

**NOTICE OF FINAL RULEMAKING
ENVIRONMENTAL
QUALITY BOARD**

**[25 PA. CODE CH. 109]
Safe Drinking Water (General Update and Fees)**

The Environmental Quality Board (Board) by this order amends Chapter 109 (relating to safe drinking water) to read as set forth in Annex A. The amendments include three parts:

1. Incorporate the remaining general update provisions that were separated from the proposed Revised Total Coliform Rule (RTCR) as directed by the Board on April 21, 2015, including revisions to treatment technique requirements for pathogens, clarifications to permitting requirements, and new requirements for alarms, shutdown capabilities, and system service.
2. Amend existing permit fees and add new annual fees to supplement Commonwealth costs and fill the funding gap (\$7.5 million).
3. Add new amendments to establish the regulatory basis for issuing general permits, clarify that noncommunity water systems (NCWS) require a permit or approval from the Department prior to construction and operation, and address concerns related to gaps in the monitoring, reporting and tracking of back-up sources of supply.

Collectively, these amendments will provide for the increased protection of public health by every public water system (PWS) within the Commonwealth, and ensure that the Department of Environmental Protection (DEP or Department) has adequate funding to enforce the applicable drinking water laws, meet state and federal minimum program elements, and retain primacy (primary enforcement authority).

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 incidents 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.

One or more of these amendments will apply to all 8,521 PWSs in Pennsylvania.

This final-form rulemaking was adopted by the Board at its meeting of _____.

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 amended turbidity treatment technique requirements for membrane filtration are required one year after the effective date to allow additional time to achieve compliance.
- The amended turbidity monitoring requirements are required one year after the effective date.
- The amended monitoring requirements for reserve sources and entry points are required one year after the effective date.
- The new comprehensive monitoring plan requirements are required one year after the effective date.
- The new alarm and shutdown capability requirements are required one year after the effective date unless an alternate compliance schedule is approved in writing by the Department.
- The new system service requirements are required from one to three years after the effective date, based on system population.
- The new annual fees are required beginning January 1, 2019 to allow additional time for public water systems, boards and authorities to include the new fees in their 2019 budget. Budgets for 2018 are already completed.

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(a) of the Pennsylvania Safe Drinking Water Act (SDWA) (35 P.S. § 721.4(a)), which authorizes the Board “. . . to adopt such rules and regulations of the department governing the provision of drinking water to the public, as it deems necessary for the implementation of the provisions of this act.” With respect to the fees set forth in Sections 109.1401 – 1409, Section 4(c) of the SDWA (35 P.S. § 721.4(c)) authorizes and directs the Board to “establish fees for permit applications, laboratory certification and other services.” The rulemaking is also being made under the authority of section 1920-A of The Administrative Code of 1929 (71 P.S. § 510-20(b)), which authorizes the Board to promulgate rules and regulations necessary for the performance of the work of the Department.

D. Background and Purpose

The General Assembly found in section 2 of the Pennsylvania SDWA that it is “in the public interest for the Commonwealth to assume primary enforcement responsibility under the Federal Safe Drinking Water Act.” 35 P.S. § 721.2. When the SDWA was passed, the purpose was to create a drinking water program to allow the Commonwealth to obtain legal primacy over the Federal program in Pennsylvania.

The Department is the agency that was delegated authority to implement the safe drinking water program, including the program elements necessary for Pennsylvania to assume and maintain primary (in other words, lead) administration and enforcement authority under the Federal Safe Drinking Water Act. 35 P.S. § 721.5(a). The Department, through its Bureau of Safe Drinking Water, provides services to over 8,500 public water systems serving 11.3 million citizens to ensure compliance with both the Federal and State Safe Drinking Water acts. The Board adopted this final-form rulemaking to ensure the continued implementation of critical program activities under applicable Federal and State law requirements.

Part I: General Update Provisions

The amendments incorporate the remaining general update provisions that the Board previously determined should be proposed in a separate rulemaking. These general updates:

- Clarify the source water assessment, source water protection area, and source water protection program elements and requirements.
- Revise the treatment technique requirements for pathogenic bacteria, viruses and protozoan cysts by adding specific turbidity performance requirements for membrane filtration.
- Revise the disinfection profiling and benchmarking requirements to clarify that all PWSs using filtered surface water or groundwater under the direct influence of surface water (GUDI) must consult with the Department prior to making significant changes to disinfection practices to ensure adequate Giardia inactivation is maintained.
- Revise and clarify the monitoring, calibration, recording and reporting requirements for the measurement of turbidity.
- Revise the permit requirements to clarify the components that must be included in a permit application for a new source, including a source water assessment, a pre-drilling plan, an evaluation of water quantity and quality, and a hydrogeologic report.
- Revise the design and construction standards to require PWSs using surface water or GUDI sources to be equipped with alarm and shutdown capabilities. These provisions are required for plants that are not staffed continuously while the plant is in operation.
- Clarify that treatment technologies must be certified for efficacy through an approved third party.

- Update the system management requirements for community water systems (CWSs) to strengthen system service and resiliency by requiring completion of an uninterrupted system service plan (USSP) which focuses on utilizing auxiliary power or a combination of alternate provisions such as finished water storage and interconnections.
- Clarify system management responsibilities relating to source water assessments and sanitary surveys.
- Revise the corrective action timeframes in response to a significant deficiency for PWSs using groundwater and surface water sources to be consistent.
- Delete the provision that allows a PWS to avoid the requirement for a corrective action by collecting five additional source water samples after an *E. coli*-positive triggered source water sample.

Amendments to Source Water Assessment and Protection Program:

The source water assessment and protection amendments will not only protect public health, but should also help to maintain, reduce or avoid drinking water treatment costs. Source water protection represents the first barrier to drinking water contamination. A vulnerable drinking water source puts a water utility and the community it serves at risk and at a disadvantage in planning and building future capacity for economic growth. Contamination of a CWS source is costly for the water supplier and the public. For example, it is estimated that the total cost of the May 2000 Walkerton, Ontario *E. coli* contamination incident was \$64.5 million (*The Economic Costs of the Walkerton Water Crisis* by John Livernois, 2001). In addition to increased monitoring and treatment costs for the water system, a contaminated source may result in costs associated with containment or remediation, legal proceedings, adverse public health and environmental effects, reduced consumer confidence, diminished property values, and costs to replace the contaminated source.

A case study in Texas showed that water suppliers in source water areas with chemical contaminants paid \$25 more per million gallons to treat drinking water than suppliers in areas with no chemical contaminant detections. Dearmont, D., et al. (1998), “Costs of Water Treatment Due to Diminished Water Quality: A Case Study in Texas,” *Water Resources Research*, 34(4), 849—853. A study by The Trust for Public Land showed that for every four percent increase in source water turbidity (an indicator of water quality degradation from sediment, algae and microbial pathogens), treatment costs increase by one percent. The Trust for Public Land, (2002), “The Cost of Not Protecting Source Waters.” A study by the Pennsylvania Legislative Budget and Finance Committee stated that “reducing pollution inputs from pipes and land-based sources can reduce locality costs to treat drinking water sources to safe standards.” Legislative Budget and Finance Committee (2013), “A Cost Effective Alternative Approach to Meeting Pennsylvania’s Chesapeake Bay Nutrient Reduction Targets.” According to the Legislative Budget and Finance study, a study by the Brookings Institute suggested that a one percent decrease in sediment loading will lead to a 0.05 percent reduction in water treatment costs. Source water assessments can support and enhance emergency response, improve land use planning and municipal decisions, complement sustainable infrastructure initiatives, and help

prioritize and coordinate actions by Federal and Commonwealth agencies to better protect public health and safety.

Amendments to Surface Water Treatment Requirements:

The United States Environmental Protection Agency (EPA) describes turbidity as “a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (such as whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.” *National Primary Drinking Water Regulations*, EPA 816-F-09-004 (May 2009). These amendments will ensure that PWSs consistently produce water that meets turbidity standards to help ensure the delivery of safe and potable water to all users.

The proposed amendments were intended to reduce the public health risks related to waterborne pathogens and waterborne disease outbreaks. Costs related to waterborne disease outbreaks are extremely high. For example, as stated in the below-referenced article, the total medical costs and productivity losses associated with the 1993 waterborne outbreak of cryptosporidiosis in Milwaukee, Wisconsin was \$96.2 million: \$31.7 million in medical costs and \$64.6 million in productivity losses. The average total cost per person with mild, moderate, and severe illness was \$116, \$475, and \$7,808. *Cost of Illness in the 1993 Waterborne Cryptosporidium Outbreak, Milwaukee, Wisconsin*. Corso, et al. *Emerging Infectious Diseases*, Volume 9, No. 4 (April 2003). Available at <http://wwwnc.cdc.gov/eid/article/9/4/02-0417>.

When problems such as rapid changes in source water quality, treatment upsets requiring a filter backwash, or other unforeseen circumstances occur at filter plants, an immediate response from water plant operators is needed. The amendments were intended to ensure that operators are promptly alerted to major treatment problems, or if an operator is unable to respond, that the plant will automatically shut down when producing inadequately treated water. Thus, these amendments would prevent situations that pose an imminent threat to consumers, reduce PWS costs related to corrective actions and issuing public notice, reduce costs to the community, and maintain consumer confidence.

While the Department favors establishing more stringent individual filter effluent (IFE) and combined filter effluent (CFE) turbidity compliance and trigger levels of 0.30 NTU and 1.0 NTU for surface water filtration plants, in response to numerous comments from the Small Water Systems Technical Assistance Center Advisory Board (TAC) and public commentators, the Department is deferring such amendments until the EPA completes its six-year review of the Federal turbidity requirements established under the Surface Water Treatment Rules. This will allow the Department to consider EPA’s proposed changes before moving forward with proposed modifications to applicable state regulatory requirements. Until that time, the Department encourages filter plant operators to voluntarily meet optimal water quality levels and respond to trends of increasing turbidity as quickly as possible. This can be accomplished through the use of the Department’s existing programs, including the Area-Wide Optimization and Filter Plant Performance Evaluation and Partnership for Safe Water programs. Through

these programs, the SDW program has always dedicated significant resources towards compliance assistance/violation prevention at surface water filtration plants.

Revisions to System Service and Auxiliary Power Requirements:

The revisions to system service and auxiliary power requirements will strengthen system resiliency and ensure that safe and potable water is continuously supplied to consumers and businesses. A continuous and adequate supply of safe drinking water is vital to maintaining healthy and sustainable communities.

