

PROPOSED RULEMAKING

ENVIRONMENTAL QUALITY BOARD

[25 PA. CODE CH. 109]

Safe Drinking Water (Groundwater Rule)

The Environmental Quality Board (Board) proposes to amend Chapter 109 (relating to safe drinking water). The amendments will provide for increased protection against microbial pathogens in public water systems that use groundwater sources. The Groundwater Rule establishes a risk-targeted approach to identify groundwater sources that are susceptible to fecal contamination. The Department of Environmental Protection (Department) has chosen *E. coli* as the indicator organism for source water monitoring.

The Groundwater Rule builds upon the existing Total Coliform Rule and establishes corrective actions, monitoring and source treatment provisions as part of the risk-based strategy.

This proposal was adopted by the Board at its meeting of August 19, 2008.

A. Effective Date

These amendments will go into effect upon publication in the *Pennsylvania Bulletin* as final rulemaking.

B. Contact Persons

For further information, contact Ronald Furlan, Chief, Division of Planning and Permits, P. O. Box 8774, Rachel Carson State Office Building, Harrisburg, PA 17105-8774, (717) 787-8184 or Marylou Barton, Assistant Counsel, Bureau of Regulatory Counsel, P. O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7060. Information regarding submitting comments on this proposal appears in Section J of this preamble. Persons with a disability may use the Pennsylvania AT&T Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). The proposal is available electronically through the Department web site www.depweb.state.pa.us.

C. Statutory Authority

The proposed rulemaking is being made under the authority of section 4 of the Pennsylvania Safe Drinking Water Act (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 sections 1917-A and 1920-A of The Administrative Code of 1929 (71 P. S. §§ 510-7 and 510-20).

D. Background and Purpose

Groundwater has been traditionally regarded to be safer than surface water due to the natural filtering that occurs as groundwater travels through aquifer media. New evidence suggests that groundwater may be susceptible to viral contamination despite this natural filtering, particularly in karst aquifers where contaminants are more readily transported through conduits and fissures dissolved in the limestone. Groundwater supplies can become fecally contaminated when surface water infiltrates karst aquifers or when high densities of livestock farming operations or on-lot sewage treatment systems overwhelm the natural protective barriers of nonkarst aquifers.

The viral pathogens that may be found in fecally contaminated groundwater sources include enteric viruses such as Echovirus, Coxsackie viruses, Hepatitis A and E, Rotavirus and Noroviruses. Vulnerable groundwater sources have also been found to contain enteric bacterial pathogens such *E. coli*, *Salmonella spp.*, *Shigella spp.* and *Vibrio cholera*. The Centers for Disease Control reports that between 1991 and 2000 groundwater source contamination and inadequate treatment accounted for 51% of all waterborne disease outbreaks in the United States.

Groundwater systems in this Commonwealth are not currently regulated with respect to source water viral contamination. The present regulations require only that community groundwater systems provide continuous disinfection that is detectable throughout the distribution system. Systems, particularly smaller systems, can potentially satisfy this requirement with entry point disinfectant residuals that are too low to effectively inactivate viruses. Thus, community systems meeting the current disinfection requirement may not be providing the public with adequate protection from viral contamination. Noncommunity groundwater systems are not required to provide disinfection; persons consuming water from these systems are not afforded any protection other than that provided by the characteristics of the source aquifer.

This proposed rulemaking package will amend the Department's Safe Drinking Water regulations to: (1) establish a risk-targeted approach to identify ground water systems that are susceptible to fecal contamination; (2) define adequate treatment technique requirements for the inactivation and/or removal of viruses; (3) create guidelines including corrective action alternatives for systems to respond in a timely and appropriate manner to significant deficiencies identified by the Department during inspections; and (4) include additional requirements for notifying the public.

Minor clarifications are being made to the variance and exemption requirements in of Chapter 109, Subchapter I (relating to variances and exemptions issued by the Department) to be consistent with the Federal rule and as a condition of primacy.

The draft proposed amendments were submitted to the Small Water Systems Technical Assistance Center Advisory Board (TAC) for review and discussion on December 13, 2007. The TAC Board commented regarding the recordkeeping requirements stating, "The extensive recordkeeping requirements are unrealistic for small systems." The TAC Board suggested that the Department keep and maintain these records and automatically send them to the owner whenever a system changes ownership.

The recordkeeping requirements contained in § 109.1307(b) (relating to system management responsibilities) are consistent with the Federal requirements, 5 or 10 years for most categories, and these have been long-standing requirements. Further, it should be noted that the Commonwealth must be at least as stringent as the corresponding Environmental Protection Agency (EPA) requirements. In addition, the Department historically has provided authorized representatives with system-specific records upon request, and would continue to do so.

E. Summary of Regulatory Requirements

§ 109.1. Definitions.

The Department has added definitions for the following terms in § 109.1 (relating to definitions): “groundwater,” “log inactivation,” “log removal,” “log treatment” and “microorganism.” These terms are vital to the clear interpretation of the Groundwater Rule and had not been previously defined in Chapter 109.

§ 109.408. Tier 1 public notice form—manner and frequency of notice.

Section § 109.408(a)(8) is added to require Tier 1 public notice for a positive *E. coli* source water sample for systems monitoring under the triggered monitoring requirements (§ 109.1303 (relating to triggered monitoring requirements for groundwater sources)) and the assessment source water monitoring requirements (§ 109.1304 (relating to assessment source water monitoring)).

Section 109.408(a)(9) is added to clarify that, for systems conducting compliance monitoring, a breakdown in treatment requires Tier 1 public notification.

§ 109.409. Tier 2 public notice—form, manner and frequency of notice.

Section § 109.409(a)(1) is amended to include the requirement of Tier 2 public notification for a failure to take corrective action as required in 40 CFR 141.203(a)(4) (relating to tier 2 public notice—form, manner and frequency of notice).

§ 109.417. Special notice for significant deficiencies by noncommunity water systems.

This amendment reflects the Federal requirements found in 40 CFR 141.403(a)(7)(ii) (relating to treatment technique requirements for ground water systems). In addition to other public notification obligations, a noncommunity system is required to provide special notice to the public for significant deficiencies that have not been corrected within 12 months of being notified by the Department.

§ 109.503. Public water system construction permits.

This section was amended to clarify the monitoring requirements by specifying *E. coli* as the fecal indicator for new source sampling.

§ 109.505. Requirements for noncommunity water systems.

To account for new treatment technique requirements, as specified in Subchapter M, this section was amended to clarify the conditions under which noncommunity systems may file a brief description of the system in lieu of obtaining a permit. Prior to the Groundwater Rule, noncommunity water systems were not required to obtain construction and operation permits if they provided treatment no greater than disinfection. The Department has modified this exception. These permits will be required for noncommunity systems providing only disinfection if they are required to meet 4-log treatment of viruses under § 109.1302 (relating to treatment technique requirements). The demonstration of 4-log treatment requires an engineering determination that must be reviewed as part of a permitting process.

This section was also amended to clarify the monitoring requirements by specifying *E. coli* as the fecal indicator for new source sampling for transient noncommunity systems.

§ 109.605. Minimum treatment design standards.

Section 109.605(3) was added to define minimum treatment design standards for new facilities is at least 99.99% (4-log) treatment of viruses.

§ 109.705. Sanitary surveys.

This section was amended to revise the frequency of sanitary surveys conducted by the Department to be consistent with the Federal requirements found in 40 CFR 142.16(o)(2) (relating special primary requirements).

§ 109.901. Requirements for a variance.

This section was amended to incorporate the Federal requirements found in 40 CFR 142.10(d)(2) (relating to requirements for a determination of primary enforcement).

§ 109.903. Requirements for an exemption.

This section was amended to incorporate the Federal requirements found in 40 CFR 141.4(a) and 142.20(b) (relating to variance and exceptions; and State-issued variances and exemptions under section 1415(a) and section 1416 of the act).

§ 109.906. Consideration of a request for a variance or exemption.

This section was amended to incorporate the Federal requirements found in 40 CFR 142.20(b)(1)(ii).

§ 109.907. Disposition of a request for a variance or exemption.

This section was amended to incorporate the Federal requirements found in 40 CFR 142.20(a)(1) and (b)(1).

§ 109.908. Compliance schedules.

This section was amended to incorporate the Federal requirements found in 40 CFR 142.20(a)(2) and (b)(2).

