B)(i) accordingly.

EPA commented that the federal requirement of CFR §141.25(d), requiring that averages of data, rounded to the same number of significant figures as the MCL, should be used in determining compliance for regulated radionuclides.

The commission agrees and has added §290.108(f)(1)(H) accordingly.

EPA commented that the TCEQ failed to propose the specific date range (most recent monitoring period that began between June 2000 and December 8, 2003) in the language allowing community public water systems with a single entry point to satisfy initial monitoring requirements to use sample results from the distribution system, in §290.108(c)(1)(D)(i) - (iii).

By EPA’s definition, the most recent nine-year compliance cycle began January 1, 2002, with its first three-year compliance period beginning at the same time. The reference to a most recent

monitoring period with this artificial range of time is moot, since the most recent monitoring period that began between June 2000 and December 8, 2003 is, in fact, the monitoring period that began January 1, 2002 and that will end December 31, 2004. Additionally, since all Texas systems were scheduled for entry point monitoring beginning January 1, 2002, discontinuing distribution system monitoring, the reference is moot.

EPA commented that the proposed language failed to specify that a system must collect consecutive quarterly samples at any sample site where initial sample results exceed an MCL, as contained in the federal rule.

The commission agrees with this comment, and has modified the rule language of §290.108(c)(1)(C) accordingly.

EPA commented that the proposed language of §290.108(f)(1)(B) requires the analysis of radium-228 only if the concentration of radium-226 is greater than 3 picoCuries per liter, whereas the federal rule requires that samples be analyzed for radium-228 regardless of the concentration of radium-226.

The commission agrees with this comment, and has modified the rule language of §290.108(f)(1)(B) accordingly.

EPA commented that the proposed language should be revised to state that the results of initial and confirmation samples will be averaged for use in compliance determination.

The commission agrees that the language regarding averaging of initial and confirmation sample results must be included, and has added that language to §290.108(f)(1)(G), under compliance determination.

EPA commented that the compliance determination requirements for gross beta were not addressed in the proposed rule.

The commission disagrees, since §290.108(f)(2) references compliance determination for man-made radioactivity. There are no systems in Texas subject to this requirement.

EPA commented that the proposed language for radionuclide compliance determination used the term “annual average,” rather than the federally required “running annual average.”

The commission agrees with this comment and has altered the rule language under §290.108(f)(1) to conform to federal requirements.

EPA commented that the proposed language of §290.108(f)(1)(D) and (E) regarding compliance determination when a system has more or less samples than required should specify that these results will be averaged.

The commission disagrees with this comment. Since the referenced subparagraphs are subordinate to paragraph (1) in subsection (f) of §290.108, the reference in §290.108(f)(1) to the running annual average applies to its subparagraphs.

EPA commented that the summation of radium-226 and radium-228 for the purpose of compliance determination was not addressed in the proposed rules.

The commission agrees and has added language clarifying that point under §290.108(b)(1)(A), relating to MCLs.

EPA commented that the December 8, 2003 compliance date referenced in the proposed rules should also apply to the other radionuclides in addition to uranium.

The commission disagrees with the comment. The previous rules for radionuclides other than uranium, which are in place now, and were in place on December 8, 2003, remain unchanged. There is no need to reference a starting date for a rule provision that stays the same. The previous rule, with the same MCLs, will be in effect until the proposed rule is adopted, at which time the exact same MCLs will be put in place.

**SUBCHAPTER F: DRINKING WATER STANDARDS GOVERNING
DRINKING WATER QUALITY AND REPORTING REQUIREMENTS
FOR PUBLIC WATER SYSTEMS**

§§290.104, 290.106 - 290.108, 290.111, 290.121

STATUTORY AUTHORITY

The amendments are adopted under Texas Water Code, §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, §341.031, which allows the commission to adopt rules to implement the federal Safe Drinking Water Act, 42 United States Code, §§300f - 300j-26.

§290.104. Summary of Maximum Contaminant Levels, Maximum Residual Disinfectant Levels, Treatment Techniques, and Action Levels.

(a) Summary table purpose. The maximum contaminant levels (MCLs), maximum residual disinfectant levels (MRDLs), treatment techniques, and action levels are presented in this section as a reference source. Only the regulatory concentrations are shown in these tables. Compliance requirements are given in the specific section for each chemical.

(b) MCLs for inorganic compounds. The MCLs for inorganic contaminants listed in this subsection apply to public water systems as provided in §290.106 of this title (relating to Inorganic Contaminants).

Figure: 30 TAC §290.104(b)

| Contaminant | MCL (mg/L) |
|---------------------------|--------------------------------------------------------|
| Antimony | 0.006 |
| Arsenic | 0.05 (<u>Until January 23, 2006</u>) |
| <u>Arsenic</u> | <u>0.010 (After January 23,2006)</u> |
| Asbestos | 7 million fibers/liter (longer than 10 μm) |
| Barium | 2 |
| Beryllium | 0.004 |
| Cadmium | 0.005 |
| Chromium | 0.1 |
| Cyanide | 0.2 (as free Cyanide) |
| Fluoride | 4.0 |
| Mercury | 0.002 |
| Nitrate | 10 (as Nitrogen) |
| Nitrite | 1 (as Nitrogen) |
| Nitrate & Nitrite (Total) | 10 (as Nitrogen) |
| Selenium | 0.05 |
| Thallium | 0.002 |

(c) MCLs for organic compounds. The following MCLs for synthetic organic contaminants and volatile organic contaminants apply to public water systems as provided in §290.107 of this title (relating to Organic Contaminants).

(1) The following are the MCLs for synthetic organic contaminants.

Figure: 30 TAC §290.104(c)(1)

| Contaminant | MCL (mg/L)[(mg/l)] |
|---------------------------------|---------------------------|
| Alachlor | 0.002 |
| Atrazine | 0.003 |
| Benzopyrene | 0.0002 |
| Carbofuran | 0.04 |
| Chlordane | 0.002 |
| Dalapon | 0.2 |
| Dibromochloropropane | 0.0002 |
| Di(2-ethylhexyl)adipate | 0.4 |
| Di(2-ethylhexyl)phthalate | 0.006 |
| Dinoseb | 0.007 |
| Diquat | 0.02 |
| Endothall | 0.1 |
| Endrin | 0.002 |
| Ethylene dibromide | 0.00005 |
| Glyphosate | 0.7 |
| Heptachlor | 0.0004 |
| Heptachlor epoxide | 0.0002 |
| Hexachlorobenzene | 0.001 |
| Hexachlorocyclopentadiene | 0.05 |
| Lindane | 0.0002 |
| Methoxychlor | 0.04 |
| Oxamyl (Vydate) | 0.2 |
| Pentachlorophenol | 0.001 |
| Picloram | 0.5 |
| Polychlorinated biphenyls (PCB) | 0.0005 |
| Simazine | 0.004 |
| Toxaphene | 0.003 |
| 2,3,7,8-TCDD (Dioxin) | 3×10^{-8} |
| 2,4,5-TP | 0.05 |
| 2,4-D | 0.07 |

(2) The following are the MCLs for volatile organic contaminants.

Figure: 30 TAC §290.104(c)(2) (No change.)

| Contaminant | MCL (mg/L) |
|----------------------------|-------------------|
| 1,1-Dichloroethylene | 0.007 |
| 1,1,1-Trichloroethane | 0.2 |
| 1,1,2-Trichloroethane | 0.005 |
| 1,2-Dichloroethane | 0.005 |
| 1,2-Dichloropropane | 0.005 |
| 1,2,4-Trichlorobenzene | 0.07 |
| Benzene | 0.005 |
| Carbon tetrachloride | 0.005 |
| cis-1,2-Dichloroethylene | 0.07 |
| Dichloromethane | 0.005 |
| Ethylbenzene | 0.7 |
| Monochlorobenzene | 0.1 |
| o-Dichlorobenzene | 0.6 |
| para-Dichlorobenzene | 0.075 |
| Styrene | 0.1 |
| Tetrachloroethylene | 0.005 |
| Toluene | 1 |
| trans-1,2-Dichloroethylene | 0.1 |
| Trichloroethylene | 0.005 |
| Vinyl chloride | 0.002 |
| Xylenes (total) | 10 |

(d) MCLs for radionuclide [radiological] contaminants. MCLs for radionuclide [radiological] contaminants apply to public water systems as provided in §290.108 of this title (relating to Radionuclides Other than Radon [Radiological Sampling and Analytical Requirements]).

(e) Microbial contaminants. The MCL for microbial or bacteriological contaminants applies to public water systems as provided in §290.109 of this title (relating to Microbial Contaminants). The MCL for microbiological contaminants is based on the presence or absence of total coliform bacteria in a sample.

(f) Minimum residual disinfectant concentrations and MRDLs. Minimum residual disinfectant concentrations and MRDLs apply to public water systems as provided in §290.110 of this title (relating to Disinfectant Residuals).

(1) The minimum residual disinfectant concentration in the water entering the distribution system is 0.2 milligrams per liter (mg/L) free chlorine or 0.5 mg/L chloramine.

(2) The minimum residual disinfectant concentration in the water within the distribution system is 0.2 mg/L free chlorine or 0.5 mg/L chloramine.

(3) The MRDL of chlorine dioxide in the water entering the distribution system is 0.8 mg/L.

(4) The MRDL of free chlorine or chloramine in the water within the distribution system is 4.0 mg/L based on a running annual average.

(g) Turbidity. Systems must meet the turbidity treatment technique requirements as provided in §290.111 of this title (relating to Turbidity).

(1) The turbidity level of the combined filter effluent must never exceed 1.0 Nephelometric Turbidity Unit (NTU) and 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) Systems are subject to individual filter turbidity provisions of §290.111 of this title.

(h) Disinfection by-product precursors. The treatment technique requirements for disinfection by-product precursors apply to water systems as provided in §290.112 of this title (relating to Total Organic Carbon (TOC)).

(i) Disinfection by-products (total trihalomethanes (TTHM) and haloacetic acids (HAA5)) [(TTHM and HAA5)]. The MCLs for TTHM and HAA5 apply to water systems as provided in §290.113 of this title (relating to Disinfection By-products (TTHM and HAA5)). The MCLs for TTHM and HAA5 are:

(1) [the MCL for TTHM is] 0.080 mg/L for TTHM; and

(2) [the MCL for HAA5 is] 0.060 mg/L for HAA5.