This Commonwealth's PWS sources and treatment facilities are susceptible to emergency situations resulting from both natural and man-made disasters. Examples of emergencies from recent years include tropical storms, flooding, high winds, ice, snow, industrial chemical plant runoff, pipeline ruptures, and transportation corridor spills. These emergencies have resulted in significant impacts to consumers and businesses due to inadequate water quantity or quality, and required water supply warnings and advisories. For example, in 2011, Hurricane Irene and Tropical Storm Lee caused flooding, water line ruptures, and power outages resulting in mandatory water restrictions and boil water advisories (BWA) at 32 PWSs in Pennsylvania. In 2012, Hurricane Sandy caused similar problems at 85 CWSs. Most of the impacted systems were small systems where redundancy and back-up systems were lacking. In comparison, systems with redundancy and adequate planning maintained operations until the power was restored, with little negative impact to their customers. Countless incidents at individual CWSs have occurred due to localized emergencies, with interruptions in potable drinking water service that could have been prevented if adequate preparation and equipment were available.

In addition, numerous wastewater treatment plants were forced to send untreated sewage to Pennsylvania waterways during these major weather events. PWSs that use these waterways as a source of supply for drinking water were at an increased risk due to extremely elevated turbidity levels and pathogen loading. Effectively treating drinking water during and after emergencies requires increased vigilance and operational control.

Water outages caused by power failures or other emergencies can cause additional adverse effects including:

- Lack of water for basic sanitary purposes, such as hand-washing and flushing toilets.
- Increased risk to public health when water systems experience a sharp reduction in supply, which can result in low or no pressure situations within the distribution system. Low pressure can allow intrusion of contaminants into distribution system piping from leaks, and backflow from cross connections.
- Dewatering of the distribution system can result in physical damage to pipes when the system is re-pressurized. This situation is exacerbated due to the nationwide problem with aging infrastructure.

These amendments improve the reliability of service provided to all consumers by requiring the development of a feasible plan to consistently supply an adequate quantity of safe and

potable water during emergency situations. More specifically, water suppliers will need to provide on-site auxiliary power sources (specifically, generators), or connection to at least two independent power feeds from separate substations; or develop a plan for alternate provisions, such as interconnections with neighboring water systems or finished water storage capacity. Ideally, water systems will implement a combination of options to improve their redundancy and resiliency.

After significant consideration of the comments, the Department has made several modifications to the proposed regulatory language. First, the Department has expanded the alternate provision options even further to include “a combination of alternate provisions”, “access to portable generators”, and a category of “other” alternate provisions; within this category, system specific alternate provisions may be proposed to insure uninterrupted system service. Additionally, due to the variety of system specific challenges, the Department has included the option to submit a schedule for necessary improvements which have not been completed by the compliance deadlines specified in § 109.708(a) (relating to system service and auxiliary power) for submittal of the USSP. This new approach requires certification of completion of the USSP form created by the Department by the deadlines specified in § 109.708(a). However, if the USSP identifies that deficiencies exist which prevent a continuous supply of safe and potable water as specified in § 109.708(a), and the CWS has not fully addressed those deficiencies by the deadline for USSP submittal, a schedule will need to be submitted within six months which includes detailed corrective actions and corresponding completion dates. These significant regulatory modifications will help enable the cost for compliance with these provisions to be spread out over a longer period of time. Additionally, these revisions will provide water suppliers with more flexibility in choosing the approach that best suits their particular water system, and adequate time to implement that plan in the most effective manner.

Part II: New Annual Fees and Amended Permit Fees

Funding Necessary to Provide Services

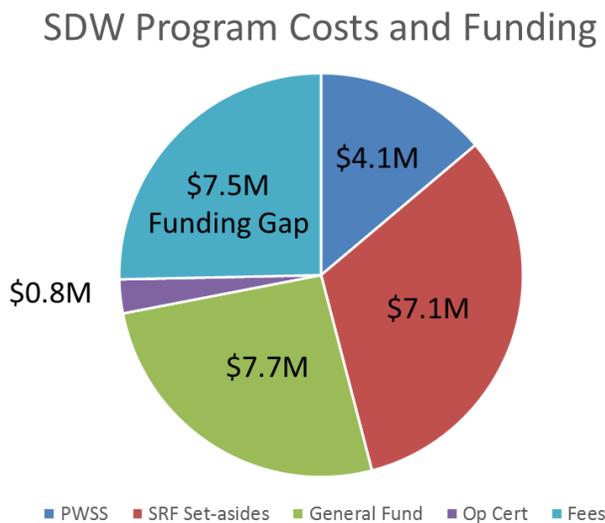
The Department is required to adopt and implement a public water supply program under Section 5(a) of the SDWA that includes, but is not limited to, maximum contaminant levels or treatment technique requirements establishing drinking water quality standards, monitoring, reporting, recordkeeping and analytical requirements, requirements for public notification, standards for construction, operation and modification to public water systems, emergency procedures, standards for laboratory certification, and compliance and enforcement procedures. 35 P.S. § 721.5(a). All of these functions and services are required in order to have an approvable program and maintain primacy from EPA. Services provided by the Department to maintain compliance with Section 5(b) of the SDWA, as well as regulations in Chapter 109 and permits issued, include monitoring and inspections; maintaining an inventory of PWSs in this Commonwealth; conducting systematic sanitary surveys of PWSs; assuring the availability of laboratories certified to analyze drinking water for all contaminants specified in the drinking water standards; reviewing and approving plans and specifications for the design and construction of new or substantially modified PWSs to deliver water that complies with drinking water standards with sufficient volume and pressure to users of the systems; and issuing orders

and taking other actions necessary and appropriate for enforcement of drinking water standards.
35 P.S. §721.5(b)

The fees in this final-form rulemaking are necessary to ensure adequate funding for the Department to carry out its responsibilities under the Federal and State Safe Drinking Water acts. Pennsylvania is ranked third in the nation in terms of the number of PWSs, with 8,521 PWSs across this Commonwealth. The Department is responsible for regulating all PWSs in this Commonwealth and ensuring that safe and potable drinking water is continuously supplied to the 11.3 million customers the PWSs serve.

The Department’s appropriations from the General Fund for the Safe Drinking Water Program have steadily decreased in recent years while the cost of staff salaries and benefits, as well as other operation costs, have increased. The result has been an overall decrease in staffing for the Safe Drinking Water Program of 25% since 2009. As discussed in more detail in the preamble to the proposed rule (47 Pa.B. 4986 (August 26, 2017)), these staff reductions have led to a steady decline in the Department’s performance of services necessary to ensure compliance with SDWA requirements.

The current funding available to administer the Safe Drinking Water Program from State and Federal sources is \$ 19.7 million (see chart below). The fees are expected to generate approximately \$7.5 million, which will allow the Safe Drinking Water Program to restore staffing levels and reverse the decline in services that has occurred since 2009. The fees will provide nearly 50% of the Commonwealth’s share of funding for the Safe Drinking Water Program. The remaining portion of the Commonwealth’s share (\$7.7 million) is expected to be provided through annual General Fund appropriations. If appropriations from the General Fund do not keep pace with program costs, a funding gap could remain even with this final-form rulemaking.



Federal sources currently provide approximately \$11.2 million to fund the Pennsylvania Safe Drinking Water Program, including:

- Public Water System Supervision (PWSS) grant (\$4.1 million) – used for personnel costs; lab costs; staff training
- State Revolving Fund (SRF) Set-asides grant (\$7.1 million) – used for personnel costs; capability enhancement programs (training, technical assistance, optimization programs); source water assessment and protection; PADWIS; assistance grants/contracts

The Commonwealth currently provides approximately \$8.5 million to fund the program through the following sources:

- General Fund appropriations (~\$7.7 million) – used for personnel costs
- Operator Certification fees (\$0.8 million) – used for Operator Certification Program implementation costs

With the addition of the \$7.5 million expected to be generated from this final-form rulemaking, the funds available for the Safe Drinking Water Program should total \$27.2 million.

The minimum critical services that the Safe Drinking Water Program must provide to administer the SDWA and its regulations include:

- Conducting surveillance activities, such as sanitary surveys and other inspections;
- Collecting and analyzing drinking water samples;
- Determining compliance with the regulations, a permit or order;
- Taking appropriate enforcement actions to compel compliance;
- Reviewing applications, plans, reports, feasibility studies and special studies;
- Issuing permits;
- Conducting evaluations, such as filter plant performance evaluations and other site surveys;
- Tracking, updating and maintaining water supply inventory, sample file, and enforcement data in various data management systems;
- Meeting and assuring compliance with all Commonwealth and Federal recordkeeping and reporting requirements;
- Conducting training;
- Providing technical assistance; and
- Responding to water supply emergencies.

Failure to provide these fundamental services may result in an increased risk to public health, as well as the loss of approval from EPA for the Department to serve as the primary enforcement agency for the administration of the Safe Drinking Water Program in this Commonwealth under Federal law.

The Board has the authority and is directed under section 4(c) of the SDWA (35 P.S. § 721.4(c)) to establish fees for services that bear a reasonable relationship to the actual cost of providing the services. The Board must also consider the impacts of the proposed fees on small businesses as part of the regulatory analysis required by section 5 of the Regulatory Review Act (71 P.S. § 745.5). Sixty-eight percent of the PWSs in the Commonwealth are considered small businesses.

The fees in this final-form rulemaking will provide the Department with funding necessary to properly administer the SDWA while bearing a reasonable relationship to the actual cost of services provided and in a manner that minimizes the adverse impact on water systems with fewer customers to bear the cost.

The fees will allow the Department to restore sanitarian (field inspector) positions and lower the workload of PWSs/sanitarian to an acceptable level (~100-125 as per a workload analysis) as follows:

Region	No. PWSs			No. Sanitarians			Sanitarian Workload (No. PWSs/San)		
	2009	2015	2017	2009	2015	With New Fees	2009	2015	With New Fees
1 SERO	1,062	911	895	9	6	8	118	152	112
2 NERO	2,973	2,559	2,481	23	19	23	129	135	108
3 SCRO	2,596	2,408	2,353	21	13	21	124	185	112
4 NCRO	1,115	941	894	10	6	8	112	157	112
5 SWRO	879	694	667	10	6	7	88	105	95
6 NWRO	1,302	1,205	1,281	11	7	12	118	158	107
Totals	9,927	8,718	8,521	84	57	79	118 Avg.	153 Avg.	108 Avg.

