pending complete loss mitigation application under this paragraph (k)(4) must comply with the requirements of this section for such application, including evaluating the borrower for all loss mitigation options available to the borrower from the transferee servicer. For purposes of paragraph (c) or (k)(3) of this section, as applicable, such a pending complete loss mitigation application shall be considered complete as of the date the appeal was received by the transferee servicer or the transferee servicer, whichever occurs first. For purposes of paragraphs (e) through (h) of this section, the transferee servicer must treat such a pending complete loss mitigation application as facially complete under paragraph (e)(2)(iv) as of the date it was first facially complete or complete, as applicable, with respect to the transferee servicer.

(5) Pending loss mitigation offers. A transfer does not affect a borrower’s ability to accept or reject a loss mitigation option offered under paragraph (c) or (h) of this section. If a transferee servicer acquires the servicing of a mortgage loan for which the borrower’s time period under paragraph (e) or (h) of this section for accepting or rejecting a loss mitigation option offered by the transferee servicer has not expired as of the transfer date, the transferee servicer must allow the borrower to accept or reject the offer during the unexpired balance of the applicable time period.


Nothing in this chapter pre-empts or alters the requirements of the act of January 30, 1974 (P.L. 13, No. 6) (Act 6) (41 P.S. §§ 101—605), and the regulations in Chapter 7 (relating to residential real estate transactions), or the requirements of the act of December 23, 1983 (P.L. 385, No. 91) (Act 91), the Homeowners’ Emergency Mortgage Assistance Program and regulations in 12 Pa. Code Chapter 31 (relating to Housing Finance Agency). All mortgage servicing licensees must comply with Acts 6 and 91.

§ 59.15. Additional notices.

All licensees must comply with the notices required under the act of January 30, 1974 (P.L. 13, No. 6) (41 P.S. §§ 101—605), found in § 7.4 (relating to notice of intention to foreclose mortgage), and the notice required by the act of December 23, 1983 (P.L. 385, No. 91), the Homeowners’ Emergency Mortgage Assistance Program regulation in 12 Pa. Code § 31.309 (relating to other program requirements).

Pa.B. Doc. No. 18-666. Filed for public inspection April 27, 2018, 9:00 a.m.

Title 25—ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD [25 PA. CODE CH. 109]
Disinfection Requirements Rule

The Environmental Quality Board (Board) amends Chapter 109 (relating to safe drinking water) to read as set forth in Annex A. This final-form rulemaking will strengthen water system requirements related to microbial protection and disinfection requirements.

This final-form rulemaking also includes minor clarifications to ensure consistency with and obtain or maintain primary enforcement authority for several Federal rules promulgated by the United States Environmental Protection Agency (EPA), including the Stage 2 Disinfectants/Disinfection Byproducts Rule (Stage 2 DBPR) (71 FR 388 (January 4, 2006)), Long Term 2 Enhanced Surface Water Treatment Rule (LT2) (71 FR 654 (January 5, 2006)) and the Lead and Copper Rule Short-Term Revisions (LCRSTR) (72 FR 57782 (October 10, 2007)). Chapter 109 was previously amended to implement these Federal rules. See 39 Pa.B. 7279 (December 26, 2009), regarding Stage 2 DBPR and LT2, and 40 Pa.B. 7212 (December 18, 2010), regarding LCRSTR.

This final-form rulemaking will protect public health through a multiple barrier approach designed to guard against microbial contamination by ensuring the adequacy of treatment designed to inactivate microbial pathogens and by ensuring the integrity of drinking water distribution systems.

Safe drinking water is vital to maintaining healthy and sustainable communities. Proactively avoiding incidents such as waterborne disease outbreaks can prevent loss of life, reduce the incidence of illness and reduce health care costs. Proper investment in public water system infrastructure and operations helps ensure a continuous supply of safe drinking water, enables communities to plan and build future capacity for economic growth, and ensures their long-term sustainability.

The disinfectant residual requirements in the distribution system will apply to all 1,949 community water systems and those noncommunity water systems that have installed disinfection (746) for a total of 2,685 public water systems. These public water systems serve a total population of 11.5 million people.

The CT/log inactivation monitoring and reporting requirements will apply to all 353 filter plants which are operated by 319 water systems.

This final-form rulemaking was adopted by the Board at its meeting of December 12, 2017.

A. Effective Date

This final-form rulemaking is effective upon publication in the Pennsylvania Bulletin. Based on advisory committee and public comments, this final-form rulemaking includes the following deferred implementation dates:

- The submission of a sample siting plan is required 6 months after the effective date to allow time for development of the plan.
- The development of a nitrification control plan is required 1 year after the effective date.
- The amended monitoring, reporting and treatment technique requirements for the disinfectant residual in the distribution system are required 1 year after the effective date to allow additional time for operational changes and to effectively increase disinfectant residuals to 0.2 milligram per liter (mg/L) throughout the distribution system. If additional time is needed for capital improvements or to complete more substantial operational changes, a system-specific compliance schedule may be requested.

B. Contact Persons

For further information, contact Lisa D. Daniels, Director, Bureau of Safe Drinking Water, P.O. Box 8467, Rachel Carson State Office Building, Harrisburg, PA 17105-8467, (717) 787-9633; or William Cumings, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the
Pennsylvania AT&T Relay Service at (800) 654-5984 (TDD users) or (800) 654-5988 (voice users).

C. Statutory Authority

This final-form rulemaking is being made under the authority of section 4 of the Pennsylvania Safe Drinking Water Act (SDWA) (35 P.S. § 721.4), which grants the Board the authority to adopt rules and regulations governing the provision of drinking water to the public, and section 1920-A of the Administrative Code of 1929 (71 P.S. § 510-20), which authorizes the Board to promulgate rules and regulations necessary for the performance of the work of the Department of Environmental Protection (Department).

D. Background and Purpose

Amendments to surface water treatment regulations regarding monitoring and reporting

This final-form rulemaking includes new monitoring and reporting requirements to ensure compliance with existing treatment techniques regarding log inactivation and CT requirements. Log inactivation is a measure of the amount of viable microorganisms that are rendered nonviable during disinfection processes. CT is the product of residual disinfectant concentration (C) and disinfectant contact time (T). The CT value is used to determine the levels of inactivation under various operating conditions.

Public water systems using surface water or groundwater under the direct influence of surface water (GUDI) sources have long been required to meet log inactivation and CT requirements for the inactivation of Giardia cysts and viruses. These existing treatment technique requirements are intended to ensure that water systems provide adequate and continuous disinfection for the inactivation of pathogens. The only way to ensure compliance with the existing treatment techniques is to measure and record the data elements that are needed to calculate CTs (that is, disinfectant residual, temperature, pH, flow and volume) and report the results.

This final-form rulemaking also clarifies and strengthens the minimum residual disinfectant level at the entry point by adding a zero to the minimum level (0.20 mg/L). Water suppliers will be required to maintain a residual that is equal to or greater than 0.20 mg/L. Currently, levels of 0.15 mg/L or higher round up to 0.2 mg/L and are considered in compliance. A level of 0.20 mg/L is necessary due to the importance of meeting CTs and of maintaining an adequate disinfectant residual in the water entering the distribution system. Also, this level of sensitivity is consistent with existing requirements for the Groundwater Rule (0.40 mg/L) as specified in § 109.1302(a)(2) (relating to treatment technique requirements). Finally, this level of sensitivity is achievable using current instrumentation for the measurement of disinfectant residuals.

Amendments to disinfectant residual requirements in the distribution system

This final-form rulemaking is intended to strengthen the distribution system disinfectant residual requirements by increasing the minimum residual in the distribution system to 0.2 mg/L free or total chlorine. The Department’s previous disinfectant residual requirements for distribution systems had not been substantially updated since 1992 and required the maintenance of a detectable residual that was defined as 0.02 mg/L. The Department’s previous treatment technique was not protective of public health because a residual of 0.02 mg/L is below the minimum reporting level of 0.1 mg/L and represents a false positive reading.

Maintenance of a disinfectant residual in the distribution system is:

- Required under the Federal Surface Water Treatment Rule (40 CFR Part 141, Subpart H (relating to filtration and disinfection)) for all systems using surface water and GUDI sources and under Chapter 109 for all community water systems and those noncommunity water systems that have installed disinfection.
- Designated by the EPA as the best available technology for compliance with both the Total Coliform Rule (TCR) and the Revised TCR.
- Considered an important element in a multiple barrier strategy aimed at maintaining the integrity of the distribution system and protecting public health.
- Intended to maintain the integrity of the distribution system by inactivating microorganisms in the distribution system, indicating distribution system upset and controlling biofilm growth.

The proposed rulemaking was published at 46 Pa.B. 857 (February 20, 2016). The preamble included numerous studies, reports and data in support of the minimum disinfectant residual of 0.2 mg/L in the distribution system. Additional studies, reports and data were reviewed for this final-form rulemaking.

The EPA published a Six-Year Review 3 (SYR 3) Technical Support Document for Microbial Contaminant Regulations in December 2016. The 1996 amendments to the Federal Safe Drinking Water Act (42 U.S.C.A. §§ 300f—300j-27) require the EPA to periodically review existing National primary drinking water regulations and determine which, if any, need to be revised. The purpose of the review, called the SYR, is to identify those regulations for which current health effects assessments, changes in technology, analytical methods, occurrence and exposure, implementation or other factors will improve or strengthen public health protection.

As part of the SYR 3, the EPA requested comprehensive monitoring data from states/tribes from 2006—2011 regarding the presence/absence of total coliforms, E. coli and fecal coliforms, and data for disinfectant residual levels in the distribution system. Microbial contaminant data from 34 states/tribes met the quality assurance/quality control criteria and are included in the SYR 3 microbial dataset.

Using the SYR 3 data, the EPA conducted an occurrence analysis of microbial indicators paired with disinfectant residual data that are measured at the same time and location. The five bins of free and total chlorine residual concentrations are as follows:

- Bin 1: Concentrations equal to 0 (“not detected or below detection limit”)
- Bin 2: Concentrations >0 and ≤0.2 mg/L
- Bin 3: Concentrations >0.2 mg/L and ≤0.5 mg/L
- Bin 4: Concentrations >0.5 mg/L and <1.0 mg/L
- Bin 5: Concentrations >1.0 mg/L

This represents the first National dataset available to evaluate microbial data as a function of disinfectant residual. More than 5 million samples were used for this analysis. The following figures represent a summary of the EPA’s findings.
Figure 1. Summary of percent (%) positive routine total coliform samples for each bin of free and total chlorine residual concentrations (mg/L) from SYR 3 dataset (2006—2011). Dataset = 5.434 million samples.

The EPA found that for routine samples with free chlorine, the highest percentage of samples that were positive occurred when free chlorine was equal to 0 mg/L (“not detected”). The percentages dropped by more than half for the >0—0.2 mg/L bin, then appeared to flatten when free chlorine was >0.2 mg/L. The total coliform positive rate was less than 1% when chlorine residuals were greater than or equal to 0.2 mg/L of free chlorine. The EPA found that the trend is similar for total chlorine routine samples except that for total coliforms, the percent of positive samples was slightly higher for the >0—0.2 mg/L bin than for the 0 mg/L bin.

Figure 2. Summary of percent (%) positive routine fecal coliform/E. coli samples for each bin of free and total chlorine residual concentrations (mg/L) from SYR 3 dataset (2006—2011). Dataset = 5.434 million samples.

The EPA found that the trend is similar for fecal coliforms/E. coli positive samples. For total chlorine routine samples, percent positive fecal coliform/E. coli results for the >0.2 mg/L—0.5 mg/L bin were slightly higher than for the >0.5 mg/L—1.0 mg/L bin and the >1.0 bin, indicating a possible tailing off of the positive occurrence at 0.5 mg/L for total chlorine compared to tailing at 0.2 mg/L free chlorine.

Figure 3. Summary of percent (%) positive repeat total coliform samples for each bin of free and total chlorine residual concentrations (mg/L) from SYR 3 dataset (2006—2011). Dataset = 5.434 million samples.

As expected, the EPA found that the percentage of positive total coliform samples was much higher overall for repeat samples than for routine samples. More than 40% of repeat total coliform samples were positive when free chlorine was 0 mg/L, compared to a slightly lower repeat total coliform positive occurrence of ~29% when the total chlorine was 0 mg/L. Similar to routine samples, repeat total coliform positive occurrence declined as free and total chlorine residual increased, with a flattening of occurrence at 0.5 mg/L for both free and total chlorine residuals.

Figure 4. Summary of percent (%) positive repeat fecal coliform/E. coli samples for each bin of free and total chlorine residual concentrations (mg/L) from SYR 3 dataset (2006—2011). Dataset = 5.434 million samples.

The EPA found that the trend is similar for fecal coliforms/E. coli positive samples.

In summary, based on an assessment of 5.434 million samples, the EPA determined the following:

- A lower rate of both total coliform and fecal coliform/E. coli positives occurs as the free or total chlorine residual increased to higher levels.
- This relationship between chlorine residuals and occurrence of total coliform and fecal coliform/E. coli
positives was similar to results reported by the Colorado Department of Public Health and Environment (Ingels, 2015). In addition, this relationship is consistent with the findings of LeChevallier, et al. (1996) which stated that disinfectant residuals of 0.2 mg/L or more of free chlorine, or 0.5 mg/L or more of total chlorine, are associated with reduced levels of coliform bacteria. Both of these studies were previously discussed in the preamble of the proposed rulemaking.

- A detectable concentration of disinfectant residual in the distribution system may not be adequately protective of public health due to microbial pathogens. This is based on concerns about analytical methods and the potential for false positives (Wahman and Pressman, 2015). According to the EPA, maintaining a disinfectant residual above a set numerical value in the distribution system may improve public health protection from a variety of pathogens.

The EPA’s concerns about the analytical methods and the potential for false positives is consistent with information provided by HACH®, the leading manufacturer of field test equipment. HACH® provided information to the Small Water Systems Technical Assistance Center (TAC) Board during the development of the proposed rule-making that supported a minimum reporting level for a disinfectant residual of 0.1 mg/L. Details about this data were included in the preamble of the proposed rule-making.

This determination is also consistent with a detection limit study that was performed by Aqua Pennsylvania in 2015 in conjunction with the Philadelphia Water Department and Corona Environmental Consulting. A summary of these experiments was included in Aqua Pennsylvania’s public comments. According to Aqua Pennsylvania:

- Aqua Pennsylvania’s laboratory conducted 199 determinations for total chlorine residual by the N₂N Diethyl-1,4 Phenylene diamine Sulfate (DPD) method using the HACH Pocket Colorimeter II.
- Seven spike concentrations were used: 0.02 mg/L to 0.65 mg/L total chlorine.
- While method performance generally improved as spike concentration increased, performance did not clearly degrade at a specific concentration. The range of 0.1 mg/L to 0.2 mg/L was not unreasonable as a minimum reporting level.
- These data should be viewed as one piece of information on the topic. A much larger project and National discussion of a “true detectable residual” is needed.

To ensure that the Department’s disinfectant residual requirements are adequately protective of public health and are achievable using currently available analytical methods, the Department has retained the level of 0.2 mg/L as a numeric standard. This level represents a standard that is above the minimum reporting level of 0.1 mg/L. Due to the EPA’s rules of rounding for compliance determinations, disinfectant residual levels ≥0.15 mg/L will round up to 0.2 mg/L and will be in compliance with the numeric standard.

State data
At least 23 states have promulgated more stringent requirements when compared to the Commonwealth’s previous standard of 0.02 mg/L. Nineteen of these states have disinfectant residual requirements that are ≥0.2 mg/L. The following table includes a summary of other states’ requirements, including whether the state allows compliance with the heterotrophic plate count (HPC) standard of 500 as an alternative compliance criteria (ACC).

<table>
<thead>
<tr>
<th>State</th>
<th>Minimum Distribution System Residual (mg/L)</th>
<th>Allows HPC as ACC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama*</td>
<td>0.2 (free), 0.5 (total)</td>
<td>No</td>
</tr>
<tr>
<td>Colorado*</td>
<td>0.2 (free or total)</td>
<td>Yes</td>
</tr>
<tr>
<td>Delaware</td>
<td>0.3 (free)</td>
<td>No</td>
</tr>
<tr>
<td>Florida*</td>
<td>0.2 (free), 0.6 (total)</td>
<td>No</td>
</tr>
<tr>
<td>Georgia</td>
<td>0.2 (free)</td>
<td>Yes</td>
</tr>
<tr>
<td>Illinois*</td>
<td>0.2 (free), 0.5 (total)</td>
<td>No</td>
</tr>
<tr>
<td>Indiana</td>
<td>0.2 (free), 0.5 (total)</td>
<td>No</td>
</tr>
<tr>
<td>Iowa</td>
<td>0.3 (free), 1.5 (total)</td>
<td>Yes</td>
</tr>
<tr>
<td>Kansas*</td>
<td>0.2 (free), 1.0 (total)</td>
<td>No</td>
</tr>
<tr>
<td>Kentucky*</td>
<td>0.2 (free), 0.5 (total)</td>
<td>No</td>
</tr>
<tr>
<td>Louisiana*</td>
<td>0.5 (free or total)</td>
<td>No</td>
</tr>
<tr>
<td>Minnesota</td>
<td>0.1 (free or total)</td>
<td>No</td>
</tr>
<tr>
<td>Missouri</td>
<td>0.2 (total)</td>
<td>Yes</td>
</tr>
<tr>
<td>Nebraska</td>
<td>SW-0.2 (free), 0.25 or 0.5 (total); GW-0.1 (free)</td>
<td>Yes</td>
</tr>
<tr>
<td>Nevada</td>
<td>0.05 (free or total)</td>
<td>No</td>
</tr>
<tr>
<td>New Jersey*</td>
<td>0.05 (free or total)</td>
<td>Yes</td>
</tr>
<tr>
<td>North Carolina*</td>
<td>0.2 (free), 1.0 (total)</td>
<td>Yes</td>
</tr>
<tr>
<td>Ohio*</td>
<td>0.2 (free), 1.0 (total)</td>
<td>No</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>0.2 (free), 1.0 (total)</td>
<td>No</td>
</tr>
<tr>
<td>Tennessee*</td>
<td>0.2 (free)</td>
<td>No</td>
</tr>
<tr>
<td>Texas*</td>
<td>0.2 (free), 0.5 (total)</td>
<td>No</td>
</tr>
</tbody>
</table>
Of the 19 states with disinfectant residual requirements ≥0.2 mg/L, only 6 of these states retained the alternative compliance criteria for HPC. The Board requested comment on references to studies, reports or data that provide supporting evidence that an HPC <0.5D provides an equivalent level of public health protection when compared to a disinfectant residual of 0.2 mg/L. One citation was provided. However, the EPA document that was referenced was an unpublished draft document. Because of the lack of available studies on this issue and the fact that the majority of states (68%) previously listed do not allow the use of HPC as an ACC, the Board has reaffirmed the decision to not allow the use of HPC as an ACC.

A disinfectant residual serves as an indicator of distribution system contamination and the effectiveness of distribution system best management practices. Best management practices include flushing, storage tank maintenance, cross-connection control, leak detection, and effective pipe replacement and repair practices. The effectiveness of implementation of best management practices will help water suppliers comply with the disinfectant residual treatment technique by lowering chlorine demand and maintaining an adequate disinfectant residual throughout the distribution system. These same practices also help to control DBP formation.

Water systems that have participated in the Department’s Distribution System Optimization Program have shown great success in utilizing operational changes and other lower cost options to maintain simultaneous compliance with adequate disinfectant residual levels and DBPs. Following are case studies from the Distribution System Optimization Program:

**System A:** This system serves 13,000 customers through 2,974 connections, uses free chlorine, has 1 standpipe and a distribution system storage capacity of 1.25 million gallons.

- **Historical problems:** This system experienced an upward trend in trihalomethane (THM) levels leading to drinking water locational running annual average (LRRAA) MCL exceedences in 2 consecutive quarters and hydraulic dead-ends in portions of the distribution system requiring significant flushing to maintain a detectable residual.
  - Technical assistance efforts: Department and system staff conducted in-plant water quality profiling (disinfectant residual, total organic carbon, pH and DBPs), distribution system investigative sampling, in-tank water quality monitoring and storage tank continuous disinfectant residual monitoring for 1 month.
  - Evaluation findings: The evaluation found significant in-plant DBP formation, and high levels of THMs and low disinfectant residuals associated with stratification of standpipe.
  - Remedies: The system decreased the pre-filtration chloride feed rate to reduce in-plant THM formation resulting in a return to compliance with the LRRAA MCL and increased the frequency and duration of routine distribution system flushing in problematic areas to maintain a minimum residual of 0.20 mg/L free chlorine. The system is currently evaluating the benefit of additional measures including the use of a mixing aeration system for the standpipe and automatic flushing units in problematic areas of the distribution system.

**System B:** This system serves 8,600 customers through 3,175 connections, uses chloramines for secondary disinfection, has 2 standpipes, 3 ground level tanks and a distribution system storage capacity of 4.755 million gallons.