§ 109.1002. MCLs, MRDLs or treatment techniques.

This section was amended to clarify that 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).

§ 109.1003. Monitoring requirements.

This section was amended to clarify that bottled water and vended water systems, retail water facilities and bulk water hauling systems shall comply with the monitoring requirements of Subchapter M.

Subchapter M. Additional requirements for groundwater sources.

This subchapter was added to reflect the Federal requirements in 40 CFR Subpart S and to further clarify requirements for systems using groundwater sources in this Commonwealth. The following is a brief summary of each section including descriptions of where the proposed state requirements are more stringent than Federal regulations.

§ 109.1301. Scope.

This section clarifies that systems using groundwater not combined with surface water or groundwater under the direct influence of surface water prior to treatment are required to comply with the provisions of Subchapter M.

§ 109.1302. *Treatment technique requirements.*

This section establishes the treatment technique requirements for community and noncommunity systems and includes corrective action alternatives for systems with significant deficiencies or source water *E. coli* contamination.

Section § 109.1302(a)(4) requires all community water systems with groundwater sources to reliably achieve at least 4-log treatment of viruses for those sources. This component of the proposed rulemaking is more stringent than the current Federal requirements found in 40 CFR 141.403(b) (relating to treatment technique requirements for ground water systems).

Under § 109.202(c)(2) (relating to State MCLs and treatment technique requirements), existing requirements for community systems in this Commonwealth are already more stringent than Federal regulations. Unlike the Federal requirements, the Commonwealth mandates that all community water systems provide continuous disinfection. The current State regulations do not, however, require groundwater systems to maintain any minimum measure of disinfectant level or effectiveness at the entry point. The Pennsylvania Groundwater Rule requirement that all community systems maintain at least 4-log treatment of viruses for their groundwater sources is a logical progression of disinfection treatment and will provide additional protection of public health. Most systems are presently capable of providing 4-log treatment of viruses without significant modification. For the remaining systems, this requirement will likely be satisfied by one or more of the following: revising system-specific operational practices, modifying existing storage or adding storage capacity.

This requirement will be phased in based on population served, and is planned to occur in the period from January 1, 2011, to January 1, 2013. All public groundwater systems will need to comply with triggered monitoring requirements from December 1, 2009, until they receive the Department's notification that they are demonstrating at least 4-log treatment and then are directed to begin compliance monitoring.

Section 109.1302(a)(2) establishes a default entry point free chlorine minimum residual of 0.4mg/L or its equivalent for all community systems. Community water systems must maintain the default minimum residual until they successfully demonstrate that an alternative residual can provide at least 4-log treatment of viruses. The default residual is being required to better protect public health during the interim period between the effective date of this rule and the date when the Department has verified that a community groundwater system is providing 4-log treatment of viruses.

The default residual of 0.4mg/L was determined using the accepted calculation for CT. Based on conservative assumptions of groundwater characteristics in Pennsylvania (temperature no less than 5° C and pH less than 9), a CT value of 8 min-mg/L is required to achieve 4-log inactivation of viruses. Further, existing Design Standards in Part II of the Department's "Public Water Supply Manual" require that 20 minutes of contact time with minimal short circuiting be provided prior to each entry point. Assuming the Design Standards are met, a minimum residual of 0.4mg/L multiplied by 20 minutes contact time results in the required CT value of 8 min-mg/L.

Most systems can readily maintain a 0.4mg/L minimum residual prior to each entry point simply by adjusting their level of disinfectant application. Currently 93% of community water systems disinfect with chlorine. Of these systems, at least 60% presently maintain an average residual of 0.4mg/L or greater in the distribution system (based on available compliance data). Because entry point disinfectant residuals are greater than levels in the distribution system, it is expected that the percentage of systems presently maintaining at least 0.4mg/L at the entry point is much higher than 60%.

§ 109.1303. *Triggered monitoring requirements for groundwater sources.*

This section establishes source water monitoring requirements for systems that have not received confirmation from the Department that they are providing at least 4-log treatment of viruses and thus are not conducting compliance monitoring. In response to a coliform-positive sample collected under 40 CFR 141.21(a) (relating to coliform sampling), the Groundwater Rule requires these systems to collect additional groundwater source samples to be analyzed for the presence of *E. coli*.

The Department will require source samples to be collected prior to any treatment, whereas a sampling location is not specified in 40 CFR 141.402(a) (relating to ground water source microbial monitoring and analytical methods). To eliminate the possibility of source water pathogens being inactivated or removed (thus rendering a sample nonrepresentative of source water quality) the Department will not approve source water sampling locations downstream of any treatment.

The Federal rule, 40 CFR 141.402(a)(2), requires source water samples be collected from "each ground water source in use at the time" the routine total coliform-positive sample was collected. The Department clarifies this requirement by specifying that samples should be collected from each source connected to the distribution system where the total coliform-positive sample was collected. The revised language eliminates confusion regarding which source or sources may have been in use at the time of the positive sample by instead focusing on a source's potential of contributing to the distribution contamination. Prior to sampling, systems may still obtain written approval under § 109.1303(c) to collect samples from representative sources.

In response to any total coliform-positive routine sample that is not invalidated, systems will be required to collect source water samples in accordance with § 109.1303(a). The Federal rule, 40 CFR 141.402(a)(5), allows states the ability to determine if a distribution deficiency or condition caused the total coliform-positive routine sample and, thereby, relieve systems from their obligation to conduct triggered source water monitoring. For systems conducting routine coliform monitoring as prescribed in § 109.301(3), the Department does not believe it is possible to eliminate source water quality as a potential contributor to the distribution contamination without additional sample results.

Under the Federal rule, 40 CFR 141.402(a)(2)(iii), a groundwater system serving less than 1,000 people (and thus required to collect four check samples in response to a routine total coliform positive sample) may also use a source water sample collected to satisfy the triggered monitoring requirements under § 109.1303 as one of the repeat samples under the Total Coliform Rule (TCR). This sample substitution is not permitted in Pennsylvania's Groundwater Rule. The Department believes that source

water samples are not representative of the distribution system and, therefore, should not be used in any analyses designed to draw inferences about distribution system water quality.

§ 109.1304. Assessment source water monitoring.

Under the Federal rule, 40 CFR 141.402(b), assessment source water monitoring is an option for a state to implement. The Department has chosen to adopt assessment source water monitoring to target higher-risk groundwater sources for additional source water monitoring and evaluation. This provision will only apply to noncommunity water systems considering that all community water systems will eventually be required to provide at least 4-log treatment of viruses. In this Commonwealth, systems that draw groundwater from a carbonate aquifer (such as, limestone) are considered susceptible to fecal contamination and therefore must conduct assessment source water monitoring as directed by the Department or install a treatment technology that achieves a minimum 4-log inactivation or removal of viruses. Groundwater sources not developed in carbonate aquifers may also be considered sensitive and targeted for assessment source water monitoring. The Department will consider other factors that identify sources at risk to fecal contamination such as: sensitivity of the source aquifer to fecal contamination, proximity to sources of fecal contamination or microbiological sampling history.

The Federal rule, 40 CFR 141.402(b)(5), allows a state to approve collection of groundwater source samples for assessment source water monitoring at a location after treatment. To eliminate the possibility of source water pathogens being inactivated or removed (thus rendering a sample nonrepresentative of source water quality) the Department will not approve source water sampling locations downstream of any treatment. Prior to sampling, systems may still obtain written approval under § 109.1304(a)(1) to collect samples from representative sources.

§ 109.1305. Compliance monitoring.

This section establishes the monitoring requirements for systems that have demonstrated to the Department that they provide at least 4-log treatment of viruses for their groundwater sources. Upon notification from the Department, a system must begin compliance monitoring to ensure treatment efficacy. Systems conducting compliance monitoring are not subject to the requirements of either triggered monitoring or assessment source water monitoring. This section reflects the Federal requirements found in 40 CFR 141.403(b) (relating to treatment technique requirement for ground water systems).

§ 109.1306. Information describing 4-log treatment and compliance monitoring.

This section establishes requirements for systems electing to or obligated to provide at least 4-log treatment of viruses. This section states that systems shall submit information on forms provided by the Department describing how at least 4-log treatment of viruses is provided. If an engineer's report is required it must be prepared by or under the supervision of a professional engineer registered to practice in this Commonwealth.