New Annual Fee and Permit Fee Increases

The amended fees apply to all 8,521 PWSs, which include 1,952 CWSs, 6,397 noncommunity water systems (NCWSs) and 172 bottled and vended water systems, retail water facilities and bulk water hauling systems (BVRBs). The new annual fees range from \$250 - \$40,000 for CWSs, \$50 - \$1,000 for NCWSs, and \$1,000 - \$2,500 for BVRBs. If passed on to their customers, these annual fees would result in an increase in cost ranging from \$0.35 to \$10 per person per year, depending on the water system size. Further explanation of the annual fees is provided in Section E under the discussion of § 109.1402 (relating to annual fees). The increased permit fees range from \$100 to \$10,000 depending on the population served and whether the permit is for major or minor construction. The prior permit fees ranged from \$125 to \$1,750. This final-form rulemaking provides for a review of the fee structure every three years to ensure that the fees continue to adequately supplement the cost of maintaining the program.

As provided in section 14 of the SDWA, all fees will be paid into the State Treasury into a special restricted revenue account in the General Fund known as the Safe Drinking Water

Account administered by the Department. 35 P.S. § 721.14. The funds may only be used for such purposes as are authorized under the SDWA.

Comparison to Other States Annual Fees

As described in the preamble to the proposed rule, at least 26 states charge annual fees to augment the cost of their Drinking Water Programs. Some of these states charge a flat fee based on the PWS type and size. Other states charge a fee based on population served or the number of service connections. Annual fees for these 26 states range from \$25 to \$160,000 and were summarized in the preamble to the proposed rulemaking at 47 Pa.B. 4992 – 4994.

Part III: New Amendments

The remaining component of this final-form rulemaking consists of amendments to other parts of Chapter 109 to:

- Establish in § 109.511 (relating to general permits) the regulatory basis for the issuance of general permits for high volume, low risk modifications or activities to streamline the permitting process.
- Clarify in § 109.505(a)(2)(ii) (relating to requirements for noncommunity water systems) that NCWSs that are not required to obtain a permit must still obtain Department approval of the facilities prior to construction and operation.
- Address in §§ 109.301(15) (relating to general monitoring requirements) and 109.717 (relating to comprehensive monitoring plan) concerns related to gaps in the monitoring, reporting and tracking of back-up water sources and entry points. As per Federal and Commonwealth regulations, 40 CFR 141.23(a), 141.24(f) and (h) and 141.26(a) and 25 Pa. Code §§ 109.301 and 109.303, respectively, all sources and entry points must be included in routine compliance monitoring to ensure water quality meets safe drinking water standards. Sources and entry points that do not provide water continuously are required to be monitored when used. However, monitoring requirements for back-up sources are not currently tracked, which means verifiable controls are not in place to ensure that all sources and entry points meet safe drinking water standards. Some of these sources have not been used in at least five years, and, therefore, the Department does not know the water quality for these sources. In addition, the treatment facilities and other appurtenances associated with these sources may have gone unused as well, and may no longer be in good working order. These amendments will ensure that all sources and entry points are monitored at least annually, or when in use. PWSs will also be required to document in a comprehensive monitoring plan how routine compliance monitoring will include all sources and entry points.

Advisory Committee Review

This final-form rulemaking was presented to TAC on December 7, 2017. Final written comments were received on December 22, 2017. The TAC Board made ten recommendations:

- Five of the recommendations were incorporated into this final-form rulemaking.
- TAC recommended that electronic submission of Consumer Confidence Reports (CCR) to DEP be allowed as an environmentally prudent option. The Department continues to investigate options for water suppliers to submit reports electronically, and intends to move forward with promulgating a regulation to implement this recommendation as soon as a system is available to accept electronic submissions.
- TAC made three recommendations regarding NSF International (NSF) certification requirements under § 109.606 (relating to chemicals, materials and equipment) . These recommendations were not incorporated because NSF certification is an existing requirement. NSF certification has been a long-standing requirement to ensure the safety and efficacy of materials and equipment. NSF certification ensures that harmful metals such as cadmium, chromium and lead do not leech from materials and equipment. NSF certification also ensures that water treatment devices can meet manufacturers' claims and effectively treat the water. However, the Department clarified in this final-form rulemaking that NSF certification requirements apply to materials and equipment that come in contact with the water. In other words, these requirements apply to the wetted parts of materials and equipment, and exclude motors, casings and the like which do not come into contact with the water. Finally, § 109.606 allows the use of other standards to meet these criteria. For example, the use of materials, such as concrete and stainless steel, which meet American Water Works Association (AWWA) standards, would be acceptable to the Department.
- TAC made recommendations regarding the elimination of the fees and whether the fees bear a reasonable relationship to the cost of services. These recommendations are addressed in Section E, particularly in the discussion relating to § 109.1402.
- Section E includes more information about the TAC Board's recommendations.

Summary of Major Comments and Responses

The Independent Regulatory Review Commission (IRRC) submitted several comments. A summary of the IRRC's major comments and the Board's responses to those comments is included below. For more information about the comments received and the Department's responses, please refer to the Comment and Response Document for this final-form rulemaking.

1. The current state of the Program, which is the cumulative result of numerous decisions made over many years, is cause for serious concern regarding protection of the public health, safety and welfare. The SDWA not only envisions, but directs the Board to establish fees to cover services. We question the Department's decision to cut services rather than gradually increase fees as appropriations from the General Fund decreased in recent years. We ask the Board to explain why the statutory directive to establish fees to cover services was not used to sustain the Program. We also ask the Board to explain how the Program's budget will be monitored in the future to ensure that revenues are in place to meet SDWA requirements before a budget shortfall exposes the public to the risk of unsafe drinking water.

Response: The Department attempted to increase permit fees and establish new annual fees in 2010 when program resources and performance first began to decline. The draft proposed rulemaking (Safe Drinking Water Program Fees) was presented to TAC on March 9, 2010, with further discussion on June 18, 2010. The proposed rulemaking was presented to the Board at its November 16, 2010 meeting, where it was approved to move forward as proposed rulemaking. However, due to circumstances beyond the control of the Department at that time, the rulemaking was prohibited from moving forward beyond that point in the regulatory review process.

Regarding the Department's protocols that will ensure the proper monitoring of the SDW Program's performance and budget in the future, the three-year review of fees specified under § 109.1413 (relating to evaluation of fees) of this final-form rulemaking will ensure ongoing monitoring and tracking. There are several additional levels of accountability within the SDW Program. At the Federal level, the Department is accountable to EPA to ensure that the SDW Program meets all primacy and grant conditions and is at least as stringent as the federal program. The Department provides several updates to EPA throughout the year including quarterly enforcement updates, semi-annual updates on grant commitments and program performance, and annual and triennial reports on program implementation. The Department's performance is also tracked by the Governor's Office and the Legislature through the annual budget process and through the reporting and tracking of annual performance measures. The Department is accountable to the citizens of this Commonwealth through advisory committees, public meetings, and publicly-accessible web applications. Currently, the Department provides on its website all compliance monitoring results, violations and enforcement actions, and inspection results for all 8,500 PWSs. Here is the link to the Department's Drinking Water Reporting System: <http://www.drinkingwater.state.pa.us/dwrs/HTM/Welcome.html>. The fees in this final-form rulemaking will provide the Department with funding necessary to properly administer the SDWA while bearing a reasonable relationship to the actual cost of services provided by the Department and while achieving a reasonable cost to the customers served.

2. Public comments opposing the proposed fees, and even those supporting them, challenge the Board's methodology for assessing the fees. The commenters question whether fees based on parameters including population served, public water system identification number and system construction, bear a reasonable relationship to the actual cost of the services provided by the Department. We recommend that the Board reevaluate the basis of the fees in the final-form regulation, including consideration of the recommendation from the TAC. We ask the Board to explain in the Preamble of the final regulation how the chosen method of assessment of fees bears a reasonable relationship to the actual cost of providing each service, and to explain why the TAC recommendation is not in the public interest if it is not adopted.

Response: The Department retained the assessment of fees by population served. Nearly all aspects of the State and Federal drinking water program are governed by system size (population). System population is used to determine monitoring requirements (both the number of samples and the frequency of monitoring), implementation due dates (many rules phase-in effective dates by system size), and treatment techniques (some treatment

techniques only apply to certain system sizes), among other things. System population is used as a surrogate for system complexity—medium and large systems are generally more complex than small systems, with more overall facilities (namely, sources, entry points, interconnections, and storage tanks, among others) and types of treatment technologies. Medium and large systems often face additional challenges with maintaining simultaneous compliance, which factor heavily into Department services. For these reasons, it is appropriate to use system population to determine the various fee categories and Department costs. Refer to the discussion regarding Section 109.1402 in Section E, below, for more information about the appropriateness of the fees.

3. The Board notes that several areas of the proposed regulation are more stringent than federal requirements, and commenters take issue with the increased regulation relative to lack of staff and increased fees. We ask the Board to explain the reasonableness of expanding regulatory requirements which would result in increased demands on the Department's staff and funding during a time when both staff and funding are decreasing.

Response: The Department amended several provisions in response to TAC and public comments. Several provisions that are more stringent were either modified or deleted, including the turbidity requirements under §§ 109.202 (relating to state MCLs, MRDLs and treatment technique requirements) and 109.701 (relating to reporting and recordkeeping), the monitoring and reporting requirements for “back-up” sources and entry points under §§ 109.301, 109.303 (relating to sampling requirements), 109.703 (relating to facilities operation) and 109.717, and the system service and auxiliary power requirements under § 109.708. The remaining more stringent provisions are designed to help reduce the occurrence of violations, treatment breakdowns and water supply emergencies, thereby improving system resiliency and reliability and reducing the need for Department staff resources to respond to these emergency situations. Refer to Section E for more information on the amendments to these sections of the final-form rulemaking.

4. We ask the Board to ensure that the final-form RAF and regulation make clear who is required to comply with the regulation and how the final-form regulation affects the various segments of the regulated community. We ask the Board to consider regulatory methods to minimize adverse impacts on small businesses or explain the reasonableness of not considering alternatives.