- **Historical problems:** This system had difficulty maintaining a disinfectant residual throughout high- and low-pressure zones.
  - Technical assistance efforts: Department and system staff conducted a chloramination and hold study, entry point hold study, distribution system investigative sampling, in-tank water quality monitoring, storage tank turnover analysis and storage tank continuous disinfectant residual monitoring for 1 month.
  - Evaluation findings: The evaluation found uneven chlorine dosing at the end of the sedimentation basin, poor control and monitoring of ammonia dosing prior to the entry point, highly reactive monochloramine residual degraded completely within 48 hours, poor mixing performance and excessive storage tank turnover time (~15 days), trace disinfectant residual in both standpipes and areas of nondetect monochloramine residual in both pressure zones.
  - Remedies: The system developed a weir system to increase mixing at the chlorine dosing location in the sedimentation basins, began routine testing of ammonia strength and feed rates, began routine grab sample monitoring of free ammonia and monochloramine to achieve more precise ammonia dosing, increased flushing of problematic areas of the distribution system to maintain monochloramine residual of 1.0 mg/L, modified operations of storage tanks to decrease turnover time by ~50%, removed the standpipe from service to decrease excessive storage capacity by 1 million gallons and began system-wide flushing of the distribution system in coordination with free chlorine burns to minimize transitional...
mixing zones. The system is currently evaluating the benefit of automatic flushing units in problematic areas of the distribution system.

**System C:** This system serves 6,000 customers through 2,900 connections, uses free chlorine and has 2 ground level storage tanks.
- **Historical problems:** This system had difficulty maintaining a disinfectant residual throughout the distribution system.
- **Technical assistance efforts:** Department and system staff conducted distribution system investigative sampling.
- **Evaluation findings:** The evaluation found that extremities within the distribution system had free chlorine residuals <0.10 mg/L and required significant flushing to maintain residuals >0.20 mg/L.
- **Remedies:** The system performed a flushing study to identify locations for installation of automatic flushing units and installed three automatic flushing units to create an artificial demand in areas of low disinfectant residuals.

**System D:** This system serves 7,800 customers through 4,382 connections, uses free chlorine, has 2 ground level storage tanks and a distribution system storage capacity of 4.5 million gallons.
- **Historical problems:** This system had difficulty maintaining disinfectant residuals at the master meters of consecutive systems.
- **Technical assistance efforts:** Department and system staff conducted in-tank water quality monitoring, storage tank turnover analysis and storage tank continuous disinfectant residual monitoring for 1 month.
- **Evaluation findings:** The evaluation found poor mixing performance and excessive storage tank turnover (15—22 days) and significant impact from storage tanks on disinfectant residuals in areas of influence.
- **Remedies:** The system modified operation of storage tanks to decrease turnover time and stratification as well as decrease degradation of disinfectant residuals.

**System E:** This system serves 25,500 customers through 9,300 connections, uses free chlorine, has 5 ground level storage tanks, 1 elevated tank and a distribution system storage capacity of 7.25 million gallons.
- **Historical problems:** This system had low disinfectant residuals at the master meter from the selling system and had difficulty maintaining residuals in portions of the distribution system.
- **Technical assistance efforts:** Department and system staff conducted a master meter hold study, in-tank water quality monitoring, storage tank turnover analysis and storage tank continuous disinfectant residual monitoring for 1 week.
- **Evaluation findings:** The evaluation found rapid degradation of free chlorine residual due to the purchase of chloraminated water at the master meter, poor mixing performance and excessive storage tank turnover (7-8 days), and significant impact of storage tanks on disinfectant residual in areas of influence.
- **Remedies:** The system increased communication with the selling system, modified its residual boosting strategy at the master meter and increased monitoring, and modified its operation of storage tanks to decrease turnover time and stratification as well as decrease degradation of disinfectant residual.

**System F:** This system serves 10,000 customers through 4,927 connections, uses free chlorine, has 4 ground level tanks, 1 elevated tank, 1 stand pipe and a distribution system storage capacity of 3.2 million gallons.
- **Historical problems:** This system had difficulty maintaining disinfectant residuals throughout the distribution system during summer and early fall.
- **Technical assistance efforts:** Department and system staff conducted a storage tank turnover analysis and distribution system and storage tank continuous disinfectant residual monitoring for 2 weeks.
- **Evaluation findings:** The evaluation found significant impact from storage tanks on the disinfectant residual in areas of influence and that storage tank operations were based on plant production rather than distribution system water quality data.
- **Remedies:** The system increased water quality data collection in the distribution system, modified storage tank operation based on water quality data, and removed a storage tank from service to reduce total distribution system capacity.

**System G:** This system serves 33,000 customers through 15,000 connections, uses free chlorine, has 4 ground level storage tanks, 1 standpipe and a distribution system storage capacity of 6 million gallons.
- **Historical problems:** This system had difficulty maintaining disinfectant residuals throughout the distribution system during summer and early fall.
- **Technical assistance efforts:** Department and system staff conducted a storage tank turnover analysis and storage tank continuous disinfectant residual monitoring for 2 weeks.
- **Evaluation findings:** The evaluation found poor mixing performance and excessive storage tank turnover time (~8 days).
- **Remedies:** The system installed mixing systems in storage tanks where stratification was observed to homogenize water quality.

**System H:** This system serves 18,000 customers through 8,200 connections, uses free chlorine, has 3 ground level storage tanks, 1 elevated tank and a distribution system storage capacity of 4.75 million gallons.
- **Historical problems:** This system had elevated THM and haloacetic acid levels.
- **Technical assistance efforts:** Department and system staff conducted a storage tank turnover analysis and storage tank continuous disinfectant residual monitoring at multiple locations over 3 months.
- **Evaluation findings:** The evaluation found significant impact from storage tanks on disinfectant residuals in areas of influence and poor mixing performance and excessive storage tank turnover time (6.2—12.5 days).
- **Remedies:** The system installed mixing systems in storage tanks where stratification was observed to homogenize water quality and modified storage tank operation to decrease turnover time.

Water suppliers can obtain more information about these distribution system assessment and optimization tools from the Department's web site at www.dep.pa.gov (keyword: distribution system optimization).

The Board requested comment on several aspects of the proposed rulemaking, including:
1. Additional studies and reports regarding detection limits for free and total chlorine residual analysis in the field.

The Board received one study and the data were used to inform decisions about the minimum reporting level.

2. Studies, reports or data that support a disinfectant residual of 0.1 mg/L or any other disinfectant residual that is equally protective of public health.

The Board received disinfectant residual and microbial data from six water systems. Following is a summary of the data:

**System A:** Large system; provided summary disinfectant residual data from 2004—2014; of the 36,500 samples analyzed, only ~3% of the samples were ≤0.15 mg/L total chlorine residual

**System B:** Large system; provided summary data for last 5 years; for the 14 total coliform positive samples reported, the disinfectant residual ranged from 0.02—1.35 mg/L, with an average = 0.67 mg/L

**System C:** Large system; uses chloramines; provided disinfectant residual and coliform data from 2008—2015; for 2011—2015, 7,363 disinfectant residual samples were analyzed with only 128 (1.7%) <0.15 mg/L

**System D:** 33,000 disinfectant residual records were analyzed from 2013—2016; only 332 (1%) <0.15 mg/L

**System E:** Medium system; provided a summary of free chlorine residual data for 2014—2015; in 2014, six dead end samples <0.15 mg/L; in 2015, all results >0.15 mg/L

**System F:** Large system; uses chloramines, provided 25,000 sample results from 2012—2016; 199.7% of samples ≥0.2 mg/L; only 0.3% of samples <0.2 mg/L; 59 positive total coliform samples with no correlation between residual

To summarize, data from these medium and large water systems indicate that a very small percentage (0.3—3%) of these historical disinfectant residuals would not have met a disinfectant residual requirement of 0.15—0.2 mg/L. These systems are well-positioned to meet a disinfectant residual of 0.2 mg/L.

Finally, the Board did not receive any studies or reports that support an alternate disinfectant residual of 0.1 mg/L.

3. References to studies, reports or data that provide supporting evidence that an HPC <500 provides an equivalent level of public health protection when compared to a disinfectant residual of 0.2 mg/L.

The Board received one reference to an unpublished draft document. However, the document was unavailable and could not be used. The Department is not aware of any other studies or reports that provide evidence that an HPC <500 provides equivalent public health protection.

4. Anticipated costs to comply with the proposed disinfectant residual requirements.

The Board received cost information from four water systems. Cost information in this preamble and the Regulatory Analysis Form (RAF) was updated accordingly.

5. Whether a deferred effective date of 6 months after final promulgation is warranted to provide water systems with additional time to make any necessary operational changes. The anticipated length of time needed to increase disinfectant residuals and whether capital improvements are anticipated to meet the proposed requirements.

The Board received multiple comments on the need for deferred effective dates. The effective dates were amended accordingly.

6. The compliance determination, especially for small systems.

The Board received several comments on the compliance determinations and all comments were taken into consideration.

This final-form rulemaking was presented to the TAC Board on July 13, 2017, and August 24, 2017. The TAC Board made nine recommendations, six of which were incorporated into this final-form rulemaking. Section E includes more information about the TAC Board’s recommendations. The recommendation regarding averaging additional grab sample measurements from a sampling location will be included in Department guidance on system monitoring. Regarding the two remaining recommendations, one recommendation was to delay amendments to Chapter 109 until the Safe Drinking Water Program is at full complement and current regulations are uniformly enforced. The Board is taking steps to provide the Department with additional funds through fee increases and believes that proceeding with this final-form rulemaking now is in the public interest because of the compelling public health benefits discussed in previous sections of this preamble. The remaining recommendation is for the Department to conduct a DBP evaluation to determine the impacts of increasing the chlorine residual in the distribution system using data only from water systems in this Commonwealth. The Department will continue to track and analyze TCR and DBP compliance rates as this final-form rulemaking is implemented to determine whether simultaneous compliance is being achieved.

The Independent Regulatory Review Commission (IRRC) submitted several comments. To summarize, IRRC recommended the following:

1. The Board should continue to work with the regulated community to develop a schedule for implementing this final-form rulemaking that adequately protects the health, safety and welfare of the public, while at the same time minimizing the fiscal impact it will have on water systems.

**Response:** The Department worked with the TAC to develop an implementation plan for this final-form rulemaking. Most provisions will be deferred for 1 year following the effective date of this final-form rulemaking. In addition, compliance schedules will be used to allow more time for capital improvements or to implement more complex operational changes.

2. In the preamble and RAF to the final-form rulemaking, the Board should provide specific estimates of all the costs associated with compliance and an explanation of how the estimates were derived. In addition, the Board should provide further explanation concerning the benefits of the final-form rulemaking compared to the costs.

**Response:** The Department has updated the cost information in this preamble and the RAF based on comments received. Updated information includes costs to the regulated community as well as potential savings from the prevention of public health crises due to waterborne illnesses.
3. In the preamble of the final-form rulemaking, the Board should explain the reasonableness of requiring weekly monitoring and how the potential benefits outweigh any costs associated with it.

Response: After considerable discussion, the TAC Board issued final recommendations that the weekly monitoring frequency should be retained for two reasons: 1) weekly monitoring helps ensure continuous disinfection and improves public health protection; and 2) the collection of at least four samples per month allows a water system to have one sample below the minimum level and still be in compliance. Without weekly samples, to take fewer than four samples per month, any one sample below the minimum level would put the system out of compliance immediately. Finally, it was determined that weekly monitoring should not be a hardship because water system personnel are already onsite on a daily basis collecting daily entry point samples. These same personnel would be able to grab a weekly disinfectant residual sample within the distribution system.

4. In the preamble of the final-form rulemaking, the Board should explain what specific public health issue is being addressed by the proposed disinfectant residual that is not currently being handled by the Revised TCR or is not a premise plumbing concern. The Board should also explain what measures exist to safeguard against increases in DBPs.

Response: Based on an assessment of 5.434 million samples, the EPA found that a lower rate of both total coliform and fecal coliform/E. coli positives occurred as the free or total chlorine residual increased to higher levels. This relationship between chlorine residuals and occurrence of total coliform and fecal coliform/E. coli positives was similar to results reported by the Colorado Department of Public Health and Environment (Ingels, 2015). In addition, this relationship is consistent with the findings of LeChevallier, et al. (1996) which stated that disinfectant residuals of 0.2 mg/L or more of free chlorine, or 0.5 mg/L or more of total chlorine, are associated with reduced levels of coliform bacteria. (Both of these studies were discussed in the preamble of the proposed rulemaking.) Based on this data, the EPA determined that a detectable concentration of disinfectant residual in the distribution system may not be adequately protective of public health due to microbial pathogens. This is based on concerns about analytical methods and the potential for false positives (Wahman and Pressman, 2015). According to the EPA, maintaining a disinfectant residual above a set numerical value in the distribution system may improve public health protection from a variety of pathogens.

Regarding the ability of water systems to increase disinfectant residual levels to 0.2 mg/L and still meet DBP limits, data from other states shows that simultaneous compliance can be achieved with both rules. In addition, several case studies were described in this preamble regarding systems that have participated in the Department’s Distribution System Optimization Program. These systems have been able to achieve simultaneous compliance by implementing operational changes and other lower cost measures.

The Department continues to believe that the large majority of systems will be able to achieve compliance with both rules because: 1) the large majority of systems already deliver water that meets disinfectant residual levels of ≥0.15 mg/L; and 2) for the remaining systems that do not currently meet a residual of ≥0.15 mg/L throughout the distribution system, many will be able to meet the requirement through operational changes or lower cost measures.

5. The fiscal analysis provided in the RAF indicates that the total estimated cost to the regulated community is $823,500. The regulated community believes the Department has overestimated the number of water suppliers that would be in compliance with the proposed residual and has underestimated capital and operational costs. For example, Philadelphia Water estimated $25 million dollars in capital costs and $2.5 million dollars in annual operating and maintenance costs. The Borough of Carlisle estimates capital costs ranging from $115,000 to $190,000 to potentially comply with a 0.2 mg/L free chlorine requirement. IRRC asked that as the Board developed this final-form rulemaking that they reach out to the regulated community to gain a better understanding of the potential costs associated with the new requirements and include the revised costs in the RAF submitted with this final-form rulemaking.

Response: The Department updated the cost information in this preamble and the RAF based on comments received.

6. In the preamble of the final-form rulemaking, the Board should explain why public notification is needed when the minimum disinfectant residual is not maintained in the distribution system and why the benefits of a notice outweigh any potential costs associated with such notice.

Response: Under 40 CFR 141.203(a) (relating to Tier 2 public notice—form, manner, and frequency of notice), a Tier 2 Public Notice is required for failure to meet the disinfectant residual treatment technique in the distribution system. The Commonwealth must be at least as stringent as 40 CFR 141.203(a). However, this final-form rulemaking is not anticipated to substantially increase the number of Tier 2 Public Notices. A violation does not occur unless the water system fails to meet the minimum level in more than 5% of samples for 2 consecutive months. The Department would expect that most water systems will be able to make operational changes (that is, increase flushing, and the like) after the first monthly failure and improve water quality ahead of the next monthly monitoring period. It should be the exception, not the norm, that water systems fail to meet the minimum level for 2 consecutive months.

7. IRRC noted that the Board asked for comments with references to studies, reports or data comparing whether HPC less than 500 provides the same level of public health protection as a disinfectant residual of 0.2 mg/L. In the preamble of the final-form rulemaking, the Board should explain its rationale for deleting this provision. IRRC will consider the Board’s response to comments and changes made to this subsection during the review of the final-form rulemaking to determine whether it is in the public interest.

Response: References or studies were not provided by the public. The Department has not found any studies that HPC is an equivalent standard when compared to a disinfectant residual level of 0.2 mg/L. The majority of states with disinfectant residual standards of 0.2 mg/L or greater do not use HPC as an ACC. For these reasons, the Department is not allowing the use of HPC for compliance purposes. However, water suppliers are encouraged to continue to use HPC as an operational parameter to help inform proper operation of distribution systems.
8. The Board stated that proposed amendments were in response to the EPA comments to obtain primacy for LT2. Water dispensing unit operators commented that adding the HPC test alongside the Total Coliform test is duplicative and adds unnecessary costs. They further point out the drinking water standard for HPC is geared toward public water systems treating nonpotable surface water or GUDI and that it should not apply to water dispensing units that receive already treated municipal water. The Board should explain in the RAF and preambles of this final-form rulemaking the reasonableness of requiring water dispensing units to meet the same disinfection residual requirements as public water systems.

Response: The EPA recognizes bulk water hauling and vended water systems as public water systems under the Federal Safe Drinking Water Act and its regulations. Vended water systems that use purchased surface water shall comply with the various surface water treatment rules. Systems using surface water shall maintain a disinfectant residual in the water delivered to consumers. Since most vended water systems strip chlorine out of the water to improve taste, these systems are unable to comply with the Federal and State requirements. These systems may generally retreat the water with ultraviolet or ozone, which does not provide a residual. Therefore, the only option for these systems is to monitor for and comply with the HPC alternative compliance criteria.

9. The EPA submitted comments that identified several instances when the bottled water and vended water systems, retail water facilities, and bulk water hauling systems (BVBR) monitoring provisions are inconsistent with Federal regulations and must be changed to obtain primacy. The EPA also sought clarification on the BVBR entry point residual. IRRRC will review the Board’s response to the EPA’s comments and any revisions made to this section in its review of the final-form rulemaking to determine whether it is in the public interest.

Response: Revisions have been made to ensure consistency with Federal rules and to maintain primary enforcement authority. Refer to Section E for more information about the revisions.

References


Department of Environmental Protection, Pennsylvania Drinking Water Information System (PADWIS) online database.


EPA, Enforcement and Compliance History Online database.


E. Summary of Changes to the Proposed Rulemaking

§ 109.202. State MCLs, MRDLs and treatment technique requirements

Proposed subsection (c)(1)(ii)(B) was revised for consistent use of the phrase “residual disinfectant concentration.”

Proposed subsection (c)(4) was renumbered as subsection (c)(6) and revised for consistent use of the phrase “residual disinfectant concentration.”

Subsection (c)(5) was renumbered as subsection (c)(7) and revised for consistent use of the phrase “residual disinfectant concentration.”

The proposed amendment to subsection (d) was withdrawn because it was included in the Revised TCR final-form rulemaking published at 46 Pa.B. 6005 (September 24, 2016).

§ 109.301. General monitoring requirements

Paragraph (1)(i)(D) was revised in response to public comments to clarify that the existing disinfectant residual requirements for filtered surface water and GUDI systems will remain in effect until 1 year after the effective date of this final-form rulemaking.

Paragraph (1)(i)(E) was added in response to public comments to defer the compliance date of the new disinfectant residual requirements until 1 year after the effective date of this final-form rulemaking.

Paragraph (1)(i)(E)(II)—(IV) was revised for consistent use of the phrase “residual disinfectant concentration.”

Paragraph (1)(i)(E)(V) was added in response to TAC comments to allow the use of online analyzers for disinfectant residual monitoring and recording in the distribution system. Online analyzers are permitted so long as the units are validated for accuracy.

Paragraph (1)(v) and (vi) was revised in response to public comments to clarify that water suppliers shall calculate the log inactivation at least once per day during expected peak hourly flow.

Paragraph (2)(i)(E) was revised in response to public comments to clarify that the existing disinfectant residual requirements for unfiltered surface water and GUDI systems will remain in effect until 1 year after the effective date of this final-form rulemaking.

Paragraph (2)(i)(F) was added in response to public comments to defer the compliance date of the new disinfectant residual requirements until 1 year after the effective date of this final-form rulemaking.

Paragraph (2)(i)(F)(II)—(IV) was revised for consistent use of the phrase “residual disinfectant concentration.”

Paragraph (2)(i)(F)(V) was added in response to TAC comments to allow the use of online analyzers for disinfectant residual monitoring and recording in the distribution system. Online analyzers are permitted so long as the units are validated for accuracy.

Paragraph (6)(vii)(D) was revised to correct a misspelled word.

Paragraph (13) was revised for consistent use of the phrase “residual disinfectant concentration.”

Paragraph (13)(i)(A) and (B) was revised in response to public comments to defer the effective date of the new disinfectant residual requirements until 1 year after the effective date of this final-form rulemaking.
Proposed paragraph (13)(i)(A)—(C) was renumbered as paragraph (13)(i)(B)—(I)—(III).

Paragraph (13)(i)(B)(I) was revised to correct a cross-reference.

Paragraph (13)(i)(B)(IV) was added to clarify that compliance determinations will be made in accordance with §109.710 (relating to disinfectant residual in the distribution system).

Paragraph (13)(i)(B)(V) was added in response to TAC comments to allow the use of online analyzers for disinfectant residual monitoring and recording in the distribution system and to be consistent with paragraphs (1)(i)(E)(V) and (2)(i)(F)(V). Online analyzers are permitted so long as the units are validated for accuracy.

§109.408. Tier I public notice—categories, timing and delivery of notice

Subsection (a)(2) was revised to correct the cross-reference to §109.301(7)(ii)(C) (relating to general monitoring requirements) to include subclauses (IV) and (V).

Subsection (a)(6)(iii) was revised for consistent use of the phrase “residual disinfectant concentration” and in response to public comments to clarify that Tier I public notice is required for a failure to maintain the minimum entry point disinfectant residual for more than 4 hours and either a failure to calculate the log inactivation, or a failure to meet the minimum log inactivation for more than 4 hours.

§109.701. Reporting and recordkeeping

Subsection (a)(8) was revised to clarify and renumber the requirements regarding submission of the sample siting plan, for consistent use of the phrase “residual disinfectant concentration” and to incorporate comments from the TAC to identify several items to be included in the sample siting plan, including whether mixing zones exist, the system implements a free chlorine burn and whether the system uses online analyzers.