In addition to demonstrating that at least 4-log treatment of viruses will be provided, systems shall describe how they will satisfy the compliance monitoring provisions in § 109.1305.

§ 109.1307. System management responsibilities.

This section establishes the reporting and recordkeeping obligations for systems subject to Subchapter M. The

requirements of this section reflect the provisions in 40 CFR 141.405 (relating to reporting and recordkeeping for ground water systems).

For systems conducting compliance monitoring, § 109.1307(a)(1)(ii) requires Tier 1 public notice when a breakdown in treatment occurs for greater than 4 hours, whereas 40 CFR 141.404(c) and (d) (relating to treatment technique violations for ground water systems) mandates Tier 2 public notice. This addition is consistent with Pennsylvania's existing public notification regulations in § 109.408 that necessitates Tier 1 public notice for a failure or significant interruption in key water treatment processes.

F. Benefits, Costs and Compliance

Benefits

The Groundwater Rule establishes monitoring requirements to ensure adequate treatment is provided at groundwater systems and defines a risk-targeted approach to identify groundwater sources that are vulnerable to fecal contamination. Implementation of the Rule will create public health benefits for approximately 7 million Pennsylvanians resulting from the reduction in endemic acute viral illness and death from two groups of viruses. Type A virus, represented by rotavirus, is highly infectious, but generally creates mild health effects. Type B virus, represented by enterovirus, is moderately infectious. Although most illnesses caused by type-B viruses are also mild, they may produce severe health effects in children, the elderly, and those with compromised immune systems.

The EPA has estimated that the Nation may avoid 39,442 illnesses associated with Type A rotavirus, and 2,426 illnesses related to Type B enterovirus. In this Commonwealth, this translates to 2,405 and 148 illnesses avoided respectively.

The EPA has quantified the mean annual cost of illness occurring as a result of viruses in public water supply wells under normal operating conditions. The EPA estimated the National annual benefits from Rule implementation to be \$16 million for community water systems, \$0.9 million for nontransient noncommunity systems and \$2.7 million for transient noncommunity systems. Resulting from illnesses avoided in this Commonwealth this translates to annual benefits of \$632,657, \$54,548 and \$193,321 respectively, totaling \$880,626.

The proposed variance and exemption revisions will ensure that public water systems consider all other options for achieving compliance prior to requesting a variance or exemption from an MCL or treatment technique requirement.

Compliance Costs

The EPA estimated the annual cost to implement the Groundwater Rule for public water systems Nationwide will be approximately \$50 million. It is anticipated that this Commonwealth's public water systems will incur a cost of \$2.9 million annually. The yearly cost for each type of public water systems is projected to be the following:

<i>System Type</i>	<i>Estimated Annual Cost</i>
Community Water System	\$ 738,627
Transient Noncommunity Water System	\$1,893,114
Nontransient Noncommunity Water System	\$ 298,198

Nationwide, the annual cost states will bear are expected to be \$11.8 million as calculated by the EPA. The Groundwater Rule is expected to cost the Commonwealth's government \$708,000 yearly.

The proposed minor clarifications to Chapter 109, Subchapter I, variances and exemptions, primarily address existing requirements. As a result, costs are not expected to substantially increase or decrease.

Compliance Assistance Plan

The Commonwealth's PENNVEST Program offers financial assistance to public water systems that qualify. Eligibility is based upon factors such as public health impact, compliance necessity, and project/operational affordability. Assistance is in the form of a low-interest loan and in hardship cases additional grant funds may be awarded.

The Safe Drinking Water Program will provide training to systems identified to be effected by the Groundwater Rule. To facilitate system compliance, the Bureau of Water Standards and Facility Regulation will send informational documents to groundwater systems prior to the effective date of the regulation to clarify the various provisions of the Rule.

Paperwork Requirements

Systems providing at least 4-log treatment of viruses must submit forms to the Department successfully demonstrating treatment effectiveness to commence conducting compliance monitoring. As a one time cost, systems may prefer to employ a professional engineer to complete any applicable forms or reports.

The requirements of the Groundwater Rule include additional monitoring, recording and reporting. It is anticipated these obligations will require little or no additional paperwork.

G. Sunset Review

This proposed rulemaking will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulations effectively fulfill the goals for which they were intended.

H. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on November 19, 2008, the Department submitted a copy of this proposed rulemaking to the Independent Regulatory Review Commission (IRRC) and the Chairpersons of the House and Senate Environmental Resources and Energy Committees (Committees). In addition to submitting the proposed amendments, the Department has provided IRRC and the Committees with a copy of a detailed Regulatory Analysis Form prepared by the Department. A copy of this material is available to the public upon request.

Under section 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations or objections to the proposed regulations within 30 days of the close of the public comment period. The comments, recommendations or objections shall specify the regulatory review criteria that have not been met. The Regulatory Review Act specifies detailed procedures for review of these issues by the Department, the General Assembly and the Governor prior to final publication of the regulations.

I. Public Comments

Written Comments—Interested persons are invited to submit comments, suggestions or objection regarding the

proposed regulation to the Environmental Quality Board, P. O. Box 8477, Harrisburg, PA 17105-8477 (express mail: Rachel Carson State Office Building, 16th Floor, 400 Market Street, Harrisburg, PA 17105-2301). Comments submitted by facsimile will not be accepted. Comments, suggestions, or objections must be received by the Board by December 29, 2008. Interested persons may also submit a summary of their comments to the Board. The summary may not exceed one page in length and must also be received by December 29, 2008. The one-page summary will be provided to each member of the Board in the agenda packet distributed prior to the meeting at which the final regulations will be considered.

Electronic Comments—Comments may be submitted electronically to the Board at RegComments@state.pa.us and must also be received by the Board by December 29, 2008. A subject heading of the proposal and a return name and address must be included in each transmission. If an acknowledgement of electronic comments is not received by the sender within 2 working days, the comments should be retransmitted to ensure receipt.

JOHN HANGER,
Acting Chairperson

Fiscal Note: 7-425. No fiscal impact; (8) recommends adoption.

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:

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Groundwater—Water that is located within the saturated zone below the water table and is available to supply wells and springs.

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Log inactivation—A measure of the amount of viable microorganisms that are rendered nonviable during disinfection processes and is defined as:

$$\text{Log inactivation} = \log \left(\frac{N_o}{N_D} \right)$$

Where,

N_o = Initial concentration of viable microorganisms

N_D = Concentration of viable microorganisms after disinfection

Log = Logarithm to base 10

Log inactivation is related to percent inactivation, defined as:

$$\text{Percent inactivation} = \left(1 - \frac{N_D}{N_o}\right) * 100$$

Common log-inactivation values and corresponding percent inactivation values include:

Log Inactivation	Percent Inactivation
0.5-log	68.4%
1.0-log	90.0%
1.5-log	96.8%
2.0-log	99.0%
2.5-log	99.7%
3.0-log	99.9%
4.0-log	99.99%

Log removal—A measure of the physical removal of a targeted contaminant or disease-causing microorganism (or its surrogate) during water treatment processes and is defined as:

$$\text{Log removal} = \log\left(\frac{N_o}{N_R}\right)$$

Where,

N_o = Initial concentration of targeted contaminant or disease-causing microorganism (or its surrogate)

N_R = Concentration of targeted contaminant or disease-causing microorganism (or its surrogate) after removal

Log = Logarithm to base 10

Log removal is related to percent removal, defined as:

$$\text{Percent removal} = \left(1 - \frac{N_R}{N_o}\right) * 100$$

Common log-removal values and corresponding percent removal values include:

Log Removal	Percent Removal
0.5-log	68.4%
1.0-log	90.0%
1.5-log	96.8%
2.0-log	99.0%
2.5-log	99.7%
3.0-log	99.9%
4.0-log	99.99%

Log treatment—A measure of the removal or inactivation, or Department-approved combination of removal and inactivation, of a targeted contaminant or disease-causing microorganism (or its surrogate) during water treatment processes and is defined as:

Log treatment = Log removal + Log inactivation

Or,

$$\text{Log treatment} = \log\left(\frac{N_o}{N_T}\right)$$

Where,

N_o = Initial concentration of a targeted contaminant or disease-causing microorganism (or its surrogate)

N_T = Concentration of a targeted contaminant or disease-causing microorganism (or its surrogate) after treatment

Log = Logarithm to base 10

Log treatment is related to percent treatment, defined as:

$$\text{Percent treatment} = \left(1 - \frac{N_T}{N_o}\right) * 100$$

Common log treatment values and corresponding percent treatment values include:

Log Treatment	Percent Treatment
0.5-log	68.4%
1.0-log	90.0%
1.5-log	96.8%
2.0-log	99.0%
2.5-log	99.7%
3.0-log	99.9%
4.0-log	99.99%

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Microorganism—Any of a number of unicellular, multicellular or colonial bacteria, fungi, protozoa, archaea or viruses whose individuals are too small to be seen by the human eye without magnification.