Response: The various definitions and types of PWSs that must comply with the SDWA and regulations are not being amended by this final-form rulemaking. The existing State and Federal regulatory definitions and guidance provide more information about the types of water systems. In general, nontransient noncommunity water systems include facilities that serve 25 or more of the same people, but are not residential facilities. This includes schools and places of business with 25 or more employees. Transient noncommunity water systems generally serve a transient population and include restaurants and campgrounds. Finally, the fees for small water systems and businesses were established to bear a reasonable relationship to the actual cost of services provided and in a manner that minimizes the adverse impact on water systems with fewer customers to bear the cost. Refer to Section F of this preamble and to the responses to Questions 17, 24, 26 and 27 in the Regulatory Analysis

Form (RAF) for this final-form rulemaking for more information about who is required to comply with the regulation, how the final-form regulation affects the various segments of the regulated community, the costs for the various segments of the regulated community, including small businesses, and for the consideration of alternative regulatory approaches.

5. We strongly encourage the Department to organize additional stakeholder meetings with representatives from all segments of the regulated community in order to develop final-form regulations that are clear, reasonable and have the least adverse economic impact while protecting the public health, safety and welfare. We ask the Board to address the reasonableness, economic impact and implementation of changes made to these sections of the final-form regulation in the revised Preamble.

Response: The fees and other proposed amendments were thoroughly discussed with TAC and other stakeholders through several advisory committee meetings and a public webinar. Advisory committee meetings were announced publicly and are open to the public. As mentioned above, several general update provisions were either modified or deleted in response to TAC and public comments. In addition, several options were evaluated using all available data to determine the best method of assessing fees to ensure the fees bear a reasonable relationship to the actual cost of services provided by the Department and in a manner that minimizes the adverse impact on water systems with fewer customers to bear the cost. Refer to Sections E and F for more information about the reasonableness, economic impact and implementation of changes made to this final-form rulemaking.

6. The Board proposes to reduce acceptable turbidity levels, making the maximum level more stringent than federal standards. We ask the Board to explain the reasonableness and economic impact of making this requirement more stringent than federal standards.

Response: The Department has deleted these provisions from this final-form rulemaking. Refer to the discussion of the amendments to §§ 109.202 and 109.701 in Section E for more information.

7. The proposed rulemaking, in § 109.301(11)(ii), adds the requirement that "at a minimum, all entry points shall provide water to the public on an annual basis to ensure all sources and entry points are included in routine compliance monitoring." We ask the Board to address in the final Preamble the economic impact and feasibility of requiring all entry points to provide water to the public, as well as the implementation schedule. We ask the Board to define the term "entry points" in the final regulation. We ask the Board to clarify the term "back-up sources" and to define it in § 109.1 (relating to definitions), and to clarify how interconnections will be affected in the final regulation.

Response: The Department has revised these provisions in § 109.301(11)(ii) in this final-form rulemaking in response to TAC and public comments. Changes were made to include the designation "reserve" in §§ 109.301(15) and 109.717, rather than define the term "back-up sources" in § 109.1, to allow select sources and entry points to remain off-line until needed. The term "entry point" is established in existing § 109.1. The term "back-up" source is not used in the regulations, so no definition is needed. Refer to the discussion of §§

109.301, 109.303, 109.703 and 109.717 in Section E for more information, including an explanation of how interconnections will be affected.

8. We ask the Board to clarify the pre-drilling plan and source water assessment requirements of § 109.503(a)(1) in the final regulation. We ask the Board to explain the reasonableness of this requirement.

Response: Predrilling plans and source approvals are coordinated with other agencies such as the Susquehanna River Basin Commission (SRBC), Delaware River Basin Commission (DRBC), etc. The individual components of a pre-drilling plan and subsequent approvals of potential production well site locations have been required as part of the permitting process since at least 1997. The individual components are currently listed in § 109.503(a)(1)(iii) (relating to PWS construction permits) of the existing regulations and are required to be submitted to the Department as part of a construction permit application. However, with these revisions, the predrilling plan will now be required to be submitted to the Department for review and approval prior to drilling the well. No change to this subsection has been made in the final-form rulemaking.

Test wells and exploratory activities would be undertaken first to determine potential production well site locations; the Department does encourage these valuable data gathering activities. Potential production well sites would then be addressed by the pre-drilling plan.

The clarifications to existing requirements for preliminary source water assessments in § 109.503(a)(1)(iii)(A) do not involve water quality monitoring and are primarily to determine potential sources of contamination and the susceptibility of the production water source to contamination, not to assess existing water quality in the well. In addition, the Groundwater Monitoring Guidance Manual is used by DEP and multiple agencies to address groundwater sampling/monitoring issues. Refer to Section F of this preamble, *Benefits, Costs and Compliance*, under the *Benefits* heading, for more information.

9. Regarding the proposed revisions to section 109.606, the Board should define equipment, clarify its intent regarding certification, and explain the reasonableness of the expanded certification, including addressing economic impacts.

Response: The Board has revised § 109.606 of the final-form rulemaking to clarify that chemicals, materials and equipment that come in contact with the water or may affect the quality of the water must be acceptable to the Department. In other words, this section applies to the wetted parts of materials and equipment, and excludes motors, casings and the like that do not come in contact with the water. The Department believes that this clarification should alleviate the need for a definition for “equipment.”

According to NSF, a 2016 survey of members of the Association of State Drinking Water Administrators (ASDWA) found that 48 states have legislation, regulations or policies requiring compliance with NSF standards. NSF International (2016), “Survey of ASDWA Members on the Use of NSF/ANSI Standards,” available at http://www.nsf.org/newsroom_pdf/water_asdwa_survey.pdf. In this Commonwealth, NSF

certification requirements under § 109.606 are long-standing and are intended to ensure the safety and efficacy of chemicals, materials and equipment that come into contact with water. NSF certification ensures that harmful metals such as cadmium, chromium and lead do not leech from materials and equipment. NSF certification also ensures that water treatment devices can meet manufacturer's claims and effectively treat the water. The intent of the revisions in § 109.606 is to clarify that "equipment" has always been included, as evidenced by the fact that "equipment" has always been part of the title of § 109.606. Under existing Department protocols, water systems must take all steps necessary to identify and propose the use of NSF-approved equipment. If NSF-certified equipment is not available, the Department, on a case-by-case basis, will allow the use of other equipment, provided the equipment does not pose an increased risk to public health. The Department is not expanding the scope of equipment for which NSF certification requirements apply; therefore, no additional costs are expected to be incurred.

10. Regarding the proposed revisions to section 109.1303 (relating to triggered monitoring requirements for groundwater sources) related to the deletion of the existing opportunity to collect five additional *E. coli* source water samples to confirm if there is a problem, we ask the Board to address the reasonableness and economic impacts of eliminating the opportunity for further testing to prevent false positives, if the deletion is maintained in the final-form regulation.

Response: EPA approves analytical methods based on the reliability of a method to have a low risk of samples being false positive or false negative. In the preamble to the proposed Federal Ground Water Rule, EPA states, "that, in the interest of public health, a positive sample by any of the methods listed in Table III-4 should be regarded as a fecal indicator-positive source water sample." 65 FR 30230 (May 10, 2000). The proposed and final Federal rules along with the Department's revisions to Chapter 109 provide a means for the laboratory or state to invalidate samples. Although EPA allowed the five additional samples as a concession relating to the rare event that a sample is false positive, EPA's commentary in the preamble to this final rule states "that in most cases these five additional samples should capture the fecal contamination event since the samples are taken within 24 hours." 71 FR 65594 (November 8, 2006). This statement acknowledges that a risk to public health exists because the five additional samples may miss detecting the fecal contamination. In other words, the fecal contamination that was detected in the original sample was a true positive; however, because contamination is neither constant nor immobile, the five additional samples may miss detecting the contamination event. This risk of missing the event is the main rationale for the Department's decision to delete the five additional samples.

Regarding economic impact, water systems will no longer be required to collect the five additional *E. coli* samples, which will result in a potential cost savings. Further, all bottled water systems are already required to provide continuous disinfection. So, if 4-log treatment is triggered, no additional capital costs will be incurred—treatment already exists. However, some bottled water systems will need to modify operational practices using existing treatment, and improve associated monitoring and reporting practices, as specified in revised operations permits, to insure adequate 4-log treatment is maintained.

E. Summary of Changes to the Proposed Rulemaking

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

Proposed § 109.202(c)(1)(i)(A)(V) was deleted in response to TAC and public comments and will be considered in a future rulemaking. The Department has decided to defer these proposed amendments until after EPA completes its six-year review of the federal turbidity requirements established under the Surface Water Treatment Rules. This will allow the Department to consider EPA's proposed changes before moving forward with proposed modifications to applicable state regulatory requirements. During the interim, the Department through its existing programs, including the Area-Wide Optimization, Filter Plant Performance Evaluation and Partnership for Safe Water programs, will continue to recommend and encourage filter plant operators to voluntarily meet optimal water quality levels and respond to trends of increasing turbidity as quickly as possible. Through these programs, the SDW program has always dedicated significant resources towards compliance assistance/violation prevention at surface water filtration plants.

Additionally, the proposed alarm and shutdown capability amendments under § 109.602 remain in this final-form rulemaking, which are also targeted at surface water filtration plants. The automated plant shut down requirements are intended to prevent poor quality water from reaching customers, which will protect public health, reduce PWS costs related to corrective actions and issuing public notice, reduce costs to the community, and maintain consumer confidence. Therefore, the improved alarm and shutdown capabilities that will occur as a result of systems complying with this final-form rulemaking are a very important interim public health protection measure which will be in place while the Department awaits EPA's future actions on potentially more stringent turbidity provisions.

Proposed modifications in § 109.202(c)(1)(i)(C) remain unchanged and include specific treatment technique requirements for membrane filtration. These standards are consistent with the results of pilot testing conducted throughout the Commonwealth, recommendations by EPA in the Membrane Filtration Guidance Manual (EPA 815-R-06-009, November 2005), as well as recommendations made by equipment manufacturers. These standards were previously applied through special permit conditions. Certified operators have consistently maintained the proposed levels of performance at membrane filter plants throughout the Commonwealth; and when deviations from this performance have occurred, follow-up investigations revealed the need for repairs to this treatment barrier. The Membrane Filtration Guidance Manual may be found by typing the title of the document into the search box at <https://nepis.pa.gov> or at the following direct link: <https://goo.gl/horVd4>

§ 109.301. General monitoring requirements.

Subsection 109.301(11) was amended in this final-form rulemaking in response to TAC and public comments. These amendments were modified accordingly and moved to a new § 109.301(15) and to the comprehensive monitoring plan requirements under § 109.717.