(j) Disinfection by-products other than TTHM and HAA5. The MCLs for chlorite and bromate apply to water systems as provided in §290.114 of this title (relating to Other Disinfection By-products (Chlorite and Bromate) [Disinfection By-products Other than TTHM and HAA5]). The MCLs for chlorite and bromate are as follows:

(1) [the MCL for chlorite is] 1.0 mg/L for chlorite; and

(2) [the MCL for bromate is] 0.010 mg/L for bromate.

(k) Lead and copper action levels. The action levels for lead and copper apply to water systems as provided in §290.117 of this title (relating to Regulation of Lead and Copper). Action levels for lead and copper are as follows:

(1) [the action level for lead is] 0.015 mg/L for lead; and

(2) [the action level for copper is] 1.3 mg/L for copper.

(l) Recycle streams. The treatment technique requirements for recycle streams are specified in §290.42(c)(6) and (d)(3) of this title (relating to Water Treatment).

§290.106. Inorganic Contaminants.

(a) Applicability. All public water systems are subject to the requirements of this section.

(1) Community and nontransient, noncommunity [non-community] systems shall comply with the requirements of this section regarding monitoring, reporting, and maximum contaminant levels (MCLs) for all inorganic contaminants (IOCs) listed in this section.

(2) Transient, noncommunity [non-community] systems shall comply with the requirements of this section regarding monitoring, reporting, and MCL for nitrate and nitrite.

(3) For purposes of this section, systems using groundwater under the direct influence of surface water shall meet the inorganic sampling requirements given for surface water systems.

(4) Public water systems shall comply with the 0.05 milligrams per liter (mg/L) MCL for arsenic until January 23, 2006 and comply with the 0.010 mg/L MCL for arsenic starting January 23, 2006.

(b) Maximum contaminant levels for IOCs [IOCS]. The MCLs for IOCs listed in the following table apply to community and nontransient, noncommunity [non-community] water systems. The MCLs for nitrate, nitrite, and total nitrate and nitrite also apply to transient, noncommunity [non-community] water systems.

Figure: 30 TAC §290.106(b)

| Contaminant | MCL (mg/L) |
|--------------------|------------------------------------------|
| Antimony | 0.006 |
| Arsenic | 0.05 (<u>until January 23, 2006</u>) |
| <u>Arsenic</u> | <u>0.010 (starting January 23, 2006)</u> |

| | |
|---------------------------|-------------------------------------------------|
| Asbestos | 7 million fibers/liter (longer than 10 μ m) |
| Barium | 2 |
| Beryllium | 0.004 |
| Cadmium | 0.005 |
| Chromium | 0.1 |
| Cyanide | 0.2 (as free Cyanide) |
| Fluoride | 4.0 |
| Mercury | 0.002 |
| Nitrate | 10 (as Nitrogen) |
| Nitrite | 1 (as Nitrogen) |
| Nitrate & Nitrite (Total) | 10 (as Nitrogen) |
| Selenium | 0.05 |
| Thallium | 0.002 |

(c) Monitoring requirements for IOCs. Public water systems shall monitor for IOCs at the locations specified by the executive director. All monitoring conducted under the requirements of this section must be conducted at sites designated in the public water system's monitoring plan. Each public water system shall monitor at the time designated during each compliance period.

(1) Routine monitoring [Monitoring] locations for IOCs except asbestos. Antimony [, antimony], arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nitrate, nitrite, selenium, and thallium shall be monitored at each entry point to the distribution system.

(A) 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 that is representative of all sources and during periods of normal operating conditions [when water is representative of all sources being used].

(B) Systems shall take all subsequent samples at the same entry point to the distribution system unless the executive director determines that conditions make another entry point more representative of the source or treatment plant being monitored.

(C) The executive director may approve the use of composite samples.

(i) Compositing must be done in the laboratory or in the field by persons designated by the executive director.

(ii) Compositing shall be allowed only at groundwater entry points to the distribution system.

(iii) Compositing shall be allowed only within a single system. Samples from different systems shall not be included in a composite sample.

(iv) No more than five individual samples shall be included in a composite sample.

(v) The maximum number of individual samples allowed in a composite sample shall not exceed the number obtained by dividing the MCL for the contaminant by the detection limit of the analytical method and rounding the quotient to the next lowest integer. Detection

limits for each analytical method are as listed in 40 Code of Federal Regulations (CFR)

§141.23(a)(4)(i).

(vi) If the concentration in the composite sample is greater than or equal to the proportional contribution of the MCL (e.g., 20% of MCL when five points are composited) for any inorganic chemical, then a follow-up sample must be collected from each sampling point included in the composite sample.

(I) Follow-up samples must be collected within 14 days of receipt of the composite sample results.

(II) If duplicates of the original sample taken from each entry point to the distribution system used in the composite are available, the system may use these instead of resampling. The duplicates must be analyzed within 14 days of the composite.

(III) The follow-up or duplicate samples must be analyzed for the contaminant(s) which were excessive in the composite sample.

(D) Initial monitoring for a new water source ~~must~~ shall be conducted at a site representative of the water quality of the new source of water. For systems with one well and one entry point, initial monitoring may be conducted at the entry point to the distribution system.

(2) Monitoring locations for asbestos. Asbestos shall be monitored at locations where asbestos contamination is most likely to occur.

(A) A system vulnerable to asbestos contamination due solely to source water shall sample at the entry point to the distribution system.

(B) A system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall sample at a tap served by asbestos-cement pipe, under conditions where asbestos contamination is most likely to occur.

(C) A system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall sample at a tap served by asbestos-cement pipe, under conditions where asbestos contamination is most likely to occur.

(D) The executive director may require additional sampling locations based on the size, length, age, and location of asbestos-cement pipe in the distribution system. The system must provide information regarding the size, length, age, and location of asbestos-cement pipe in the distribution system to the executive director upon request.

(3) Initial monitoring frequency for IOCs except asbestos. Prior to using water as a drinking water source, public water systems shall monitor at the frequency determined by the executive director to ensure that the water distributed to customers will comply with the MCLs for antimony.

arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, nitrate, nitrate, nitrate and nitrite (total), mercury, selenium, and thallium.

(4) [(3)] Monitoring frequency for IOCs except asbestos, nitrate, and nitrite.

Community and nontransient, noncommunity [non-community] public water systems shall monitor for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium at the following frequency.

(A) Routine monitoring frequency. A public water system shall routinely monitor for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium.

(i) Each groundwater entry point [source] shall be sampled once every three years [at the entry point to the distribution system].

(ii) Each surface water entry point [source] shall be sampled annually [at the entry point to the distribution system].

(iii) Each of the sampling frequencies listed in this paragraph constitutes [(3) of this subsection constitute] one round of sampling for groundwater and surface water entry points [systems], respectively.

(B) Reduced monitoring. The executive director may reduce the monitoring frequency for a system that has completed a minimum of three rounds of sampling by granting a waiver to the routine monitoring frequency for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium.

(i) Systems that use a new water source are not eligible for a waiver until three rounds of sampling from the new source have been completed.

(ii) To be considered for a waiver, systems shall demonstrate that all previous analytical results at that sample site were less than the MCL. [At least one sample shall have been taken since January 1, 1990.]

(iii) In determining the appropriate reduced monitoring frequency, the executive director shall consider:

(I) the reported contaminant concentrations from all previous samples;

(II) the degree of variation in reported concentrations; and

(III) other factors that [which] may affect contaminant concentrations such as changes in groundwater pumping rates, changes in the system's configuration,

changes in the system's operating procedures, or changes in the flow or characteristics of a reservoir or stream used as the water source.

(iv) If the executive director grants a waiver, it shall be made in writing and shall set forth the basis for the determination. The determination may be initiated by the executive director. The executive director shall review and, where appropriate, revise the waiver of monitoring frequency when other data relevant to the system becomes available.

(v) The term during which the waiver is effective shall not exceed one compliance cycle (i.e., nine years).

(vi) A system must take a minimum of one sample during each compliance cycle while the waiver is effective.

(C) Increased monitoring. The executive director may increase the monitoring frequency [for public water systems with sources that exceed the MCL] for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium.

(i) If the results from a sample site exceed any of the MCLs in subsection (b) of this section, the system shall immediately begin quarterly sampling at that sample site starting [Systems shall sample quarterly beginning] in the next quarter after the exceedance [violation] occurs.

(ii) After the initiation of quarterly monitoring, the executive director may return a system to the routine monitoring frequency if monitoring shows that the sampling site [system] is reliably and consistently below the MCL.

(I) The executive director shall not decrease the quarterly sampling requirement until a groundwater system has taken a minimum of two quarterly samples.

(II) The executive director shall not decrease the quarterly sampling requirement until a surface water system has taken a minimum of four quarterly samples.

(5) [(4)] Asbestos monitoring frequency. Community and nontransient, noncommunity [non-community] water systems shall monitor for asbestos at the following frequency.

(A) A public water system shall routinely monitor for asbestos once during the first three years of each compliance cycle.

(B) The executive director may waive the routine monitoring frequency requirements for asbestos.

(i) When determining if a waiver should be granted, the executive director shall consider:

(I) the potential for asbestos contamination of the water source;

(II) the use of asbestos-cement pipe for finished water

distribution; and

(III) the corrosivity of the water.

(ii) If the executive director grants a waiver, it shall be made in writing and shall set forth the basis for the determination. The determination may be initiated by the executive director. The executive director shall review and, where appropriate, revise the waiver of monitoring frequency when other data relevant to the system becomes available.

(iii) The term during which the waiver is effective shall not exceed one compliance cycle (i.e., nine years).

(C) The executive director may increase the monitoring frequency for asbestos.

(i) A system that [which] exceeds the MCL for asbestos shall sample quarterly beginning in the next quarter after the violation occurs.

(ii) After the initiation of quarterly sampling, the executive director may return a system to the routine monitoring frequency if monitoring shows that the system is reliably and consistently below the MCL.

(I) The executive director shall not decrease the quarterly sampling requirement until a groundwater system has taken a minimum of two quarterly samples.

(II) The executive director shall not decrease the quarterly sampling requirement until a surface (or combined surface water and groundwater) water system has taken a minimum of four quarterly samples.