This section was also revised to add certain reporting requirements regarding these sample siting plan items.

§109.710. Disinfectant residual in the distribution system

Subsections (a) and (b) were revised and subsection (c) was added in response to public comments to defer the compliance date of the new disinfectant residual requirements until 1 year after the effective date of this final-form rulemaking.

Subsections (c) and (d) were added in response to TAC comments to address measurements for mixing zones and free chlorine burns and to clarify when free or total, or both, chlorine residual should be monitored.

Existing subsections (b)—(d) were renumbered as subsections (d)—(f).

Subsection (d) was revised for consistent use of the phrase “residual disinfectant concentration.”

Subsection (e) was revised in response to TAC comments to allow additional monitoring to be included in the compliance calculations.

Subsection (e)(1) and (2) was revised in response to TAC comments to allow additional monitoring to be included in the compliance calculations and to clarify that public water systems that use surface water or GUDI sources must comply with the Federal and State treatment technique requirement of no more than 5% of samples out of compliance.

Proposed subsection (e)(3) and (4) was renumbered as subsection (e)(4) and (5) and subsection (e)(3) was added in response to TAC comments to clarify how compliance will be determined when both free and total disinfectant residual measurements are reported.

Subsection (e)(5) was revised to correct a cross-reference.

Subsection (e)(6) was added in response to TAC and public comments to clarify that the Department may approve an alternate compliance schedule if the water supplier submits a written request with supporting documentation within 1 year of the effective date of this final-form rulemaking.

§109.716. Nitrification control plan

Proposed §109.715 (relating to nitrification control plan) was renumbered as §109.716 in this final-form rulemaking because §109.715 (relating to seasonal systems) was added by the Revised TCR published at 46 Pa.B. 6005.

Subsection (a) was revised in response to TAC comments to defer the compliance date of the nitrification control plan until 1 year after the effective date of this final-form rulemaking.

§109.1003. Monitoring requirements

Subsection (a)(1)(ix)(A) was revised to cross-reference the monitoring requirements in §109.301(12)(ii) in response to EPA comments to be at least as stringent as the Federal Stage 2 DBPR for bulk hauling, retail and vended water systems that meet the conditions of clause (D) or (E) (that is, systems that meet the definition of a community or nontransient noncommunity water system).

Subsection (a)(1)(ix)(C) was added in response to EPA comments to include language that is at least as stringent with the Federal Stage 2 DBPR that identifies the MCL compliance calculations for total trihalo-methanes and five haloacetic acid compounds to obtain primary enforcement authority for the Stage 2 DBPR.

The Editor’s Note in subsection (a)(1)(xii) was revised. This subparagraph was also amended and proposed subsection (a)(1)(xii)(A)—(C) was deleted in response to EPA comments to include language that is at least as stringent as the Federal rule that identifies the Maximum Residual Disinfectant Level compliance calculations for chlorine dioxide.

Subsection (a)(1)(xii)(B)(II) was revised to be consistent with existing language in §109.301(12)(iv)(B)(II) that identifies the specific requirements to qualify for reduced bromate monitoring to be at least as stringent as the Federal Stage 2 DBPR.

The Editor’s Note in subsection (a)(1)(xii)(xii) and (xiv) were revised. These subparagraphs were also revised for consistent use of the phrase “residual disinfectant concentration” and in response to EPA comments that the entry point residual disinfectant concentration should be 0.20 mg/L to be consistent with subparagraph (xii) and §109.202(c) (relating to State MCLs, MRLDs and treatment technique requirements).

Subsection (a)(2)(iv) was revised to clarify when compliance is required based on the effective date of this final-form rulemaking.

Subsection (b)(2) was revised in response to EPA comments that daily chlorite measurements may be conducted by a person meeting the requirements of
§ 109.1008(c) (relating to system management responsibilities) to be consistent with § 109.304(c) (relating to analytical requirements).

Subsections (d) and (e) were amended in response to the EPA comments for clarity to cross-reference the monitoring requirements in § 109.301 to be at least as stringent as the Federal rules for bulk hauling, retail and vended water systems that meet the definition of a community or nontransient noncommunity water system.

§ 109.1008. System management responsibilities

Proposed subsections (g) and (h) were renumbered as subsections (i) and (j) because subsections (g) and (h) were added by the Revised TCR published at 46 Pa.B. 6005.

F. Benefits, Costs and Compliance

Benefits

This final-form rulemaking will affect all 1,949 community water systems and those noncommunity water systems that have installed disinfection (746) for a total of 2,695 public water systems. These public water systems serve a total population of 11.3 million people.

This final-form rulemaking is intended to reduce the public health risks and associated costs related to waterborne pathogens and waterborne disease outbreaks. Costs related to waterborne disease outbreaks are extremely high. In 2008, a large Salmonella outbreak caused by contamination of a storage tank and distribution system and no disinfectant residual within the municipal drinking water supply occurred in Alamosa, CO. The outbreak’s estimated total cost to residents and businesses of Alamosa using a Monte Carlo simulation model (10,000 iterations) was approximately $1.5 million (range: $196,677—$6,002,879) and rose to $2.6 million (range: $1,123,471—$7,792,973) with the inclusion of outbreak response costs to local, state and nongovernmental agencies, and City of Alamosa health care facilities and schools. This investigation documents the significant economic and health impacts associated with waterborne disease outbreaks and highlights the potential for loss of trust in public water systems following these outbreaks. See “Economic and Health Impacts Associated with a Salmonella Typhimurium Drinking Water Outbreak—Alamosa, CO, 2008,” http://www.ncbi.nlm.nih.gov/pubmed/23526942.

Communities in this Commonwealth will benefit from: 1) the avoidance of a full range of health effects from the consumption of contaminated drinking water such as acute and chronic illness, endemic and epidemic disease, waterborne disease outbreaks and death; 2) the continuity of a safe and adequate supply of potable water; and 3) the ability to plan and build future capacity for economic growth and ensure long-term sustainability.

Compliance Costs

Disinfectant residual monitoring at the entry point

It is estimated that 114 of 352 plants (or ~30%) may be using paper chart recorders. Paper chart recorders can record measurements to two decimal places provided the proper scale and resolution is used. In cases where the requisite scale and resolution are not possible, an upgrade to electronic recording devices would cost approximately $1,500. It is estimated that 11 systems (10%) may need to upgrade to electronic recording devices. The estimated cost is 11 systems × $1,500 = $16,500.

This cost should not be prohibitive for filter plants, and the use of electronic devices offers several advantages. Advantages of using electronic recording devices include improved data reliability, faster and more comprehensive data analysis, better data resolution, elimination of the need for interpolating trace values from a chart, cost savings through the elimination of consumables (pens and chart paper) and reductions in errors associated with transferring analog data to a spreadsheet for recordkeeping or reporting purposes.

Disinfectant residuals in the distribution system

It is anticipated that the large majority of water systems will be able to comply with this requirement with little to no capital costs because many of these systems are already meeting a disinfectant residual of ≥0.15 mg/L. In this Commonwealth, 1,949 community water systems are required to provide and maintain disinfection treatment. Of these systems, 1,298 (67%) are required to collect only 1 disinfectant residual measurement each month. An additional 232 systems are only required to collect 2 measurements each month. In total, 1,530 systems (79%) are only required to collect 1 or 2 disinfectant residual measurements each month, which means the average result reported each month for the large majority of systems is essentially the same as the actual sample results.

The Department reviewed the summary data (distribution system disinfectant residual average result values) from January 2012 to May 2017 for the 1,949 community water systems:

- During this period, 165,328 average result values were reported; of these records, 154,623 average result values (93.5%) were at or above 0.15 mg/L.
- For the systems that are required to conduct only 1 or 2 measurements each month, 136,743 average result values were reported; of these records, 126,406 average result values (92.4%) were at or above 0.15 mg/L.
- For the systems that only conduct 1 measurement each month, 116,900 average result values were reported; of these records, 107,366 (91.8%) were at or above 0.15 mg/L.

The following table shows the number of community water systems and the number of average result summary records submitted for each population group.

<table>
<thead>
<tr>
<th>Population Group</th>
<th>Number of Samples Required</th>
<th>Number of Public Water Supplies</th>
<th>Total POPL$^1$</th>
<th>Total Number of Records</th>
<th>Number of Results &lt; 0.15</th>
<th>Number of Results &gt; = 0.15</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25$^2$</td>
<td>1</td>
<td>9</td>
<td>172</td>
<td>300</td>
<td>14</td>
<td>286</td>
</tr>
<tr>
<td>25—1,000</td>
<td>1</td>
<td>1,290</td>
<td>311,515</td>
<td>116,600</td>
<td>9,520</td>
<td>107,080</td>
</tr>
<tr>
<td>1,001—2,500</td>
<td>2</td>
<td>231</td>
<td>381,322</td>
<td>19,843</td>
<td>803</td>
<td>19,040</td>
</tr>
</tbody>
</table>

---

Community Water System Disinfectant Average Result by Population Category
### Rules and Regulations

<table>
<thead>
<tr>
<th>Population Group</th>
<th>Number of Samples Required</th>
<th>Number of Public Water Supplies</th>
<th>Total POPL</th>
<th>Total Number of Records</th>
<th>Number of Results &lt; 0.15</th>
<th>Number of Results ≥ 0.15</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,501—3,300</td>
<td>3</td>
<td>86</td>
<td>255,069</td>
<td>6,292</td>
<td>168</td>
<td>6,124</td>
</tr>
<tr>
<td>3,301—4,100</td>
<td>4</td>
<td>28</td>
<td>103,784</td>
<td>2,534</td>
<td>65</td>
<td>2,469</td>
</tr>
<tr>
<td>4,101—4,900</td>
<td>5</td>
<td>37</td>
<td>164,629</td>
<td>2,518</td>
<td>11</td>
<td>2,507</td>
</tr>
<tr>
<td>4,901—5,800</td>
<td>10</td>
<td>27</td>
<td>145,425</td>
<td>1,752</td>
<td>0</td>
<td>1,752</td>
</tr>
<tr>
<td>5,801—6,700</td>
<td>15</td>
<td>22</td>
<td>137,596</td>
<td>1,672</td>
<td>1</td>
<td>1,671</td>
</tr>
<tr>
<td>6,701—7,600</td>
<td>20</td>
<td>22</td>
<td>156,720</td>
<td>1,246</td>
<td>0</td>
<td>1,246</td>
</tr>
<tr>
<td>7,601—8,500</td>
<td>25</td>
<td>22</td>
<td>178,117</td>
<td>1,194</td>
<td>22</td>
<td>1,172</td>
</tr>
<tr>
<td>8,501—12,900</td>
<td>30</td>
<td>46</td>
<td>469,925</td>
<td>3,311</td>
<td>34</td>
<td>3,277</td>
</tr>
<tr>
<td>12,901—33,000</td>
<td>35</td>
<td>69</td>
<td>1,436,581</td>
<td>4,333</td>
<td>66</td>
<td>4,267</td>
</tr>
<tr>
<td>&gt;33,000</td>
<td>&gt;40</td>
<td>60</td>
<td>7,628,402</td>
<td>3,733</td>
<td>1</td>
<td>3,732</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,949</strong></td>
<td><strong>11,369,257</strong></td>
<td><strong>165,528</strong></td>
<td><strong>10,705</strong></td>
<td><strong>154,623</strong></td>
<td></td>
</tr>
</tbody>
</table>

1 Total POPL is the total population served for the population category, based on the community water system population in PADWIS. The Revised TCR required water systems to submit a revised sampling plan which included updated population numbers in accordance with existing EPA guidance. The community water system population served includes nontransient and transient consumers.

2 These community water systems triggered applicability under the SDWA because each system provides water to 15 or more service connections.

An additional 621 noncommunity water systems with disinfection treatment are currently required to maintain a disinfectant residual in the distribution system. Of these 621 water systems, 598 (96%) are only required to collect 1 or 2 residual measurements each month; 554 (89%) are only required to conduct 1 measurement each month.

Therefore, the Department believes it is appropriate to use the average result data, and that the data indicate that most water systems are already in compliance with these minimum disinfectant residual requirements.

Systems may need to increase the frequency of or improve the effectiveness of existing operation and maintenance best management practices, such as flushing, storage tank maintenance, cross-connection control, leak detection, and effective pipe replacement and repair practices, to lower chlorine demand and meet disinfectant residual requirements at all points in the distribution system.

Some systems with very large and extensive distribution systems may need to install automatic flushing devices, tank mixers or booster chlorination stations to achieve ≥0.15 mg/L (which rounds to 0.2 mg/L) at all points in the distribution system. As a result of public comments, the Department revised its capital expense estimates and added annual operational expense estimates as follows:

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Capital Expenses</th>
<th>Annual Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic flushing device</td>
<td>$2,500</td>
<td>$750</td>
</tr>
<tr>
<td>Tank mixer</td>
<td>$75,000</td>
<td></td>
</tr>
<tr>
<td>Booster chlorination station</td>
<td>$250,000</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

It is estimated that 25% of community water systems serving over 25,000 people, or ~20 systems, may need to install automatic flushing devices, tank mixers or booster chlorination stations. Of these 20 systems:

- Twelve water systems may need to install up to ten automatic flushing devices for capital costs of up to $25,000 and annual expenses of up to $7,500 per system.

The total cost for 12 systems is estimated to be up to $300,000 in capital costs and up to $90,000 in annual expenses.

- Four water systems may need to install up to two tank mixers for capital costs of up to $150,000 per system. The total cost for four systems is estimated to be up to $600,000 in capital costs.

- Four systems may need to install up to four booster chlorination stations for capital costs of up to $1 million and annual expenses of up to $40,000 per system. The total cost for four systems is estimated to be up to $4 million in capital costs and up to $160,000 in annual expenses.

Costs for small systems are not expected to increase because most small systems are already maintaining adequate disinfectant residuals (0.40 mg/L) as required by the Groundwater Rule. Further, with regard to operating costs, it is unlikely costs to small systems would increase because § 109.304 specifies that certain parameters (including turbidity and disinfectant residuals) may be analyzed by an appropriately certified operator or a person using a standard operating procedure as specified in the Water and Wastewater Systems Operators' Certification Act (63 P.S. §§ 1001—1015.1). Small water systems that are required to install and maintain disinfection (under either the Surface Water Treatment Rule or the Groundwater Rule) are currently required to measure the disinfectant residual at the entry point at least once per day, so a procedure is in place for conducting daily disinfectant residual measurements. The weekly distribution system measurements may be conducted by the same person.

Total estimated costs to the regulated community are as much as $4.9 million in capital costs and up to $250,000 in annual operational expenses. Capital costs are one-time costs expected to be split over the first 3 years. Annual operational expenses are not expected to begin until year 2.

PENNSYLVANIA BULLETIN, VOL. 48, NO. 17, APRIL 28, 2018
### Estimate of Fiscal Savings and Costs

<table>
<thead>
<tr>
<th></th>
<th>Current FY</th>
<th>FY +1</th>
<th>FY +2</th>
<th>FY +3</th>
<th>FY +4</th>
<th>FY +5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savings</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Regulated community</td>
<td>0</td>
<td>1,500,000</td>
<td>1,500,000</td>
<td>1,500,000</td>
<td>1,500,000</td>
<td>1,500,000</td>
</tr>
<tr>
<td>Local and state costs</td>
<td>0</td>
<td>1,100,000</td>
<td>1,100,000</td>
<td>1,100,000</td>
<td>1,100,000</td>
<td>1,100,000</td>
</tr>
<tr>
<td>Total savings</td>
<td>0</td>
<td>2,600,000</td>
<td>2,600,000</td>
<td>2,600,000</td>
<td>2,600,000</td>
<td>2,600,000</td>
</tr>
<tr>
<td>Costs</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Regulated community</td>
<td>0</td>
<td>1,630,000</td>
<td>1,880,000</td>
<td>1,880,000</td>
<td>250,000</td>
<td>250,000</td>
</tr>
<tr>
<td>Local and state costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total costs</td>
<td>0</td>
<td>1,630,000</td>
<td>1,880,000</td>
<td>1,880,000</td>
<td>250,000</td>
<td>250,000</td>
</tr>
</tbody>
</table>

However, these costs are offset by the avoidance of waterborne disease outbreaks. If even one waterborne disease outbreak is avoided each year, the cost savings to the regulated community (residents and businesses) is estimated at $1.5 million, with an additional $1.1 million in savings to local, State and nongovernmental agencies, health care facilities and schools.

**Compliance assistance plan**

The Safe Drinking Water Program utilizes the Commonwealth's Pennsylvania Infrastructure Investment Authority ( PENNVEST ) Program to offer financial assistance to eligible public water systems. This assistance is in the form of a low-interest loan, with some augmenting grant funds for hardship cases. Eligibility is based upon factors such as public health impact, compliance necessity and project/operational affordability.

The Safe Drinking Water Program has established a network of regional and Central Office training staff that is responsive to identifiable training needs. The target audience in need of training may be either program staff or the regulated community.

In addition to this network of training staff, the Bureau of Safe Drinking Water has staff dedicated to providing both training and outreach support services to public water system operators. The Department's web site also provides timely and useful information for treatment plant operators.

Finally, the Department also provides various tools and technical assistance to water systems through the Distribution System Optimization Program. The goal of distribution optimization is to sustain the water quality leaving the plant throughout all points in the distribution system. To further define distribution system optimization, “optimization” refers to improving drinking water quality to enhance public health protection without significant capital improvements to the water treatment plant or distribution system infrastructure.

The distribution system is the last “barrier” for protecting public health, meaning the physical and chemical barriers that have been established are necessary to protect the public from intentional or unintentional exposure to contaminants after the water has been treated. Distribution system optimization focuses on two primary health concerns related to water quality within the distribution system—microbial contamination and DBP formation.

If implemented, distribution system optimization will lead to increased public health protection through increased monitoring and operational oversight, resulting in improved physical protection and improved water quality for all customers.

**Paperwork Requirements**

Paperwork requirements include: electronic reporting of log inactivation values on a monthly basis using existing formats; electronic reporting of additional disinfectant residual levels measured in the distribution system using existing formats; development of a disinfectant residual sample siting plan; and development of a nitrification control plan.

**G. Sunset Review**

The Board is not establishing a sunset date for these regulations since they are needed for the Department to carry out its statutory authority. The Department will continue to closely monitor these regulations for their effectiveness and recommend updates to the Board as necessary.

**H. Regulatory Review**

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on February 11, 2016, the Department submitted a copy of the notice of proposed rulemaking, published at 46 Pa.B. 857, to IRRC and the Chairpersons of the House and Senate Environmental Resources and Energy Committees for review and comment.

Under section 5(c) of the Regulatory Review Act, IRRC and the House and Senate Committees were provided with copies of the comments received during the public comment period, as well as other documents when requested. In preparing this final-form rulemaking, the Department has considered all comments from IRRC and the public.

Under section 5.1(j.2) of the Regulatory Review Act (71 P.S. § 745.5a(j.2)), on February 21, 2018, this final-form rulemaking was deemed approved by the House and Senate Committees. Under section 5.1(c) of the Regulatory Review Act, IRRC met on February 22, 2018, and approved this final-form rulemaking.

**I. Findings**

The Board finds that:

1. Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 ( P.L. 769, No. 240 ) ( 45 P.S. §§ 1201 and 1202 ) and regulations promulgated thereunder, 1 Pa. Code §§ 7.1 and 7.2.

2. A public comment period was provided as required by law, and all comments were considered.

3. These regulations do not enlarge the purpose of the proposed rulemaking published 46 Pa.B. 857.

4. These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this order.
J. Order

The Board, acting under the authorizing statutes, orders that:


(Editor's Note: Proposed § 109.715 was renumbered as § 109.716 in this final-form rulemaking.)

(b) The Chairperson of the Board shall submit this order and Annex A to the Office of General Counsel and the Office of Attorney General for review and approval as to legality and form, as required by law.

(c) The Chairperson of the Board shall submit this order and Annex A to the IRRC and the Senate and House Environmental Resources and Energy Committees as required by the Regulatory Review Act (71 P.S. §§ 745.1—745.14).

(d) The Chairperson of the Board shall certify this order and Annex A, as approved for legality and form, and deposit them with the Legislative Reference Bureau, as required by law.

(e) This order shall take effect immediately upon publication in the Pennsylvania Bulletin.

PATRICK MCDONNELL,
Chairperson

(Editor's Note: See 48 Pa.B. 1482 (March 10, 2018) for IRRC's approval order.)

Fiscal Note: Fiscal Note 7-520 remains valid for the final adoption of the subject regulations.

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION
PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION
Subpart C. PROTECTION OF NATURAL RESOURCES
ARTICLE II. WATER RESOURCES
CHAPTER 109. SAFE DRINKING WATER
Subchapter A. GENERAL PROVISIONS

§ 109.1. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

* * * * *

Consecutive water system—A public water system which obtains all of its water from another public water system and resells the water to a person, provides treatment to meet a primary MCL, MRDL or treatment technique, or provides drinking water to an interstate carrier. The term does not include bottled water and bulk water systems.

* * * * *

Subchapter B. MCLs, MRDLs OR TREATMENT TECHNIQUE REQUIREMENTS

§ 109.202. State MCLs, MRDLs and treatment technique requirements.

(a) Primary MCLs, MRDLs and treatment technique requirements.