These amendments are intended to clarify the monitoring requirements for entry points that do not provide water continuously, and address concerns related to gaps in the monitoring, reporting and tracking of back-up water sources and entry points. As per Federal and Commonwealth regulations, 40 CFR 141.23(a), 141.24(f) and (h) and 141.26(a) and 25 Pa. Code §§ 109.301 and 109.303, respectively, all sources and entry points must be included in routine compliance monitoring to ensure water quality meets safe drinking water standards. Currently, sources and entry points that do not provide water continuously are required to be monitored when used. However, monitoring requirements for back-up sources are not currently tracked, which means no verifiable controls are in place to ensure that all sources and entry points meet safe drinking water standards.

These concerns were most recently highlighted in a 2010 report from EPA’s Office of Inspector General entitled “*EPA Lacks Internal Controls to Prevent Misuse of Emergency Drinking Water Facilities*” (Report No. 11-P-0001). Note: The term “emergency” is often used to describe sources other than permanent sources. In this Commonwealth, some of these back-up sources have not been used in at least five years and, therefore, the Department does not know the water quality for these sources.

In order to better understand the scope of the problem in this Commonwealth, the following data was retrieved from the Pennsylvania Drinking Water Information System (PADWIS).

Entry Points (EP)				
PWS Type	Total No. EPs	No. Permanent EPs	No. Non-Permanent EPs	% Non-Permanent EPs
CWSs	3,330	3,003	327	10%
Others	7,880	7,760	120	2%
Total	11,210	10,763	447	4%

An entry point is the place at which finished water representative of each source enters the distribution system. Routine compliance monitoring is not tracked at non-permanent entry points. Non-permanent entry points include the existing categories of seasonal, interim, reserve, and emergency entry points.

Based on the data, CWSs provide finished water to consumers through a total of 3,330 entry points, 327 (or 10%) of which are non-permanent. Therefore, as many as 10% of all entry points may not be included in all required monitoring prior to serving water to consumers.

The numbers are even higher at the individual source level.

Water Supply Sources (wells, springs, surface water intakes, etc.)				
PWS Type	Total No. Sources	No. Permanent Sources	No. Non-Permanent Sources	% Non-Permanent Sources
CWSs	5,252	4,634	618	12%
Others	8,604	8,297	307	4%
Total	13,856	12,931	925	7%

For CWSs, as many as 12% of all sources may not be included in routine compliance monitoring, yet these sources can be used at any time.

The Department also reviewed the monitoring history of the 447 non-permanent entry points mentioned above.

Non-Permanent Entry Points (EP)			
PWS Type	No. EPs	No. & % of EPs with <u>No</u> Monitoring Data (Since 1992)	No. of EPs with <u>Some</u> Monitoring Data
CWSs	327	143 (44%)	184 (of these EPs, 47 were sampled in 2016, 37 were sampled during the 2012-2015 monitoring period, and the remaining 101 were sampled prior to 2012.
Others	120	7 (6%)	113 (55 EPs have recent data (2016)).
Total	447	150 (34%)	

For CWSs, 143 (or 44%) of all non-permanent entry points have no monitoring data since 1992. Of the 184 entry points with some data, most of the data are 5 to 10 years old.

The use of unmonitored sources and entry points could adversely impact basic water quality, including pH, alkalinity, turbidity, corrosivity and lead solubility, dissolved inorganic carbon, and natural organic matter. Water suppliers may have limited information about how these sources or entry points will impact treatment efficacy and distribution system water quality. In addition, back-up or emergency sources may have poor water quality or MCL exceedances. The use of these sources without proper monitoring and verifiable controls could lead to an increased risk to public health.

Finally, treatment facilities and other appurtenances associated with these sources may no longer be in good working order. Back-up sources and entry points with unknown water quality or that have not been used or are no longer in good working order provide a false sense of security in terms of system resiliency and emergency response. While the Department understands that many facilities are not used on a “24/7” basis, these amendments will ensure that all permitted sources and entry points are monitored at least annually, or when in use.

The Department anticipates that select purchased interconnections will be able to retain the “emergency” designation if the following criteria are met. The Department anticipates proposing technical guidance in the near future that addresses these criteria. As noted previously, the term “emergency” is often used to describe sources other than permanent sources.

- Using the last three years of historical water use data, the water supplier can demonstrate that the purchased interconnection has only been used for emergency purposes.
- Emergency use has not occurred more than 14 days per year, excluding use under Commonwealth or Federal emergency declarations.

- The Department has conducted an annual compliance check using reported water use data.

On a case-by-case basis, the Department may allow the use of the “reserve” designation for select sources and entry points, without conducting routine annual compliance monitoring, if documentation is provided to the Department that supports the use of this designation. Select sources and entry points that meet these criteria will be covered by a special condition in the permit that requires Department notification and completion of compliance monitoring prior to use.

Subsection 109.301(15) was added to clarify the monitoring requirements for reserve sources and reserve entry points to ensure these facilities are properly monitored prior to and during each use.

§ 109.303. Sampling requirements.

Subsection 109.303(a)(4) was amended in this final-form rulemaking in response to TAC and public comments. The proposed amendments to clarify the monitoring requirements when sources are blended or alternated prior to the entry point were modified and moved to § 109.717.

Subsection 109.303(i) was amended to remove unnecessary language.

§ 109.503. Public water system construction permits.

Subsection 109.503(b)(2) was amended in this final-form rulemaking to clarify that a change to a source designation may be considered a minor amendment.

§ 109.602. Acceptable design.

Subsections 109.602(f) and (g) were amended in this final-form rulemaking in response to TAC and public comments to allow the Department to approve an alternate compliance schedule if the water supplier submits a written request with supporting documentation.

Subsection (i)(2)(iii) was amended in response to TAC and public comments to change “clearwell water levels” to “water levels to maintain adequate CT for Giardia inactivation”. This change was necessary because not all water systems use the clearwell as a disinfection segment for Giardia Inactivation Contact Time (CT). After consideration of comments, the Department also removed the requirement under § 109.602(i)(2)(iv) to establish alarm and shutdown capabilities for “any other operational parameter determined by the Department as necessary for the system to maintain compliance.” Commentators were concerned that this language may be overly broad and lead to inconsistent implementation. With this deletion, the universe of required alarms is reduced; thereby, allowing potential for additional cost savings. The basis for this deletion was the concern that this particular requirement may be too far reaching and cost prohibitive. Rather than include this language, the Department will rely on appropriate water system personnel (for example, properly certified operators and consulting engineers) to carefully evaluate what additional operational parameters may require alarms in order for their

particular filter plant to consistently comply with regulatory requirements. Additionally, if lack of an alarm is linked to risk of treatment breakdown, the Department will address these issues through a system-specific permit or order on a case-by-case basis.

These new requirements are being added to define new requirements for alarm and shutdown capabilities. Alarm and shutdown capabilities are intended to prevent unsafe water from reaching customers.

TAC recommended that DEP should provide accurate cost estimates for compliance with these provisions and evaluate whether 12 months is adequate time for systems to comply given the costs associated overall with the regulatory package and the addition of fees. TAC expressed concerns that the proposed provision in § 109.602(i)(2)(iv), concerning other operational parameters that the Department may determine necessary for compliance, may be too far reaching and cost prohibitive.

To address TAC's concerns about costs, the Department conducted additional cost estimate research. The Department estimates that 10% of the 353 filter plants in Pennsylvania will need to install an auto-dialer. The Department estimates that the cost to achieve the automatic alarm and shutdown capabilities ranges from \$8,860 to \$11,980 per treatment plant, depending on the options chosen, with annual maintenance costs of \$600. A detailed discussion of these estimated costs is included in Section F.

Overall, the Department notes that the alarm and shutdown amendments will be cost-effective in comparison to staffing costs incurred by systems that maintain physical staffing of the facility. Several states have regulations that do not allow unattended operation of surface water filtration plants. These revisions provide a reasonable alternative to mandating the presence of a certified operator at all times in all water systems in Pennsylvania.

§ 109.606. Chemicals, materials and equipment.

In response to public comments, § 109.606(a)—(d) was amended in this final-form rulemaking to clarify that chemicals, materials and equipment that come in contact with the water or may affect the quality of the water must be acceptable to the Department. In other words, these requirements apply to the wetted parts of materials and equipment, and exclude motors, casings and the like that do not come in contact with the water.

According to NSF, a 2016 survey of ASDWA members found that 48 states have legislation, regulations or policies requiring compliance with NSF standards. (NSF International (2016), "Survey of ASDWA Members on the Use of NSF/ANSI Standards," available at http://www.nsf.org/newsroom_pdf/water_asdwa_survey.pdf) In Pennsylvania, NSF certification requirements in § 109.606 have been long-standing and are intended to ensure the safety and efficacy of chemicals, materials and equipment that come into contact with water. NSF certification ensures that harmful metals such as cadmium, chromium and lead do not leech from materials and equipment. NSF certification also ensures that water treatment devices can meet manufacturers' claims and effectively treat the water. The intent of the revisions in § 109.606 is to clarify that "equipment" has always been included, as evidenced by the fact that "equipment"

has always been part of the title of §109.606. Under existing Department protocols, water systems must take all steps necessary to identify and propose the use of NSF-approved equipment. If NSF-certified equipment is not available, the Department, on a case-by-case basis, will allow the use of other equipment, provided the equipment does not pose an increased risk to public health. The Department is not expanding the scope of equipment for which NSF certification requirements apply; therefore, no additional costs are expected to be incurred.

Finally, § 109.606 allows the use of other standards to meet these criteria. For example, the use of materials, such as concrete and stainless steel, which meet American Water Works Association (AWWA) standards would be acceptable to the Department.

§ 109.612. POE devices.

Subsection 109.612(b) was amended in this final-form rulemaking in response to TAC's recommendation that the Department change "and" to "or".

§ 109.701. Reporting and recordkeeping.

In response to comments from TAC and other commentators, §§ 109.701(a)(2)(i)(A)(VIII) and (IX) have been modified in this final-form rulemaking to remove more stringent turbidity performance standards for conventional, direct, slow sand and diatomaceous earth filtration technologies.

Subsection 109.701(e)(2) was proposed to be amended to add a citation to clarify which systems are required to report individual filter turbidity monitoring. The trigger levels specified in § 109.701(e)(2)(i) – (iv) were proposed to be replaced by lower trigger levels for IFE reporting requirements for all filtration technologies as specified in proposed new subparagraphs (v) – (viii). These proposed turbidity reporting requirements have been deleted in this final-form rulemaking. Therefore, existing requirements in § 109.701(e)(2)(i) – (iv) remain unchanged.