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§ 109.5. Organization of chapter.

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(e) Subchapter M (relating to additional requirements for groundwater sources) applies to all public water systems that use groundwater, excluding those systems that combine all of their groundwater with surface water or with groundwater under the direct influence of surface water prior to treatment.

Subchapter B. MCLs, MRDLs OR TREATMENT TECHNIQUE REQUIREMENTS

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

* * * * *

(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 [shall] 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.

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

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Subchapter C. MONITORING REQUIREMENTS

§ 109.301. General monitoring requirements.

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(8) *Monitoring requirements for public water systems that obtain finished water from another public water system.*

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(vii) **A public water supplier that obtains finished water from another permitted public water system using groundwater shall comply with Subchapter M (relating to additional requirements for groundwater sources).**

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§ 109.304. Analytical requirements.

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(c) For the purpose of determining compliance with the monitoring and analytical requirements established under this subchapter [**and**], Subchapter K **and Subchapter M** (relating to lead and copper; **and additional requirements for groundwater sources**), the Department will consider only samples analyzed by a laboratory certified by the Department, except that measurements for turbidity, fluoridation operation, residual disinfectant concentration, temperature, pH, alkalinity, orthophosphates, silica, calcium, conductivity, daily chlorite, and magnesium hardness may be performed by a person meeting the requirements of § 109.704 (relating to operator certification).

Subchapter D. PUBLIC NOTIFICATION

§ 109.407. General public notification requirements.

(a) *Violation categories and other situations requiring a public notice.* A public water supplier shall give public notice for the following circumstances:

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(2) Failure to comply with a prescribed treatment technique requirement in Subchapter B, G [**or**], K **or M** [**relating to MCLs, MRDLs or treatment technique requirements; system management responsibilities; and lead and copper**] .

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§ 109.408. Tier 1 public notice—form, manner and frequency 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:

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(8) **Detection of *E. coli* in source water samples as specified in §§ 109.1303 and 109.1304 (relating to triggered monitoring requirements for groundwater sources; and assessment source water monitoring).**

(9) **A breakdown in treatment for groundwater sources as specified in § 109.1307(a)(1)(ii) (relating to system management responsibilities).**

(10) Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the Department on a case-by-case basis.

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§ 109.409. Tier 2 public notice—form, manner and frequency of notice.

(a) *General violation categories and other situations requiring a Tier 2 public notice.* A public water supplier shall provide Tier 2 public notice for the following circumstances:

(1) All violations of the primary MCL, MRDL [**and**], treatment technique requirements **and failure to take corrective action** in Subchapter B, G [**or**], K **or M** [**relating to MCLs, MRDLs or treatment technique requirements; system management responsibilities; and lead and copper**] , except [**where**] **when** a Tier 1 notice is required under § 109.408 (relating to Tier 1 public notice—form, manner and frequency of notice) or when the Department determines that a Tier 1 notice is required. The tier assignment for fluoride is not incorporated by reference. Under § 109.202(d) (relating to MCLs, MRDLs or treatment technique requirements), a public water system shall comply with the primary MCL for fluoride of 2 mg/L. As such, a public water supplier shall provide Tier 2 public notice for violation of the primary MCL for fluoride.

(2) Violations of the monitoring requirements in Subchapter C [**relating to monitoring requirements**] **or**], Subchapter K **or Subchapter M (relating to monitoring requirements; lead and copper; and additional requirements for groundwater sources)**, when the Department determines that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation.

* * * * *

§ 109.410. Tier 3 public notice—form, manner and frequency of notice.

(a) *General violation categories and other situations requiring a Tier 3 public notice.* A public water supplier shall provide Tier 3 public notice for the following circumstances:

(1) Monitoring violations under Subchapter C [**or**], **Subchapter K or Subchapter M** (relating to monitoring requirements; [**and**] lead and copper; **and additional requirements for groundwater sources**), except when a Tier 1 notice is required under § 109.408 (relating to Tier 1 public notice—form, manner and frequency of notice) or [**where**] **when** the Department determines that a Tier 2 notice is required.

* * * * *

§ 109.417. Special notice for significant deficiencies by noncommunity water systems.

(a) **In addition to the applicable public notification requirements of this subchapter, a noncom-**

munity water system that receives notice from the Department under § 109.1302(c)(2) (relating to groundwater systems with significant deficiencies or source water *E. coli* contamination) of a significant deficiency shall inform the public served by the water system in a manner approved by the Department of any significant deficiency that has not been corrected within 12 months of being notified by the Department, or earlier if directed by the Department. The system shall continue to inform the public annually until the significant deficiency is corrected. The information must include:

(1) The nature of the significant deficiency and the date the significant deficiency was identified by the Department.

(2) The Department-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed.

(3) For systems with a large proportion of non-English speaking consumers specified in § 109.411(c)(2) (relating to content of public notice), information in the appropriate languages regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

(b) If directed by the Department, a noncommunity water system with significant deficiencies that have been corrected in accordance with § 109.1302(c)(1) shall inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction.

Subchapter E. PERMIT REQUIREMENTS

§ 109.503. Public water system construction permits.

(a) *Permit application requirements.* An application for a public water system construction permit shall be submitted in writing on forms provided by the Department and shall be accompanied by plans, specifications, engineer's report, water quality analyses and other data, information or documentation reasonably necessary to enable the Department to determine compliance with the act and this chapter. The Department will make available to the applicant the "Public Water Supply Manual", available from the Bureau of Water Supply and Community Health, Post Office Box 8467, Harrisburg, Pennsylvania 17105 which contains acceptable design standards and technical guidance. Water quality analyses shall be conducted by a laboratory certified under this chapter.

(1) *General requirements.* An application [shall] must include:

* * * * *

(iii) *Information describing new sources.* The Department may accept approval of an out-of-State source by the agency having jurisdiction over drinking water in that state if the supplier submits adequate proof of the approval and the agency's standards are at least as stringent as this chapter. Information describing sources [shall] must include:

* * * * *

(B) An evaluation of the quality of the raw water from each new source. This clause does not apply when the new source is finished water obtained from an existing permitted community water system unless the Depart-

ment provides written notice that an evaluation is required. The evaluation [shall] must include analysis of the following:

* * * * *

(V) Total coliform concentration and, if total coliform-positive, analyze for [fecal coliform concentration] the presence of *E. coli*.

* * * * *

§ 109.505. Requirements for noncommunity water systems.

A noncommunity water system shall obtain a construction permit under § 109.503 (relating to public water system construction permits) and an operation permit under § 109.504 (relating to public water system operation permits), unless the noncommunity water system satisfies paragraph (1) or (2). The Department retains the right to require a noncommunity water system that meets the requirements of paragraph (1) or (2) to obtain a construction and an operation permit, if, in the judgment of the Department, the noncommunity water system cannot be adequately regulated through standardized specifications and conditions. A noncommunity water system which is released from the obligation to obtain a construction and an operation permit shall comply with the other requirements of this chapter, including design, construction and operation requirements described in Subchapters F and G (relating to design and construction standards; and system management responsibilities).

* * * * *

(2) A noncommunity water system not covered under paragraph (1) is not required to obtain a construction and an operation permit if it satisfies the following specifications and conditions:

(i) The sources of supply for the system are groundwater sources [requiring treatment no greater than disinfection to provide water of a quality that meets the primary MCLs established under Subchapter B (relating to MCLs, MRDLs or treatment technique requirements).] and:

(A) Require treatment no greater than disinfection to provide water of a quality that meets the primary MCLs established under Subchapter B (relating to MCLs, MRDLs or treatment technique requirements).

(B) The treatment provided is not required under § 109.1302 (relating to treatment technique requirements) to meet at least 4-log treatment of viruses.