(6) [(5)] Nitrate monitoring frequency. All public water systems shall monitor for nitrate at the following frequency.

(A) Routine nitrate monitoring frequency. All public water systems shall routinely monitor for nitrate.

(i) All public water systems shall annually sample at each groundwater [source at the] entry point to the distribution system.

(ii) A community or nontransient, noncommunity [non-transient non-community] water system shall sample quarterly at each surface water [source quarterly at the] entry point to the distribution system.

(iii) A transient, noncommunity [non-community] water system shall sample annually at each surface water [source annually at the] entry point to the distribution system.

(B) Reduced nitrate monitoring frequency. The executive director may reduce the monitoring frequency for community or nontransient, noncommunity [non-transient, non-community] water systems using surface water sources by granting a waiver to the routine monitoring frequency.

(i) To be considered for a waiver, a system shall demonstrate that the nitrate concentration in each sample collected during the previous four consecutive quarters was less than 50% of the nitrate MCL.

(ii) If the executive director grants a waiver, it shall be made in writing and shall set forth the basis for the determination. The determination may be initiated by the executive director. The executive director shall review and, where appropriate, revise the waiver of monitoring frequency when other data relevant to the system becomes available.

(iii) A system that receives a waiver to the routine nitrate monitoring frequency must sample annually for nitrate. The annual sample must be collected in the quarter that previously resulted in the highest nitrate concentration.

[(iv) A system that is sampling annually shall return to routine quarterly monitoring if the nitrate concentration in any sample is equal to or greater than 50% of the nitrate MCL.]

(C) Increased nitrate monitoring frequency. The executive director may increase the nitrate monitoring frequency for community or nontransient, noncommunity [non-transient, non-community] water systems using groundwater sources.

(i) A system that is sampling annually shall begin quarterly nitrate sampling if the nitrate concentration in any sample is equal to or greater than 50% of the nitrate MCL. Quarterly sampling must begin the first quarter after the elevated nitrate level was detected.

(ii) After the initiation of quarterly sampling, the executive director may return a system to the routine annual nitrate monitoring frequency if quarterly sampling shows that the system is reliably and consistently below the nitrate MCL for a minimum of four consecutive quarters.

(7) [(6)] Nitrite monitoring frequency. All public water systems shall monitor for nitrite at the following frequency.

(A) All public water systems shall routinely take one nitrite sample during the first three years of each compliance cycle.

(B) The executive director may reduce the monitoring frequency for nitrite by granting a waiver to the routine monitoring frequency.

(i) To be considered for a waiver, a system shall demonstrate that the nitrite concentration in the initial sample was less than 50% of the nitrite MCL.

(ii) If the executive director grants a waiver, it shall be made in writing and shall set forth the basis for the determination. The determination may be initiated by the executive director. The executive director shall review and, where appropriate, revise the waiver of monitoring frequency when other data relevant to the system becomes available.

(iii) A system that receives a waiver to the routine nitrite monitoring frequency must sample at a frequency specified by the executive director.

(C) The executive director may increase the monitoring frequency for nitrite.

(i) A system shall sample quarterly for at least one year following any sample in which the nitrite concentration is greater than or equal to 50% of the MCL.

(ii) The executive director may allow a system to return to the routine monitoring frequency after determining the system is reliably and consistently less than the MCL.

~~(8)~~ [(7)] Confirmation sampling for all IOCs. The executive director may require a public water system to confirm the results of any individual sample.

(A) If a sample result exceeds the MCL, a public water system may be required to [shall] collect one additional sample to confirm the results of the initial test. If an additional sample is required:

(i) Confirmation samples must be collected at the same entry point to the distribution system as the sample that exceeded the MCL; [.]

(ii) Confirmation samples for IOCs except nitrate and nitrite shall be collected as soon as possible after the system receives the analytical results of the first sample; and [.]

(iii) Confirmation samples for nitrate and nitrite shall be collected within 24 hours of the system's receipt of notification of the analytical results of the first sample.

Systems unable to comply with the 24-hour sampling requirement must immediately notify the

consumers served by the public water system in accordance with subsection (f) of this section. Systems exercising this option must take and analyze a confirmation sample within two weeks of notification of the analytical results of the first sample.

(B) The executive director may require a confirmation sample for any sample with questionable results.

(9) [(8)] More frequent monitoring. The executive director may require more frequent monitoring than specified in paragraphs (4) - (7) [(3) - (6)] of this subsection.

(d) Analytical requirements for IOCs. Analytical procedures shall be performed in accordance with §290.119 of this title (relating to Analytical Procedures). Testing for inorganic contaminants shall be performed at a laboratory certified by the executive director.

(e) Reporting requirements for IOCs. 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 Texas Commission on Environmental Quality, Water Supply Division, MC 155, P.O. Box 13087, Austin, Texas 78711-3087.

(f) Compliance determination for IOCs. Compliance with this section shall be determined using the following criteria.

(1) Compliance with the MCL for each IOC shall be based on the analytical results obtained at each individual sampling point.

(2) A public water system that exceeds the levels for nitrate, nitrite, or the sum of nitrate and nitrite specified in subsection (b) of this section commits an acute MCL violation. Compliance shall be based on the results of the single sample. If a confirmation sample is collected, compliance shall be based on the average result of the original and confirmation samples.

(3) A public water system that exceeds the levels of antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium (i.e., any IOC except nitrate and nitrite) specified in subsection (b) of this section at any sampling point commits an MCL violation.

(A) For systems that are sampling annually or less frequently, compliance may be based on the results of a single sample, if a confirmation sample is not collected.

(B) For systems that are sampling annually or less frequently, if a confirmation sample is collected, compliance will be based on the average result of the original and confirmation samples.

(C) For systems that are sampling more frequently than annually, compliance is based on the running annual average for each sampling point.

(D) If a single quarterly sample would cause the running annual average to be exceeded, then the system is immediately out of compliance.

(4) Any result below the method detection limits of 40 CFR §141.23(a)(4)(i) [limit] shall be considered to be zero for the purpose of calculating compliance.

(5) The executive director may exclude the results of obvious sampling errors from the compliance calculations.

(6) Compliance with the IOC MCLs must be based on the results of all samples required by the executive director, regardless of whether that number is greater or less than the minimum required number.

(7) For purposes of determining compliance, arsenic results must be reported to the nearest 0.001 mg/L.

(g) Public notice for IOCs. A public water system that violates the requirements of this section must notify the executive director and the system's customers.

(1) A public water system that violates the MCL for nitrate, nitrite, or the sum of nitrate and nitrite shall notify the executive director by the next business day and the water system customers of this acute violation in accordance with the requirements of §290.122(a) of this title (relating to Public Notification).

(2) A public water system that violates the MCL for nitrate, nitrite, or the sum of nitrate and nitrite that is unable to comply with the 24-hour confirmation sampling requirement must immediately notify the consumers served by the public water system in accordance with §290.122(a) of this title.

(3) A public water system that fails to meet the MCL for any of the regulated IOCs except nitrate and nitrite (i.e., antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium) shall 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 [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.

(5) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the executive director may allow the system to give public notice to only the area served by that portion of the system that [which] is out of compliance.

(h) Best available technology [Available Technology] (BAT) for IOCs. BAT for treatment of violations of MCLs in subsection (b) of this section are listed in 40 CFR §141.62.

(i) Small system compliance technologies (SSCT) for arsenic. SSCTs for arsenic are listed in 40 CFR §141.62(d) and may be utilized with commission approval. When point-of-use or point-of-entry devices are used for compliance, the water system must develop a program for the long-term operation, maintenance, and monitoring of the devices to ensure adequate performance.

(j) Bottled water. In accordance with 40 CFR §141.101, bottled water may be used on a temporary basis only and with approval by the commission in order to avoid unreasonable risk to health.

§290.107. Organic Contaminants.

(a) Applicability. All community and nontransient, noncommunity [non-community] water systems shall comply with the requirements of this section regarding organic contaminants. For purposes of this section, systems using groundwater under the direct influence of surface water shall meet the organic sampling requirements given for surface water systems.

(b) Maximum contaminant levels (MCLs) for organic contaminants. The concentration of synthetic and volatile organic chemicals shall not exceed the MCLs specified in this section.

(1) The following are MCLs for synthetic organic chemical (SOC) contaminants [(SOCs)].

Figure: 30 TAC §290.107(b)(1)

| Contaminant | MCL (mg/L)[(mg/l)] |
|---------------------------|---------------------------|
| Alachlor | 0.002 |
| Atrazine | 0.003 |
| Benzopyrene | 0.0002 |
| Carbofuran | 0.04 |
| Chlordane | 0.002 |
| Dalapon | 0.2 |
| Dibromochloropropane | 0.0002 |
| Di(2-ethylhexyl)adipate | 0.4 |
| Di(2-ethylhexyl)phthalate | 0.006 |
| Dinoseb | 0.007 |
| Diquat | 0.02 |
| Endothall | 0.1 |
| Endrin | 0.002 |
| Ethylene dibromide | 0.00005 |
| Glyphosate | 0.7 |
| Heptachlor | 0.0004 |
| Heptachlor epoxide | 0.0002 |
| Hexachlorobenzene | 0.001 |
| Hexachlorocyclopentadiene | 0.05 |
| Lindane | 0.0002 |
| Methoxychlor | 0.04 |
| Oxamyl (Vydate) | 0.2 |
| Pentachlorophenol | 0.001 |

| | |
|---------------------------------|--------------------|
| Picloram | 0.5 |
| Polychlorinated biphenyls (PCB) | 0.0005 |
| Simazine | 0.004 |
| Toxaphene | 0.003 |
| 2,3,7,8-TCDD (Dioxin) | 3×10^{-8} |
| 2,4,5-TP | 0.05 |
| 2,4-D | 0.07 |

(2) The following are MCLs for volatile organic chemical (VOC) contaminants

[(VOCs)].