Through the rulemaking process, TAC commented that the "ramifications of these turbidity reductions include additional reporting, self-assessments and comprehensive performance evaluations, as well as possible public notifications". TAC recommended that "DEP should provide rationale, science and methodology, cost vs. benefits, public health benefit, etc. and data to support the proposed changes". These comments mirror previous comments regarding significant figures and reducing IFE turbidity standards significantly.

In response to TAC's comments, the Department explains the following. Individual Filter Effluent is a primary compliance monitoring location. As with CFE, IFE turbidity is the surrogate measurement for pathogen breakthrough, primarily the acute pathogen *Cryptosporidium*. Turbidity breakthrough on individual filters often provides an indication of water quality problems before CFE turbidity is significantly impacted. As IFE turbidity increases, risk of particle breakthrough on that particular filter increases; this science is supported by existing regulations and industry experts. Most filter plants in Pennsylvania typically produce IFE water quality <0.10 NTU. Therefore, exceedances of the proposed lower turbidity levels will occur only when water systems are experiencing significant increases in

turbidity from an individual filter. Multiple peer reviewed research papers indicate that as turbidity significantly increases from the baseline levels, the risk of pathogen breakthrough increases. Huck, P.M., et al. (2002), “Effects of Filter Operation on *Cryptosporidium* Removal,” *Journal—American Water Works Association*, 94(6), 97—111. Emelko, M.B., et al. (2003), “*Cryptosporidium* and Microsphere Removal During Late In-Cycle Filtration,” *Journal—American Water Works Association*, 95(5), 173—182.

The real-world impact to operational practices at this Commonwealth’s filter plants under the proposed revisions would have been that water suppliers would take important corrective actions (such as removing the filter from service, consulting with Department, notifying customers) sooner. This was intended to enable suppliers to identify physical integrity issues within an individual filter before CFE water quality is impacted, or before problems within one filter occur in other filters. The Department has documented breakdowns in treatment and the presence of pathogens (such as *Giardia* or *Cryptosporidium*) in the individual filter effluent of water treatment plants in Pennsylvania that complied with the current IFE turbidity standards. This has been documented both with continuous turbidity monitoring and Microscopic Particulate Analysis (MPA) cartridges. Therefore, strengthening the current IFE turbidity standards was proposed to provide an additional level of protection.

As previously noted, the Department favors establishing more stringent IFE and CFE turbidity compliance and trigger levels for surface water filtration plants. However, in responding to numerous TAC and public comments, the Department is deferring such amendments until the EPA completes its six-year review of the Federal turbidity requirements established under the Surface Water Treatment Rules. This will allow the Department to consider EPA’s proposed changes before moving forward with proposed modifications to applicable state regulatory requirements. Until that time, the Department encourages filter plant operators to voluntarily meet optimal water quality levels and respond to trends of increasing turbidity as quickly as possible. This can be accomplished through the use of the Department’s existing programs, including the Area-Wide Optimization and Filter Plant Performance Evaluation and Partnership for Safe Water programs. Through these programs, the SDW program has always dedicated significant resources towards compliance assistance / violation prevention at surface water filtration plants.

Subsection 109.701(n) was added in this final-form rulemaking to set forth additional reporting requirements for systems using reserve sources, reserve treatment plants or reserve entry points. These requirements are needed to ensure proper tracking and oversight of these facilities. While these facilities are in use, additional monitoring is required. Timely notification that the facility is no longer in use will allow the Department to modify the monitoring requirements in PADWIS accordingly.

§ 109.703. *Facilities operation.*

Subsection 109.703(d) was added in this final-form rulemaking in response to TAC and public comments to specify the requirements for requesting Department approval to use a reserve source, reserve treatment plant or reserve entry point. These amendments are necessary to ensure that the use of reserve facilities is properly tracked and monitored prior to each use.

§ 109.706. *System map.*

In response to public comments, § 109.706(a) was amended in this final-form rulemaking to clarify that the requirement for a system distribution map does not apply to BVRBs.

§ 109.708. *System service and auxiliary power.*

This Commonwealth is susceptible to natural disasters, such as ice storms, tropical storms and hurricanes, which can lead to massive and extended flooding and/or power outages. As noted previously, all of this Commonwealth's drinking water sources and treatment facilities are susceptible to emergency situations resulting from both natural and man-made disasters. Therefore, all CWSs must have effective options to provide consistent system service during such emergencies. Despite long-standing efforts to encourage water systems to develop feasible plans for the continuous provision of adequate and safe water quantity and quality during emergency circumstances, many water suppliers are still inadequately prepared. The Department estimates that more than 400 CWSs do not have an up-to-date emergency response plan. This has resulted in significant impacts to consumers in the form of inadequate water quantity and/or quality and the resulting consumption advisories.

Flooding events caused by localized heavy rains, hurricanes, and tropical storms result in elevated public health risks. Source water turbidity and pathogen loading can increase dramatically during these events. Additionally, when power outages cause interruptions in water system operations, water systems can experience a sharp reduction in supply, which results in low or no pressure within the distribution system. This results in increased risk to public health, because low pressure can allow intrusion of contaminants into distribution system piping from backflow and cross connections. Some customers may also experience inadequate supply of water for basic sanitary purposes, flushing toilets, and potable uses.

Several other mid-Atlantic and Northeastern states are considering promulgating, or have already promulgated, regulations for auxiliary power. Both New Jersey and New York have existing design standards for auxiliary power. New York requires standby power through incorporation of standards recommended by the Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (known as the 10 States Standards). New Jersey's requirements can be found at N.J.S.A. 58:12A-4(c) and N.J.A.C. 7:10-11.6(i). New Jersey recently evaluated its regulations and issued additional guidance and best management practices regarding auxiliary power, which is available on its website at <http://www.nj.gov/dep/watersupply/pdf/guidance-ap.pdf> . Connecticut is in the process of updating its regulations to incorporate generator and emergency contingency and response plan requirements. Connecticut's proposed regulations can be found on its website at http://www.ct.gov/dph/lib/dph/public_health_code/pending_regulations/proposed_regulation--generators.pdf .

TAC commented that the Department should not be prescribing the methods by which a public water supplier obtains auxiliary power. TAC further claimed that the Department has not sufficiently evaluated the cost of providing auxiliary power; that secondary power feeds may not

be attainable in rural areas or may be extremely cost prohibitive; and that the Department has not properly evaluated the total cost for implementing generator power. Also, TAC stated that systems may avail themselves of the resources from PaWARN to meet auxiliary power demands. TAC recommended that this provision be addressed in the Emergency Response Plans and not in regulation.

This final-form rulemaking does not prescribe a specific method by which a system must comply. Rather, it requires that a feasible plan be in place to ensure safe and potable water is continuously supplied to users. The water supplier will determine which option or combination of options it will use to comply. Ideally, suppliers will implement a combination of options to improve their redundancy and resiliency.

This information should be incorporated into Emergency Response Plans, as TAC suggests. However, despite long-standing efforts to encourage water systems to develop feasible plans for the continuous provision of adequate and safe water quantity and quality during emergency circumstances, many water suppliers are still inadequately prepared. The Department estimates that more than 400 CWSs in this Commonwealth do not have an up-to-date emergency response plan.

Therefore, the Department believes that these revisions are necessary. Wastewater treatment plants have been required to have back-up power supplies for many years now. These amendments provide consistency within the drinking water and wastewater industry. It is not feasible to develop these plans under an emergency. Rather, plans must be in place before an emergency occurs. It is only a matter of time before another natural or man-made disaster significantly impacts water systems in this Commonwealth. If these revisions were not adopted, a large number of CWSs would likely not be able to provide a consistent supply of safe and potable water.

In response to TAC's comment that systems can use the services of PaWARN to comply, the Department fully recognizes the importance of PaWARN and encourages membership in this valuable mutual aid network. For this reason, PaWARN is listed as one critical component of a complete plan to provide uninterrupted system service. In the draft certification form (USSP) which must be completed to comply with the amendments to § 109.708, PaWARN is listed as one "alternate provision" option (along with finished water storage capacity, interconnections with neighboring water systems, and rental agreements for generators). As of December 2017, PaWARN had approximately 104 members, approximately 92 of those members manage CWSs throughout this Commonwealth. This is a very small subset of the 1,952 CWSs in this Commonwealth. PaWARN membership should prove valuable during small scale events.

After significant consideration of comments, the Department made several modifications to the proposed regulatory language. First, the Department expanded the alternate provision options further to include "a combination of alternate provisions", "portable generators", and a category of "other alternate provisions"; within this category, system specific alternate provisions may be proposed to insure uninterrupted system service. Additionally, due to the variety of system specific challenges, the Department has included in a new § 109.708(c) the option to submit a corrective action schedule for necessary improvements that have not been

completed by the compliance deadlines specified in § 109.708(a) for submittal of the USSP. More specifically, this new approach requires certification of completion of the USSP form created by the Department by the deadlines specified in § 109.708(a). However, if the USSP identifies that deficiencies exist that prevent a continuous supply of safe and potable water as specified in § 109.708(a), and the community water supplier has not addressed those deficiencies by the deadline for USSP submittal, a schedule must be submitted within six months which includes detailed corrective actions and corresponding completion dates. These significant regulatory modifications will help enable the cost for compliance with these provisions to be spread out over a longer period of time. Additionally, these revisions provide water suppliers with more flexibility in choosing the approach that best suits their particular water system, and adequate time to implement that plan in the most effective manner.

§ 109.717. Comprehensive monitoring plan.

This section was amended in this final-form rulemaking in response to TAC and public comments to defer the compliance date of the new comprehensive monitoring plan requirements until one year after the effective date of this final-form rulemaking.

This section was also amended to incorporate recommended changes that allow the use of the designation “reserve” for select sources and entry points if certain conditions are met. Reserve sources and reserve entry points will be identified as such in the water system’s permit, and will require notification to the Department and monitoring prior to use.

These requirements will ensure that all sources and entry points are included in routine compliance monitoring at the entry point and within the distribution system, or are properly monitored prior to use. The plan must be specific to the system and include details about the various sources and entry points, and how the facilities are operated. The operation of each source and entry point will dictate how compliance monitoring is conducted to ensure that all sources and entry points are included in routine compliance monitoring.

§ 109.1202. Monitoring requirements.

Subsection 109.1202(i) was amended in this final-form rulemaking to correct a cross-reference.

§ 109.1402. Annual fees.