(1) A public water system shall supply drinking water that complies with the primary MCLs, MRDLs and treatment technique requirements adopted by the EQB under the act.

(2) This subchapter incorporates by reference the primary MCLs, MRDLs and treatment technique requirements in the National Primary Drinking Water Regulations 40 CFR Part 141 (relating to National Primary Drinking Water Regulations) as State MCLs, MRDLs and treatment technique requirements under authority of section 4 of the act (35 P.S. § 721.4), unless other MCLs, MRDLs and treatment technique requirements are established by regulations of the Department. The primary MCLs, MRDLs and treatment technique requirements which are incorporated by reference are effective on the date established by the Federal regulations.

(3) A public water system that is installing granular activated carbon or membrane technology to comply with the MCL for TTHMs, HAA5, chlorite (where applicable) or bromate (where applicable) may apply to the Department for an extension of up to 24 months past the applicable compliance date specified in the Federal regulations, but not beyond December 31, 2003. In granting the extension, the Department will set a schedule for compliance and may specify any interim measures that the Department deems necessary. Failure to remove the schedule or interim treatment requirements constitutes a violation of National Primary Drinking Water Regulations.

(b) Secondary MCLs.

(1) A public water system shall supply drinking water that complies with the secondary MCLs adopted by the EQB under the act, except for the MCL for pH which represents a reasonable goal for drinking water quality.

(2) This subchapter incorporates by reference the secondary MCLs established by the EPA in the National Secondary Drinking Water Regulations, 40 CFR 143.3 (relating to secondary maximum contaminant levels), as of January 30, 1991, as State MCLs, under the authority of section 4 of the act, unless other MCLs are established by regulations of the Department. The secondary MCL for copper is not incorporated by reference.

(3) A secondary MCL for aluminum of 0.2 mg/L is adopted as a State MCL.

(c) Treatment technique requirements for pathogenic bacteria, viruses and protozoan cysts. A public water system shall provide adequate treatment to reliably protect users from the adverse health effects of microbiological contaminants, including pathogenic bacteria, viruses and protozoan cysts. The number and type of treatment barriers and the efficacy of treatment provided shall be commensurate with the type, degree and likelihood of contamination in the source water.

(1) A public water supplier shall provide, as a minimum, continuous filtration and disinfection for surface water and GUDI sources. The treatment technique must provide at least 99.9% removal and inactivation of Giardia lamblia cysts, and at least 99.99% removal and inactivation of enteric viruses. Beginning January 1, 2002, public water suppliers serving 10,000 or more people shall provide at least 99% removal of Cryptosporidium oocysts. Beginning January 1, 2005, public water suppliers serving fewer than 10,000 people shall provide at least 99% removal of Cryptosporidium oocysts. The Department, depending on source water...
quality conditions, may require additional treatment as necessary to meet the requirements of this chapter and to protect the public health.

(i) The filtration process shall meet the following performance requirements:

(A) Conventional or direct filtration.

(I) The filtered water turbidity shall be less than or equal to .5 NTU in 95% of the measurements taken each month under § 109.301(1) (relating to general monitoring requirements).

(II) The filtered water turbidity shall be less than or equal to 2.0 NTU at all times, measured under § 109.301(1).

(III) Beginning January 1, 2002, for public water systems serving 10,000 or more persons, the filtered water turbidity shall meet the following criteria:

(-a-) Be less than or equal to 0.3 NTU in at least 95% of the measurements taken each month under § 109.301(1).

(-b-) Be less than or equal to 1 NTU at all times, measured under § 109.301(1).

(IV) Beginning January 1, 2005, for public water systems serving fewer than 10,000 persons, the filtered water turbidity shall meet the following criteria:

(-a-) Be less than or equal to 0.3 NTU in at least 95% of the measurements taken each month under § 109.301(1).

(-b-) Be less than or equal to 1 NTU at all times, measured under § 109.301(1).

(B) Slow sand or diatomaceous earth filtration.

(I) The filtered water turbidity shall be less than or equal to 1.0 NTU in 95% of the measurements taken each month under § 109.301(1).

(II) The filtered water turbidity shall be less than or equal to 2.0 NTU at all times, measured under § 109.301(1).

(C) Other filtration technologies. The same performance criteria as those given for conventional filtration and direct filtration in clause (A) shall be achieved unless the Department specifies more stringent performance criteria based upon onsite studies, including pilot plant studies, where appropriate.

(ii) The combined total effect of disinfection processes utilized in a filtration plant shall:

(A) Achieve at least 1.0-log inactivation of Giardia cysts and 3.0-log inactivation of viruses as demonstrated by measurements taken under § 109.301(1). Failure to maintain the minimum log inactivation for more than 4 hours of operation constitutes a breakdown in treatment.

(B) Provide a minimum residual disinfectant concentration of 0.20 mg/L at the entry point as demonstrated by measurements taken under § 109.301(1). Failure to maintain the minimum entry point residual disinfectant concentration for more than 4 hours of operation is a treatment technique violation.

(iii) For an unfiltered surface water source permitted for use prior to March 25, 1989, the public water supplier shall:

(A) Maintain a minimum residual disinfectant concentration in the water delivered to the distribution system prior to the first customer of 2.5 mg/L expressed as free chlorine or its equivalent as approved by the Department. The residual disinfectant concentration shall be demonstrated by measurements taken under § 109.301(2).

(I) For a system using disinfectants other than free chlorine, the water supplier shall maintain:

(-a-) A minimum concentration that provides, in terms of CTs achieved, a level of protection equivalent to that provided by 2.5 mg/L free chlorine, as determined by the available contact time between the point of application and the first customer, under peak flow conditions.

(-b-) At least .2 mg/L of disinfectant in the water delivered to the distribution system prior to the first customer.

(II) For a system with extended contact times, generally 60 minutes or more, between the point of application and the first customer, the Department may allow the water supplier to maintain a disinfectant residual concentration less than 2.5 mg/L free chlorine or its equivalent if the CTs established by the EPA are achieved.

(B) Provide continuous filtration and disinfection in accordance with this paragraph according to the following schedule:

(I) By December 31, 1991, for a public water system that, prior to March 25, 1989, had a waterborne disease outbreak or Giardia contamination in its surface water source.

(II) Within 48 months after the discovery of one of the following conditions, or by December 31, 1995, whichever is earlier, for a public water system that experiences the condition after March 25, 1989:

(-a-) A waterborne disease outbreak.

(-b-) Giardia contamination in its surface water source.

(-c-) A violation of the microbiological MCL, the turbidity MCL or the monitoring or reporting requirements for the microbiological MCL.

(-d-) A violation of the source microbiological or turbidity monitoring requirements under § 109.301(2)(i)(A) and (B) or the related reporting requirements.

(-e-) The source water fecal coliform concentration exceeds 20/100 ml or the total coliform concentration exceeds 100/100 ml in a source water sample collected under § 109.301(2).

(-f-) The source water turbidity level exceeds 5.0 NTU in a sample collected under § 109.301(2).

(-g-) The system fails to maintain a continuous residual disinfectant concentration as required under this subparagraph.

(III) By December 31, 1995, for other public water systems not covered by subclause (I) or (II).

(iv) For an unfiltered surface water source which is subject to subparagraph (iii)(B)(II) and (III), the public water supplier shall:

(A) Submit to the Department for approval a feasibility study which specifies the means by which the supplier shall, by the applicable deadline established in subparagraph (iii)(B), meet the requirements of this paragraph. The study shall identify the alternative which best assures the long-term viability of the public water system to meet drinking water standards. The study shall propose a schedule for completion of work, including the design, financing, construction and operation of one of the following alternatives:
(I) Permanent filtration treatment facilities that meet the requirements of this chapter.

(II) Abandonment of the unfiltered surface water source and one of the following:

(a) Permanent interconnection with another water supply which meets the requirements of this chapter.

(b) Permanent water treatment facilities, utilizing groundwater as the source of supply, which meet the requirements of this chapter.

(c) Provision for adequate supply from existing sources which meets the requirements of this chapter.

(B) Submit the feasibility study according to the following schedule:

(I) By March 31, 1992, for a supplier which prior to August 31, 1991, experienced a triggering event as specified in subparagraph (iii)(B)(I).


(III) By August 31, 1992, for other suppliers.

(C) Submit a full and complete permit application for the means identified in the approved feasibility study by which the supplier shall meet the requirements of this paragraph, according to the following schedule:

(I) By the date set in the approved feasibility study for a supplier which, prior to January 1, 1992, experienced a triggering event as specified in subparagraph (iii)(B)(I).

(II) By June 30, 1993, for a supplier subject to the requirements of subparagraph (iii)(B)(III), except that a public water supplier serving fewer than 3,300 people may submit its permit application by December 31, 1993.

(D) Initiate construction of the means identified in the approved feasibility study by which the supplier shall meet the requirements of this paragraph, according to the following schedule:

(I) By the date set in the approved feasibility study for a supplier which, prior to January 1, 1992, experienced a triggering event as specified in subparagraph (iii)(B)(I).

(II) By June 30, 1994, for a supplier subject to the requirements of subparagraph (iii)(B)(II), except that a public water supplier serving fewer than 3,300 people may initiate construction by December 31, 1994.

(E) Complete construction and commence operation of the alternative identified in the approved feasibility study by the dates specified in subparagraph (iii)(B).

(v) The requirements of subparagraph (iv) do not modify, repeal, suspend, supersede or otherwise change the terms of a compliance schedule or deadline, established by an existing compliance order, consent order and agreement, consent adjudication, court order or consent decree. For purposes of this paragraph, the term “existing” means a compliance order, consent order and agreement, consent adjudication, court order or consent decree which was issued or dated before December 14, 1991.

(vi) For a source including springs, infiltration galleries, cists or wells permitted for use by the Department prior to May 16, 1992, and determined by the Department to be a GUDI source, the public water supplier shall:

(A) Maintain a minimum residual disinfectant concentration in the water delivered to the distribution system prior to the first customer in accordance with subparagraph (iii)(A).

(B) Provide continuous filtration and disinfection in accordance with this paragraph within 48 months after the Department determines the source of supply is a GUDI source.

(C) Submit to the Department for approval a feasibility study within 1 year after the Department determines the source of supply is a GUDI source. The feasibility study shall specify the means by which the supplier shall, within the deadline established in clause (B), meet the requirements of this paragraph and shall otherwise comply with subparagraph (iv)(A).

(2) In addition to meeting the requirements of paragraph (1), a public water supplier using surface water or GUDI sources shall also comply with the requirements of, and on the schedules in, Subchapter L (relating to long-term 2 enhanced surface water treatment rule).

(3) A community public water system shall provide continuous disinfection and comply with Subchapter M (relating to additional requirements for groundwater sources) for groundwater sources.

(4) Public water systems shall conduct assessments in accordance with § 109.705(b) (relating to system evaluations and assessments) after meeting any of the triggers under subparagraph (i) or (ii). Failure to conduct an assessment or complete a corrective action in accordance with § 109.705(b) is a treatment technique violation requiring 1-hour reporting in accordance with § 109.701(a)(3) (relating to reporting and recordkeeping) and public notification in accordance with § 109.409 (relating to Tier 2 public notice—categories, timing and delivery of notice).

(i) A Level 1 assessment is triggered if any of the following conditions occur:

(A) For systems taking 40 samples or more per month under § 109.301(3), the system exceeds 5.0% total coliform-positive samples for the month.

(B) For systems taking fewer than 40 samples per month under § 109.301(3), the system has two or more total coliform-positive samples in the same month.

(C) The system fails to take every required check sample under § 109.301(3) after any single total coliform-positive sample.

(ii) A Level 2 assessment is triggered if any of the following conditions occur:

(A) A system fails to meet the E. coli MCL as specified under subsection (a)(2).

(B) A system triggers another Level 1 assessment, as defined in subparagraph (i), within a rolling 12-month period, unless the Department has determined a likely reason that the samples that caused the first Level 1 assessment were total coliform-positive and has established that the system has corrected the problem.

(5) Failure by a seasonal water system to complete the approved start-up procedure prior to serving water to the public as required under § 109.715 (relating to seasonal systems) is a treatment technique violation requiring 1-hour reporting in accordance with § 109.701(a)(3) and public notification in accordance with § 109.409.

(6) Community water systems using a chemical disinfectant or that deliver water that has been treated with a chemical disinfectant shall comply with the minimum residual disinfectant concentration specified in § 109.710 (relating to disinfectant residual in the distribution system).
(7) Nontransient noncommunity water systems that have installed chemical disinfection and transient noncommunity water systems that have installed chemical disinfection in accordance with paragraph (1) or § 109.1302(b) (relating to treatment technique requirements) shall comply with the minimum residual disinfectant concentration specified in § 109.710.

(d) Fluoride. A public water system shall comply with the primary MCL for fluoride of 2 mg/L, except that a noncommunity water system implementing a fluoridation program approved by the Department of Health and using fluoridation facilities approved by the Department under § 109.505 (relating to requirements for noncommunity water systems) may exceed the MCL for fluoride but may not exceed the fluoride level approved by the Department of Health. The secondary MCL for fluoride of 2 mg/L established by the EPA under 40 CFR 143.3 is not incorporated into this chapter.

(e) Treatment technique requirements for acrylamide and epichlorohydrin. Systems which use acrylamide or epichlorohydrin in the water treatment process shall certify in accordance with § 109.701(d)(7) that the following specified levels have not been exceeded:

1. Acrylamide = 0.05% dosed at 1 ppm (or equivalent).
2. Epichlorohydrin = 0.01% dosed at 20 ppm (or equivalent).

(f) MRDLs.

1. A public water system shall supply drinking water that complies with the MRDLs adopted by the EQB under the act.

2. This subchapter incorporates by reference the primary MRDLs in the National Primary Drinking Water Regulations, in 40 CFR Part 141, Subpart G (relating to National Primary Drinking Water Regulations: maximum contaminant levels and maximum residual disinfectant levels) as State MRDLs, under the authority of section 4 of the act, unless other MRDLs are established by regulations of the Department. The primary MRDLs which are incorporated by reference are effective on the date established by the Federal regulations.

(g) Treatment technique requirements for disinfection byproduct precursors. Community water systems and nontransient noncommunity water systems that use either surface water or GUDI sources and that use conventional filtration treatment shall provide adequate treatment to reliably control disinfection byproduct precursors in the source water. Enhanced coagulation and enhanced softening are deemed by the Department to be treatment techniques for the control of disinfection byproduct precursors in drinking water treatment and distribution systems. This subchapter incorporates by reference the treatment technique in 40 CFR 141.135 (relating to treatment technique for control of disinfection byproduct (DBP) precursors). Coagulants approved by the Department are deemed to be acceptable for the purpose of this treatment technique. This treatment technique is effective on the date established by the Federal regulations.

(h) Recycling of waste stream.

1. Except as provided in paragraph (2), a public water system that uses surface water source or GUDI and provides conventional filtration or direct filtration treatment and recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes shall return these recycled flows through the processes of the system's existing conventional or direct filtration system as defined in § 109.1 (relating to definitions) or at an alternate location approved by the Department by June 8, 2004.

2. If capital improvements are required to modify the recycle location to meet the requirement of paragraph (1), the capital improvements shall be completed by June 8, 2006.

3. Capital improvement means a nonrecurring, significant modification for nonroutine, long-term physical improvements to any part of a public water system, including, but not limited to, construction activities, renovation activities, demolition activities, source development, treatment process modifications, storage modifications, distribution system modifications, waste-processing modifications and all associated design costs.

Subchapter C. MONITORING REQUIREMENTS § 109.301. General monitoring requirements.

Public water suppliers shall monitor for compliance with MCLs, MRDLs and treatment technique requirements in accordance with the requirements established by the EPA under the National Primary Drinking Water Regulations, 40 CFR Part 141 (relating to National Primary Drinking Water Regulations), except as otherwise established by this chapter unless increased monitoring is required by the Department under § 109.302 (relating to special monitoring requirements). Alternative monitoring requirements may be established by the Department and may be implemented in lieu of monitoring requirements for a particular National Primary Drinking Water Regulation if the alternative monitoring requirements are in conformance with the Federal act and regulations. The monitoring requirements shall be applied as follows:

1. Performance monitoring for filtration and disinfection. A public water supplier providing filtration and disinfection of surface water or GUDI sources shall conduct the following performance monitoring requirements, unless increased monitoring is required by the Department under § 109.302.

   (i) Except as provided under subparagraphs (ii) and (iii) a public water supplier:

   A. Shall determine and record the turbidity level of representative samples of the system's filtered water as follows:

   I. For systems that operate continuously, at least once every 4 hours that the system is in operation, except as provided in clause (B).

   II. For systems that do not operate continuously, at start-up, at least once every 4 hours that the system is in operation, and also prior to shutting down the plant, except as provided in clause (B).

   (B) May substitute continuous turbidity monitoring and recording for grab sample monitoring and manual recording if it validates the continuous measurement for accuracy on a regular basis using a procedure specified by the manufacturer. At a minimum, calibration with an EPA-approved primary standard shall be conducted at least quarterly. For systems using sand filtration or filtration treatment other than conventional filtration, direct filtration or diatomaceous earth filtration, the Department may reduce the sampling frequency to once per day.

   (C) Shall continuously monitor and record the residual disinfectant concentration of the water being supplied to the distribution system and record both the lowest value.
for each day and the number of periods each day when the value is less than 0.20 mg/L for more than 4 hours. If a public water system’s continuous monitoring or recording equipment fails, the public water supplier may, upon notification of the Department under § 109.701(a)(3) (relating to reporting and recordkeeping), substitute grab sampling or manual recording every 4 hours in lieu of continuous monitoring. Grab sampling or manual recording may not be substituted for continuous monitoring or recording for longer than 5 working days after the equipment fails.

(D) Until April 28, 2019, shall measure and record the residual disinfectant concentration at representative points in the distribution system no less frequently than the frequency required for total coliform sampling for compliance with the MCL for microbiological contaminants.

(E) Beginning April 29, 2019, shall measure and record the residual disinfectant concentration at representative points in the distribution system in accordance with a sample siting plan as specified in § 109.701(a)(8) and as follows:

(I) A public water supplier shall monitor the residual disinfectant concentration at the same time and from the same location that a total coliform sample is collected as specified in paragraph (3)(i) and (ii). Measurements taken under this subclause may be used to meet the requirements under subclause (II).

(II) A public water supplier shall monitor the residual disinfectant concentration at representative locations in the distribution system at least once per week.

(III) A public water supplier that does not maintain the minimum residual disinfectant concentration specified in § 109.710 (relating to disinfectant residual in the distribution system) at one or more sample sites shall include those sample sites in the monitoring conducted the following month.

(IV) Compliance with the minimum residual disinfectant concentration shall be determined in accordance with § 109.710.

(V) A public water system may substitute online residual disinfectant concentration monitoring and recording for grab sample monitoring and manual recording if it validates the online measurement for accuracy in accordance with § 109.304 (relating to analytical requirements).

(ii) For a public water supplier serving 3,300 or fewer people, the Department may reduce the residual disinfectant concentration monitoring for the water being supplied to the distribution system to a minimum of 2 hours between samples at the grab sampling frequencies prescribed as follows if the historical performance and operation of the system indicate the system can meet the residual disinfectant concentration at all times:

<table>
<thead>
<tr>
<th>System Size (People)</th>
<th>Samples/Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;500</td>
<td>1</td>
</tr>
<tr>
<td>500—1,000</td>
<td>2</td>
</tr>
<tr>
<td>1,001—2,500</td>
<td>3</td>
</tr>
<tr>
<td>2,501—3,300</td>
<td>4</td>
</tr>
</tbody>
</table>

If the Department reduces the monitoring, the supplier shall nevertheless collect and analyze another residual disinfectant measurement as soon as possible, but no longer than 4 hours from any measurement which is less than .2 mg/L.

(iii) For a public water supplier serving fewer than 500 people, the Department may reduce the filtered water turbidity monitoring to one grab sample per day, if the historical performance and operation of the system indicate effective turbidity removal is maintained under the range of conditions expected to occur in the system’s source water.

(iv) A public water supplier providing conventional filtration treatment or direct filtration and serving 10,000 or more people and using surface water or GUDI sources shall, beginning January 1, 2002, conduct continuous monitoring of turbidity for each individual filter using an approved method under the EPA regulation in 40 CFR 141.74(a) (relating to analytical and monitoring requirements) and record the results at least every 15 minutes. Beginning January 1, 2005, public water suppliers providing conventional or direct filtration and serving fewer than 10,000 people and using surface water or GUDI sources shall conduct continuous monitoring of turbidity for each individual filter using an approved method under the EPA regulation in 40 CFR 141.74(a) and record the results at least every 15 minutes.

(A) The water supplier shall calibrate turbidimeters using the procedure specified by the manufacturer. At a minimum, calibration with an EPA-approved primary standard shall be conducted at least quarterly.

(B) If there is failure in the continuous turbidity monitoring or recording equipment, or both, the system shall conduct grab sampling or manual recording, or both, every 4 hours in lieu of continuous monitoring or recording.

(C) A public water supplier serving 10,000 or more persons has a maximum of 5 working days following the failure of the equipment to repair or replace the equipment before a violation is incurred.

(D) A public water supplier serving fewer than 10,000 persons has a maximum of 14 days following the failure of the equipment to repair or replace the equipment before a violation is incurred.

