30 TAC § 290.110

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Texas Administrative Code* > *TITLE 30. ENVIRONMENTAL QUALITY* > *PART 1. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY* > *CHAPTER 290. PUBLIC DRINKING WATER* > *SUBCHAPTER F. DRINKING WATER STANDARDS GOVERNING DRINKING WATER QUALITY AND REPORTING REQUIREMENTS FOR PUBLIC WATER SYSTEMS

§ 290.110. Disinfectant Residuals

(a) Applicability. All public water systems shall properly disinfect water before it is distributed to any customer and shall maintain acceptable disinfectant residuals within the distribution system.

(b) Minimum and maximum acceptable disinfectant concentrations. Public water systems shall provide the minimum levels of disinfectants in accordance with the provisions of this section. Public water systems shall not exceed the maximum residual disinfectant levels (MRDLs) provided in this section.

(1) The disinfection process used by public water systems must ensure that water has been adequately disinfected before it enters the distribution system.

(A) The disinfection process used by public water systems treating surface water sources or groundwater sources that are under the direct influence of surface water must meet the requirements of § 290.111(d) of this title (relating to Surface Water Treatment).

(B) The executive director may require the disinfection process used by public water systems treating groundwater sources that are not under the direct influence of surface water to meet the requirements of § 290.116 of this title (relating to Groundwater Corrective Actions and Treatment Techniques).

(C) The disinfection process at other types of treatment plants shall provide the level of disinfection required by the executive director.

(2) The residual disinfectant concentration in the water entering the distribution system shall be at least 0.2 milligram per liter (mg/L) free chlorine or 0.5 mg/L chloramine.

(3) The chlorine dioxide residual of the water entering the distribution system shall not exceed an MRDL of 0.8 mg/L.

(4) The residual disinfectant concentration in the water within the distribution system shall be at least 0.2 mg/L free chlorine or 0.5 mg/L chloramine.

(5) The running annual average of the free chlorine or chloramine residual of the water within the distribution system shall not exceed an MRDL of 4.0 mg/L.

(c) Monitoring requirements. Public water systems shall monitor the performance of the disinfection facilities to ensure that appropriate disinfectant levels are maintained. All monitoring conducted pursuant to the requirements of this section must be conducted at sites designated in the public water system's monitoring plan.

(1) Public water systems that treat surface water or groundwater under the direct influence of surface water must verify that they meet the disinfection requirements of subsection (b)(2) of this section.

(A) Public water systems that treat surface water or groundwater under the direct influence of surface water and sell treated water on a wholesale basis or serve more than 3,300 people must continuously monitor and record the disinfectant residual of the water entering the distribution

system. If there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment.

(B) Public water systems that treat surface water or groundwater under the direct influence of surface water, serve 3,300 or fewer people and do not sell treated water on a wholesale basis must monitor and record the disinfectant residual of the water entering the distribution system with either continuous monitors or grab samples. (i) If a system uses grab samples, the samples must be collected on an ongoing basis at the frequency prescribed in the following table.

[See table, form or illustration in printed version] (ii) The grab samples cannot be taken at the same time and the sampling interval is subject to the executive director's review and approval. (iii) Treatment plants that use grab samples and fail to detect an appropriate disinfectant residual must repeat the test at four-hour or shorter intervals until compliance has been reestablished.

(2) Public water systems that treat groundwater or that purchase and resell treated water must, upon the request of the executive director, verify that they meet the disinfection requirements of subsection (b)(2) of this section.

(3) Each treatment plant using chlorine dioxide must monitor and record the chlorine dioxide residual of the water entering the distribution system at least once each day. If the chlorine dioxide residual in the water entering the distribution system exceeds the MRDL contained in subsection (b)(3) of this section, the treatment plant must conduct additional tests.

(A) If the public water system does not have additional chlorination facilities in the distribution system, it must conduct three additional tests at the service connection nearest the treatment plant where an elevated chlorine dioxide residual was detected. The first additional test must be conducted within two hours after detecting an elevated chlorine dioxide residual at the entry point to the distribution system. The two subsequent tests must be conducted at six-hour to eight-hour intervals thereafter.

(B) If the public water system has additional chlorination facilities in the distribution system, it must conduct an additional test at the service connection nearest the treatment plant where an elevated chlorine dioxide residual was detected, an additional test at the first service connection after the point where the water is rechlorinated, and an additional test at a location in the far reaches of the distribution system. The additional test at the location nearest the treatment plant must be conducted within two hours after detecting an elevated chlorine dioxide residual at the entry point to the distribution system. The two other tests must be conducted at six-hour to eight-hour intervals thereafter.