This section was amended in response to TAC and public comments to defer the effective date of the fees until January 1, 2019 to provide more time for budgeting. Water system boards and authorities have already completed and authorized their budgets for 2018.

Paragraphs (1), (2) and (3) of subsection (a) were also amended to change the number of people in the population served for the smallest category of PWSs in these paragraphs. The proposed rule outlined the annual fees for PWSs serving populations of 25 to 100 people. The population numbers were changed in the final-form rulemaking to apply to PWSs serving a population of 100 people or less. These amendments were made because a PWS is defined in

§ 109.1 as “[a] system which provides water to the public for human consumption which has at least 15 service connections or regularly serves an average of 25 individuals daily at least 60 days out of the year.” In this Commonwealth, there are some PWSs that serve at least 15 service connections, but still serve a population of less than 25 people. Therefore, the population number was amended to account for those PWSs.

This section was also amended to change the fee schedule due dates as follows:

Population Served	Submit annual fee by:	Expected Quarterly Revenue*
3,301 or more	Mar 31	\$1,314,875
501 – 3,300	June 30	\$2,527,275
101 – 500	Sept 30	\$1,830,425
100 or less	Dec 31	\$1,978,175
	Total	\$7,650,750

*The expected quarterly revenue assumes that most systems paying \$6,500 or more will request the quarterly payment option.

The larger systems will be billed during the first quarter, with the smaller systems receiving invoices later in the year. This amendment will ensure:

- Receipt of all annual fees (including quarterly payments for larger systems) within the same calendar year.
- A more even distribution of revenue throughout the year.
- Additional time for small systems to budget for the fees.

Finally, this section was amended in response to TAC and public comments to allow a lower threshold for systems that may request quarterly payments. The threshold was lowered from \$10,000 to \$6,500.

The preamble to the proposed rule included an extensive explanation regarding the appropriateness of the fees, and how the fees bear a reasonable relationship to the actual cost of services provided. Please see the preamble to the proposed rulemaking at 47 Pa.B. 5005 – 5010 for the full explanation.

The following table summarizes the annual fees for CWSs, which are based on population and range from \$250 to \$40,000. The per-person costs range from \$0.35 to \$10/person/year.

CWS Annual Fees (Based on Population)		
Population Served	Annual Fee	Cost/Person/Year
100 or less	\$250	\$2.50 - \$10.00
101 – 500	\$500	\$1.00 - \$4.95
501 – 1,000	\$1,000	\$1.00 - \$2.00
1,001 – 2,000	\$2,000	\$1.00 - \$2.00
2,001 – 3,300	\$4,000	\$1.21 - \$2.00

CWS Annual Fees (Based on Population)		
Population Served	Annual Fee	Cost/Person/Year
3,301 – 5,000	\$6,500	\$1.30 - \$1.97
5,001 – 10,000	\$10,000	\$1.00 - \$2.00
10,001 – 25,000	\$20,000	\$0.80 - \$2.00
25,001 – 50,000	\$25,000	\$0.50 - \$1.00
50,001 – 75,000	\$30,000	\$0.40 - \$0.60
75,001 – 100,000	\$35,000	\$0.35 - \$0.47
100,001 or more	\$40,000	≤ \$0.40

The Department analyzed the cost of providing services to administer the SDWA and its regulations. The cost of some services can be estimated, while the cost of other services depends on the specific circumstances and will vary widely. The table below summarizes the Department's costs of providing those services that can be estimated for CWSs serving various populations. The hourly rate was provided by the Department's fiscal office and includes salary, benefits, and in-direct costs (such as supplies, and the like).

DEP Cost of Services That Can Be Estimated				
Activity	Hours/Activity/Year for CWSs Serving the Following Population			
	<750	750-5,000	5,000-50,000	>50,000
Conduct sanitary surveys	7.5	10	25	37.5
Conduct other inspections	2.5	3.3	5	10
Determine compliance	12	12	15	15
Maintain PADWIS/eFACTS	7.5	7.5	10	10
Review plans/reports	7.5	10	15	15
Provide technical assistance/ training	7.5	7.5	10	10
Total Hours	44.5	50.3	80	97.5
@ \$49/hr =	\$2,180	\$2,465	\$3,920	\$4,778

Examples of other services and costs that involve variable circumstances and preclude a single estimate for the services include the following:

1. Sanitary surveys that take longer to conduct due to the complexity or size of the water system. Examples of actual hours expended and costs to complete more complicated sanitary surveys at large water systems (namely those serving populations > 50,000) are as follows:
 - a. System A (population = 57,000): 40.5 hours at a cost of \$1,984
 - b. System B (population = 66,500): 40 hours at a cost of \$1,960
 - c. System C (population = 87,000): 49 hours at a cost of \$2,401
 - d. System D (population = 105,000): 60 hours at a cost of \$2,940
 - e. System E (population = 120,000): 60 hours at a cost of \$2,940
 - f. System F (population = 747,500): 103 hours at a cost of \$5,047
 - g. System G (population = 1.6 million): 124 hours at a cost of \$6,076

2. Additional follow-up actions taken by the Department in response to a violation. When a drinking water standard is exceeded, Department staff are responsible for consulting with and providing direction to the water system; ensuring that public notice is complete, timely and repeated as needed; tracking, reviewing and approving follow-up and corrective actions (such as collecting confirmation or additional samples, repairing/replacing/installing water treatment, or taking contaminated sources off line); and determining when the system has returned to compliance.

For example, in 2016, monitoring results for a large Pennsylvania water system indicated the 90th percentile lead value exceeded the action level established in the Lead and Copper Rule. This triggered lead service line replacement actions. Department staff spent at least 116.5 hours working to address this important issue. Services provided by the Department to achieve compliance included meetings, file reviews, drafting compliance documents, follow up action reviews and letters. The approximate cost for these services was \$5,708.

3. Additional follow-up, corrective and emergency actions taken by the Department in response to a water supply emergency. Water supply emergencies occur each year and require substantial resources from the Department. The following are examples of emergencies and associated costs for services provided by the Department:
 - a. In the Spring of 2011, unexpected damage to a very large water main resulted in a major leak, loss of significant water quantity and pressure. The result was closure of multiple businesses and government agencies in a large city within the Commonwealth for three days due to lack of a potable water supply. This emergency spanned approximately five consecutive days with approximately 66,500 customers impacted. The Department provided a variety of onsite support services at the site of the break, and at the drinking water filtration plant. Department cost for services provided during this event equates to approximately 160 hours of staff time and a cost of \$7,840.
 - b. During the Summer of 2012, significant construction delays in completing critical renovations and upgrades to a water filter plant threatened the ability to provide an adequate quantity of drinking water to approximately 210,000 customers. Department staff provided a variety of specialized engineering and operational support services over the course of several weeks. Total cost estimate of Department services provided during this event includes 600 hours of staff time costing approximately \$29,400.
 - c. In the Summer of 2015, runoff from a large fire at an industrial facility severely contaminated the intakes for two public water systems thereby rendering their normal source of surface water untreatable for almost three months. Together, the two public water suppliers impacted provided drinking water to approximately 43,000 customers. Several Department staff were involved in providing a wide variety of emergency support services, over the course of several months, to the water suppliers affected. Department cost estimates for this event include 515 staff hours (\$25,235) and emergency sampling costs (\$17,818). The total cost of Department services provided was approximately \$43,053.

- d. In the winter of 2016, an equipment failure resulted in flooding at a surface water filtration plant which provides water to approximately 20,000 customers. This immobilized treatment and pumping capabilities for six consecutive days. The filter plant did not resume normal operations for approximately two weeks. Without combined efforts by the water system, the Department and neighboring water systems, 20,000 customers could have endured consecutive days without an adequate supply of water. Department services included coordination with neighboring water systems to identify alternate sources of water, emergency permit considerations, site assessments, engineering and operational support. Additionally, the Department loaned the public water system critical water quality monitoring equipment (valued at approximately \$24,000) for approximately 10 weeks to help verify that safe water was consistently provided. The total cost estimate of Department services provided during this event also includes 300 hours of staff time, which cost approximately \$14,700.
4. The cost of samples collected by the Department during inspections and filter plant performance evaluations, in response to complaint investigations, and to assess water quality and protect public health during water supply emergencies. These sampling costs range from \$30 for inorganic analyses to \$400 for pesticides to \$1,200 for analysis of *Cryptosporidium* and *Giardia* to \$2,968 for a complete emergency sampling suite. Total Department lab costs average approximately \$680,000 per year.
5. The costs associated with additional training when new regulations are promulgated. One example is the numerous training sessions that were developed and delivered in 2015 - 2016 to roll-out implementation of the Revised Total Coliform Rule (RTCR) adopted to conform to Federal requirements. This training included eight different training courses, workshops and webinars; that were presented 160 times across the Commonwealth; for a total of 482 hours of training. The cost to deliver 482 hours of training was \$23,618.
6. The costs associated with specific follow-up actions established in new regulations. The federal RTCR became effective on April 1, 2016, and the Department and EPA shared enforcement of the federal rule until Pennsylvania's regulations were published as final on September 24, 2016. As part of the Department's enforcement responsibilities during this interim period, staff conducted Level 2 assessments at public water systems. A Level 2 assessment is triggered when a public water supply has an *E. coli* MCL violation or when two total coliform triggers occur during a 12-month period. During this interim period, Department staff completed 94 Level 2 Assessments at more than 85 regulated public water systems. These assessments identified over 400 defects that have already been, or are being, corrected thereby improving public health protection. Estimated costs for services provided by the Department were approximately \$3,000 per assessment for a total cost of \$282,000.

The additional costs described in items 1 – 4 above are more evident in medium and large water systems due to their size, age, complexity, and number of customers at risk. Because these additional costs are variable, it is not possible to establish an average cost for these services. However, these additional costs were considered when determining the annual fees for the medium and large water systems.

The annual fees could have been based solely on the costs for the services that could be estimated above. However, that approach would have resulted in a disproportionate impact on the smallest CWSs and would have failed to account for the additional costs incurred by the Department to provide services that cannot be readily estimated, such as those described above, which result in substantially higher costs for medium and large water systems. Thus, the annual fees were developed to bear a reasonable relationship to the actual costs of the services provided while achieving a reasonable cost to the 11.3 million customers served.