(v) A public water supplier shall calculate the log inactivation of Giardia, using measurement methods established by the EPA, at least once per day during expected peak hourly flow. The log inactivation for Giardia must also be calculated whenever the residual disinfectant concentration at the entry point falls below the minimum value specified in § 109.202(c) (relating to State MCLs, MRDLs and treatment technique requirements) and continue to be calculated every 4 hours until the residual disinfectant concentration at the entry point is at or above the minimum value specified in § 109.202(c). Records of log inactivation calculations must be reported to the Department in accordance with § 109.701(a)(2).

(vi) In addition to the requirements specified in subparagraph (v), a public water supplier that uses a disinfectant other than chlorine to achieve log inactivation shall calculate the log inactivation of viruses at least once per day during expected peak hourly flow. The log inactivation for viruses shall also be calculated whenever the residual disinfectant concentration at the entry point falls below the minimum value specified in § 109.202(c) and continue to be calculated every 4 hours until the residual disinfectant concentration at the entry point is at or above the minimum value specified in § 109.202(c). Records of log inactivation calculations shall be reported to the Department in accordance with § 109.701(a).
(2) Performance monitoring for unfiltered surface water and GUDI. A public water supplier using unfiltered surface water or GUDI sources shall conduct the following source water and performance monitoring requirements on an interim basis until filtration is provided, unless increased monitoring is required by the Department under § 109.302:

(i) Except as provided under subparagraphs (ii) and (iii), a public water supplier:

(A) Shall perform E. coli or total coliform density determinations on samples of the source water immediately prior to disinfection. Regardless of source water turbidity, the minimum frequency of sampling for total coliform or E. coli determinations may be no less than the following:

<table>
<thead>
<tr>
<th>System Size (People)</th>
<th>Samples/Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;500</td>
<td>1</td>
</tr>
<tr>
<td>500—3,299</td>
<td>2</td>
</tr>
<tr>
<td>3,300—10,000</td>
<td>3</td>
</tr>
<tr>
<td>10,001—25,000</td>
<td>4</td>
</tr>
<tr>
<td>25,001 or more</td>
<td>5</td>
</tr>
</tbody>
</table>

(B) Shall measure the turbidity of a representative grab sample of the source water immediately prior to disinfection as follows:

(I) For systems that operate continuously, at least once every 4 hours that the system is in operation, except as provided in clause (C).

(II) For systems that do not operate continuously, at start-up, at least once every 4 hours that the system is in operation, and also prior to shutting down the plant, except as provided in clause (C).

(C) May substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a procedure specified by the manufacturer. At a minimum, calibration with an EPA-approved primary standard shall be conducted at least quarterly.

(D) Shall continuously monitor and record the residual disinfectant concentration required under § 109.202(c)(1)(iii) of the water being supplied to the distribution system and record the lowest value for each day. If a public water system’s continuous monitoring or recording equipment fails, the public water supplier may, upon notification of the Department under § 109.701(a)(3), substitute grab sampling or manual recording, or both, every 4 hours in lieu of continuous monitoring. Grab sampling or manual recording may not be substituted for continuous monitoring for longer than 5 days after the equipment fails.

(E) Until April 28, 2019, shall measure the residual disinfectant concentration at representative points in the distribution system no less frequently than the frequency required for total coliform sampling for compliance with the MCL for microbiological contaminants.

(F) Beginning April 29, 2019, shall measure and record the residual disinfectant concentration at representative points in the distribution system in accordance with a sample siting plan as specified in § 109.701(a)(8) and as follows:

(I) A public water supplier shall monitor the residual disinfectant concentration at the same time and from the same location that a total coliform sample is collected as specified in paragraph (3)(i) and (ii). Measurements taken under this subclause may be used to meet the requirements under subclause (II).

(II) A public water supplier shall monitor the residual disinfectant concentration at representative locations in the distribution system at least once per week.

(III) A public water supplier that does not maintain the minimum residual disinfectant concentration specified in § 109.710 at one or more sample sites shall include those sample sites in the monitoring conducted the following month.

(IV) Compliance with the minimum residual disinfectant concentration shall be determined in accordance with § 109.710.

(V) A public water system may substitute online residual disinfectant concentration monitoring and recording for grab sample monitoring and manual recording if it validates the online measurement for accuracy in accordance with § 109.304.

(ii) For a public water supplier serving 3,300 or fewer people, the Department may reduce the residual disinfectant concentration monitoring for the water being supplied to the distribution system to a minimum of 2 hours between samples at the grab sampling frequencies prescribed as follows if the historical performance and operation of the system indicate the system can meet the residual disinfectant concentration at all times:

* * * * *

(5) Monitoring requirements for VOCs. Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for VOCs established by the EPA under 40 CFR 141.61(a) (relating to maximum contaminant levels for organic contaminants). The monitoring shall be conducted according to the requirements established by the EPA under 40 CFR 141.24(f) (relating to organic chemicals, sampling and analytical requirements), incorporated herein by reference, except as modified by this chapter. Initial or first year monitoring mentioned in this paragraph refers to VOC monitoring conducted on or after January 1, 1993.

(i) Vinyl chloride. Monitoring for compliance with the MCL for vinyl chloride is required for groundwater entry points at which one or more of the following two-carbon organic compounds have been detected: trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene or 1,1-dichloroethylene and shall consist of quarterly samples. If the results of the first analysis do not detect vinyl chloride, monitoring shall be reduced to one sample during each compliance period. Surface water entry points shall monitor for vinyl chloride as specified by the Department.

(ii) Initial monitoring. Initial monitoring shall consist of 4 consecutive quarterly samples at each entry point in accordance with the following monitoring schedule during the compliance period beginning January 1, 1993, except for systems which are granted reduced initial monitoring in accordance with clauses (E) and (F). A system which monitors during the initial monitoring period, but begins monitoring before its scheduled initial monitoring year specified in this subparagraph, shall begin monitoring every entry point during the first calendar quarter of the year it begins monitoring, except as provided in clause (E).

(A) Systems serving more than 10,000 persons shall begin monitoring during the quarter beginning January 1, 1994.

PENNSYLVANIA BULLETIN, VOL. 48, NO. 17, APRIL 28, 2018
(B) Systems serving 3,301 persons to 10,000 persons shall begin monitoring during the quarter beginning January 1, 1995.

(C) Systems serving 500 to 3,300 persons shall begin monitoring during the quarter beginning January 1, 1993.

(D) Systems serving fewer than 500 persons shall begin monitoring during the quarter beginning January 1, 1994.

(E) For systems serving 3,300 or fewer people which monitor at least one quarter prior to October 1, 1993, and do not detect VOCs at an entry point during the first quarterly sample, the required initial monitoring is reduced to one sample at that entry point. For systems serving 500 to 3,300 people to qualify for this reduced monitoring, the initial monitoring shall have been conducted during the quarter beginning January 1, 1993.

(F) For systems serving more than 3,300 people, which were in existence prior to January 1, 1993, initial monitoring for compliance with the MCLs for VOCs established by the EPA under 40 CFR 141.61(a) is reduced to one sample for each entry point which meets the following conditions:

(I) VOC monitoring required by the Department between January 1, 1988, and December 31, 1992, has been conducted and no VOCs regulated under 40 CFR 141.61(a) were detected.

(II) The first quarter monitoring required by this paragraph has been conducted during the first quarter of the system's scheduled monitoring year under this paragraph, with no detection of a VOC.

(G) Systems with new entry points associated with new sources which are permitted under Subchapter E (relating to permit requirements) to begin operation after December 31, 1992, shall conduct initial monitoring as follows. New entry points shall be monitored quarterly, beginning the first full quarter the entry point begins serving the public.

(iii) Repeat monitoring for entry points at which a VOC is detected. For entry points at which a VOC is detected at a level equal to or greater than 0.0005 mg/L, then:

(A) Monitoring shall be repeated quarterly beginning the quarter following the detection for VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in subparagraph (i), until reduced monitoring is granted in accordance with this subparagraph.

(B) The Department may decrease the quarterly monitoring requirement specified in clause (A) provided it has determined that the system is reliably and consistently below the MCL. For an initial detection of a VOC, the Department will not make this determination until the water system obtains results from a minimum of four consecutive quarterly samples that are reliably and consistently below the MCL.

* * * * *

(6) Monitoring requirements for SOC's (pesticides and PCBs). Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for SOCs established by the EPA under 40 CFR 141.61(c). The monitoring shall be conducted according to the requirements established by the EPA under 40 CFR 141.24(h), incorporated herein by reference except as modified by this chapter.

(i) Initial monitoring. Initial monitoring shall consist of 4 consecutive quarterly samples at each entry point beginning during the quarter beginning January 1, 1995, except for systems which are granted an initial monitoring waiver in accordance with subparagraph (vii). Systems which monitor during the initial monitoring period but begin monitoring before 1995 shall begin monitoring during the first calendar quarter of the year. New entry points associated with new sources which are vulnerable to SOC contamination, as determined in accordance with subparagraph (vii), and which begin operation after March 31, 1995, shall be monitored quarterly, beginning the first full quarter the entry point begins serving the public.

(ii) Repeat monitoring for SOCs that are detected. If an SOC is detected (as defined by the EPA under 40 CFR 141.24(h)(18) or by the Department), then:

(A) Monitoring for the detected SOC shall be conducted quarterly, beginning the quarter following the detection, until reduced monitoring is granted in accordance with this subparagraph.

(B) The Department may decrease the quarterly monitoring requirement specified in clause (A) provided it has determined that the system is reliably and consistently below the MCL. For an initial detection of a SOC, the Department will not make this determination until the water system obtains results from a minimum of four consecutive quarterly samples that are reliably and consistently below the MCL.

(C) If the Department determines that the system is reliably and consistently below the MCL, the Department may allow the system to monitor annually. Systems which monitor annually shall monitor during the quarter that previously yielded the highest analytical result, or as specified by the Department.

(D) Systems which have 3 consecutive years of quarterly or annual samples with no detection of a contaminant may apply to the Department for a waiver as specified in subparagraph (vii). A waiver is effective for one compliance period and may be renewed in each subsequent compliance period.

(E) For entry points at which either heptachlor or heptachlor epoxide is detected during the initial round of consecutive quarterly samples, or in subsequent repeat samples, the monitoring shall be continued for both contaminants in accordance with the more frequent monitoring required of the two contaminants based on the level at which each is detected.

(iii) Repeat monitoring for SOCs that are not detected. For entry points at which SOCs are not detected during the first year of quarterly monitoring, the required monitoring is reduced to one sample in each 3-year compliance period for systems serving 3,300 or fewer persons and to 2 consecutive quarterly samples in each compliance period for systems serving more than 3,300 persons. Reduced monitoring shall be conducted at 3-year intervals from the year of required initial VOC monitoring, in accordance with paragraph (5)(iii).

(iv) Repeat monitoring for SOCs with MCL exceedances. For entry points at which an SOC MCL is exceeded, monitoring for the detected SOC shall be conducted quarterly, beginning the quarter following the exceedance. Quarterly monitoring shall continue until a minimum of 4 consecutive quarterly samples shows the system is in compliance as specified in subparagraph (ix) and the Department determines the system is reliably and consistently below the MCL. If the Department determines that the system is in compliance and is reliably and consis-
tently below the MCL, the Department may allow the system to monitor in accordance with subparagraph (ii)(C).

(v) Confirmation samples. A confirmation sample shall be collected and analyzed for each SOC listed under 40 CFR 141.61(c) which is detected at a level in excess of its MCL during annual or less frequent compliance monitoring. The confirmation sample shall be collected within 2 weeks of the water supplier receiving notification from the accredited laboratory performing the analysis that an MCL has been exceeded. The average of the results of the original and the confirmation samples will be used to determine compliance. Confirmation monitoring shall be completed by the deadline specified for SOC compliance monitoring.

(vi) Reduced monitoring. When reduced monitoring is provided under subparagraph (ii) or (iii), the system shall monitor the entry point during the second calendar year quarter, or the second and third calendar year quarter when 2 quarterly samples are required in each compliance period, unless otherwise specified by the Department. The reduced monitoring option in subparagraph (iii) does not apply to entry points at which treatment has been installed for SOC removal. Compliance monitoring for SOCs for which treatment has been installed to comply with an MCL shall be conducted at least annually, and performance monitoring shall be conducted quarterly.

(vii) Waivers. A waiver will be granted to a public water supplier from conducting the initial compliance monitoring or repeat monitoring, or both, for an SOC based on documentation provided by the public water supplier and a determination by the Department that the criteria in clause (B), (C) or (D) has been met. A waiver is effective for one compliance period and may be renewed in each subsequent compliance period. If the Department has not granted a use waiver in accordance with clause (B), the public water supplier is responsible for submitting a waiver application and renewal application to the Department for review in accordance with clause (B), (C) or (D) for specific entry points. Waiver applications will be evaluated relative to the vulnerability assessment area described in clause (A) and the criteria in clause (B), (C) or (D). Entry points at which treatment has been installed to remove an SOC are not eligible for a monitoring waiver for the SOCs for which treatment has been installed.

(A) Vulnerability assessment area for SOCs including dioxin and PCBs.

(I) For groundwater or GUDI entry points, the vulnerability assessment area shall consist of wellhead protection area Zones I and II.

(II) For surface water entry points, the vulnerability assessment area shall consist of the area that supplies water to the entry point and is separated from other watersheds by the highest topographic contour.

(B) Use waivers. A use waiver will be granted by the Department for contaminants which the Department has determined have not been used, stored, manufactured, transported or disposed of in this Commonwealth, or portions of this Commonwealth. A use waiver specific to a particular entry point requires that an SOC was not used, stored, manufactured, transported or disposed of in the vulnerability assessment area. If use waiver criteria cannot be met, a public water supplier may apply for a susceptibility waiver.

(C) Susceptibility waivers. A susceptibility waiver for specific contaminants may be granted based on the following criteria, and only applies to groundwater entry points:

(I) Previous analytical results.

(II) Environmental persistence and transport of the contaminant.

(III) Proximity of the drinking water source to point or nonpoint source contamination.

(IV) Elevated nitrate levels as an indicator of the potential for pesticide contamination.

(V) Extent of source water protection or approved wellhead protection program.

(D) Waiver requests and renewals. Waiver requests and renewals shall be submitted to the Department, on forms provided by the Department, for review and approval prior to the end of the applicable monitoring period. Until the waiver request or renewal is approved, the public water system is responsible for conducting all required monitoring.

(viii) Invalidation of SOC samples.

(A) The Department may invalidate results of obvious sampling errors.

(B) An SOC sample invalidated under this subparagraph does not count towards meeting the minimum monitoring requirements of this paragraph.

(ix) Compliance determinations. Compliance with the SOC MCLs shall be determined based on the analytical results obtained at each entry point. If one entry point is in violation of an MCL, the system is in violation of the MCL.

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

(B) If monitoring is conducted annually or less frequently, the system is out of compliance if the level of a contaminant at any entry point is greater than the MCL. If a confirmation sample is collected as specified in subparagraph (v), compliance is determined using the average of the two sample results.

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

(D) If a system fails to collect the required number of samples, compliance with the MCL 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 compliance.

(7) Monitoring requirements for IOCs. Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for IOCs established by the EPA under 40 CFR 141.62 (relating to maximum contaminant levels for inorganic contaminants). Transient noncommunity water suppliers shall monitor for compliance with the MCLs for nitrate and nitrite. The monitoring shall be conducted according to the requirements established by the EPA under 40 CFR 141.23 (relating to inorganic chemical sampling and analytical requirements). The requirements are incorporated by reference except as modified by this chapter.
(i) Monitoring requirements for asbestos.

(A) Monitoring frequency. Community water systems and nontransient noncommunity water systems not granted a waiver under clause (F) shall monitor for compliance with the MCL for asbestos by taking one sample at each vulnerable sampling point during the first 3-year compliance period of each 9-year compliance cycle, with the initial compliance monitoring beginning not later than the calendar year beginning January 1, 1995.

(B) Sampling points. A system shall monitor at the following locations:

(I) Each entry point to the distribution system.

(II) At least one representative location within the distribution system identified in a written sample site plan that includes a materials evaluation of the distribution system. The written sample site plan shall be maintained on record and submitted to the Department prior to conducting initial monitoring or upon request.

(C) Monitoring of new entry points. New entry points which begin operation after December 31, 1995, shall conduct initial monitoring during the first compliance period of the first compliance cycle after the entry point begins serving the public, if the Department determines that a waiver cannot be granted in accordance with clause (F).

(D) Repeat monitoring for systems that exceed the asbestos MCL. If a sample exceeds the MCL for asbestos, the monitoring at that sampling point shall be continued quarterly beginning in the quarter following the MCL exceedance. After four consecutive quarterly samples with results reliably and consistently below the MCL at that entry point, the required monitoring is reduced to one sample at that entry point during the first 3-year compliance period of each subsequent 9-year compliance cycle, if treatment has not been installed to remove asbestos from the source water. Compliance monitoring at entry points at which treatment has been installed to remove asbestos from source water shall be conducted at least annually, and performance monitoring shall be conducted quarterly.

(E) Confirmation samples. For asbestos sample results in excess of the MCL during annual or less frequent compliance monitoring, the water supplier shall take a confirmation sample within 2 weeks of notification by the accredited laboratory performing the analysis. The average of the results of the original and the confirmation sample will be used to determine compliance. Monitoring shall be completed by the deadline specified for asbestos compliance monitoring.

(F) Waivers for asbestos monitoring. A waiver will be granted to a public water supplier from conducting compliance monitoring for asbestos based on documentation provided by the public water supplier and a determination by the Department that the criteria in this clause have been met. A waiver is effective for one compliance period and may be renewed in each subsequent compliance period. Entry points at which treatment has been installed to remove asbestos are not eligible for a monitoring waiver.

(I) A waiver for entry point compliance monitoring may be granted if the sources supplying the entry point are not vulnerable to asbestos contamination.

(II) A waiver for distribution system monitoring may be granted if the distribution system does not contain asbestos cement pipe as indicated in the materials evaluation or if the water system has optimized corrosion control as specified in Subchapter K (relating to lead and copper).

(III) Waiver requests and renewals shall be submitted to the Department, on forms provided by the Department, for review and approval prior to the end of the applicable monitoring period. Until the waiver request or renewal is approved, the public water system is responsible for conducting all required monitoring.

(ii) Monitoring requirements for nitrate and nitrite.

(A) Initial monitoring schedule. A public water system shall begin monitoring for nitrate and nitrite by taking one annual sample at each groundwater or GUDI entry point to the distribution system beginning during the year beginning January 1, 1993. Community water systems and nontransient noncommunity water systems with surface water sources shall monitor quarterly at each surface water entry point for nitrate and nitrite beginning during the quarter beginning January 1, 1993. Transient noncommunity water systems shall monitor each surface water entry point by taking one annual sample beginning during the year beginning January 1, 1993.

(B) Monitoring of new entry points.

(I) New community and nontransient noncommunity surface water entry points associated with new sources shall be monitored quarterly, beginning the first full quarter the entry point begins serving the public. Quarterly monitoring shall continue until reduced monitoring is granted in accordance with clause (C)(II) or (D).

(II) New community and nontransient noncommunity groundwater or GUDI entry points and new transient noncommunity entry points associated with new sources shall be monitored annually, beginning within 1 year of serving the public.

(C) Repeat monitoring for systems with nitrate or nitrite levels equal to or greater than 50% of the MCLs.

(I) For entry points at which initial monitoring results or subsequent monitoring indicate nitrate or nitrite levels equal to or greater than 50% of the MCL, water systems shall begin quarterly monitoring in the following detection at that level and continue quarterly monitoring for both nitrate and nitrite, unless reduced monitoring is granted in accordance with subclause (II) or (III).

(II) For surface water entry points, after 4 consecutive quarterly samples at an entry point for a water system indicate nitrate and nitrite levels in each sample are less than 50% of the MCLs, the required compliance monitoring is reduced to 1 sample per year at the entry point. Annual monitoring shall be conducted during the quarter which previously resulted in the highest analytical result, unless the Department determines that a different monitoring quarter should be used in accordance with paragraph (10).

(III) For groundwater or GUDI entry points, after 4 consecutive quarterly samples at an entry point for a water system indicate nitrate and nitrite levels in each sample are reliably and consistently below the MCL, the required compliance monitoring is reduced to 1 sample per year at the entry point. Annual monitoring shall be conducted during the quarter which previously resulted in the highest analytical result, unless the Department determines that a different monitoring quarter should be used in accordance with paragraph (10).

(IV) For nitrate or nitrite sample results in excess of the MCLs, the water supplier shall take a confirmation sample within 24 hours of having received the original sample result. A water supplier that is unable to comply with the 24-hour sampling requirement shall immediately
notify persons served by the public water system in accordance with § 109.408. Systems exercising this option shall take and analyze a confirmation sample within 2 weeks of notification of the analytical results of the first sample.

(V) Noncommunity water systems for which an alternate nitrate level has been approved by the Department in accordance with 40 CFR 141.11(d) (relating to maximum contaminant levels for inorganic chemicals) are not required to collect a confirmation sample if only the nitrate MCL is exceeded and nitrate is not in excess of the alternate nitrate level. If the alternate nitrate level is exceeded, the water supplier shall collect a confirmation sample within 24 hours after being advised by the certified laboratory performing the analysis that the compliance sample exceeded 20 mg/L for nitrate. Confirmation monitoring shall be completed by the deadline for compliance monitoring.