Figure: 30 TAC §290.107(b)(2) (No change.)

| Contaminant | MCL (mg/L) |
|----------------------------|-------------------|
| 1,1-Dichloroethylene | 0.007 |
| 1,1,1-Trichloroethane | 0.2 |
| 1,1,2-Trichloroethane | 0.005 |
| 1,2-Dichloroethane | 0.005 |
| 1,2-Dichloropropane | 0.005 |
| 1,2,4-Trichlorobenzene | 0.07 |
| Benzene | 0.005 |
| Carbon tetrachloride | 0.005 |
| cis-1,2-Dichloroethylene | 0.07 |
| Dichloromethane | 0.005 |
| Ethylbenzene | 0.7 |
| Monochlorobenzene | 0.1 |
| o-Dichlorobenzene | 0.6 |
| para-Dichlorobenzene | 0.075 |
| Styrene | 0.1 |
| Tetrachloroethylene | 0.005 |
| Toluene | 1 |
| trans-1,2-Dichloroethylene | 0.1 |
| Trichloroethylene | 0.005 |
| Vinyl chloride | 0.002 |
| Xylenes (total) | 10 |

(3) Each public water system must certify annually to the executive director (using third-party [third party] or manufacturer's certification) that when acrylamide or epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed 0.05% dosed at 1.0 milligrams per liter (mg/L) [mg/L] (or equivalent) for acrylamide and 0.01% dosed at 20 mg/L (or equivalent) for epichlorohydrin.

(c) Monitoring requirements for organic contaminants. Public water systems shall monitor for organic contaminants at the locations and frequency in paragraphs (1) and (2) of this subsection. All monitoring conducted under the requirements of this section must be conducted at sites designated in the public water system's monitoring plan. All samples must be taken during periods of normal operation [when water representative of all sources used by the system is being used].

(1) SOC monitoring requirements. Monitoring of the SOC contaminants shall be conducted at the frequency and locations given in this paragraph.

(A) SOC monitoring locations. Monitoring of the SOC contaminants shall be conducted at the following locations.

(i) Systems shall routinely sample at sample sites representative of each entry point to the distribution system. [Systems treating only groundwater shall sample for SOCs at every entry point to the distribution system which is representative of each well after treatment. Subsequent samples must be taken at the same entry point to the distribution system unless a change in

conditions makes another entry point to the distribution system more representative of each source or treatment plant. The executive director must approve any change in sampling location.]

(ii) Subsequent samples must be taken at the same sample site unless the executive director determines that a change in conditions makes a different sample site more representative of the water available to customers. [Systems using surface water and systems treating groundwater under the direct influence of surface water shall sample for SOCs at points in the distribution system that are representative of each source or at each entry point to the distribution system. Subsequent samples must be taken at the same entry points to the distribution system unless a change in conditions makes another entry point to the distribution system more representative of each source or treatment plant. The executive director must approve any change in sampling location.]

(iii) The executive director must approve any change in sampling location.

(B) Initial SOC monitoring frequency. Prior to using a new source of water as drinking water, public water systems shall monitor at the frequency established by the executive director to ensure that the water distributed to customers will comply with the MCLs for SOCs.

(C) [(B)] Routine SOC monitoring frequency. Monitoring of the SOC contaminants shall be conducted at the following frequency.

(i) Community and nontransient noncommunity water systems shall take four consecutive quarterly samples for each SOC contaminant listed in subsection (b)(1) of this section during each compliance period beginning with the initial compliance period.

(ii) Community and nontransient noncommunity water systems serving more than 3,300 persons that do not detect a contaminant in the initial compliance period may reduce the sampling frequency at that sample site to a minimum of two consecutive quarterly samples in one year during each repeat compliance period.

(iii) Community and nontransient noncommunity water systems serving 3,300 persons or fewer that do not detect a contaminant in the initial compliance period may reduce the sampling frequency at that sample site to a minimum of one sample during each repeat compliance period.

(iv) Each public water system shall monitor at the time designated by the executive director within each compliance period.

(D) [(C)] Increased SOC monitoring. The executive director may change the monitoring frequency for SOCs.

(i) Entry points that exceed [Systems which violate] the SOC MCLs [MCL's] of subsection (b)(1) of this section as determined by subsection (f) of this section must be

monitored [monitor] quarterly. After a minimum of four quarterly samples shows the system is in compliance and the executive director determines the system is reliably and consistently below the MCL, as determined by the methods specified in subsection (f) of this section, the executive director may allow the system to monitor annually. Systems that [which] monitor annually must monitor during the quarter that previously yielded the highest analytical result.

(ii) The executive director may change the monitoring frequency if an organic SOC contaminant is detected in any sample.

(I) If an organic SOC contaminant is detected in any sample, the system must monitor quarterly at each entry point to the distribution system at which a detection occurs.

(II) After a [groundwater] system collects a minimum of two consecutive quarterly samples at a groundwater sample site, the executive director may decrease the quarterly monitoring requirement specified in subclause (I) of this clause, if the sample site [system] is reliably and consistently below the MCL.

(III) After a [surface water] system [or system treating groundwater under the direct influence of surface water] collects a minimum of four consecutive quarterly samples at a surface water sample site or a groundwater under the direct influence of surface

water sample site, the executive director may decrease the quarterly monitoring requirement specified in subclause (I) of this clause, if the sample site [system] is reliably and consistently below the MCL.

(IV) After the executive director determines that a sample site [system] is reliably and consistently below the MCL, the executive director may allow the sample site [system] to be monitored [monitor] annually. Systems that [which] monitor annually must monitor during the quarter that previously yielded the highest analytical result.

(V) Sample sites that [Systems which] have three consecutive annual samples with no detection of a contaminant may be granted a waiver at the discretion of the executive director. The executive director will consider the waiver for each compliance period.

(VI) If monitoring results in detection of one or more of certain related contaminants (i.e., heptachlor[,], and heptachlor epoxide), then subsequent monitoring shall analyze for all related contaminants.

(iii) The executive director may increase the required SOC monitoring frequency, where necessary, to detect variations within the system (e.g., fluctuations in concentration due to seasonal use, changes in water source, etc.).

(iv) The executive director may require a confirmation sample for positive or negative results. If a confirmation sample is required by the executive director, the result

must be averaged with the first sampling result and the average used for the compliance determination as specified in [by] subsection (f) of this section. The executive director has discretion to delete results of obvious sampling errors from this calculation.

(E) [(D)] Waivers for SOC monitoring. The executive director may grant a waiver to reduce the SOC monitoring frequency from the monitoring frequency requirements of subparagraphs [subparagraph] (B) and (C) of this paragraph, based on previous use of the contaminant within the watershed or zone of influence of the water source. Examples of use of a contaminant include transport, storage, or disposal. If a determination by the executive director reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted. If the executive director cannot determine whether the contaminant has been used in the watershed or if the contaminant has been used previously, then the following factors shall be used to determine whether a waiver is granted:

(i) previous analytical results;

(ii) the proximity of the system to a potential point or non-point source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at drinking water sources, manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Non-point sources include the use of pesticides to control insects, weeds, or pests on agricultural areas, forest lands, home and garden property, or other land application uses;

(iii) the environmental persistence and transport of the pesticide herbicide or contaminant;

(iv) how well the water source is protected against contamination due to such factors as depth of the well, type of soil, and the integrity of well construction. Surface water systems must consider watershed vulnerability and protection;

(v) elevated nitrate levels at the water supply source; and

(vi) use of polychlorinated byphenyls (PCBs) [(s)] in equipment used in the production, storage, or distribution of water (i.e., PCBs used in pumps, transformers, etc.).

(F) [(E)] Compositing for SOC monitoring. The executive director may reduce the total number of samples required from a system for analysis by allowing the use of compositing. Composite samples from a maximum of five entry points to the distribution system are allowed. Compositing of samples must be done in the laboratory and analyzed within 14 days of sample collection.

(i) If any of the [If, in the composite sample, a detection of one or more] SOC contaminants listed in subsection (b)(1) of this section are detected in a composite sample [occurs], then a follow-up sample must be taken from each entry point to the distribution system included in the composite and analyzed within 14 days of collection.

(ii) If duplicates of the original SOC sample taken from each entry point to the distribution system used in the composite are available, the executive director may use these duplicates instead of resampling. The duplicate must be analyzed within 14 days of collection and the results reported to the executive director.

(iii) Compositing [Composting] may only be permitted at entry points to the distribution system within a single system.

[F] Initial SOC monitoring. If monitoring data are generally consistent with the requirements of this subsection, then the executive director may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period.]

(2) VOC monitoring requirements. Monitoring of the VOC contaminants shall be conducted at the frequency and locations given in this paragraph.

(A) VOC monitoring locations. Monitoring of the VOC contaminants shall be conducted at the following locations.

(i) Routine monitoring locations for VOCs. Systems shall routinely sample at sample sites representative of each entry point to the distribution system. [Systems that use only groundwater shall sample for VOCs at every entry point to the distribution system which is representative of each well after treatment. Subsequent samples must be taken at the same entry point

to the distribution system unless a change in conditions makes another entry point to the distribution system more representative of each source or treatment plant. The executive director must approve any change in sampling location.]

(ii) Subsequent samples must be taken at the same sample site unless the executive director determines that a change in conditions makes a different sample site more representative of the water available to customers. [Surface water systems, systems using groundwater under the direct influence of surface water, and systems blending groundwater and surface water shall sample for VOCs at points in the distribution system that are representative of each source or at each entry point to the distribution system. Subsequent samples must be taken at the same entry points to the distribution system unless a change in conditions makes another entry point to the distribution system more representative of each source or treatment plant. The executive director must approve any change in sampling location.]

(iii) The executive director must approve any change in sampling location.

(B) Initial VOC monitoring frequency. Prior to using water as a drinking water source, public water systems shall monitor at the frequency established by the executive director to ensure that the water distributed to customers will comply with the MCLs for VOCs.

(C) [(B)] Routine VOC monitoring frequency. Monitoring of the VOC contaminants shall be conducted at the following frequency.

(i) Community and nontransient, noncommunity water systems shall take four consecutive quarterly samples for each VOC contaminant listed in subsection (b)(2) of this section during each compliance period, beginning with the initial compliance period.

(ii) If the initial monitoring for VOC contaminants has been completed by December 31, 1992, and the system did not detect any VOC contaminant listed in subsection (b)(2) of this section, the system shall take one sample annually beginning with the initial compliance period.

(iii) After a minimum of three years of annual sampling, the executive director may allow groundwater systems with no previous detection of any VOC contaminant listed in subsection (b)(2) of this section to take one sample during each compliance period.