* * * * *

(3) A noncommunity water system which satisfies the requirements of paragraphs (1) and (2) shall provide the Department with the following information describing new sources, including an evaluation of the quality of the raw water from each new source. Water quality analyses shall be conducted by a laboratory certified under this chapter. This paragraph does not apply when the new source is finished water obtained from an existing permitted community water system or an existing permitted or approved noncommunity water system unless the Department provides written notice that one or more of the provisions of this paragraph apply.

(i) For transient noncommunity water systems, the evaluation [shall] must include analysis of the following:

* * * * *

(B) Total coliform concentration and, if total coliform-positive, analyze for [fecal coliform concentration] the presence of *E. coli*.

* * * * *

§ 109.507. Permits for innovative technology.

The Department may consider proposals for innovative water treatment processes, methods or equipment and may issue an innovative technology construction or operation permit if the applicant demonstrates to the Department's satisfaction that the proposal will provide drinking water that complies with [Subchapter] Subchapters B and M (relating to MCLs, MRDLs or treatment technique requirements; and additional requirements for groundwater sources). Applications for innovative technology construction permits [shall] must satisfy the requirements of § 109.503 (relating to public water system construction permits). The Department may condition innovative technology operation permits on duration, additional monitoring, reporting or other requirements as it deems necessary to protect the public health. The Department may revoke an innovative technology construction or operation permit if it finds the public water system is not complying with drinking water standards or the terms or conditions of the permit or if there is a significant change in the source water quality which could affect the reliability and operability of the treatment facility. Authorization for construction, operation or modifications obtained under an innovative technology permit will not extend beyond the expiration date of the permit.

Subchapter F. DESIGN AND CONSTRUCTION STANDARDS

§ 109.602. Acceptable design.

(a) A public water system shall be designed to provide an adequate and reliable quantity and quality of water to the public. The design [shall] must ensure that the system will, upon completion, be capable of providing water that complies with the primary and secondary MCLs, MRDLs and treatment techniques established in [Subchapter] Subchapters B and M (relating to MCLs, MRDLs or treatment technique requirements; and additional requirements for groundwater sources) except as further provided in this section.

* * * * *

§ 109.605. Minimum treatment design standards.

The level of treatment required for raw water depends upon the characteristics of the raw water, the nature of the public water system and the likelihood of contamination. The following minimum treatment design standards apply to new facilities and major changes to existing facilities:

* * * * *

(3) For community water systems using groundwater, the minimum treatment design standard for disinfection technologies utilized at the entry point is a total of 99.99% treatment of viruses.

§ 109.611. Disinfection.

Disinfection facilities shall be designed to provide the dosage rate and contact time prior to the first customer sufficient to provide a quality of water that complies with the microbiological MCL and the appropriate MRDL, specified in § 109.202 (relating to State MCLs, MRDLs

and treatment technique requirements) and the treatment technique requirements in § 109.1302 (relating to treatment technique requirements).

Subchapter G. SYSTEM MANAGEMENT RESPONSIBILITIES

§ 109.705. Sanitary surveys.

* * * * *

(b) A community water system which does not collect five or more routine coliform samples per month shall do one of the following:

(1) Undergo a sanitary survey conducted by the Department by June 29, 1994, and thereafter undergo a subsequent sanitary survey conducted by the Department at a minimum frequency of every 3 years [after the initial sanitary survey, depending on the type of source, treatment and population served] or every 5 years if notified by the Department that the system has an outstanding performance record.

(2) Increase the number of routine coliform samples collected to at least five samples per month if the Department does not conduct a sanitary survey by June 29, 1994, or within [3 years] the appropriate frequency as described in paragraph (1) following the initial or a subsequent sanitary survey. This increased sampling frequency shall be in place of the monitoring frequency requirements for coliforms in § 109.301(3)(i) (relating to general monitoring requirements) and shall remain in effect through the month in which the next sanitary survey is conducted by the Department.

(c) A noncommunity water system which does not collect five or more routine coliform samples per month shall do one of the following:

(1) Undergo an initial sanitary survey conducted by the Department by June 29, 1999, and thereafter undergo a subsequent sanitary survey at a minimum of every 5 years after the initial sanitary survey [, except that noncommunity systems using only protected and disinfected groundwater shall undergo subsequent sanitary surveys at a minimum of every 10 years after the initial sanitary survey].

(2) Increase the number of routine coliform samples collected to at least five samples per month if the Department does not conduct a sanitary survey by June 29, 1999, or within 5 [or 10 years using the criteria in paragraph (1),] years following the initial or a subsequent sanitary survey. This increased sampling frequency shall be in place of the monitoring frequency requirements for coliforms in § 109.301(3)(i) and shall remain in effect through the month in which the next sanitary survey is conducted by the Department.

* * * * *

(Editor's Note: The Department will propose to add or delete subsection (d) in the December 13, 2008 Pennsylvania Bulletin.)

(e) Significant deficiencies identified by the Department at public water systems using groundwater shall comply with § 109.1302(c) (relating to groundwater systems with significant deficiencies or source water *E. coli* contamination).

Subchapter H. LABORATORY CERTIFICATION

§ 109.801. Certification requirement.

A laboratory shall be accredited under Chapter 252 (relating to laboratory accreditation) to perform analyses

acceptable to the Department for the purposes of ascertaining drinking water quality and demonstrating compliance with monitoring requirements established in [Subchapter] Subchapters C and M (relating to monitoring requirements; and additional requirements for groundwater sources).

§ 109.810. Reporting and notification requirements.

* * * * *

(b) [A laboratory accredited under Chapter 252 shall whenever] Whenever an MCL, MRDL or a treatment technique performance requirement under § 109.202 (relating to State MCLs, MRDLs and treatment technique requirements) is violated [, or]; a sample result requires the collection of check samples under § 109.301 (relating to general monitoring requirements)[:]; or a sample collected under Subchapter M (relating to additional requirements for groundwater sources) is E. coli-positive a laboratory accredited under Chapter 252 shall:

* * * * *

Subchapter I. VARIANCES AND EXEMPTIONS ISSUED BY THE DEPARTMENT

§ 109.901. Requirements for a variance.

(a) The Department may grant one or more variances to a public water system from a requirement respecting a MCL upon finding that:

(1) The public water system has installed and is using the best treatment technology, treatment methods or other means that the Department in concurrence with the Administrator finds are generally available to reduce the level of the contaminant, and has determined that alternative sources of water are not reasonably available.

* * * * *

§ 109.903. Requirements for an exemption.

(a) The Department may exempt a public water system from an MCL or treatment technique requirement upon finding that:

(1) Due to compelling factors, the public water system is unable to comply with the contaminant level or treatment technique requirement, or to implement measures to develop an alternative source of water supply.

* * * * *

(4) Management or restructuring changes, or both, as provided in 40 CFR 142.20(b)(1)(i) (relating to State-issued variances and exemptions) cannot reasonably be made that will result in compliance with the applicable MCL or treatment technique requirement or, if compliance cannot be achieved, improve the quality of the drinking water.

§ 109.906. Consideration of a request for a variance or exemption.

The Department will consider comments received during the comment period and testimony in the record of a public hearing held with respect to the request for a variance or exemption before making a determination. The Department will consider the availability of alternative water sources, risks to the public health from granting the relief requested and other relevant factors including the following considerations:

(1) In its consideration of whether the public water system satisfies the requirements for a variance from a maximum contaminant level under § 109.901(a) (relating to requirements for a variance), the Department will consider whether the public water system has installed and is effectively operating the best treatment technology, treatment methods, or other means that the Department finds in concurrence with the Administrator are generally available to reduce the level of the contaminant for which the variance is requested, and whether the system has evaluated that alternative sources of water are not reasonably available.

* * * * *

(3) In its consideration of whether a public water system satisfies the requirements for an exemption under § 109.903 (relating to requirements for an exemption), the Department will consider factors such as:

* * * * *

(iii) The availability of an alternative source of water, including the feasibility of partnerships with neighboring public water systems, as identified by the public water system or by the Department.

§ 109.907. Disposition of a request for a variance or exemption.

* * * * *

(c) If the Department makes a determination to grant a variance or exemption request, it will document its findings as required under 40 CFR 142.20(a)(1) (relating to State issued variances and exemptions) for granting a variance, and under 40 CFR 142.20(b)(1) for granting an exemption.

§ 109.908. Compliance schedules.