(4) Public water systems shall monitor the disinfectant residual at various locations throughout the distribution system.

(A) Public water systems that use groundwater or purchased water sources only and serve fewer than 250 connections and fewer than 750 people daily, must monitor the disinfectant residual at representative locations in the distribution system at least once every seven days.

(B) Public water systems that serve at least 250 connections or at least 750 people daily, and use only groundwater or purchased water sources must monitor the disinfectant residual at representative locations in the distribution system at least once per day.

(C) Public water systems using surface water sources or groundwater under the direct influence of surface water must monitor the disinfectant residual tests at least once per day at representative locations in the distribution system.

(D) All public water systems must monitor the residual disinfectant concentration each time that a bacteriological sample is collected, as specified in § 290.109 of this title (relating to Microbial Contaminants).

(d) Analytical requirements. All monitoring required by this section must be conducted at a facility approved by the executive director and using methods that conform to the requirements of § 290.119 of this title (relating to Analytical Procedures).

(1) The free chlorine or chloramine residual must be measured to a minimum accuracy of plus or minus 0.1 mg/L. Samples tested using a colorimetric method must be analyzed using a colorimeter; spectrophotometer; or, with the written permission of the executive director, a color comparator.

(2) The chlorine dioxide residual must be measured to a minimum accuracy of plus or minus 0.05 mg/L using one of the following methods:

(A) the amperometric titration method using a titrator with platinum-platinum electrodes;

(B) the spectrophotometric Lissamine Green B method; or

(C) with the written permission of the executive director, the DPD-glycine method using a colorimeter or spectrophotometer.

(e) Reporting requirements. Any owner or operator of a public water system subject to the provisions of this section is required to report to the executive director the results of any test, measurement, or analysis required by this section.

(1) Systems exceeding the MRDL for chlorine dioxide in subsection (b)(3) of this section must report the exceedance to the executive director within 24 hours of the event.

(2) Public water systems that use surface water sources or groundwater sources under the direct influence of surface water must submit a Surface Water Monthly Operating Report (commission Form 0102C) or a Surface Water Monthly Operating Report for 2-Filter Plants (commission Form 0103) each month.

(3) Public water systems that use chlorine dioxide must submit a Chlorine Dioxide Monthly Operating Report (commission Form 0690) each month.

(4) Public water systems that use purchased water or groundwater sources only must complete a Disinfection Level Quarterly Operating Report (DLQOR, commission Form 20067) each quarter.

(A) Community and nontransient noncommunity public water systems must submit the Disinfection Level Quarterly Operating Report each quarter, by the tenth day of the month following the end of the quarter.

(B) Transient noncommunity public water systems must retain the Disinfection Level Quarterly Operating Reports and must provide a copy if requested by the executive director.

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

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

(1) All samples used for compliance must be obtained at sampling sites designated in the monitoring plan.

(A) All samples collected at sites designated in the monitoring plan as microbiological and disinfectant residual monitoring sites shall be included in the compliance determination calculations.

(B) Samples collected at sites in the distribution system not designated in the monitoring plan shall not be included in the compliance determination calculations.

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

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

(4) A public water system that uses surface water sources or groundwater sources under the direct influence of surface water and fails to meet the requirements of subsection (b)(2) of this section for a period longer than four consecutive hours commits a nonacute treatment technique violation. A public water system that fails to conduct the additional testing required by subsection (c)(1)(B)(iii) of this section also commits a nonacute treatment technique violation.

(5) A public water system that uses chlorine dioxide and exceeds the level specified in subsection (b)(3) of this section violates the MRDL for chlorine dioxide.

(A) If a public water system violates the MRDL for chlorine dioxide and any of the three additional distribution samples exceeds the MRDL, the system commits an acute MRDL violation for chlorine dioxide.

(B) If a public water system violates the MRDL for chlorine dioxide and fails to collect each of the three additional distribution samples required by subsection (c)(3) of this section, the system commits an acute MRDL violation for chlorine dioxide.

(C) If a public water system violates the MRDL for chlorine dioxide but none of the three additional distribution samples violates the MRDL, the system commits a nonacute MRDL violation for chlorine dioxide.