(iv) Each community and nontransient, noncommunity groundwater system that [which] does not detect a VOC contaminant listed in subsection (b)(2) of this section may be granted a waiver from the annual or triennial [triannual] requirements of subsection (c)(2)(C)(ii) [(c)(2)(B)(ii)] and (iii) of this section after completing the initial monitoring. For the purposes of this section, detection is defined as an analytical result of 0.0005 mg/L or greater. A waiver shall be effective for no more than six years (two compliance periods).

(v) Each public water system shall monitor at the time designated by the executive director within each compliance period.

(D) [(C)] Increased VOC monitoring. The executive director may change the monitoring frequency for VOCs.

(i) Sample sites that exceed [Systems which violate] the VOC MCLs of subsection (b)(2) of this section, as determined by subsection (f) of this section, must be monitored [monitor] quarterly. After a minimum of four consecutive quarterly samples that show the system is in compliance as specified in subsection (f) of this section and after the executive director determines that the system is reliably and consistently below the MCL, the executive director may allow the system to monitor annually during the quarter that previously yielded the highest analytical result.

(ii) The executive director may require a confirmation sample for positive or negative results. If a confirmation sample is required by the executive director, the result must be averaged with the first sampling result and the average is used for the compliance determination as specified by subsection (f) of this section. The executive director has discretion to delete results of obvious sampling errors from this calculation.

(iii) If a VOC contaminant listed in subsection (b)(2) of this section is detected at a level exceeding 0.0005 mg/L in any sample, then:

(I) the system must monitor quarterly at each entry point to the distribution system that [which] resulted in a detection;

(II) the executive director may decrease the quarterly monitoring requirement specified in subsection ~~(c)(2)(D)(iii)(I)~~ [(c)(2)(C)(iii)(I)] of this section provided that the executive director [it] has determined that the system is reliably and consistently below the MCL [maximum contaminant level]. In no case shall the executive director make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples;

(III) if the executive director determines that the system is reliably and consistently below the MCL, the executive director may allow the system to monitor annually. Systems that [which] monitor annually must monitor during the quarter that [which] previously yielded the highest analytical result;

(IV) systems which have three consecutive annual samples with no detection of a contaminant may be granted a waiver as specified in subparagraph (E) [(D)] of this paragraph; and

(V) groundwater systems that [which] have detected one or more of the following two-carbon organic compounds: trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-

dichloroethylene shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each entry point to the distribution system at which one or more of the two-carbon organic compounds was detected. If the result of the first analysis does not detect vinyl chloride, the executive director may reduce the quarterly monitoring frequency for vinyl chloride to one sample during each compliance period. Surface water systems are required to monitor for vinyl chloride as specified by the executive director.

(iv) The executive director may increase the required VOC monitoring frequency, where necessary, to detect variations within the system (e.g., fluctuations in concentration due to seasonal use, changes in water source, etc.).

(E) [(D)] Waivers for VOC monitoring. The executive director may grant a waiver after evaluating the previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the water sources. If a determination by the executive director reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted:

(i) previous analytical results;

(ii) the proximity of the system to a potential point or non-point source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment

facility or at drinking water sources manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities;

(iii) the environmental persistence and transport of the contaminants;

(iv) the number of persons served by the public water system and the proximity of a smaller system to a larger system;

(v) how well the water source is protected against contamination (e.g., is it a surface or groundwater system). Groundwater systems must consider factors such as depth of the well, the type of soil, and well construction. Surface water systems must consider watershed protection;

(vi) as a condition of the waiver, a groundwater system must take one sample at each entry point to the distribution system during the time the waiver is effective (i.e., one sample during two compliance periods or six years) and update its vulnerability assessment considering the factors listed in this paragraph. Based on this updated vulnerability assessment, the executive director must reconfirm that the system is not vulnerable. If the executive director does not make this reconfirmation within three years of the initial determination, then the waiver is invalid and the system is required to sample annually; and

(vii) community and nontransient surface water systems that [which] do not detect a VOC contaminant listed in subsection (b)(2) of this section may be considered by the executive director for a waiver from the annual sampling requirements of subparagraph (C)(ii) [(B)(ii)] of this paragraph after completing the initial monitoring. Systems meeting this criteria must be determined by the executive director to be non-vulnerable based on a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the frequency specified by the executive director (if any).

(F) [(E)] Compositing for VOC monitoring. The executive director may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of entry points to the distribution system are allowed. Compositing of samples must be done in the laboratory and analyzed within 14 days of sample collection.

(i) If the VOC concentration in the composite sample is 0.0005 mg/L or greater for any contaminant listed in subsection (b)(2) of this section, then a follow-up sample must be taken and analyzed within 14 days from each entry point to the distribution system included in the composite.

(ii) If duplicates of the original sample taken from each entry point to the distribution system used in the composite are available, the system may use these instead of resampling. The duplicate must be analyzed within 14 days of collection.

(iii) Compositing may only be permitted by the executive director at entry points to the distribution system within a single system.

(iv) Procedures for compositing VOC samples are as stated in 40 Code of Federal Regulations (CFR) §141.24(f)(14)(iv).

(d) Analytical requirements for organic contaminants. Analytical procedures shall be performed in accordance with §290.119 of this title (relating to Analytical Procedures). Testing for organic contaminants shall be performed at a laboratory certified by the executive director.

(e) Reporting requirements for organic contaminants. 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 Texas Commission on Environmental Quality, Water Supply Division, MC 155, P.O. Box 13087, Austin, Texas 78711-3087.

(f) Compliance determination for organic contaminants. Compliance with the MCLs of subsection (b)(1) and (2) of this section shall be determined based on the analytical results obtained at each entry point to the distribution system.

(1) If one sampling point is in violation of any MCL in subsection (b) of this section, then the system is in violation of the MCL for that contaminant. [For systems which are sampling more than once a year, compliance is determined by a running annual average of all samples taken at each entry point to the distribution system. If the annual average at any entry point to the distribution system is greater than the MCL, the system commits an MCL violation. If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any samples below the detection limit shall be considered to be zero for purposes of calculating the annual average.]

(A) For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

(B) Systems monitoring annually or less frequently whose sample result exceeds the MCL must begin quarterly sampling; systems will not be considered in violation of the MCL until they have completed one year of quarterly sampling.

(C) If any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately.

(D) If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

(E) If a sample result is less than the detection limit, zero will be used to calculate the annual average.

[(2) For systems which are sampling once a year or less, compliance is based on a single sample. If the level of a contaminant at any entry point to the distribution system is greater than the MCL, the system commits an MCL violation. If a confirmation sample is required the executive director, the determination of compliance will be based on the average of the two samples.]

(2) [(3)] The executive director has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by [their] sanctioned representatives and agencies.

(g) Public notification requirements for organic contaminants. A public water system that violates the requirements of this section must notify the executive director and the system's customers. If a public water system has a distribution system separate from other parts of the distribution system with no interconnections, the executive director may allow the system to give public notice to only that portion of the system that [which] is out of compliance.

(1) A system that violates an MCL given in subsection (b) of this section, shall report to the executive director and notify the public as provided under §290.122(b) of this title (relating to Public Notification).

(2) A public water system that [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 [(relating to Public Notification)].

(h) Best available technology for organic contaminants. Best available technology for treatment of violations of MCLs in subsection (b) of this section are listed in 40 CFR §141.61. 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.

§290.108. Radionuclides Other than Radon.

(a) Applicability. All community water systems shall comply with the requirements of this section regarding radionuclide [radiological] contaminants. Public water systems treating groundwater under the direct influence of surface water must comply with the radionuclide [radiological] requirements for surface water systems. Public water systems shall comply with the initial monitoring requirements for uranium by December 31, 2007. Public water systems shall comply with the maximum contaminant level (MCL) for uranium starting December 8, 2003.

(b) Maximum contaminant levels [(MCLs)]. The concentration of radionuclide [radiological] contaminants in the water entering the distribution system shall not exceed the following MCLs [maximum contaminant levels].

(1) MCLs for naturally occurring radionuclides [radium-226, radium-228 and gross alpha particle radioactivity for community systems] are as follows:

(A) [the MCL for combined radium-226 and radium-228 is] 5 picoCuries per liter (pCi/L) for combined radium-226 and radium-228, as calculated by the summation of the results for radium-226 and radium-228; [pCi/l; and]

(B) [the MCL for gross alpha particle activity (including radium-226 but excluding radon and uranium) is] 15 pCi/L for gross alpha particle activity (including radium-226 but excluding radon and uranium); and [pCi/l.]

(C) effective December 8, 2003, 30 micrograms per liter ($\mu\text{g/L}$) for uranium.

(2) MCLs [Maximum contaminant levels] for beta particle and photon radioactivity from man-made radionuclides in drinking water in community water systems are equivalent to the MCLs under 40 Code of Federal Regulations (CFR) §141.66(d), as amended and adopted in the CFR through December 7, 2000 (65 FR 76708), which is adopted by reference. [as follows:]

[(A) The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than four millirem (mrem)/year.]

[(B) Except for the radionuclides listed in Table A, the concentration of man-made radionuclides causing four mrem total body or organ dose equivalents shall be calculated on the basis of a two-liter-per-day drinking water intake using the 168 hour data listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure," NBS Handbook 69 as amended August 1963, U.S. Department of Commerce. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed four mrem/year.]

[Figure: 30 TAC §290.108(b)(2)(B)]

[Table A - Average annual concentrations assumed to produce a total body or organ dose of four mrem/year.]

| [Radionuclide] | [Critical Organ] | [pCi Per Liter] |
|----------------|------------------|-----------------|
| [Tritium] | [Total Body] | [20000] |
| [Strontium-90] | [Bone Marrow] | [8] |

(c) Monitoring requirements. Public water systems shall measure the concentration of radionuclides [radiochemicals] at locations and frequencies specified in the system's monitoring plan. All samples must be collected during normal operating conditions.

(1) Monitoring frequency for naturally occurring radionuclides. The monitoring frequency requirements for gross alpha particle activity, combined radium-226 and radium-228, and uranium are as follows. [Public water systems shall monitor at least once every four years following the

procedure required by subsection (f)(1) of this section. At the discretion of the executive director, when an annual record taken in conformance with subsection (f)(1) of this section has established that the average annual concentration is less than one-half the maximum contaminant levels established by subsection (b) of this section, analysis of a single sample may be substituted for the quarterly sampling procedure required by subsection (f)(1) of this section.]