(VI) Quarterly performance monitoring is required for nitrate and nitrite at entry points where treatment has been installed to remove nitrate or nitrite.

(D) Repeat monitoring for systems with nitrate and nitrite levels less than 50% of the MCLs. For entry points at which initial monitoring results indicate nitrate and nitrite levels in each sample are less than 50% of the MCLs, nitrate and nitrite monitoring shall be repeated annually during the calendar quarter which previously resulted in the highest analytical result, unless the Department determines that a different monitoring quarter should be used in accordance with paragraph (10).

(iii) Monitoring requirements for antimony, arsenic, barium, beryllium, cadmium, cyanide, chromium, fluoride, mercury, nickel, selenium and thallium.

(A) Initial monitoring schedule. Community water systems and nontransient noncommunity water systems shall monitor each surface water entry point annually beginning during the year beginning January 1, 1993, and shall monitor each groundwater or GUDI entry point once every 3 years beginning during the year beginning January 1, 1994.

(B) Monitoring of new entry points. New groundwater or GUDI entry points which begin operation after December 31, 1994, shall begin initial monitoring in accordance with the schedule in clause (A)—that is, 1997, and so forth. New surface water entry points shall begin initial annual monitoring during the first new calendar year after the entry point begins serving the public.

(C) Repeat monitoring for entry points at which an IOC MCL is exceeded.

(I) For entry points at which initial monitoring results or subsequent monitoring indicates an IOC level in excess of the MCL, monitoring shall be repeated quarterly beginning the quarter following detection at that level for each IOC in excess of an MCL, until reduced monitoring is granted in accordance with subclause (II).

(II) After analyses of four consecutive quarterly samples indicate that contaminant levels are reliably and consistently below the MCLs, the required monitoring at an entry point where treatment has not been installed to comply with an IOC MCL for each IOC that is reliably and consistently below the MCL is reduced to the frequencies stated in clause (A). This reduced monitoring option does not apply to entry points at which treatment has been installed for IOC removal. Compliance monitoring for IOCs for which treatment has been installed to comply with an MCL shall be conducted at least annually, and performance monitoring shall be conducted quarterly.

(12) Monitoring requirements for disinfection byproducts and disinfection byproduct precursors. Community water systems and nontransient noncommunity water systems that use a chemical disinfectant or oxidant shall monitor for disinfection byproducts and disinfection byproduct precursors in accordance with this paragraph. Community water systems and nontransient noncommunity water systems that obtain finished water from another public water system that uses a chemical disinfectant or oxidant to treat the finished water shall monitor for THM and HAA5 in accordance with this paragraph. Systems that use either surface water or GUDI sources and that serve at least 10,000 persons shall begin monitoring by January 1, 2002. Systems that use either surface water or GUDI sources and that serve fewer than 10,000 persons, or systems that use groundwater sources, shall begin monitoring by January 1, 2004. Systems monitoring for disinfection byproducts and disinfection byproduct precursors shall take all samples during normal operating conditions. Systems monitoring for disinfection byproducts and disinfection byproduct precursors shall use only data collected under this chapter to qualify for reduced monitoring. Compliance with the MCLs and monitoring requirements for THM and HAA5 (where applicable) and bromate (where applicable) shall be determined in accordance with 40 CFR 141.132 and 141.133 (relating to monitoring requirements; and compliance requirements) which are incorporated herein by reference.

(iv) Bromate. Community water systems and nontransient noncommunity water systems that use ozone for disinfection or oxidation shall monitor for bromate.

(A) Routine monitoring. Systems shall take one sample per month for each treatment plant that uses ozone. Systems shall take the monthly sample at the entrance to the distribution system while the ozonation system is operating under normal conditions.

(B) Reduced monitoring.

(I) Until March 31, 2009, systems that have an average source water bromide concentration that is less than or equal to 0.05 mg/L based upon representative monthly bromide measurements for 1 year, the required monitoring is reduced from monthly to quarterly. Systems on reduced monitoring shall continue to take monthly samples for source water bromide. If the running annual average source water bromide concentration, computed quarterly, equals or exceeds 0.05 mg/L based upon representative monthly measurements, the system shall revert to routine monitoring as prescribed by clause (A).

(II) Beginning April 1, 2009, a system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system’s running annual average bromate concentration computed quarterly is less than or equal to 0.0025 mg/L based on monthly measurements as prescribed in clause (A) analyzed using Method 100.3 specified in 40 CFR 141.132(b)(3)(ii)(B) for the most recent 4 quarters. Systems qualifying for reduced bromate monitoring under subclause (I) may remain on reduced monitoring as long as the running annual average bromate concentration is greater than or equal to 0.0025 mg/L, the system shall resume routine monitoring as prescribed under clause (A).

(v) DBP precursors. Community water systems and nontransient noncommunity water systems that use ei-
(A) Routine monitoring. Systems shall take monthly samples of the source water alkalinity, the source water TOC and postsedimentation TOC for each treatment plant that uses conventional filtration. Postsedimentation TOC can be taken at any point between sedimentation effluent and the entry point to the distribution system. The three samples shall be taken concurrently and at a time that is representative of both normal operating conditions and influent water quality.

(B) Reduced monitoring. For systems with an average postsedimentation TOC of less than 2.0 mg/L for 2-consecutive years, or less than 1.0 mg/L for 1 year, the required monitoring for source water alkalinity, source TOC and postsedimentation TOC is reduced from monthly to quarterly for each applicable treatment plant. The system shall revert to routine monitoring as prescribed by clause (A) in the month following the quarter when the annual average postsedimentation TOC is not less than 2.0 mg/L.

(C) Early monitoring. Systems may begin monitoring to determine whether the TOC removal requirements of 40 CFR 141.135(b)(1) (relating to treatment technique for control of disinfection byproduct (DBP) precursors) can be met 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this period, and then determines in the first 12 months after the compliance date that it is not able to meet the requirements of 40 CFR 141.135(b)(1) and shall therefore apply for alternate minimum TOC removal requirements under 40 CFR 141.135(b)(4) is notelligible for retroactive approval of the alternate minimum TOC removal requirements and is in violation. Systems may apply for alternate minimum TOC removal requirements any time after the compliance date.

(13) Monitoring requirements for disinfectant residuals. Community water systems and nontransient noncommunity water systems that use either chlorine or chloramines or that obtain finished water from another public water system that uses either chlorine or chloramines, and transient noncommunity water systems that install chemical disinfection treatment in accordance with § 109.130(b) (relating to treatment technique requirements) shall monitor for residual disinfectant concentration in accordance with this paragraph. Community water systems, nontransient noncommunity water systems and transient noncommunity water systems that use chlorine dioxide to treat the finished water shall monitor for chlorine dioxide in accordance with this paragraph. Systems monitoring for residual disinfectant concentration shall take all samples during normal operating conditions. Compliance with the MRDLs and monitoring requirements for chlorine, chloramines and chlorine dioxide (where applicable) shall be determined in accordance with 40 CFR 141.132 and 141.133 which are incorporated herein by reference. Compliance with the minimum residual disinfectant concentration shall be determined in accordance with § 109.710.

(i) Chlorine and chloramines.

(A) Until April 28, 2019, systems shall measure the residual disinfectant level at the same points in the distribution system and at the same time that total coliforms are sampled, as specified in paragraph (3). Systems that used either surface water or GUDI sources may use the results of residual disinfectant concentration sampling conducted under paragraph (1) or (2) in lieu of taking separate samples.

(B) Beginning April 29, 2019, systems shall measure the residual disinfectant concentration in accordance with a sample siting plan as specified in § 109.701(a)(8) and as follows:

(I) Public water systems shall monitor the residual disinfectant concentration at the same time and from the same location that a total coliform sample is collected as specified in paragraph (3)(i) and (ii). Systems that use either surface water or GUDI sources may use the results of residual disinfectant concentration sampling conducted under paragraph (1) or (2) instead of taking separate samples. Measurements taken under this clause may be used to meet the requirements under subclause (II).

(II) Public water systems shall monitor the residual disinfectant concentration at representative locations in the distribution system at least once per week.

(III) A public water system that does not maintain the minimum residual disinfectant concentration specified in § 109.710 at one or more sample sites shall include those sample sites in the monitoring conducted the following month.

(IV) Compliance with the minimum residual disinf ectant concentration shall be determined in accordance with § 109.710.

(V) A public water system may substitute online residual disinfectant concentration monitoring and recording for grab sample monitoring and manual recording if it validates the online measurement for accuracy in accordance with § 109.304.

(ii) Chlorine dioxide.

§ 109.303. Sampling requirements.

§ 109.408. Tier 1 public notice—categories, timing and delivery of notice.

(a) General violation categories and other situations requiring a Tier 1 public notice. A public water supplier shall provide Tier 1 public notice for the following circumstances:

(1) Violation of the MCL for E. coli, as specified in § 109.202(a)(2) (relating to State MCLs, MRDLs and treatment technique requirements), or when the water supplier fails to test for E. coli when any check sample tests positive for coliforms, as specified in § 109.301(3) (relating to general monitoring requirements).

(2) Violation of the MCL for nitrate, nitrite or total nitrate and nitrite, as defined in § 109.202(a)(2), or when the water supplier fails to take a confirmation sample within 24 hours of the system's receipt of the first sample
showing an exceedance of the nitrate or nitrite MCL, as specified in § 109.301(7)(ii)(C)(IV) and (V).

(3) Exceedance of the nitrate MCL by noncommunity water systems, when permitted by the Department in writing to exceed the MCL in accordance with 40 CFR 141.11(d) (relating to maximum contaminant levels for inorganic chemicals).

(4) Violation of the MRDL for chlorine dioxide, as defined in § 109.202(f)(2), when one or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the water supplier does not take the required samples in the distribution system, as specified in § 109.301.

(5) Violation of the turbidity MCL of 5 NTU based on an average for 2 consecutive days by a public water system using an unfiltered surface water source, as specified in § 109.202(a)(2).

(6) Violation of a treatment technique requirement for pathogenic bacteria, viruses and protozoan cysts as defined in § 109.202(c), resulting from:

(i) A single exceedance of the maximum allowable turbidity limit.

(ii) A failure to meet the minimum log inactivation for more than 4 hours.

(iii) A failure to maintain the minimum entry point residual disinfectant concentration for more than 4 hours and either of the following:

(A) A failure to calculate the log inactivation in accordance with § 109.301(1)(v) and (vi).

(B) A failure to meet the minimum log inactivation for more than 4 hours.

(7) Violation of a treatment technique requirement for Cryptosporidium as defined in § 109.1203 (relating to bin classification and treatment technique requirements), resulting from a failure to provide the level of treatment appropriate for the systems bin classification.

* * * * *

Subchapter G. SYSTEM MANAGEMENT RESPONSIBILITIES

§ 109.701. Reporting and recordkeeping.

(a) Reporting requirements for public water systems. Public water systems shall comply with the following requirements:

(1) General reporting requirements. Unless a different reporting period is specified in this chapter, the water supplier shall assure that the results of test measurements or analyses required by this chapter are reported to the Department within either the first 10 days following the month in which the result is received or the first 10 days following the end of the required monitoring period as stipulated by the Department, whichever is shorter. The test results shall include the following at a minimum:

(i) The name, address and public water system identification number (PWSID) of the public water system from which the sample was taken.

(ii) The name, address and identification number of the laboratory performing the analysis unless the analysis is not required to be performed by a certified laboratory.

(iii) The results of analytical methods, including negative results.

(iv) Contaminants.

(v) Analytical methods used.

(vi) The date of sample.

(vii) The date of analysis.

(viii) Sample location.

(2) Monthly reporting requirements for performance monitoring. In addition to the reporting requirements specified in paragraph (1), public water systems shall report performance monitoring data as follows:

(i) The test results of performance monitoring required under § 109.301(1) (relating to general monitoring requirements) for public water suppliers providing filtration and disinfection of surface water or GUDI sources must include the following at a minimum:

(A) For turbidity performance monitoring:

(I) The number of days of filtration operation.

(II) The number of filtered water turbidity measurements taken each month.

(III) The number of filtered water turbidity measurements that are less than or equal to 0.5 NTU for conventional, direct or other filtration technologies, or 1.0 NTU for slow sand or diatomaceous earth filtration technologies.

(IV) The date, time and values of any filtered water turbidity measurements exceeding 2.0 NTU.

(V) Instead of subclauses (III) and (IV), beginning January 1, 2002, for public water systems that serve 10,000 or more people and use conventional or direct filtration:

(a) The number of filtered water turbidity measurements that are less than or equal to 0.3 NTU.

(b) The date, time and values of any filtered water turbidity measurements exceeding 1 NTU.

(VI) Instead of subclauses (A)(III) and (IV), beginning January 1, 2005, for public water systems that serve fewer than 10,000 persons and use conventional or direct filtration:

(a) The number of filtered water turbidity measurements that are less than or equal to 0.3 NTU.

(b) The date, time and values of any filtered water turbidity measurements exceeding 1 NTU.

(VII) Instead of subclauses (A)(III) and (IV), beginning January 1, 2002, for public water systems that serve 10,000 or more people and use other filtration technologies:

(a) The number of filtered water turbidity measurements that are less than or equal to 0.3 NTU.

(b) The date, time and values of any filtered water turbidity measurements exceeding 1 NTU.

(B) For performance monitoring of the residual disinfectant concentration of the water being supplied to the distribution system:

(I) The date, time and lowest value each day the residual disinfectant concentration remains equal to or greater than the required minimum.
(II) The initial date, time and value for each occurrence that the residual disinfectant concentration is less than the required minimum, and the subsequent date, time and value that the residual disinfectant concentration is equal to or greater than the required minimum.

(III) The date the entry point is not in operation.

(C) For performance monitoring of the log inactivation for Giardia, public water systems shall report as follows:

(I) The date, time and lowest log inactivation value for each day the value remains equal to or greater than the required minimum.

(II) The initial date, time and value for each occurrence that the log inactivation is less than the required minimum, and the subsequent date, time and value that the log inactivation is equal to or greater than the required minimum.

(III) The date the entry point is not in operation.

(D) For performance monitoring of the log inactivation for viruses, public water systems using a disinfectant other than chlorine to achieve log inactivation of viruses shall report as follows:

(I) The date, time and lowest log inactivation value for each day the value remains equal to or greater than the required minimum.

(II) The initial date, time and value for each occurrence that the log inactivation is less than the required minimum, and the subsequent date, time and value that the log inactivation is equal to or greater than the required minimum.

(III) The date the entry point is not in operation.

(ii) The test results of performance monitoring required under § 109.301(2) for public water suppliers using unfiltered surface water or GUDI sources shall include the following, at a minimum:

(A) For turbidity performance monitoring:

(I) The date, time and value of each sample that exceeds 1.0 NTU.

(II) The date, time and highest turbidity value, if the turbidity does not exceed 1.0 NTU in a sample.

(B) For performance monitoring of the residual disinfectant concentration of the water being supplied to the distribution system:

(I) The date, time and lowest value each day the concentration is less than the residual disinfectant concentration required under § 109.202(c)(1)(iii) (relating to State MCLs, MRDLs and treatment technique requirements).

(II) If the concentration does not fall below that required under § 109.202(c)(1)(iii) during the month, report the date, time and lowest value measured that month.

(C) For performance monitoring of the E. coli or total coliform density determinations on samples of the source water immediately prior to disinfection: the date, time and value of each sample.

(iii) The test results from performance monitoring required under § 109.301(8)(v) of the residual disinfectant concentration of the water in the distribution system shall include the date, time and value of each sample.

(3) One-hour reporting requirements. A public water supplier shall report the circumstances to the Department within 1 hour of discovery for the following violations or situations:

(i) A primary MCL or an MRDL has been exceeded or a treatment technique requirement has been violated under Subchapter B, K, L or M.

(ii) A sample result requires the collection of check samples under § 109.301.

(iii) Circumstances exist which may adversely affect the quality or quantity of drinking water including, but not limited to:

(A) The occurrence of a waterborne disease outbreak.

(B) A failure or significant interruption in key water treatment processes.

(C) A natural disaster that disrupts the water supply or distribution system.

(D) A chemical spill.

(E) An unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination.

(F) An overfeed of a drinking water treatment chemical that exceeds a published maximum use value, such as National Sanitation Foundation’s “Maximum Use Value,” as applicable.

(G) A situation that causes a loss of positive water pressure in any portion of the distribution system where there is evidence of contamination or a water supplier suspects a high risk of contamination.

(H) A lack of resources that adversely affect operations, such as staff shortages, notification by the power utility of planned lengthy power outages or imminent depletion of treatment chemical inventories.

(iv) Any sample result is E. coli-positive.

(4) Notice. The water supplier shall, within 10 days of completion of each public notification required under Subchapter D (relating to public notification) with the exception of a CCR, submit to the Department a certification that it has fully complied with the public notification requirements. The water supplier shall include with this certification a representative copy of each type of notice distributed, published, posted and made available to persons served by the system and to the media and a description of the means undertaken to make the notice available.

(5) Siting plan. The water supplier shall submit to the Department a written sample siting plan for routine and repeat coliform sampling as required under § 109.301(3) by September 24, 2016. A public water system that begins operation after September 24, 2016, shall submit the sample siting plan prior to serving water to the public.

(i) A sample siting plan must include, at a minimum, the following:

(A) A list of sample site locations as specified in § 109.303(a)(2) (relating to sampling requirements) in the distribution system to be used for routine monitoring purposes.

(B) The name of the company or individual collecting the samples.

(C) A sample collection schedule.

(D) Available repeat monitoring locations for each routine monitoring location.

(E) Triggered source water monitoring locations as specified under § 109.1303 (relating to triggered monitoring requirements for groundwater sources).

(F) The population served by the system.
(G) A description of the accessibility of sample sites.

(H) The beginning and ending dates of each operating season for seasonal systems.

(ii) A water supplier shall revise and resubmit its sample siting plan within 30 days of notification by the Department of a sample siting plan which fails to meet the criteria in subparagraph (i).

(iii) The water supplier shall notify the Department of subsequent revisions to a coliform sample siting plan as they occur. Revisions to a coliform sample siting plan shall be submitted in written form to the Department within 30 days of notifying the Department of the revisions.

(6) Records. Upon request by the Department, the water supplier shall submit copies of records required to be maintained under this subchapter.

(7) Form. Reports required by this chapter shall be submitted in a manner or form acceptable to the Department.

(8) Reporting requirements for disinfectant residuals. In addition to the reporting requirements specified in paragraph (1), public water systems monitoring for disinfectant residuals under § 109.301 shall:

(i) Submit to the Department a written sample siting plan by October 29, 2018. A public water system that begins operation after April 28, 2018, shall submit the sample siting plan prior to serving water to the public. The sample siting plan for disinfectant residuals may be combined with the sample siting plan for coliforms specified in paragraph (5) if all content elements are included. At a minimum, the sample siting plan must include all of the following:

(A) A list of representative sample site locations in the distribution system to be used for residual disinfectant concentration monitoring. Representative locations include the following:

(I) Dead ends.

(II) First service connection.

(III) Finished water storage facilities.

(IV) Interconnections with other public water systems.

(V) Areas of high water age.

(VI) Areas with previous coliform detections.

(VII) Mixing zones for systems using chlorine and purchasing water from a system using chloramines or for systems using chloramines and purchasing water from a system using chlorine.

(B) Whether the sample site location is also used as a coliform, disinfection byproducts, or lead and copper sampling location.

(C) Whether the sample site location is located within a mixing zone.

(D) Whether online monitoring and recording will be substituted for grab sample measurements at the sample site location and the frequency of measurements by the online analyzer.

(E) A sample collection schedule.

(ii) Submit to the Department a revised sample siting plan within 30 days of notification by the Department that a sample siting plan fails to meet the criteria in clauses (A)–(E).

(iii) Notify the Department of subsequent revisions to a sample siting plan as they occur. Revisions to a sample siting plan shall be submitted in written form to the Department within 30 days of notifying the Department of the revisions.

(IV) Report to the Department the beginning and ending dates when a free chlorine burn is conducted for a system using chloramines.

(V) Report to the Department a daily average if online monitoring and recording is substituted for grab sample measurements.

(9) Level 1 and Level 2 assessments. A public water supplier shall:

(i) Submit an assessment form completed in accordance with § 109.705(b) (relating to system evaluations and assessments) to the Department within 30 days after the system learns that it has exceeded a trigger under § 109.202(c)(4).

(ii) Submit a revised assessment form in accordance with § 109.705(b) within 30 days of notification from the Department that revisions are necessary.

§ 109.710. Disinfectant residual in the distribution system.

(a) Until April 28, 2019, a disinfectant residual acceptable to the Department shall be maintained throughout the distribution system of the community water system sufficient to assure compliance with the microbiological MCLs and the treatment technique requirements specified in § 109.202 (relating to State MCLs, MRDLs, and treatment technique requirements). The Department will determine the acceptable residual of the disinfectant considering factors such as type and form of disinfectant, temperature and pH of the water, and other characteristics of the water system.

(b) Until April 28, 2019, a public water system that uses surface water or GUDI sources or obtains finished water from another permitted public water system using surface water or GUDI sources shall comply with the following requirements:

(1) As a minimum, a detectable residual disinfectant concentration of 0.02 mg/L measured as total chlorine, combined chlorine or chlorine dioxide shall be maintained throughout the distribution system as demonstrated by monitoring conducted under § 109.301(1) and (2) or (8)(v) (relating to general monitoring requirements).