(6) A public water system that fails to meet the requirements of subsection (b)(4) of this section, in more than 5.0% of the samples collected each month, for any two consecutive months, commits a nonacute treatment technique violation. Specifically, the system commits a nonacute violation if the value ″V″ in the following formula exceeds 5.0% per month for any two consecutive months:

[See table, form or illustration in printed version]

(7) A public water system violates the MRDL for chlorine or chloramine if, at the end of any quarter, the running annual average of monthly averages exceeds the level specified in subsection (b)(5) of this section.

(8) Notwithstanding the MRDLs listed in subsection (b) of this section, operators shall increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health to address specific microbiological contamination problems caused by circumstances such as distribution line breaks, storm runoff events, source water contamination, or cross-connections.

(9) If a public water system's failure to monitor makes it impossible to determine compliance with the MRDL for chlorine or chloramines, the system commits an MRDL violation for the entire period covered by the annual average.

(10) A public water system that fails to issue a required public notice or certify that it has issued that notice commits a violation.

(g) Public notification requirements. 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 fails to meet the requirements of subsection (b)(3) of this section, shall notify the executive director within 24 hours of the event and the customers in accordance with the requirements of § 290.122 of this title (relating to Public Notification).

(A) A public water system that has an acute violation of the MRDL for chlorine dioxide must notify the customers in accordance with the requirements of § 290.122(a) of this title.

(B) A public water system that has a non-acute violation of the MRDL for chlorine dioxide must notify the customers in accordance with the requirements of § 290.122(b) of this title.

(2) A public water system that uses surface water sources or groundwater sources under the direct influence of surface water and fails to meet the minimum disinfection requirements of subsection (b)(2) of this section shall notify the executive director by the end of the next business day and the customers in accordance with the requirements of § 290.122(b) of this title.

(3) A public water system that fails to meet the requirements of subsection (b)(4) of this section in more than 5.0% of the samples collected each month for two consecutive months must notify its customers.

(A) A public water system that uses surface water or groundwater under the direct influence of surface water must notify its customers in accordance with the requirements of § 290.122(b) of this title.

(B) A public water system that uses only groundwater or purchased water must notify its customers when it issues its annual consumer confidence report.

(4) A public water system that fails to meet the requirements of subsection (b)(5) of this section shall notify the executive director by the end of the next business day and the customers in accordance with the requirements of § 290.122(b) of this title.

(5) A public water system which fails to conduct the monitoring required by this section must notify its customers of the violation in accordance with the requirements of § 290.122(c) of this title.

History

SOURCE:

The provisions of this § 290.110 adopted to be effective September 13, 2000, *25 TexReg 8880*; amended to be effective May 16, 2002, *27 TexReg 4127*; amended to be effective January 9, 2008, *33 TexReg 198*; amended to be effective November 8, 2012, *37 TexReg 8849*

Annotations

Research References & Practice Aids

CROSS-REFERENCES:

This Section cited in *30 TAC § 290.38*, (relating to Definitions); *30 TAC § 290.46*, (relating to Minimum Acceptable Operating Practices for Public Drinking Water Systems); *30 TAC § 290.42*, (relating to Water

Treatment); *30 TAC § 290.104*, (relating to Summary of Maximum Contaminant Levels, Maximum Residual Disinfectant Levels, Treatment Techniques, and Action Levels); *30 TAC § 290.121*, (relating to Monitoring Plans); *30 TAC § 290.122*, (relating to Public Notification).

This Chapter cited in *30 TAC § 37.5001*, (relating to Applicability); *30 TAC § 210.25*, (relating to Special Design Criteria for Reclaimed Water Systems); *30 TAC § 291.93*, (relating to Adequacy of Water Utility Service); *30 TAC § 307.6*, (relating to Toxic Materials); *30 TAC § 307.7*, (relating to Site-Specific Uses and Criteria); 30 TAC § 321.275, (relating to Waste Utilization or Disposal by Land Application of Wastewater and Pond Bottom Sludges); *30 TAC § 331.184*, (relating to Operating Requirements); *30 TAC § 307.3*, (relating to Definitions and Abbreviations).

This Subchapter cited in *30 TAC § 230.2*, (relating to Definitions); *30 TAC § 230.9*, (relating to Determination of Groundwater Quality); *30 TAC § 290.272*, (relating to Content of the Report); *30 TAC § 290.38*, (relating to Definitions); *30 TAC § 290.41*, (relating to Water Sources); *30 TAC § 290.42*, (relating to Water Treatment); *30 TAC § 290.46*, (relating to Minimum Acceptable Operating Practices for Public Drinking Water Systems).