(A) Initial monitoring frequency. All systems that use a new source of water must begin to conduct initial monitoring of the new source within 90 days after initiating use of the source. [More frequent monitoring shall be conducted when required by the executive director in the vicinity of mining or other operations which may contribute alpha particle radioactivity to either surface or groundwater sources of drinking water, or when changes in the distribution system or treatment processing occur which may increase the concentration of radioactivity in the finished water.]

(i) If the initial monitoring results are at or above an MCL, the system must perform quarterly monitoring as described in subparagraph (C) of this paragraph.

(ii) If the initial monitoring results are below all of MCLs given in subsection (b)(1) of this section, the system shall perform routine monitoring as described in subparagraph (B) of this paragraph.

(iii) Systems without acceptable historical data, as defined in subclauses (I) - (III) of this clause, shall collect four consecutive quarterly samples at all entry points before December 31, 2007.

(I) Systems with a single entry point may use entry point or distribution system sample results from the January 1, 2002 through December 31, 2004 compliance period.

(II) Systems with multiple entry points may use entry point sample results from the January 1, 2002 through December 31, 2004 compliance period.

(III) Systems with no entry point sample results from the January 1, 2002 through December 31, 2004 compliance period that have distribution sample results from that compliance period, may request that these samples be used based on documentation from the system establishing that distribution results represent constituent levels at each entry point.

(B) Routine monitoring. The results of samples collected during initial and routine monitoring periods will be used to determine the monitoring frequency for subsequent monitoring periods. [A public water system shall monitor in conformance with subsection (c)(1)(A) of this section within one year of the introduction of a new water source for a community water system.]

(i) If the results for all contaminants (gross alpha particle activity, combined radium-226 and radium-228, and uranium) are below the detection limits specified in Table A of this clause, the system must collect and analyze at least one sample at that sampling point once every nine years.

Figure: 30 TAC §290.108(c)(1)(B)(i)

Table A: Detection Limits for Radionuclides

| <u>Contaminant</u> | <u>Detection limit</u> |
|-------------------------------|------------------------------------|
| Gross alpha particle activity | 3 picoCuries per liter (pCi/L) |
| Radium 226 | 1 pCi/L |
| Radium 228 | 1 pCi/L |
| Uranium | 1 microgram per liter [Reserve] |

(ii) If the result for any contaminant is at or above the detection limit but at or below one-half the MCLs given in subsection (b) of this section, the system must collect and analyze at least one sample at that sampling point every six years.

(iii) If the result for any contaminant is above one-half the MCLs given in subsection (b) of this section but below the MCL, the system must collect and analyze at least one sample at that sampling point every three years.

(iv) If the result for any contaminant is at or above any of the MCLs given in subsection (b) of this section, monitoring must be performed at the frequency given in subparagraph (C) of this paragraph.

(C) Increased monitoring. A system must perform increased monitoring if any results at a sampling point are at or above the MCLs, or at the direction of the executive director. [A community water system using two or more sources having different concentrations of radioactivity shall monitor the source of water, in addition to water from a free-flowing tap, when required by the executive director.]

(i) If the results for any contaminant are at or above any of the MCLs given in subsection (b) of this section, consecutive quarterly monitoring must be performed at that sample point.

(ii) If the average of quarterly monitoring results is less than the MCLs in subsection (b) of this section, the sample point may be returned to the routine sampling frequency given in subparagraph (B) of this paragraph.

(iii) To fulfill quarterly monitoring requirements a system may composite up to four consecutive quarterly samples from a single entry point if analysis is done within a year of the first sample.

(iv) The analytical results from a composite sample will be treated as the annual average to determine compliance with the MCLs and future monitoring frequency requirements.

(v) When required by the executive director, more frequent monitoring ~~must shall~~ be conducted in the vicinity of mining or other operations that may contribute alpha particle radioactivity to either surface or groundwater sources of drinking water, or when changes in the distribution system or treatment processing occur that may increase the concentration of radionuclide in the finished water.

(vi) ~~When required by the executive director, Community~~ public water systems shall conduct ~~annual monitoring of any community water system in which the radium-226 concentration exceeds 3 pCi/L~~ when required by the executive director.

(D) Historical data. A system may use historical data to comply with the initial monitoring requirement, if approved by the executive director. [Monitoring for compliance with subsection (b) of this section after the initial period need not include radium-228 provided that the average concentration of radium-228 has been assayed at least once using the quarterly sampling procedure required by this subsection.]

(i) A system having only one entry point to the distribution system may use the monitoring data from the previous entry point or distribution system compliance monitoring to satisfy initial monitoring requirements.

(ii) A system with multiple entry points that has appropriate historical monitoring data for each entry point to the distribution system may use previous compliance monitoring data to satisfy initial monitoring requirements.

(iii) To satisfy initial monitoring requirements, a community water system with appropriate historical data for a representative point in the distribution system may use the monitoring data from the distribution system, provided that the executive director finds that the historical data satisfactorily demonstrates that each entry point to the distribution system is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between entry points.

(E) Sample invalidation. The executive director may invalidate the results of obvious sampling or analytic errors. [Public water systems shall conduct annual monitoring of any community water system in which the radium 226 concentration exceeds three pCi/l when required by the executive director.]

(F) Confirmation samples. The executive director may require more frequent monitoring or may require confirmation samples at the executive director's discretion.

(G) Sampling scheduling. Systems shall monitor at the time designated by the executive director.

(2) Monitoring and compliance for man-made radionuclides. The monitoring and compliance requirements for man-made radionuclide under 40 CFR §141.26(b), as amended and adopted in the CFR through December 7, 2000 (65 FR 76708), are adopted by reference. [The monitoring frequency requirements for man-made radioactivity in community water systems are as follows:]

[(A) Systems using surface water sources and serving more than 100,000 persons and such other community water systems as are designated by the executive director shall be monitored for compliance with the subsection (b) of this section by analysis of four quarterly samples. Compliance with subsection (b) of this section may be assumed without further analysis if the average annual concentration of gross beta particle activity is less than 50 pCi/l and if the average annual concentrations of tritium and strontium-90 are less than those listed in Table A of subsection (b)(2)(B) of this section, provided that if both radionuclides are present, the sum of their annual dose equivalents to bone marrow shall not exceed four mrem/year.]

[(i) If the gross beta particle activity exceeds 50 pCi/l, an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses shall be calculated to determine compliance with subsection (b) of this section.]

[(ii) Public water systems shall conduct additional monitoring as required by the executive director to determine the concentration of man-made radioactivity in principal watersheds designated by the executive director.]

[(iii) At the discretion of the executive director, public water systems utilizing only groundwater may be required to monitor for man-made radioactivity.]

[(B) After the initial analysis required by subsection (c)(2)(A) of this section, public water systems shall monitor at least every four years following the procedure given in subsection (c)(2)(A) of this section.]

[(C) A community water system designated by the executive director as utilizing waters contaminated by effluents from nuclear facilities shall initiate quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium.]

[(i) Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples. If the gross beta particle activity in a sample exceeds 15 pCi/l, the same or an equivalent sample shall be analyzed for strontium-89 and cesium-134. If the gross beta particle activity exceeds 50 pCi/l, an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses shall be calculated to determine compliance with subsection (b) of this section.]

[(ii) For iodine-131, a composite of five consecutive daily samples shall be analyzed once each quarter. When iodine-131 is identified in the finished water more frequent monitoring shall be conducted as required by the executive director.]

[(iii) Annual monitoring for strontium-90 and tritium shall be conducted by the analysis of four quarterly samples.]

[(iv) The executive director may allow the substitution of environmental surveillance data taken in conjunction with a nuclear facility for direct monitoring of man-made radioactivity by the public water system where the executive director determines such data is applicable to a particular community water system.]

(3) Monitoring locations for radionuclide contaminants. Systems must monitor at sample sites described in the system's monitoring plan. [The radiochemicals identified in this section shall be sampled at a sampling site representing the entry point to the distribution system.]

(A) Initial monitoring for a new water source ~~must shall~~ be conducted at a site representative of the water quality of the new source of water.

(B) Routine compliance monitoring for the radionuclide covered by this section ~~must shall~~ be performed at sampling points representing each entry point to the distribution system. If

results from an entry point exceed one-half the MCL, the executive director may require the system to sample all water sources providing water to that entry point.

(d) Analytical requirements for radionuclide [radiological] contaminants. Analytical procedures shall be performed in accordance with §290.119 of this title (relating to Analytical Procedures). Testing for radionuclide [radiological] contaminants shall be performed at a laboratory certified by the executive director.

(e) Reporting requirements. 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 section [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 Texas Commission on Environmental Quality [Texas Natural Resource Conservation], Water Supply Division, MC 155, P.O. Box 13087, Austin, Texas 78711-3087.

(f) Compliance determination. Compliance with the requirements of this section shall be determined as follows.

(1) If the running average annual MCL for gross alpha particle activity, combined radium-226 and radium-228, or uranium [or total radium] as set forth in subsection (b) of this section is exceeded, based on quarterly monitoring results, the system has committed an [a] MCL violation.

[Monitoring at quarterly intervals shall be continued until the annual average concentration no longer exceeds the maximum contaminant level or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective. Compliance with subsection (b) of this section shall be based on the analysis or analyses of four quarterly samples.]

(A) A gross alpha particle activity measurement may be substituted for the required radium-226 and radium-228 analysis provided that the measured gross alpha particle activity does not exceed 5 pCi/L [five pCi/l] at a confidence level of 95% (1.65 theta where theta is the standard deviation of the net counting rate of the sample).

(B) When the gross alpha particle activity exceeds 5 pCi/L [five pCi/l], the same or an equivalent sample shall be analyzed for radium-226 and radium-228. ~~If the concentration of radium-226 exceeds 3 pCi/L [three pCi/l] the same or an equivalent sample shall be analyzed for radium-228.~~

(C) If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, one-half the detection limit will be used to calculate the annual average.

(D) The results of all samples taken and analyzed under the provisions of this section will be used in determining compliance, even if that number is greater or less than the minimum required.

(E) If a system fails to complete required increased monitoring, the executive director may base compliance on all available sample results.