(2) Sampling points with nondetectable disinfectant residuals which have heterotrophic plate count (HPC) measurements of less than 500/ml are deemed to be in compliance with paragraph (1).

(3) When the requirements of paragraph (1) or (2) cannot be achieved, the supplier shall initiate an investigation under the Department's direction to determine the cause, potential health risks and appropriate remedial measures.

(c) Beginning April 28, 2019, a community water system using a chemical disinfectant or that delivers water that has been treated with a chemical disinfectant shall maintain a minimum residual disinfectant concentration throughout the distribution system sufficient to assure compliance with the microbiological MCLs and the treatment technique requirements specified in § 109.202. The minimum residual disinfectant concentration is 0.2 mg/L or another level approved by the Department for systems.
using an alternate oxidizing disinfection treatment. The residual disinfectant concentration shall be measured as follows:

(1) Free chlorine for systems using chlorine.
(2) Total chlorine for systems using chloramines.
(3) Both free chlorine and total chlorine for sampling locations in a mixing zone as identified in the monitoring plan.
(4) Both free chlorine and total chlorine when a system using chloramines is conducting a free chlorine burn.

(d) Beginning April 29, 2019, a nontransient noncommunity water system that has installed chemical disinfection or a transient noncommunity water system that has installed chemical disinfection in accordance with §109.202(c)(1) or §109.1302(b) (relating to treatment technique requirements) shall maintain a minimum residual disinfectant concentration throughout the distribution system sufficient to assure compliance with the microbiological MCLs and the treatment technique requirements specified in §109.202. The minimum residual disinfectant concentration is 0.2 mg/L or another level approved by the Department for systems using an alternate oxidizing disinfection treatment. The residual disinfectant concentration shall be measured as follows:

(1) Free chlorine for systems using chlorine.
(2) Total chlorine for systems using chloramines.
(3) Both free chlorine and total chlorine for sampling locations in a mixing zone as identified in the monitoring plan.
(4) Both free chlorine and total chlorine when a system using chloramines is conducting a free chlorine burn.

(e) Beginning April 29, 2019, compliance with the disinfectant residual treatment technique will be based on the number of samples collected each month as specified in the system distribution sample siting plan submitted to the Department under §109.701(a)(8) (relating to reporting and recordkeeping). Compliance will be determined as follows:

(1) For a public water system that collects less than 40 samples per month and uses only groundwater or purchased groundwater sources, if no more than 1 sample collected per month is less than the minimum level specified in subsection (c) or (d) for 2 consecutive months, the system is in compliance with the treatment technique.

(2) For a public water system that collects 40 or more samples per month or that uses surface water, GUDI, purchased surface water or purchased GUDI sources, if no more than 5% of the samples collected per month are less than the minimum level specified in subsection (c) or (d) for 2 consecutive months, the system is in compliance with the treatment technique.

(3) For systems reporting both free and total chlorine residual measurements in accordance with subsections (c) and (d), compliance shall be based on the higher residual measurement.

(4) A public water system that experiences a treatment technique violation shall notify the Department within 1 hour of discovery of the violation in accordance with §109.701(a)(3) and issue a Tier 2 public notice in accordance with §109.409 (relating to Tier 2 public notice—categories, timing and delivery of notice).

(5) In addition to the requirements in paragraphs (1)—(4), a public water system that fails to meet the minimum level specified in subsection (c) or (d) at any sample location for 2 consecutive months or more shall conduct an investigation to determine the cause and appropriate corrective actions and shall submit a written report to the Department within 60 days.

(f) Public water systems may increase residual chlorine or chloramine, but not chlorine dioxide, disinfectant levels in the distribution system to a level that exceeds the MRDL for that disinfectant and for a time necessary to protect public health or to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm runoff events, source water contamination events or cross-connection events.

(a) A public water system that uses chloramines or purchases water that contains chloramines shall develop a nitrification control plan by April 29, 2019. The plan must conform to the guidelines in industry standards such as the American Water Works Association’s M56 Manual on Nitrification and contain at least the following information:

(1) A system-specific monitoring plan that includes, at a minimum:
   (i) The list of parameters that will be monitored such as pH, free ammonia, total chlorine, monochloramine, HPC, nitrite and nitrate.
   (ii) The monitoring locations.
   (iii) The monitoring schedule.
(2) A response plan with expected water quality ranges and action levels.
(b) The public water system shall implement the nitrification control plan in accordance with accepted practices of the water supply industry.
(c) The public water system shall review and update the plan as necessary.
(d) The plan shall be retained onsite and shall be made available to the Department upon request.

Subchapter J. BOTTLED WATER AND VENDED WATER SYSTEMS, RETAIL WATER FACILITIES AND BULK WATER HAULING SYSTEMS
§109.1002. MCLs, MRDLs or treatment techniques.
(a) Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall supply drinking water that complies with the MCLs, MRDLs and treatment technique requirements under §§109.202 and 109.203 (relating to State MCLs, MRDLs and treatment technique requirements; and unregulated contaminants). Bottled water systems, vended water systems, retail water facilities and bulk water hauling systems shall comply with the requirements in §109.204 (relating to disinfection profiling and benchmarking). Bottled water systems, vended water systems, retail water facilities and bulk water hauling systems shall provide continuous disinfection for groundwater sources. Water for bottling labeled as mineral water under §109.1007 (relating to labeling requirements for bottled water systems, vended water systems and retail water facilities) shall comply with the MCLs except that mineral water may exceed the MCL for total dissolved solids.
(b) Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall supply drinking water that contains no more than 0.005 mg/L of lead and no more than 1.0 mg/L copper.

(c) Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall comply with the treatment technique requirements under Subchapter L (relating to long-term 2 enhanced surface water treatment rule).

(d) Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall comply with Subchapter M (relating to additional requirements for groundwater sources). For the purpose of determining compliance with Subchapter M, bottled water and vended systems, retail water facilities and bulk water hauling systems using groundwater sources shall comply with standards pertaining to noncommunity groundwater systems.

§ 109.1003. Monitoring requirements.

(a) General monitoring requirements. Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall monitor for compliance with the MCLs, MRDLs and treatment techniques as follows, except that systems which have installed treatment to comply with a primary MCL shall conduct quarterly operational monitoring for the contaminant which the treatment is designed to remove:

1. Bottled water systems, retail water facilities and bulk water hauling systems, for each entry point shall:

   * * * * * *

(ix) TTHM and HAA5 Stage 2 DBP Rule. Beginning October 1, 2013, monitor annually for TTHM and HAA5 if the system uses a chemical disinfectant or oxidant to treat the water, or obtains finished water from another public water system that uses a chemical disinfectant or oxidant to treat the water as follows:

   (A) Routine monitoring. Systems shall take at least one dual sample set per year per entry point during the peak historical month except that systems meeting the conditions in subsection (d) or (e) shall monitor in accordance with § 109.301(12)(ii) (relating to general monitoring requirements).

   (B) Increased monitoring. If any sample results exceed either a TTHM or HAA5 MCL, the system shall take at least one dual sample set per quarter (every 90 days) per entry point. The system shall return to the sampling frequency of one dual sample set per year per entry point if, after at least 1 year of monitoring, each TTHM sample result is no greater than 0.060 mg/L and each HAA5 sample result is no greater than 0.045 mg/L.

   (C) Compliance determinations. Compliance with the TTHM and HAA5 MCLs is based on the LRAA.

1. A system required to monitor quarterly shall calculate LRAAs for TTHM and HAA5 using monitoring results collected under this subparagraph and determine that each LRAA does not exceed the MCL. A system that fails to complete 4 consecutive quarters of monitoring shall calculate compliance with the MCL based on the average of the available data from the most recent 4 quarters. A system that takes more than one sample per quarter at a monitoring location shall average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.

2. A system required to monitor yearly or less frequently shall determine that each sample result is less than the MCL. If any single sample result exceeds the MCL, the system shall comply with the requirements of clause (B). If no sample result exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

3. A system required to conduct quarterly monitoring shall make compliance calculations at the end of the 4th calendar quarter that follows the compliance date (or earlier if the LRAA calculated based on fewer than 4 quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters) and at the end of each subsequent calendar quarter. A system required to conduct monitoring at a frequency that is less than quarterly shall make compliance calculations beginning with the first compliance sample taken after the compliance date.

4. A system is in violation of the MCL when the LRAA at any location exceeds the MCL for TTHM or HAA5, calculated as specified in subclause (I), or the LRAA calculated based on fewer than 4 quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters. If a system fails to monitor the system is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA.

(x) Beginning January 1, 2004, monitor daily for chlorite if the system uses chlorine dioxide for disinfection or oxidation. Systems shall take at least one daily sample at the entry point. If a daily sample exceeds the chloride MCL, the system shall take three additional samples within 24 hours from the same lot, batch, machine, carrier vehicle or point of delivery. The chloride MCL is based on the average of the required daily sample plus any additional samples.

(xi) Beginning April 28, 2018, a system using chlorine dioxide shall take one sample per day at each entry point. A violation of the chlorine dioxide MRDL occurs when any entry point sample result exceeds the chloride dioxide MRDL.

(xii) Beginning January 1, 2004, monitor monthly for bromate if the system uses ozone for disinfection or oxidation.

(A) Routine monitoring. Systems shall take one sample per month for each entry point that uses ozone while the ozonation system is operating under normal conditions.

(B) Reduced monitoring.

(I) Until March 31, 2009, systems shall reduce monitoring for bromate from monthly to quarterly if the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for 1 year. Systems on reduced monitoring shall continue monthly source water bromide monitoring. If the running annual average source water bromide concentration, computed quarterly, is equal to or exceeds 0.05 mg/L, the system shall revert to routine monitoring as prescribed by clause (A).

(II) Beginning April 1, 2009, a system required to analyze for bromate may reduce monitoring from monthly to quarterly, if each sample result analyzed using methods specified in 40 CFR 141.132(b)(3)(ii)(B) (relating to monitoring requirements) is less than or equal to 0.0025 mg/L based on monthly measurements as prescribed in clause (A) for the most recent 12 months. Systems qualifying for reduced bromate monitoring under subclause (I) may remain on reduced monitoring as long as each sample result analyzed using methods specified
in 40 CFR 141.132(b)(3)(ii)(B) from the previous 12 months is less than or equal to 0.0025 mg/L. If any sample result exceeds 0.0025 mg/L, the system shall resume routine monitoring as prescribed under clause (A).

(xiii) Beginning April 28, 2018, a system that provides filtration of surface water or GUDI sources shall comply with the following:

(A) Maintain a residual at the entry point as specified in § 109.202(c)(1)(ii) (relating to State MCLs, MRDLs and treatment technique requirements).

(B) Monitor residual disinfectant concentration at the entry point in accordance with § 109.301(1)(ii)(C).

(C) Report the results in accordance with § 109.701(a)(2).

(xiv) Beginning April 28, 2018, a system that uses or obtains finished water from another permitted public water system using surface water or GUDI sources shall comply with the following requirements:

(A) As a minimum, a detectable residual disinfectant concentration of 0.20 mg/L measured as total chlorine, combined chlorine, chlorine dioxide or another level approved by the Department for systems using an alternate oxidizing disinfection treatment shall be maintained at the entry point as demonstrated by monitoring conducted under § 109.301(1) and (2) or (8)(v).

(B) Sampling points with nondetectable residual disinfectant concentrations which have heterotrophic plate count measurements of less than 500/ml are deemed to be in compliance with clause (A).

(C) When the requirements of clause (A) or (B) cannot be achieved, the supplier shall initiate an investigation under the Department’s direction to determine the cause, potential health risks and appropriate remedial measures.

(2) Vended water systems shall monitor in accordance with paragraph (1) except that vended water systems qualifying for permit by rule under § 109.1005(b), for each entry point shall:

(i) Monitor monthly for microbiological contaminants.

(ii) Monitor annually for total dissolved solids, lead and cadmium.

(iii) Conduct special monitoring as required by the Department.

(iv) Beginning April 28, 2018, a system that obtains finished water from another permitted public water system using surface water or GUDI sources shall also monitor in accordance with paragraph (1)(xiv).

(b) Sampling requirements.

(1) For bottled water and vended water systems, retail water facilities and bulk water hauling systems, samples taken to determine compliance with subsection (a) shall be taken from each entry point.

(i) For bottled water systems, each entry point means each finished bottled water product. If multiple sources are used for a product and are not blended prior to bottling, the bottled water product for each source shall be considered a different product for monitoring purposes.

(ii) For bulk water hauling systems, retail water facilities and vended water systems, each entry point shall mean a point of delivery to the consumer from each carrier vehicle, machine or dispenser representative of each source.

(2) For the purpose of determining compliance with the monitoring and analytical requirements established under this subchapter, the Department will consider only those samples analyzed by a laboratory accredited by the Department, except that measurements of turbidity, fluoridation operation, residual disinfectant concentration, daily chlorine, temperature and pH may be performed by a person meeting the requirements of § 109.1008(c) (relating to system management responsibilities).

(3) Public water suppliers shall assure that samples for laboratory analysis are properly collected and preserved, are collected in proper containers, do not exceed maximum holding times between collection and analysis and are handled in accordance with guidelines governing quality control which may be established by the Department. A public water supplier who utilizes a certified laboratory for sample collection as well as analysis satisfies the requirements of this subsection.

(4) Compliance monitoring samples for VOCs, as required under subsection (a)(1)(iii), shall be collected by a person properly trained by a laboratory certified by the Department to conduct VOC or vinyl chloride analysis.

(5) Compliance monitoring samples required under subsection (a)(1)(iii) may be composited in accordance with 40 CFR 141.24(g)(7) (relating to organic chemicals, sampling and analytical requirements) except:

(i) Samples from groundwater entry points may not be composited with samples from surface water entry points.

(ii) Samples from one type of bottled water product or vended water product may not be composited with samples from another type of bottled water product or vended water product.

(iii) Samples used in compositing shall be collected in duplicate.

(iv) If a VOC listed under 40 CFR 141.61(a) is detected at an entry point, samples from that entry point may not be composited for subsequent compliance or repeat monitoring requirements.

(v) Samples obtained from an entry point which contains water treated by a community water supplier or nontransient noncommunity water supplier to specifically meet an MCL for a VOC listed under 40 CFR 141.61(a) may not be composited with other entry point samples.

(6) Sampling and analysis shall be performed in accordance with analytical techniques adopted by the EPA under the Federal act or methods approved by the Department.

(c) Repeat monitoring for microbiological contaminants.

(1) If a sample collected in accordance with subsection (a)(1)(i) or (2)(i) is found to be total coliform-positive:

(i) The bottled water system shall collect a set of three additional samples (check) from the same lot or batch of the type of product.

(ii) The vended water, retail water facility or bulk water hauling systems shall collect a set of three additional samples (check) from the same entry point (machine, point of delivery or carrier vehicle).

(2) Samples shall be collected for analysis within 24 hours of being notified of the total coliform-positive sample. The Department may extend this 24-hour collection limit to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the system’s control in having the check samples analyzed within 30 hours of collection. A logistical problem outside
the system's control may include a coliform-positive result received over a holiday or weekend in which the services of a Department certified laboratory are not available within the prescribed sample holding time.

(3) At a minimum, the system shall collect one set of check samples for each total coliform-positive routine sample. If a check sample is total coliform-positive, the public water system shall collect additional check samples in the manner specified in this subsection. The system shall continue to collect check samples until either total coliforms are not detected in a set of check samples, or the system determines that an assessment has been triggered under § 109.202(c)(4).

(d) A bulk water hauling system that serves at least 25 of the same persons year around. A bulk water hauling system that is determined by the Department to serve at least 25 of the same persons year round shall also comply with the monitoring requirements for community water systems in accordance with § 109.301.

(e) A bulk water hauling system, vended water system or retail water facility that serves at least 25 of the same persons over 6 months per year. A bulk water hauling system, vended water system or retail water facility that is determined by the Department to serve at least 25 of the same persons over 6 months per year shall also comply with the monitoring requirements for nontransient noncommunity water systems in accordance with § 109.301.

(f) Additional monitoring requirements for surface water and GUIDI sources. Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall comply with the monitoring requirements under Subchapter L (relating to long-term 2 enhanced surface water treatment rule).

(g) Additional monitoring requirements for groundwater sources. Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall comply with the monitoring requirements under Subchapter M (relating to additional requirements for groundwater sources).

(h) Compliance determinations. Compliance with MCLs, MRDLs and treatment techniques shall be determined in accordance with §§ 109.202 and 109.301.

(i) Special monitoring requirements. Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall comply with § 109.302 (relating to special monitoring requirements).


(a) General public notification requirements. A bottled water supplier shall give public notification in accordance with this section. A bulk water hauler, vended water supplier or retail water supplier shall give public notification in accordance with Subchapter D (relating to public notification). For the purpose of establishing a bulk hauling, vended or retail water supplier's responsibilities under Subchapter D, a bulk water supplier shall comply with the public notification requirements specified for a community water system and a vended or retail water supplier shall comply with the public notification requirements specified for a noncommunity water system.

(1) A bottled water supplier who knows that a primary MCL or an MRDL has been exceeded or treatment technique performance standard has been violated or has reason to believe that circumstances exist which may adversely affect the quality of drinking water, including, but not limited to, source contamination, spills, accidents, natural disasters or breakdowns in treatment, shall report the circumstances to the Department within 1 hour of discovery of the problem.

(2) If the Department determines, based upon information provided by the bottled water supplier or other information available to the Department, that the circumstances present an imminent hazard to the public health, the water supplier shall issue a water supply warning approved by the Department and, if applicable, initiate a program for product recall approved by the Department under this subsection. The water supplier shall be responsible for disseminating the notice in a manner designed to inform users who may be affected by the problem.

§ 109.1008. System management responsibilities.

(b) Operation and maintenance plan requirements. Bottled water, vended water, retail water and bulk water suppliers shall develop an operation and maintenance plan for each system. The operation and maintenance plan shall conform to the guidelines contained in Part III of the Department's Public Water Supply Manual which is available from the Bureau of Safe Drinking Water, Post Office Box 8467, Harrisburg, Pennsylvania 17105-8467. The water supplier shall implement the operation and maintenance plan in accordance with this chapter, and if appropriate in accordance with accepted practices of the bottled water, vended water, retail water facility or bulk water hauling industry. The plan shall be reviewed and updated as necessary to reflect changes in the operation or maintenance of the water system. The plan shall be bound and placed in locations which are readily accessible to the water system's personnel, and shall be presented upon request to the Department.

(c) Operator requirements. Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall have competent personnel qualified to operate and maintain the system's facilities.

(d) Annual system evaluation requirements. Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall conduct an evaluation of the water system at least annually that includes the activities listed in paragraphs (1)—(4). A bottled water, vended water, bulk water hauling system or retail water facility obtaining finished water from a permitted public water system is not required to perform the activities in paragraphs (1) and (2) if the Department determines that there are no potential problems necessitating inspection and evaluation of the source.

(1) Watershed surveillance consisting of an inspection of portions of the drainage area necessary to identify and evaluate actual and probable sources of contamination.

(2) Evaluation of source construction and protection and, when appropriate, withdrawal and transmission facilities.

(3) Treatment facilities inspection consisting of an evaluation of the effectiveness of the operation and maintenance procedures and the condition and operability of permitted facilities.

(4) Evaluation of finished water storage facilities.

(e) Emergency response requirements.

(1) A bottled water, vended water, retail water or bulk water supplier who knows or has reason to believe that circumstances exist which may adversely affect the qual-
ity of drinking water supplied by the system, shall notify the Department immediately under § 109.1104 (relating to public notification).

(2) The bottled water, vended water, retail water or bulk water supplier shall develop a plan for product recall under emergency circumstances, and submit the plan to the Department for approval. The plan shall:

(i) Identify detailed procedures for implementing product recalls, including emergency communications and notifications.

(ii) Be kept on file in a readily accessible location by the bottled water, vended water, retail water or bulk water supplier.

(iii) Be reviewed and updated at least annually. A copy of the update shall be included in the annual water supply report to the Department under this section.

(f) Cross-connection control program. At the direction of the Department, the bottled water, vended water, retail water or bulk water supplier shall develop and implement a comprehensive control program for the elimination of existing cross-connections or the effective containment of sources of contamination, and prevention of future cross-connections. A description of the program, including the following information, shall be submitted to the Department for approval:

(1) A description of the methods and procedures to be used.

(2) An implementation schedule for the program.

(3) A description of the methods and devices which will be used to protect the water system.

(g) Level 1 and Level 2 assessments. Bottled water systems, vended water systems, retail water facilities and bulk water hauling systems shall comply with the requirements of § 109.705(b) (relating to system evaluations and assessments). Bottled water systems, vended water systems, retail water facilities and bulk water hauling systems may use a Nationally-recognized organization which inspects bottled water systems for compliance with 21 CFR Part 129, such as NSF, or another organization, state or country which utilizes an inspection protocol as stringent as NSF’s protocols to conduct the Level 2 assessment.

(h) Seasonal systems. A bottled water system, vended water system, retail water facility or bulk water hauling system that operates as a seasonal system shall comply with the requirements of § 109.715 (relating to seasonal systems).

(i) Significant deficiencies. Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall comply with § 109.705(d) and (e).