* * * * *

(e) In accordance with 40 CFR 142.20(b)(2) (relating to State issued variances and exemptions), the Department may renew an exemption for a public water system that serves fewer than 3,300 persons and which needs financial assistance for the necessary improvements under the initial compliance schedule, provided the Department establishes that the system is taking all practicable steps to meet the requirements of this subchapter and the established compliance schedule to achieve full compliance with the applicable MCL or treatment technique requirement. The Department must document its findings in granting an extension under this subsection.

Subchapter J. BOTTLED WATER AND VENDED WATER SYSTEMS, RETAIL WATER FACILITIES AND BULK WATER HAULING SYSTEMS

§ 109.1002. MCLs, MRDLs or treatment techniques.

* * * * *

(c) 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).

§ 109.1003. Monitoring requirements.

* * * * *

(d) 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).

(Editor's Note: The following subchapter is new. It appears in regular text to enhance readability.)

Subchapter M. ADDITIONAL REQUIREMENTS FOR GROUNDWATER SOURCES

Sec.

- 109.1301. Scope.
- 109.1302. Treatment technique requirements.
- 109.1303. Triggered monitoring requirements for groundwater sources.
- 109.1304. Assessment source water monitoring.
- 109.1305. Compliance monitoring.
- 109.1306. Information describing 4-log treatment and compliance monitoring.
- 109.1307. System management responsibilities.

§ 109.1301. Scope.

Beginning December 1, 2009, this subchapter applies to all public water systems that use groundwater excluding those systems that combine all of their groundwater with surface water or with groundwater under the direct influence of surface water prior to treatment under § 109.202(c)(1) (relating to State MCLs, MRDLs and treatment technique requirements). For the purpose of this subchapter, "groundwater system" is defined as any public water system meeting this applicability statement including systems obtaining finished groundwater from another supplier.

§ 109.1302. Treatment technique requirements.

(a) *Community groundwater systems.* Community groundwater systems are required to provide continuous disinfection under § 109.202(c)(2) (relating to State MCLs, MRDLs and treatment technique requirements) and in addition shall:

(1) Comply with triggered monitoring requirements under § 109.1303 (relating to triggered monitoring requirements for groundwater sources) until beginning compliance monitoring under paragraph (5).

(2) Maintain at each groundwater entry point a residual disinfectant concentration no less than 0.4mg/L expressed as free chlorine or its equivalent as approved by the Department, or other minimum residual specified by the Department.

(3) Demonstrate how at least 4-log treatment of viruses will be provided by submitting information as required under § 109.1306 (relating to information describing 4-log treatment and compliance monitoring) when directed by the Department or no later than:

(i) October 1, 2010, for systems serving more than 500 persons.

(ii) October 1, 2011, for systems serving 100 to 500 persons.

(iii) October 1, 2012, for systems serving less than 100 persons.

(4) Provide at least 4-log treatment of viruses prior to each groundwater entry point when directed by the Department or no later than:

(i) January 1, 2011, for systems serving more than 500 persons.

(ii) January 1, 2012, for systems serving 100 to 500 persons.

(iii) January 1, 2013, for systems serving less than 100 persons.

(iv) A Department-approved alternative compliance schedule.

(5) Conduct compliance monitoring as described in § 109.1305 (relating to compliance monitoring) when

directed by the Department following notification of approval by the Department that at least 4-log treatment of viruses has been demonstrated for a groundwater source or sources.

(6) Provide at least 4-log treatment of viruses for new sources permitted after December 1, 2009, and conduct compliance monitoring as described in § 109.1305 beginning the first day the entry point is put into service.

(b) *Noncommunity groundwater systems including bottled water and vended water systems, retail water facilities and bulk water hauling systems.*

(1) Noncommunity groundwater systems may demonstrate at least 4-log treatment of viruses is provided prior to a groundwater entry point by submitting information as required under § 109.1306. Systems demonstrating at least 4-log treatment of viruses under this paragraph shall:

(i) Conduct compliance monitoring as described in § 109.1305 when directed by the Department following notification of approval by the Department that at least 4-log treatment of viruses has been demonstrated for a groundwater source or sources.

(ii) Comply with triggered monitoring requirements under § 109.1303 until beginning compliance monitoring under subparagraph (i).

(2) Noncommunity groundwater systems not demonstrating at least 4-log treatment to the Department shall:

(i) Comply with triggered monitoring requirements under § 109.1303.

(ii) Comply with the requirements of assessment source water monitoring as described in § 109.1304 (relating to assessment source water monitoring) if the Department determines a groundwater source is at risk to fecal contamination. The Department will consider any factors that identify sources at risk to fecal contamination, including one or more of the following:

(A) Sensitivity of the source aquifer to fecal contamination.

(B) Proximity to sources of fecal contamination.

(C) Microbiological sampling history.

(c) *Groundwater systems with significant deficiencies or source water E. coli contamination.*

(1) A groundwater system with a significant deficiency or an *E. coli*-positive groundwater source sample collected under § 109.505(3), § 109.1303(a) or § 109.1304(a) (relating to requirements for noncommunity water systems; triggered monitoring requirements for groundwater sources; and assessment source water monitoring) shall correct all significant deficiencies and, if directed by the Department, shall implement one or more of the following corrective actions:

(i) Provide an alternative source of water.

(ii) Eliminate the source of contamination.

(iii) Submit information required under § 109.1306 and provide treatment that reliably achieves at least 4-log treatment of viruses before or at the first customer for the groundwater source or sources.

(2) A groundwater system with a significant deficiency or an *E. coli*-positive groundwater source sample collected under § 109.1303(a) or § 109.1304(a) will receive one of the following forms of notification:

(i) Written notice from the Department of a significant deficiency.

(ii) Notification from a laboratory under § 109.810(b) (relating to reporting and notification requirements) that a groundwater source sample collected under § 109.1303(a) or § 109.1304(a) was found to be *E. coli*-positive.

(iii) Direction from the Department that an *E. coli*-positive collected under § 109.1303(a) requires corrective action.

(3) Within 30 days of receiving initial notification under paragraph (2), the groundwater system shall consult with the Department regarding the appropriate corrective action unless the Department directs the groundwater system to implement a specific corrective action.

(4) Within 120 days of receiving initial notification under paragraph (2), or earlier if directed by the Department, the groundwater system shall either:

(i) Have completed corrective action in accordance with applicable Department plan review processes or other Department guidance or direction, if any, including Department-specified interim measures.

(ii) Be in compliance with a Department-approved corrective action plan and schedule subject to the following conditions:

(A) The Department must also approve any subsequent modifications to a Department-approved corrective action plan and schedule.

(B) If the Department specifies interim measures for protection of the public health pending Department approval of the corrective action plan and schedule or pending completion of the corrective action plan, the system shall comply with these interim measures as well as with any schedule specified by the Department.

§ 109.1303. Triggered monitoring requirements for groundwater sources.

(a) Groundwater systems not required to conduct compliance monitoring under § 109.1302 (relating to treatment technique requirements), of one or more groundwater sources shall collect a source water sample for *E. coli* within 24 hours of notification of a total coliform-positive sample collected under § 109.301(3) (relating to general monitoring requirements). The system shall collect a sample from each groundwater source that is not provided with at least 4-log treatment of viruses and is connected to the distribution system from which the total coliform-positive sample was collected.

(b) The Department may extend the 24-hour time limit to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the system's control in having the source sample or samples analyzed within 30 hours of collection. A logistical problem outside the system's control may include a coliform-positive sample result received over a holiday or weekend in which the services of a Department-accredited laboratory are not available within the prescribed sample holding time.

(c) Systems that obtain written approval from the Department may conduct monitoring at one or more sources within the groundwater system that are representative of multiple sources used by that system and draw water from the same hydrogeologic setting.

(d) A groundwater source sample shall be collected at a location prior to any treatment.

(e) A public water system obtaining finished groundwater from another public water system shall notify the supplying system or systems within 24 hours of being notified of a total coliform-positive sample collected under § 109.301(3)(i).

(f) The following apply to an invalidation of an *E. coli* sample for groundwater source sampling:

(1) The Department may invalidate an *E. coli*-positive groundwater source sample collected under this section if:

(i) The system provides the Department with written notice from the laboratory that improper sample analysis occurred.

(ii) The Department determines and documents in writing that there is substantial evidence that the *E. coli*-positive groundwater source sample is not related to source water quality.