(F) If the results at one sample site are in violation, the public water system is in violation.

(G) When confirmation samples are collected, the average of an initial sample and its confirmation sample must be averaged for the purposes of determining compliance.

(H) To judge compliance with the MCLs, sample results must be rounded to the same number of significant figures as the MCL for the substance in question.

(2) If the average annual maximum contaminant level for man-made radionuclide [radioactivity] set forth in subsection (b) of this section is exceeded, the system has committed an [a] MCL violation. [Monitoring at monthly intervals shall be continued until the concentration no longer exceeds the maximum contaminant level or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.]

(3) A public water system that fails to conduct the monitoring tests required by this subsection commits a monitoring violation.

(4) A public water system that fails to report the results of the monitoring tests required by this subsection commits a reporting violation.

(g) Public notification. A public water system that violates the requirements of this section [subsection] must notify the executive director and the system's customers, as follows.

(1) A public water system that violates the MCL for gross alpha particle activity, combined radium-226 and radium-228, or uranium [or total radium] shall give notice to the executive director and notify the public as required by §290.122(b) of this title (relating to Public Notification).

(2) The operator of a community water system that violates the MCL for man-made radionuclide [radioactivity] shall give notice to the executive director and to the public as required by §290.122(b) of this title.

(3) A public water system that [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.

(h) Best available technology for radionuclides other than radon. Best available technology for treatment of violations of MCLs in subsection (b) of this section are listed in 40 CFR §141.66(g).

(i) Small system compliance technologies (SSCTs) for radionuclides. SSCTs for radionuclides are listed in 40 CFR §141.66(h) and may be utilized with commission approval. When point-of-use or point-of-entry devices are used for compliance, the water system must develop a program for the long-term operation, maintenance, and monitoring of the devices to ensure adequate performance.

(j) Bottled water. In accordance with 40 CFR §141.101, bottled water may be used on a temporary basis only and with approval by the commission in order to avoid unreasonable risk to health.

§290.111. Turbidity.

(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. A public water system that uses groundwater under the direct influence of surface water must comply with the requirements of this section by 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.

(b) Treatment technique requirements and performance criteria for turbidity. The filtration techniques used by public water systems treating surface water or groundwater under the direct influence of surface water must ensure the system meets the following treatment technique requirements and performance criteria.

(1) Treatment technique requirements. The treatment process must achieve at least a 2-log removal of *Cryptosporidium* oocysts, a 3-log removal or inactivation of *Giardia lamblia* 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.

(A) Treatment plants using conventional media filtration must achieve the following turbidity levels.

(i) The turbidity level of the combined filter effluent must never exceed 1.0 Nephelometric Turbidity Unit (NTU).

(ii) 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.

(B) Membrane facilities must meet site-specific performance standards approved by the executive director.

(C) The executive director may extend the compliance date for this paragraph and subparagraph (A) of this paragraph if the system serves fewer than 10,000 people and uses conventional media filters.

(i) The compliance date may not be extended beyond January 1, 2004.

(ii) During any extension that is granted, the system must achieve at least a 3-log removal or inactivation of *Giardia lamblia* cysts and a 4-log removal or inactivation of viruses before the water is supplied to any consumer and must meet the following turbidity requirements.

(I) The turbidity level of the combined filter effluent must never exceed 5.0 NTU.

(II) The turbidity level of the combined filter effluent must be 0.5 NTU or less in at least 95% of the samples tested each month. The executive director may allow a turbidity level of up to 1.0 NTU in at least 95% of the samples if the system can achieve the required 3-log removal or inactivation of *Giardia lamblia* cysts and 4-log removal or inactivation of viruses at that higher turbidity level.

(2) Performance criteria for individual filters. The filtration techniques must ensure the public water system meets the following performance criteria.

(A) At a public water system that serves 10,000 people or more, the turbidity from each individual filter should not exceed 0.5 NTU at four hours after the individual filter is returned to service after backwash or shut down.

(B) The turbidity from each individual filter should never exceed 1.0 NTU at a public water system that serves 10,000 people or more.

(C) Beginning January 1, 2005, the turbidity from each individual filter should never exceed 1.0 NTU at a public water system that serves fewer than 10,000 people.

(c) Monitoring requirements for turbidity. Public water systems with surface water sources or groundwater sources that are under the direct influence of surface water shall monitor the performance of their filtration facilities.

(1) Public water systems that serve fewer than 500 people must monitor the turbidity of the combined filter effluent.

(A) Beginning January 1, 2005, public water systems that serve fewer than 500 people and continuously monitor 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) Beginning January 1, 2005, public water systems that serve fewer than 500 people and monitor 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) shall continuously monitor the turbidity of the combined filter effluent and record the turbidity value every 15 minutes.

(C) Through December 31, 2004, public water systems that serve fewer than 500 people must measure and record the turbidity level of the combined filter effluent at least once each day that the plant is in operation.

(2) Public water systems that serve 500 people or more must monitor the turbidity of the combined filter effluent.

(A) Beginning January 1, 2005, public water systems that serve at least 500 people and continuously monitor 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.

(B) Beginning January 1, 2005, public water systems that serve at least 500 people and monitor combined filter effluent turbidity in lieu of individual filter effluent turbidity under the provisions of §290.42(d)(11)(E)(ii) of this title shall continuously monitor the turbidity of the combined filter effluent and record the turbidity value every 15 minutes.

(C) Through December 31, 2004, public water systems that serve at least 500 people must measure and record the turbidity level of the combined filter effluent at least every four hours that the water system serves water to the public.

(3) Public water systems that serve 10,000 people or more must continuously monitor the filtered water turbidity at the effluent of each individual filter and record the turbidity value every 15 minutes.

(4) Public water systems that serve fewer than 10,000 people must measure and record the filtered water turbidity level at the effluent of each individual filter.

(A) Beginning January 1, 2005, public water systems that serve fewer than 10,000 people and have individual filters that are equipped with on-line turbidimeters and recorders must continuously monitor the filtered water turbidity at the effluent of each individual filter and record the turbidity value every 15 minutes.

(B) Beginning January 1, 2005, public water systems that serve fewer than 10,000 people and monitor combined filter effluent turbidity in lieu of individual filter effluent turbidity under the provisions of §290.42(d)(11)(E)(ii) of this title shall:

(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.

(C) Through December 31, 2004, public water systems that serve fewer than 10,000 [at least 500] people must measure and record the turbidity level at the effluent of each filter [of the combined filter effluent] at least once each day that the plant is in operation [every four hours that the water system serves water to the public].

(5) Special monitoring requirements for systems that serve 10,000 people or more. Public water systems that [which] serve 10,000 people or more and fail to meet the turbidity criteria specified in subsection (b)(2) of this section must conduct additional monitoring. The executive director can waive these special monitoring requirements for systems that have a corrective action schedule approved by the executive director.

(A) Each time a filter exceeds either of the filtered water turbidity levels specified in subsection (b)(2)(A) or (B) 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.

(B) Each time a filter exceeds the filtered turbidity level specified in subsection (b)(2)(B) of this section for two consecutive 15-minute readings on three separate occasions during any

consecutive three-month [three month] period, the public water system must conduct a filter assessment on the filter within 14 days of the third exceedance.

(C) 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 within 90 days of the first exceedance in the second month.

(6) Special monitoring requirements for systems that serve fewer than 10,000 people and have on-line turbidimeters at the effluent of individual filters. Beginning January 1, 2005, public water systems that [which] serve fewer than 10,000 people and fail to meet the turbidity criteria specified in subsection (b)(2) of this section must conduct additional monitoring. The executive director can waive these special monitoring requirements for systems that have a corrective action schedule approved by the executive director.

(A) Each time a filter 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 filter within seven days of the exceedance.

(B) Each time a filter 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 the filter within 14 days of the third exceedance.

(C) 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 within 120 days of the first exceedance in the second month.

(7) Special monitoring requirements for systems that serve fewer than 10,000 people and monitor combined filter effluent turbidity in lieu of individual filter effluent turbidity. Beginning January 1, 2005, public water systems subject to the requirements of this paragraph that fail to meet the turbidity criteria in subsection (b)(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.

(A) 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.

(B) Each time the combined filter effluent turbidity level exceeds 1.0 NTU for two consecutive 15-minute readings [reading] 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.

(C) 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.

(d) Analytical requirements for turbidity. All monitoring required by this section 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).

(1) Turbidity must be measured with turbidimeters that use United States Environmental Protection Agency [EPA] Method 180.1 and Standard Method 2130B or Great Lakes Instruments Method 2.

(2) At systems that are required to monitor the performance of individual filters with on-line turbidimeters and recorders, monitoring of combined filter effluent may be conducted by either continuously monitoring turbidity levels with an on-line turbidimeter or measuring the turbidity level in grab samples with a bench-top [benchtop] turbidimeter.

(3) Beginning January 1, 2005, systems that serve fewer than 10,000 people and monitor combined filter effluent turbidity in lieu of individual filter effluent turbidity under

§290.42(d)(11)(E)(ii) of this title shall monitor the turbidity of the combined filter effluent with a continuous, on-line turbidimeter and a device that records the turbidity level reading at least once every 15 minutes.

(A) Continuous combined filter turbidity 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. [;]

(B) If there is a failure in the continuous turbidity monitoring equipment, 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.

(4) Systems serving 10,000 or more people must monitor the turbidity of the water produced by individual filters with a continuous, on-line turbidimeter and a device that records the turbidity reading at least once every 15 minutes.

(A) Continuous individual filter turbidity may be recorded electronically by a SCADA [supervisory control and data acquisition (SCADA)] system or on a strip chart. The recorder must be designed so that the operator can accurately determine the turbidity readings at 15-minute intervals.

(B) If there is a failure in the continuous turbidity monitoring equipment, 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.

(5) Beginning January 1, 2005, systems serving fewer than 10,000 people must monitor the turbidity of the water produced by individual filters with a continuous, on-line turbidimeter and a device that records the turbidity reading at least once every 15 minutes, except for systems with only two filters that monitor combined filter effluent turbidity in lieu of individual filter effluent turbidity under §290.42(d)(11)(E)(ii) of this title.

(A) Individual filter turbidity may be recorded electronically by a SCADA system or on a strip chart. The recorder must be designed so that the operator can accurately determine the turbidity readings at 15-minute intervals.