(j) Stage 2 Disinfectants/Disinfection Byproducts Rule monitoring plan and operational evaluation levels. A bulk water hauling system, vended water system or retail water facility that is determined by the Department to meet the definition of a community or nontransient noncommunity public water system and that uses a chemical disinfectant or that obtains finished water from another public water system that uses a chemical disinfectant or oxidant shall comply with § 109.701(g)(2).

Subchapter K. LEAD AND COPPER
§ 109.1103. Monitoring requirements.

(c) Follow-up monitoring after construction or modification of corrosion control treatment facilities. A system which completes construction or modification of corrosion control treatment facilities in accordance with § 109.1102(b)(2) shall conduct the applicable monitoring specified in this subsection. A system which exceeds the lead action level after construction or modification of corrosion control treatment facilities shall begin lead service line replacement in accordance with § 109.1107(d) (relating to system management responsibilities).

(1) Lead and copper tap monitoring. A system shall monitor for lead and copper at the tap during each specified monitoring period at the number of sample sites specified in subsection (a)(1)(v).

(i) A large water system shall monitor during each of two consecutive 6-month monitoring periods beginning no later than January 1, 1997. Following completion of this monitoring, but no later than January 31, 1998, the water supplier shall submit a request for the Department to designate optimal corrosion control treatment performance requirements for the system. Upon approval of the request, the Department will designate water quality parameter performance requirements in accordance with § 109.1102(b)(5) or source water treatment performance requirements in accordance with § 109.1102(b)(4), or both. The water supplier may request, and the Department may designate, performance requirements before the system completes the monitoring for both monitoring periods if the system has never exceeded an action level and the system demonstrates in its request that optimal corrosion control treatment has been achieved. After the Department has designated performance requirements, the system shall monitor in accordance with subsection (d)(1).

(ii) A small or medium water system shall monitor during each of two consecutive 6-month monitoring periods beginning no later than 60 months from the end of the monitoring period in which the action level was exceeded. The water supplier shall submit within 30 days of the end of the second monitoring period a request for the Department to designate optimal corrosion control treatment performance requirements for the system. Upon approval of the request, the Department will designate water quality parameter performance requirements in accordance with § 109.1102(b)(5) or source water treatment performance requirements in accordance with § 109.1102(b)(4). A small or medium water system that does not exceed the lead and copper action levels during each of two consecutive 6-month monitoring periods may reduce the number of sample sites and reduce the frequency of sampling to once per year in accordance with subsection (e)(1)(i). Systems not eligible for reduced monitoring under subsection (e)(1)(i) shall monitor in accordance with subsection (d)(1).

(2) Water quality parameter monitoring. A system shall monitor for the applicable water quality parameters specified in subparagraph (iii) in the distribution system during each specified monitoring period at the number of sites specified in subsection (a)(2)(ii) and at each entry point at least once every 2 weeks.

(i) A large water system shall measure the water quality parameters during each of the two consecutive 6-month monitoring periods in which the system conducts lead and copper tap monitoring under paragraph (1)(i).
(ii) A small or medium water system which is conducting lead and copper tap monitoring in accordance with paragraph (1)(ii) shall measure the water quality parameters during each 6-month monitoring period in which the system exceeds either the lead or copper action level. Distribution system monitoring shall be conducted once during the monitoring period and biweekly entry point monitoring shall continue as long as the system exceeds the action level.

(iii) The water quality parameters shall be measured as follows:

(A) At sites within the distribution system, two sets of samples taken on different days from the same sample sites for:

(I) pH.

(II) Alkalinity.

(III) Orthophosphate, when an inhibitor containing a phosphate compound is used.

(IV) Silica, when an inhibitor containing a silicate compound is used.

(V) Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(B) At each entry point, one set of samples every 2 weeks for:

(I) pH.

(II) When alkalinity is adjusted as part of corrosion control treatment, a reading of the dosage rate of the chemical used to adjust the alkalinity, and the alkalinity concentration.

(III) When a corrosion inhibitor is used as part of corrosion control treatment, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica, whichever is applicable.

(3) Source water monitoring. A system which installs source water treatment under § 109.1102(b)(4) shall monitor the source water at source water treatment entry points for the parameters for which the source water treatment was installed. The system shall monitor source water during the two consecutive 6-month monitoring periods specified in paragraph (1). Other systems which exceed either the lead or copper action level while conducting lead and copper tap monitoring in accordance with paragraph (1) shall collect one source water sample from each entry point within 6 months after the end of the monitoring period in which the action level was exceeded for the parameters exceeding the action level.

(d) Monitoring after performance requirements are established. A system shall conduct the applicable monitoring under this subsection beginning no later than the next 6-month monitoring period that begins on January 1 or July 1 following the Department's designation of optimal corrosion control treatment water quality parameter performance requirements under § 109.1102(b)(5) or source water performance requirements under § 109.1102(b)(4). A system which exceeds the lead action level after construction or modification of corrosion control treatment facilities shall begin lead service line replacement in accordance with § 109.1107(d).

(e) Reduced monitoring.

(3) Reduced monitoring revocation.

(i) Reduced monitoring revocation for large water systems. A large water system authorized to conduct reduced monitoring under this subsection that fails to meet the lead or copper action level during any 4-month monitoring period or that fails to operate within the range of performance requirements for the water quality parameters specified by the Department under § 109.1102(b)(5) on more than any 9 days in a 6-month period shall comply with the following:

(A) The water supplier shall resume lead and copper tap monitoring in accordance with subsection (d)(1).

(B) The water supplier shall resume water quality parameter distribution sampling in accordance with the number and frequency requirements specified in subsection (d)(2).

(I) A large system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in paragraph (2) after it has completed two subsequent consecutive 6-month rounds of monitoring that meet the criteria of paragraph (2)(i).

(II) A large system may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites specified in paragraph (2) after it demonstrates through subsequent rounds of monitoring that it meets the criteria of paragraph (2)(ii).

(C) If either the lead or copper action level is exceeded, the water supplier shall conduct source water monitoring in accordance with subsection (d)(3). Monitoring is required only for the parameter for which the action level was exceeded. For systems on annual or less frequent monitoring, the end of the monitoring period is September 30 of the calendar year in which sampling occurs, or, if the Department has designated an alternate monitoring period, the end of the monitoring period is the last day of the 4-month period in which sampling occurs.

(ii) Reduced monitoring revocation for small or medium water systems. A small or medium water system authorized to conduct reduced lead and copper tap monitoring under this subsection that fails to meet the lead or copper action level during any 4-month monitoring period, or a small or medium system that has installed corrosion control treatment in compliance with § 109.1102(b)(2) and that fails to operate within the range of performance requirements for the water quality parameters specified by the Department under § 109.1102(b)(5) on more than any 9 days in a 6-month period, shall comply with the following:

(A) The water supplier shall conduct water quality parameter monitoring during the monitoring period in which the action level is exceeded. The start of the 6-month monitoring period for the water quality parameter monitoring required under this clause must coincide with the start of the annual or triennial tap monitoring period in which the action level was exceeded.

(I) If the system has installed corrosion control treatment in compliance with § 109.1102(b)(2), water quality parameter monitoring shall be conducted in accordance with subsection (c)(2).

(II) If the system has not installed corrosion control treatment, water quality parameter monitoring shall be conducted in accordance with subsection (a)(2) and the system shall conduct corrosion control treatment activities in accordance with § 109.1102(b)(1)(i).

(B) The water supplier shall collect one source water sample from each entry point within 6 months of the end of the monitoring period in which the action level was exceeded. Monitoring is required only for the parameter for which the action level was exceeded. For systems on
annual or less frequent monitoring, the end of the monitoring period is September 30 of the calendar year in which sampling occurs, or, if the Department has designated an alternate monitoring period, the end of the monitoring period is the last day of the 4-month period in which sampling occurs.

(C) If a system has installed corrosion control treatment in compliance with § 109.1102(b)(2), the water supplier shall resume lead and copper tap monitoring in accordance with subsection (d)(1).

(f) Additional monitoring by systems. The results of monitoring conducted at specified sites during specified monitoring periods in addition to the minimum requirements of this section shall be considered by the system and the Department in making determinations—such as calculating the 90th percentile lead or copper action level or determining concentrations of water quality parameters—under this subchapter.

(g) Sample site location plan. The water supplier shall complete a sample site location plan which includes a materials evaluation of the distribution system, lead and copper tap sample site locations, water quality parameter sample site locations and certification that proper sampling procedures are used. The water supplier shall complete the steps in paragraphs (1)—(3) by the applicable date for commencement of lead and copper tap monitoring under subsection (a)(1) and the step in paragraph (4) following completion of the monitoring. The water supplier shall keep the sample site location plan on record and submit the plan to the Department in accordance with § 109.1107(a)(1).

(1) Materials evaluation. A system shall review the following sources of information in order to identify a sufficient number of lead and copper tap sampling sites.

(i) Plumbing codes, permits and records in the files of the building departments of each municipality served by the system which indicate the plumbing materials that are installed within structures connected to the distribution system.

(ii) Inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system.

(iii) Existing water quality information, which includes the results of prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations.

(2) Lead and copper tap sample site selection. Lead and copper tap sampling sites are classified as tier 1, tier 2 or tier 3. Tier 1 sites are the highest priority sample sites.

(i) Site selection for community water systems. The water supplier shall select all tier 1 sample site locations, if possible. A community water system with an insufficient number of tier 1 sampling sites shall complete its sampling pool with tier 2 sites. Tier 3 sites shall be used to complete the sampling pool if the number of tier 1 and tier 2 sites is insufficient. If the system has an insufficient number of tier 1, tier 2 and tier 3 sites, the water supplier shall sample from other representative sites throughout the distribution system in which the plumbing materials used at the site would be commonly found at other sites served by the system.

(A) Tier 1 sampling sites shall consist of single family structures that have one or more of the following:

(I) Copper pipes with lead solder installed after 1982.

(II) Lead pipes.

(III) Lead service line.

(B) When multiple-family residences comprise at least 20% of the structures served by a water system, the system may consider a representative number of these types of structures as tier 1 sites in its sampling pool, if they meet the other criteria in clause (A).

(C) Tier 2 sampling sites shall consist of buildings, including multifamily residences, that have one or more of the following:

(I) Copper pipes with lead solder installed after 1982.

(II) Lead pipes.

(III) Lead service line.

(D) Tier 3 sampling sites shall consist of single family structures, constructed as a single family residence and currently used as either a residence or business, that contain copper pipes with lead solder installed before 1983.

(ii) Site selection for nontransient noncommunity water systems.

(A) The water supplier shall select all tier 1 sample sites, if possible. A nontransient noncommunity water system with an insufficient number of tier 1 sampling sites shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the system shall use representative sites throughout the distribution system in which the plumbing materials used at the site would be commonly found at other sites served by the system.

(B) Tier 1 sampling sites shall consist of buildings that have one or more of the following:

(I) Copper pipes with lead solder installed after 1982.

(II) Lead pipes.

(III) Lead service line.

(iii) Site selection for community and nontransient noncommunity water systems that have fewer than five taps. A system that has fewer than five taps that can be used for drinking water that meet the sample site criteria specified in this paragraph shall collect at least one sample from each tap and then collect additional samples from those taps on different days during the monitoring period to meet the required number of sites.

(iv) Site selection for community and nontransient noncommunity facilities that operate continuously. A community water system meeting the conditions in § 109.1104(a)(2)(ii)(T), or a nontransient noncommunity water system, that operates continuously and that has an insufficient number of taps commonly used for drinking water to take each first-draw sample from a different tap, may apply to the Department, in writing, to substitute nonfirst-draw samples. Upon approval by the Department in writing, these systems shall collect as many first-draw samples as possible from taps that can be used for drinking water that meet the sample site criteria specified in this paragraph. The remaining samples shall be collected at the times and from the sites identified with the longest standing times. Nonfirst-draw samples must be 1-liter in volume and collected from an interior tap that is typically used to provide water for human consumption.
(v) **Sample sites with lead service lines.** A system that has a distribution system containing lead service lines shall draw 50% of the samples it collects during each monitoring period from sites that contain lead pipes or copper pipes with lead solder, and 50% of the samples it collects during each monitoring period from sites served by a lead service line. If a water system cannot identify a sufficient number of sampling sites served by a lead service line, the system shall collect first draw samples from each site identified as being served by a lead service line.

---

(k) **Monitoring waivers for small systems.** A small system that meets the criteria of this subsection may apply to the Department to reduce the frequency of monitoring for lead and copper under this section to once every 9 years if it meets all of the materials criteria specified in paragraph (1) and all of the monitoring criteria specified in paragraph (2). A system that meets the criteria in paragraphs (1) and (2) only for lead, or only for copper, may apply to the Department for a waiver to reduce the frequency of tap water monitoring to once every 9 years for that contaminant only.

1. **MATERIALS CRITERIA.** The system shall demonstrate that its distribution system, service lines and all drinking water plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials or copper-containing materials, as appropriate:

   (i) **Lead.** To qualify for a waiver of tap monitoring requirements for lead, the system shall provide certification and supporting documentation to the Department that the system is free of all lead-containing materials as follows:

   A. It contains no plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers.

   B. It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless the fittings and fixtures meet the specifications of any standard established under 42 U.S.C.A. § 300g-6(e) (relating to plumbing fittings and fixtures).

   (ii) **Copper.** To qualify for a waiver of the tap water monitoring requirements for copper, the system shall provide certification and supporting documentation to the Department that the system contains no copper pipes or copper service lines.

2. **MONITORING CRITERIA FOR WAIVER ISSUANCE.** The system shall have completed at least one 6-month round of routine tap water monitoring for lead and copper at sites approved by the Department and from the number of sites as required under subsection (a)(1)(v). The system shall demonstrate that the 90th percentile levels for all rounds of monitoring conducted since the system became free of all lead-containing or copper-containing materials, as appropriate, meet the following criteria:

   (i) **Lead levels.** To qualify for a waiver of the lead tap monitoring, the system shall demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.

   (ii) **Copper levels.** To qualify for a waiver of the copper tap monitoring, the system shall demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

3. **DEPARTMENT APPROVAL OF WAIVER APPLICATION.** The Department will notify the system of its waiver determinations, in writing, setting forth the basis of the decision and any condition of the waiver. A system shall continue monitoring for lead and copper at the tap as required by this section until it receives written notification from the Department that the waiver has been approved.

4. **MONITORING FREQUENCY FOR SYSTEMS WITH WAIVERS.**

   (i) A system shall conduct tap water monitoring for the contaminant waived in accordance with subsection (e)(1)(iii) at the reduced number of sites identified in subsection (e) at least once every 9 years and provide the materials certification specified in paragraph (1) for the contaminants waived along with the monitoring results. Monitoring shall be conducted during the last year of each 9-year compliance cycle—for example 2010, 2019, 2028 and so forth.

   (ii) A system shall continue to monitor for any nonwaived contaminants in accordance with subsection (a)(1), as appropriate.

   (iii) A system with a waiver shall notify the Department, in writing, within 60 days after becoming aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, as a result of new construction or repair.

5. **CONTINUED ELIGIBILITY.** If the system continues to satisfy the requirements of paragraph (4), the waiver will be renewed automatically unless any of the conditions listed in subparagraph (i)—(iii) occurs. A system whose waiver has been revoked may reapply for a waiver when it again meets the appropriate materials and monitoring criteria of paragraphs (1) and (2).

6. **REQUIREMENTS FOLLOWING WAIVER REVOCATION.** A water system whose waiver has been revoked is subject to the corrosion control treatment, and lead and copper tap water monitoring requirements as follows:

   (i) If the system exceeds the lead or copper, or both, action level, the system shall implement corrosion control treatment in accordance with § 109.1102(b), and any other applicable requirements of this subchapter.

   (ii) If the system meets both the lead and copper action levels, the system shall monitor for lead and copper at the tap no less frequently than once every 3 years in accordance with the frequency, timing and the reduced number of sample sites specified in subsection (e).

§ 109.1107. **SYSTEM MANAGEMENT RESPONSIBILITIES.**

---

(d) **Lead service line replacement.**

1. **INITIATION OF LEAD SERVICE LINE REPLACEMENT.** A system that exceeds the lead action level when conducting lead and copper tap monitoring in accordance with § 109.1103(c)(1) or (d)(1) after construction or modification of corrosion control treatment facilities shall initiate lead service line replacement. The first year of lead service line replacement begins on the first day following the end of the monitoring period in which the action level was exceeded. If monitoring is required annually or less frequently, the end of the monitoring period is September...
30 of the calendar year in which sampling occurred. If the Department has designated an alternate monitoring period in writing, the end of the monitoring period is the last day of the designated alternate monitoring period.

(2) Replacement schedule. The water supplier shall replace annually at least 7% of the initial number of lead service lines in place at the beginning of the first year of replacement. The number of lead service lines shall be based on the materials evaluation conducted in accordance with § 109.1103(g)(1). The Department may require a system to replace lead service lines on a shorter schedule where, because of the number of lead service lines in the system, a shorter replacement schedule is feasible. The Department will notify the water supplier in writing within 6 months of the initiation of lead service line replacement of its decision to require a shorter replacement schedule.

(3) Lead service line sampling. The water supplier may sample an individual lead service line to determine whether the line is contributing sufficient lead to warrant its replacement. Lead service lines shall be sampled in accordance with § 109.1103(h)(5). The water supplier is not required to replace a lead service line if none of the lead concentrations in any service line samples from that line exceed 0.015 mg/L.

(4) Conditions of replacement. The water supplier shall replace the portion of the lead service line that it owns. In cases where the system does not own the entire lead service line, the system shall notify the owner of the line, or the owner’s authorized agent, that the system will replace the portion of the service line that the system owns and shall offer to replace the owner’s portion of the line. A system is not required to bear the cost of replacing the privately-owned portion of the line or to replace the privately-owned portion of the line if the owner refuses to pay for the cost of replacement of the privately owned portion of the line, or if any laws prohibit this replacement. A system that does not replace the entire length of service line shall complete the following tasks:

Subchapter L. LONG-TERM 2 ENHANCED SURFACE WATER TREATMENT RULE

§ 109.1202. Monitoring requirements.

(a) Initial round of source water monitoring. A system shall conduct the following monitoring on the schedule in subsection (c) unless it meets the monitoring exemption criteria in subsection (d):

(1) Filtered systems serving at least 10,000 people shall sample their source water for Cryptosporidium, E. coli and turbidity at least monthly for 24 months.

(2) Unfiltered systems serving at least 10,000 people shall sample their source water for Cryptosporidium at least monthly for 24 months.

(3) Filtered systems serving less than 10,000 people shall sample their source water for E. coli at least once every 2 weeks for 12 months. A filtered system serving less than 10,000 people may avoid E. coli monitoring if the system notifies the Department that it will monitor for Cryptosporidium as described in paragraph (4). The system shall notify the Department no later than 3 months prior to the date the system is otherwise required to start E. coli monitoring under subsection (c).

(4) Filtered systems serving less than 10,000 people shall sample their source water for Cryptosporidium at least twice per month for 12 months or at least monthly for 24 months if they meet one of the following subparagraphs, based on monitoring conducted under paragraph (3):

(i) For systems using lake/reservoir sources, the annual mean E. coli concentration is greater than 100 E. coli/100 mL.

(ii) For systems using flowing stream sources, the annual mean E. coli concentration is greater than 100 E. coli/100 mL.

(iii) Source water sample collection period. Systems shall collect samples within 2 days before or 2 days after the dates indicated in their sampling schedule (that is, within a 5 day period around the schedule date) unless one of the conditions of paragraph (1) or (2) applies.

Subchapter M. ADDITIONAL REQUIREMENTS FOR GROUNDWATER SOURCES

§ 109.1302. Treatment technique requirements.

(a) Community groundwater systems. Community groundwater systems are required to provide continuous disinfection under § 109.202(c)(3) (relating to State MCLs, MRDLs and treatment technique requirements) and in addition shall:

[Pa.B. Doc. No. 18-667. Filed for public inspection April 27, 2018, 9:00 a.m.]

Title 58—RECREATION

PENNSYLVANIA GAMING CONTROL BOARD [58 PA. CODE CH. 809]

General Interactive Gaming Platform Requirements; Temporary Regulations

The Pennsylvania Gaming Control Board (Board), under its specific authority in 4 Pa.C.S. § 13B03(b) (relating to regulations) and the general authority in 4 Pa.C.S. § 1202(b)(30) (relating to general and specific powers), adds the rules regarding platform operations in connection with interactive gaming in this Commonwealth to read as set forth in Annex A.

Purpose of this Temporary Rulemaking

This temporary rulemaking includes rules regarding platform operations in connection with interactive gaming in this Commonwealth intended to ensure players are not exposed to unnecessary security risks by choosing to participate in interactive gaming in this Commonwealth and to ensure the integrity and security of interactive gaming operations in this Commonwealth.

Explanation of Chapter 809

Chapter 809 (relating to interactive gaming platform requirements—temporary regulations) addresses the physical location of interactive gaming devices and associated equipment used by an interactive gaming certificate holder or an interactive gaming licensee to conduct interactive gaming in this Commonwealth as well as the physical and environmental controls that shall be implemented relative to this equipment. These temporary regulations also delineate proper access, remote or otherwise, to all components of interactive gaming systems.

PENNSYLVANIA BULLETIN, VOL. 48, NO. 17, APRIL 28, 2018