(2) If the Department invalidates an *E. coli*-positive groundwater source sample, the groundwater system shall collect a replacement source water sample under subsection (a) within 24 hours of being notified by the Department of its invalidation decision and have the replacement sample analyzed for *E. coli*. The Department may extend the 24-hour time limit on a case-by-case basis to 72 hours.

(g) For an *E. coli*-positive source water sample collected under subsection (a) that is not invalidated under subsection (f):

(1) The Department may require a groundwater system to perform a corrective action as described under § 109.1302 (c) (relating to treatment technique requirements).

(2) If the Department does not require corrective action under § 109.1302(c), the system shall collect five additional source water samples from the same source within 24 hours of being notified of the *E. coli*-positive sample. If one of the additional samples collected under this paragraph is *E. coli*-positive, the groundwater system shall perform a corrective action as described under § 109.1302 (c).

(3) The system shall comply with Tier 1 public notification requirements under § 109.408 (relating to Tier 1 public notice—form, manner and frequency of notice).

(h) Systems providing water to another public water system receiving notification under subsection (e) shall comply with subsection (a).

§ 109.1304. Assessment source water monitoring.

(a) To enable the Department to determine if a groundwater system is using fecally-contaminated groundwater source, the Department may require a groundwater system to conduct monitoring for *E. coli*. If directed by the Department, a water supplier shall:

(1) Collect a total of 12 samples from each groundwater source, unless the system obtains written approval from the Department to conduct monitoring at one or more sources within the groundwater system that are representative of multiple sources used by that system and draw water from the same hydrogeologic setting.

(i) For sources providing water to the public 12 months out of the year, groundwater systems shall collect one sample during each month.

(ii) For sources providing water to the public for less than 12 months out of the year, groundwater systems shall collect 12 samples evenly distributed over the operational period.

(iii) Samples collected under § 109.1303(a)(3) (relating to triggered monitoring requirement for groundwater sources) may be used to satisfy the requirements of this subsection.

(iv) If a groundwater system obtains an *E. coli*-positive groundwater source sample, the groundwater system shall perform a corrective action as described under § 109.1302(c) (relating to treatment technique requirements).

(v) The groundwater system may discontinue assessment source water monitoring if the system demonstrates they provide at least 4-log treatment of viruses under § 109.1302(b)(1) or if directed by the Department.

(2) Collect groundwater source samples at a location prior to any treatment of the groundwater source.

(3) Collect a replacement groundwater source sample within 24 hours of being notified by the Department of its decision to invalidate a sample and have the replacement sample analyzed for *E. coli*.

(b) The following apply to an invalidation of an *E. coli* sample for groundwater source sampling:

(1) A groundwater system may obtain a Department invalidation of an *E. coli*-positive groundwater source sample collected under this section as follows:

(i) The system provides the Department with written notice from the laboratory that improper sample analysis occurred.

(ii) The Department determines and documents in writing that there is substantial evidence that the *E. coli* positive groundwater source sample is not related to source water quality.

(2) If the Department invalidates an *E. coli*-positive groundwater source sample, the groundwater system shall collect a replacement source water sample under subsection (a) within 24 hours of being notified by the Department of its invalidation decision and have the replacement sample analyzed for *E. coli*. The Department may extend the 24-hour time limit on a case-by-case basis to 72 hours.

§ 109.1305. Compliance monitoring.

(a) *Chemical disinfection.* Groundwater systems demonstrating at least 4-log treatment of viruses using chemical disinfection shall monitor for and maintain the Department-determined residual disinfection concentration every day the system serves the public from the groundwater source.

(1) A groundwater system serving greater than 3,300 shall:

(i) Continuously monitor the residual disinfectant concentration at the entry point or other location approved by the Department and record the results at least every 15 minutes each day that water from the groundwater source is served to the public.

(ii) Maintain the Department-determined minimum residual disinfectant concentration every day the public water system serves water from the groundwater source to the public.

(iii) Conduct grab sampling every 4 hours until the continuous monitoring equipment is returned to service if there is a failure in the continuous monitoring equipment. The system shall resume continuous residual disinfectant monitoring within 14 days.

(2) A groundwater system serving 3,300 or fewer people shall comply with one of the following subparagraphs:

(i) The groundwater system shall maintain the Department-determined minimum residual disinfectant concentration every day the public water system serves water from the groundwater source to the public. The groundwater system shall take a daily grab sample at the entry point during the hour of peak flow or at any other time specified by the Department. If any daily grab sample measurement falls below the Department-determined minimum residual disinfectant concentration, the groundwater system shall take follow up samples every 4 hours until the residual disinfectant concentration is restored to the Department-determined minimum level.

(ii) Monitor the disinfectant residual concentration continuously and meet the requirements of paragraph (1).

(b) *Membrane filtration.* Groundwater systems demonstrating at least 4-log treatment of viruses using membrane filtration shall monitor the membrane filtration process in accordance with all Department-specified monitoring requirements and operate the membrane filtration in accordance with all Department-specified compliance requirements. A groundwater system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when the following conditions are met:

(1) The membrane has an absolute molecular weight cut-off (MWCO), or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log removal of viruses.

(2) The membrane process is operated in accordance with Department-specified compliance requirements.

(3) The integrity of the membrane is intact.

(c) *Alternative treatment.* Groundwater systems demonstrating at least 4-log treatment of viruses using a Department-approved alternative treatment method, including a combination of treatment methods shall:

(1) Monitor the alternative treatment in accordance with all Department-approved monitoring requirements.

(2) Operate the alternative treatment in accordance with all compliance requirements that the Department determines to be necessary to achieve at least 4-log treatment of viruses.

§ 109.1306. Information describing 4-log treatment and compliance monitoring.

(a) Systems demonstrating at least 4-log treatment of viruses under § 109.1302 (relating to treatment technique requirements) shall submit: information in writing on forms provided by the Department and may include plans, specifications, engineer's report, water quality analyses and other data, information or documentation reasonably necessary to enable the Department to evaluate:

(1) Treatment effectiveness.

(2) The methodology the system will use to comply with § 109.1305 (relating to compliance monitoring).

(b) *Plans, specifications and engineer's report.* Plans, specifications and engineer's reports shall comply with the following:

(1) The drawings, specifications and engineer's report shall be prepared by or under the supervision of a professional engineer registered to practice in this Commonwealth or in the state in which the public water system is located.

(2) The front cover or flyleaf of each set of drawings, of each copy of the engineer's report, and of each copy of specifications shall bear the signature and imprint of the seal of the registered engineer. Drawings must bear an imprint or a legible facsimile of the seal.

§ 109.1307. System management responsibilities.

(a) *Reporting.* Groundwater systems shall comply with the following requirements and otherwise comply with § 109.701 (relating to reporting and recordkeeping):

(1) A groundwater system conducting compliance monitoring under § 109.1305 (relating to compliance monitoring):

(i) Shall report to the Department, for each entry point:

(A) The date, time and lowest residual disinfectant concentration each day.

(B) The date, duration and number of periods each day when the residual disinfectant concentration is less than the Department established minimum for more than 4 hours.

(ii) That experiences a breakdown in treatment shall notify the Department within 1 hour after the water system learns of the violation or the situation and provide public notice in accordance with § 109.408 (relating to Tier 1 public notice—form, manner and frequency of notice). A breakdown in treatment occurs whenever the system fails to meet, for greater than 4 continuous hours, any Department-specified requirements relating to:

(A) Minimum residual disinfectant concentration.

(B) Membrane operating criteria or membrane integrity.

(C) Alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within 4 hours.

(2) After completing any corrective action under § 109.1302(c) (relating to treatment technique requirements), a groundwater system shall notify the Department within 30 days of completion of the corrective action.

(b) *Recordkeeping.* Groundwater systems shall comply with § 109.701 and maintain the following information in their records:

(1) *Corrective actions.* Documentation shall be kept for at least 10 years.

(2) *Notice to the public as required under Subchapter D (relating to public notification).* Documentation shall be kept for at least 3 years.

(3) *Records of invalidation of E. coli-positive groundwater source samples under §§ 109.1303(f) and 109.1304(b).* Documentation shall be kept for at least 5 years.

(4) *Records of notification to other public water systems.* For a public water system obtaining groundwater from another public water system, documentation of notification to the supplier of total-coliform positive samples that are not invalidated under § 109.301(3)(iii) (relating to general monitoring requirements). Documentation shall be kept for at least 5 years.