(B) If there is a failure in the continuous turbidity monitoring equipment, 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.

(6) Beginning January 1, 2005, systems serving fewer than 10,000 people and monitor 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.

(7) Through December 31, 2004, systems serving fewer than 10,000 people must monitor the turbidity of the water produced by individual filters by continuously monitoring turbidity levels with an on-line turbidimeter or measuring the turbidity level in grab samples with a bench-top [benchtop] turbidimeter.

(e) Reporting requirements for turbidity. Public water systems shall properly complete and submit periodic reports to demonstrate compliance with this section.

(1) A public water system that has a turbidity level exceeding 1.0 NTU in the combined filter effluent shall notify the executive director by the next business day.

(2) Public water systems that [which] use surface water sources or groundwater sources under the direct influence of surface water, must submit a Monthly Operating Report for Surface Water Treatment Plants (commission Form 0102C) each month.

(3) Beginning January 1, 2005, public water systems that use surface water sources or groundwater sources under the direct influence of surface water, serve fewer than 10,000 people, and monitor combined filter effluent turbidity in lieu of individual filter effluent turbidity under §290.42(d)(11)(E)(ii) of this title must submit a Monthly Operating Report plus Addendum for Surface Water Treatment Plants (commission Form 0102D) each month.

(4) Public water systems that must complete the additional monitoring required by subsection (c)(5)(A), (6)(A), or (7)(B) of this section must submit a Filter Profile Report for Individual Filters (commission Form 10276) with their Monthly Operating Report for Surface Water Treatment Plants.

(5) Public water systems that must complete the additional monitoring required by subsection (c)(5)(B), (6)(B), or (7)(B) of this section must submit a Filter Assessment Report for Individual Filters (commission Form 10277) with their Monthly Operating Report for Surface Water Treatment Plants.

(6) Public water systems that must complete the additional monitoring required by subsection (c)(5)(C), (6)(C), or (7)(C) of this section must submit a Comprehensive Performance Evaluation Request Form (commission Form 10278) with their Monthly Operating Report for Surface Water Treatment Plants.

(7) Periodic reports required by this section 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.

(f) Compliance determination. Compliance with the requirements of this section shall be determined using the following criteria.

(1) A public water system that fails to conduct the combined filter effluent or individual filter monitoring tests required by this section commits a monitoring violation.

(2) A public water system that fails to report the results of the combined filter effluent or individual filter monitoring tests required by this section commits a reporting violation.

(3) A public water system that fails to submit the reports required by subsection (e)(4) - (6) of this section commits a reporting violation.

(4) A public water system that has a turbidity level exceeding 5.0 NTU in the combined filter effluent commits an acute treatment technique violation.

(5) A public water system that violates the requirements of subsection (b)(1) of this section commits a treatment technique violation.

(6) A system that fails to correct the performance-limiting factors identified in a comprehensive performance evaluation [CPE] conducted under the requirements of subsection (c)(5)(C), (6)(C), or (7)(C) of this section commits a violation.

(g) Public notification for turbidity. 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 has a turbidity level exceeding 5.0 NTU in the combined filter effluent shall notify the executive director and the water system customers of the acute violation within 24 hours [by the next business day] 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 shall 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 shall notify its customers in accordance with the requirements of §290.122(a) of this title.

(3) [(2)] A public water system that fails to meet the treatment technique requirements of subsection (b)(1) of this section shall 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) [(3)] A public water system that [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.

§290.121. 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) [Monitoring locations.] 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 [Radiological Sampling and Analytical Requirements]), §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 Turbidity), §290.112 of this title (relating to Total Organic Carbon (TOC)), §290.113

of this title (relating to Disinfection By-products (TTHM and HAA5)), §290.114 of this title (relating to Other Disinfection By-products (Chlorite and Bromate) [other than TTHM and HAA5]), [§290.115 of this title (relating to Transition Rule for Disinfection By-products),] §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) [Monitoring frequency.] 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, [and] 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.

(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 and serve at least 10,000 people must submit a copy of the monitoring plan to the executive director by January 1, 2001.

(2) Public water systems that treat surface water or groundwater under the direct influence of surface water and serve fewer than 10,000 must submit a copy of the monitoring plan to the executive director by January 1, 2003.

(3) 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 by January 1, 2004, and submit a copy of the monitoring plan to the executive director upon request.

(4) 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 or fails to submit updates to a plan upon request 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 system that commits a violation described in §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.

**SUBCHAPTER F: DRINKING WATER STANDARDS GOVERNING
DRINKING WATER QUALITY AND REPORTING REQUIREMENTS
FOR PUBLIC WATER SYSTEMS**

§290.115

STATUTORY AUTHORITY

The repeal is adopted under Texas Water Code, §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, §341.031, which allows the commission to adopt rules to implement the federal Safe Drinking Water Act, 42 United States Code, §§300 *et seq.*

The repeal implements Texas Health and Safety Code, §341.031 and §341.0315, which require public water systems to comply with commission rules adopted to ensure the supply of safe drinking water.

[§290.115. Transition Rule for Disinfection By-products (TTHM).]

(a) Applicability. All community and non-transient noncommunity public water systems that serve at least 10,000 people must comply with the requirements of this section.]

[(1) A public water system that uses groundwater sources and serves at least 10,000 people shall comply with this section until January 1, 2004.]

[(2) A public water system that uses surface water sources or groundwater sources that are under the direct influence of surface water and serves at least 10,000 people shall comply with this section until January 1, 2002.]

[(b) The maximum contaminant level (MCL) for total trihalomethanes shall be 0.10 milligrams/liter. The MCL shall apply only to those systems which serve a population of 10,000 or more individuals.]

[(c) Sampling and analytical requirements for TTHM:]

[(1) For the purpose of this section, 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. All samples taken within one sampling period shall be collected within a 24-hour period.]

[(2) For all community water systems utilizing surface water sources in whole or in part, and for all water systems utilizing only groundwater sources that have not been determined to qualify for the reduced monitoring requirements of paragraph (4) of this subsection, analyses for total

trihalomethanes shall be performed on at least four samples of water per quarter from each treatment plant used by the system. At least 25% of the samples shall be taken at locations within the distribution system reflecting the maximum residence time of the water in the system. The remaining 75% shall be taken at representative locations in the distribution system, taking into account number of persons served, different sources of water, and different treatment methods employed. The results of all analyses per quarter shall be arithmetically averaged and reported to the executive director within 30 days of the system's receipt of such results. All samples collected shall be used in computing the average, unless the analytical results are invalidated for technical reasons.]

[3) Upon the written request of a community water system, the monitoring frequency required by paragraph (2) of this subsection may be reduced by the executive director to a minimum of one sample analyzed for TTHMs per quarter taken at a point in the distribution system reflecting the maximum residence time of the water in the system, upon a written determination by the executive director that the data from at least one year of monitoring in accordance with paragraph (2) of this subsection and local conditions demonstrate that total trihalomethane concentrations will be consistently below the maximum contaminant level.]

[(A) If at any time during which the reduced monitoring frequency prescribed under this paragraph applies, the results from any analysis exceed 0.10 milligrams/liter of TTHMs and such results are confirmed by at least one check sample taken promptly after such results are obtained, or if the system makes any significant change to its source of water or treatment program, the system

shall immediately begin monitoring in accordance with the requirements of paragraph (2) of this subsection.]

[(B) If a system is required to begin monitoring in accordance with paragraph (2) of this subsection, such monitoring shall continue for at least one year before a reduction in monitoring frequency may be considered.]

[(4) Upon the written request to the executive director, a community water system utilizing only groundwater sources may seek to have the monitoring frequency reduced to a minimum of one sample for maximum TTHM potential per year taken at a point in the distribution system reflecting maximum residence time of the water in the system. The system shall submit to the executive director the results of at least one sample analyzed for maximum TTHM potential taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The system's monitoring frequency may only be reduced upon a written determination by the executive director that, based upon the data submitted by the system, the system has a maximum TTHM potential of less than 0.10 milligrams/liter and that, based upon an assessment of the local conditions of the system, the system is not likely to approach or exceed the maximum contaminant level for TTHM's. All samples collected shall be used for determining whether the system must comply with the monitoring requirements of paragraph (2) of this subsection, unless the analytical results are invalidated for technical reasons.]

[(A) If at any time during which the reduced monitoring frequency prescribed under this paragraph is in effect, the result from any analysis taken by the system for the maximum TTHM potential is equal to or greater than 0.10 milligrams/liter, and such results are confirmed by at least one check sample taken promptly after such results are received, the system shall begin immediately to monitor in accordance with the requirements of paragraph (2) of this subsection.]

[(B) If it becomes necessary to begin monitoring in accordance with paragraph (2) of this subsection, such monitoring shall continue for at least one year before the monitoring frequency may be reduced.]

[(C) In the event of any significant change to the system's raw water or treatment program, the system shall immediately analyze an additional sample for maximum TTHM potential taken at a point in the distribution system reflecting the maximum residence time of the water in the system for the purpose of determining whether the system must comply with the monitoring requirement of paragraph (2) of this subsection.]

[(5) Compliance with the MCL of 0.10 mg/L or TTHMs shall be determined based on a running annual average of quarterly samples collected by the system as prescribed in paragraph (2) of this subsection. If the average of samples covering any 12-month period exceeds the maximum contaminant level, the public water system shall report to the executive director within 30 days and notify the public as required under §290.122(b) of this title (relating to Public Notification). Monitoring after public notification shall be at a frequency designated by the executive director and

shall continue until a monitoring schedule as a condition of a variance, exemption, or enforcement action shall become effective.]

[(6) Before a community water system makes any significant modification to its existing treatment process for the purpose of achieving compliance with this subsection, the system must submit and obtain approval from the executive director of a detailed plan setting forth its proposed modifications and those safeguards that it will implement to ensure that the bacteriological quality of the drinking water served by such system will not be adversely affected by such modifications.]

[(7) All analyses for determining compliance with the provisions of this section shall be performed in accordance with §290.119 of this title (relating to Analytical Procedures) at a laboratory certified by the executive director.]

[(8) 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 Texas Natural Resource Conservation Commission, Water Supply Division, MC 155, P.O. Box 13087, Austin, Texas 78711-3087.]