(5) *Compliance monitoring.* For systems, including suppliers providing water to another public water system, that are required to perform compliance monitoring under § 109.1305 (relating to compliance monitoring):

(i) Documentation of the records of the Department-specified minimum disinfectant residual shall be kept for at least 10 years.

(ii) Documentation of the records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the Department-prescribed minimum residual disinfectant concentration for more than 4 hours, shall be kept for at least 5 years.

(iii) Documentation of the records of the Department-specified compliance requirements for membrane filtration and of parameters specified by the Department for Department-approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity or alternative treatment operating requirements for more than 4 hours, shall be kept for at least 5 years.

[Pa.B. Doc. No. 08-2146. Filed for public inspection November 28, 2008, 9:00 a.m.]

PENNSYLVANIA GAMING CONTROL BOARD

[58 PA. CODE CHS. 431a, 435a, 437a AND 451a] Suppliers' Principal Place of Business; Temporary Credentials and Recordkeeping

The Pennsylvania Gaming Control Board (Board), under the general authority in 4 Pa.C.S. § 1202(b)(30) (relating to general and specific powers) and specific authority contained in 4 Pa.C.S. §§ 1311, 1311.1, 1311.2, 1317 and 1322, proposes to amend Chapters 431a, 435a, 437a and 451a to read as set forth in Annex A.

Purpose of the Proposed Rulemaking

This proposed rulemaking sets forth requirements for suppliers' principal place of business; extends, from 120 days to 180 days, the time period for which a temporary credential issued to an applicant for a principal or key employee license is valid; corrects wording in § 437a.8 (relating to approved vendors list; prohibited vendors) and adds a process for approving an alternate location for the storage of records.

Explanation of Amendments to Chapters 431a, 435a, 437a and 451a

Section 1317(b)(1.2) of the act (relating to supplier licenses) requires each supplier to establish and maintain a principal place of business in this Commonwealth. There has been some confusion on the part of suppliers as to what constitutes a principal place of business. To eliminate that confusion, the Board is proposing to amend § 431a.4 (relating to responsibilities of a supplier) to establish minimum requirements that must be met by a supplier when it establishes its principal place of business in this Commonwealth.

Currently, under § 435a.8 (relating to temporary credentials for principals and key employees), applicants for a principal or key employee license whose presence is necessary at a licensed facility may be issued a temporary

credential. These temporary credentials are valid for 120 days and may be extended if the Board determines that additional time is needed to complete the investigation of the applicant. While many investigations are completed in 120 days, a significant number are not. This has resulted in the Board having to issue a large number of extensions, which requires the issuance of a new temporary credential.

To reduce the need to issue a large number of new temporary credentials, the Board is amending § 435a.8 to extend the time period for which a temporary credential for an applicant for a principal or key employee license will be valid from 120 days to 180 days.

In § 437a.8(b), the Board is replacing the word “vendor” with “vendors” to make the usage consistent with the rest of this section.

In § 451a.1 (relating to recordkeeping generally), a new subsection (c) is being added which will allow entities required to maintain records in this Commonwealth to seek approval of an alternate storage location from the Bureau of Licensing. While most entities regulated by the Board have a place of business in this Commonwealth, some manufacturers and vendors do not. This will give those entities an opportunity to request approval to store their records outside of this Commonwealth.

Affected Parties

This proposed rulemaking will affect suppliers, applicants for a principal or key employee license, and all regulated entities required to keep records and the Board.

Fiscal Impact

Commonwealth

Under this proposed rulemaking, the Board will have to issue fewer temporary credentials. While this will result in some reduction of costs for the Board, the amount is not anticipated to be significant. The Board issued approximately 300 temporary credentials to principal and key employee applicants last fiscal year. The Board also expects to receive a few requests to approval alternate record retention locations. These will be processed by existing staff and are not expected to have a significant cost impact on the Board.

Political Subdivisions

This proposed rulemaking will have no direct fiscal impact on political subdivisions of this Commonwealth.

Private Sector

Suppliers will have to meet the proposed minimum standards for their principal place of business in this Commonwealth. Since these requirements are minimal, the Board does not anticipate that they will impose any new significant costs on the four currently licensed suppliers. A few entities may experience some savings from the approval of an alternate location to store their records.

General Public

This proposed rulemaking will have no fiscal impact on the general public.

Paperwork requirements

As stated previously, the Board will be less likely to need to issue a second temporary credential.

Effective Date

The proposed rulemaking will become effective upon final-form publication in the *Pennsylvania Bulletin*.

Public Comments

Interested persons are invited to submit written comments, suggestions or objections regarding the proposed rulemaking, within 30 days after the date of publication in the *Pennsylvania Bulletin* to Richard Sandusky, Director of Regulatory Review, Pennsylvania Gaming Control Board, P. O. Box 69060, Harrisburg, PA 17106-9060, Attention: Public Comment on Regulation #125-95.

Contact Person

The contact person for questions about this proposed rulemaking is Richard Sandusky, Director of Regulatory Review at (717) 214-8111.

Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on November 14, 2008, the Board submitted a copy of this proposed rulemaking and a copy of the Regulatory Analysis Form to the Independent Regulatory Review Commission (IRRC) and to the Chairpersons of the House Gaming Oversight Committee and the Senate Community, Economic and Recreational Development Committee. A copy of this material is available to the public upon request and is available on the Board's web site at www.pgcb.state.pa.us.

Under section 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations or objections to the proposed rulemaking within 30 days of the close of the public comment period. The comments, recommendations or objections must specify the Regulatory Review Criteria which have not been met. The Regulatory Review Act specifies detailed procedures for review, prior to final publication of the rulemaking, by the Board, the General Assembly and the Governor of comments, recommendations or objections raised.

MARY DIGIACOMO COLINS,

Chairperson

Fiscal Note: 125-95. No fiscal impact; (8) recommends adoption.

Annex A

TITLE 58. RECREATION

PART VII. GAMING CONTROL BOARD

Subpart B. LICENSING, PERMITTING, CERTIFICATION AND REGISTRATION

CHAPTER 431a. SUPPLIER LICENSES

§ 431a.4. Responsibilities of a supplier.

(a) Within 1 year of the Board's issuance of a supplier license, the supplier shall establish and maintain a principal place of business in this Commonwealth. **The principal place of business must be:**

(1) Owned or leased by the supplier. If leased, the term of the lease must be at least as long as the term of the supplier's license.

(2) Where the supplier maintains all agreements, contracts and records, or copies thereof, pertaining to the supplier's business conducted in this Commonwealth.

(3) Large enough to accommodate all of the materials required under paragraph (2), the employees assigned to this office and the equipment required to carry out the employees' assigned duties.

(4) Equipped with a telephone.

(5) Staffed by at least one person during normal business hours.

(6) Open for inspection by Board personnel during normal business hours.

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CHAPTER 435a. EMPLOYEES

§ 435a.8. Temporary credentials for principals and key employees.

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(b) A temporary credential issued under this section is void [120] 180 days after the date of its issuance.

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CHAPTER 437a. VENDOR CERTIFICATION AND REGISTRATION

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§ 437a.8. Approved vendors list; prohibited vendors.

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(b) A slot machine licensee or applicant may not enter into an agreement or continue to do business with a vendor on the prohibited [vendor] vendors list.

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CHAPTER 451a. RECORDKEEPING REQUIREMENTS

§ 451a.1. Recordkeeping generally.

(a) All manufacturer, supplier, junket enterprise, management company and slot machine licensees and all

registered and certified vendors shall maintain adequate records of business operations which shall be made available to the Board upon request. [These records shall be kept onsite in this Commonwealth in a place secure from theft, loss or destruction or at another secure location approved by the Board.] These records include:

* * * * *

(c) The records required to be maintained under subsection (a) shall be kept onsite in this Commonwealth in a place secure from theft, loss or destruction or at another secure location approved by the Bureau of Licensing. A request to store records at another secure location outside of this Commonwealth may be submitted in writing to the Bureau of Licensing and include:

(1) The reason for the request.

(2) A description and the address of the proposed alternate location.

(d) Approval by the Bureau of Licensing of a request to store records at a location outside of this Commonwealth does not relieve the licensee of its duty to make the records available to the Board upon request.

[Pa.B. Doc. No. 08-2147. Filed for public inspection November 28, 2008, 9:00 a.m.]