As discussed in the preamble to the proposed rule, the Department considered alternatives to assessing fees. However, the other options would have resulted in further disparity between the fees and Department costs for services for the very small and very large water systems. The Department retained the fee structure based on population served because it was the best option to comply with the statutory language in the SDWA that directs the Board to establish fees for services that bear a reasonable relationship to the actual costs of the services provided. 35 P.S. § 721.4(c). The Board emphasizes that the SDWA requires that the fees assessed by the Department “bear a reasonable relationship” to the actual costs of the services provided, not that the fees be the “exact” costs for the services provided.

The Department has requested and will continue to request additional funding from the General Fund during the annual budget process to support the Safe Drinking Water Program. The decrease in such funding has caused the need for the new annual fees. If such funding becomes available, the Department will evaluate the continuing need for the annual fees. As for the cost to customers of small versus medium and large water systems and businesses, the annual fees provide a reasonable relationship to the actual costs of the services provided by the Department when considering both the minimum costs that can be estimated in advance and the cost of services that arise on a case-by-case basis as discussed above.

The Department has streamlined its operations in nearly all areas. In response to many years of staffing and resource shortfalls, the program has been reduced to only those activities that are mandated by Commonwealth and Federal laws, regulations and primacy requirements. If other efficiencies are developed in the future, the ongoing three-year review of fees will be updated accordingly.

Regarding the other annual fees in subsection (a), fees for nontransient noncommunity water systems (NTNCWS) range from \$100 to \$1,000; annual fees for transient noncommunity water systems (TNCWS) range from \$50 to \$500; annual fees for bottled water systems are \$2,500; and annual fees for vended, retail and bulk water systems are \$1,000.

These fees were determined using the same criteria as discussed above and are illustrated in the table below. The total hours for services that can be estimated were as follows:

- For NTNCWSs, the total hours ranged from 16 to 22 hours.
- For TNCWSs, the total hours ranged from 8 to 13 hours.
- For BVRBs, the total hours ranged from 21 to 26 hours.

Annual Fees vs. Cost Per Person Per Year				
Population Served	Annual Fee	Cost Per Person Per Year	Estimated Cost of Services	Cost Per Person Per Year
NTNCWSs:				
100 or less	\$100	\$1.00 - \$4.00	\$784	\$7.84 - \$31.36
101 – 500	\$250	\$0.50 - \$2.48	\$784	\$1.57 - \$7.76
501 – 1,000	\$500	\$0.50 - \$1.00	\$784	\$0.78 - \$1.56
1,001 – 3,300	\$750	\$0.23 - \$0.75	\$1,078	\$0.33 - \$1.08
3,301 or more	\$1,000	\$0.30 or less	\$1,078	\$0.33 or less
TNCWSs:				
100 or less	\$50	\$0.50 - \$2.00	\$392	\$3.92 - \$15.68
101 – 500	\$100	\$0.20 - \$0.99	\$392	\$0.78 - \$3.88
501 – 1,000	\$200	\$0.20 - \$0.40	\$392	\$0.39 - \$0.78
1,001 or more	\$500	\$0.50 or less	\$392	\$0.39 or less
BVRBs:				
Bottled	\$2,500	N/A	\$1,274	N/A
Vended	\$1,000	N/A	\$1,029	N/A
Retail	\$1,000	N/A	\$1,029	N/A
Bulk	\$1,000	N/A	\$1,029	N/A

Section 109.1404 (relating to community and noncommunity water system permitting fees).

A minor amendment was made in this final-form rulemaking to replace the acronym “BVRB” with the words “bottled water or vended water system, retail water facility or bulk water hauling system facility,” because BVRB is not a defined term.

In addition, subsections (a) and (b) were amended to change the number of people in the population served for the smallest category of PWSs. The proposed rule outlined the permit fees for CWSs and NCWSs serving populations of 25 to 100 people. The population numbers were changed in the final-form rulemaking to apply to CWSs and NCWSs serving a population of 100 people or less. These amendments were made because a PWS, which includes a CWS and a NCWS, is defined in § 109.1 as “[a] system which provides water to the public for human consumption which has at least 15 service connections or regularly serves an average of 25 individuals at least 60 days out of the year.” In this Commonwealth, there are some PWSs that serve at least 15 service connections, but still serve a population of less than 25 people. Therefore, the population number was amended to account for those PWSs.

Section 109.1406 (relating to permitting fees for bottled water and vended water systems, retail water facilities and bulk water hauling facilities)

Subsections (a) and (b) were amended to change the number of people in the population served for the smallest category of PWSs in the same manner as discussed in the changes to §109.1404 above.

Section 109.1407 (relating to feasibility study)

This section was amended to change the number of people in the population served for the smallest category of PWSs in the same manner as discussed in the changes to §109.1404, above.

F. *Benefits, Costs and Compliance*

Benefits

One or more of these amendments will affect all 8,521 PWSs serving approximately 11.3 million people in this Commonwealth. The residents of this Commonwealth will benefit from: (1) the avoidance of a full range of adverse 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 protection of public drinking water sources, which will result in maintaining the highest source water quality available, thereby minimizing drinking water treatment costs.

This rulemaking will protect public health by providing increased protection from microbial pathogens and chemical contaminants in PWSs, and strengthen system resiliency. 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 incidents of illness and reduce health care costs. Proper investment in PWS 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 for years to come.

Source Water Assessment, Protection and Permitting Requirements: The benefits of the source water assessment and protection program amendments are discussed in Section D (Background and Purpose) of this preamble under “Amendments to Source Water Assessment and Protection Programs”.

In addition to those benefits, the amendments relating to new sources of supply in § 109.503 of this final rulemaking more clearly define the requirements regarding the proper order of the permitting process for developing a new PWS source. These clarifications are needed to help insure that the proper level of treatment is designed and installed in a timely manner, thereby resulting in less delay for permitting a new source that may be needed to meet public health protection requirements, or provide redundancy in the event of contamination of existing sources. These amendments should result in cost savings due to the avoidance of expensive permitting mistakes.

Two other states in EPA Region III, West Virginia and Virginia, also require source water assessments for new sources. In Virginia, the goal is to have a source water assessment completed by Virginia drinking water program staff before the operations permit is issued. Under West Virginia’s new statute on source water protection, an assessment is included as part of a local source water protection plan and must be completed by the water supplier prior to operation for a surface water source.

Regarding the development of local source water protection programs, Delaware and more recently, West Virginia, have requirements for source water protection by statute. Under these amendments, the development of a local source water protection program will remain voluntary in Pennsylvania.

Turbidity and Filtration Requirements: Some of the amendments to the monitoring, calibration, recording and reporting requirements for the measurement of turbidity are more stringent than Federal requirements. These amendments will benefit more than 8 million Pennsylvanians that are supplied water by PWSs using filtration technologies. These amendments are based on Department inspections and the evaluation of more than 1,250 filters through the Department's Filter Plant Performance Evaluation (FPPE) program. These evaluations have documented that existing requirements are not sufficient to prevent turbidity spikes or the shedding of particles and microbial pathogens into the finished water, which puts consumers at risk of exposure to microbial pathogens. Costs related to waterborne disease outbreaks are discussed in Section D of this preamble under "Amendments to Surface Water Treatment Requirements".

Existing regulations at § 109.301(i) require turbidity monitoring of the CFE once every four hours. This period of intermittent sample review allows the production of significant volumes of water that are not monitored for compliance with the maximum allowable turbidity limit. The amendments for CFE turbidity monitoring will require continuous monitoring and recording of the results every 15 minutes. This will also enable operators to identify problematic water quality trends and respond more quickly with necessary process control adjustments.

Health effects associated with microbial contaminants tend to be due to short-term, single dose exposure rather than long-term exposure. Therefore, if a short duration single turbidity exceedance of the existing maximum allowable turbidity limit occurs and goes unnoticed, consumers are at risk of exposure to microbial pathogens. By requiring continuous monitoring and recording of the results at least every 15 minutes for CFE at all filter plants, water suppliers will be better able to identify problems before an exceedance occurs and determine compliance with the maximum allowable turbidity limit at all times.

An additional revision will require all surface water filtration plants to implement a filter bed evaluation program that assesses the overall integrity of each filter to identify and correct problems before a turbidity exceedance or catastrophic filter failure occurs. Filters are the final barrier for removal of acute pathogens, and are therefore critical to public health protection. For many systems in this Commonwealth and across the country, this infrastructure is aging, and the revision to require a physical inspection once per year is a necessary minimum preventative action item.

All of these filter plant performance provisions are part of a multi-barrier approach to ensure treatment is adequate to provide safe and potable water to all users.

Thirty states responded to a survey conducted by the Association of State Drinking Water Administrators (ASDWA) on behalf of this Commonwealth. Twenty states require continuous turbidity monitoring and recording of CFE and fourteen states require continuous IFE monitoring and recording for all filtration types.

Automatic Alarms and Shutdown Capabilities: Filter plants are complex and dynamic. In response to many circumstances, the water plant operator must take an immediate action to protect public health, such as when source water quality changes, chemical feed pumps malfunction, filters require backwashing, or other unforeseen circumstances occur. Water plant operators are often required to perform other duties, which leave water plants unattended, and which limit operators' ability to respond immediately to treatment needs.

Automated alarms and shutdown capabilities play an important role in modern water treatment and public health protection. Many water suppliers have already taken advantage of readily available technology to reduce personnel costs while still providing safe water to their customers. The amendments will ensure that all surface water filtration plants have the minimum controls in place to ensure that operators are immediately alerted to major treatment problems. The amendments will also ensure that unmanned filter plants are automatically shut down when the plant is producing water that is not safe to drink, which prevents contaminated water from being provided to customers for extended periods of time. These alarms and shutdown capabilities will allow operators at both attended and unattended filtration plants to promptly respond to the water quality problems and treatment needs of the plant. The automated plant shut down is intended to prevent poor quality water from reaching customers, which will protect public health, reduce PWS costs related to corrective actions and issuing public notice, reduce costs to the community, and maintain consumer confidence.

Based on an ASDWA survey, twelve states responded that they require filter plants to be attended at all times while in operation. Of the twelve states that require attended operation, seven have regulations that establish standards for plant automation, alarms and shutdowns. The Commonwealth's amendments are less stringent than twelve other states since attended operation is not being required. In addition, the amendments related to plant automation, alarms, and shutdown capabilities are less stringent than the standards from the Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (10 States Standards). See *Recommended Standards for Water Works (2012 Edition) Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers*.

Filter-To-Waste Requirements: The Department's FPPE program has evaluated approximately 1,250 filters since 1999. The results of these evaluations show that filters are most likely to shed turbidity, particles, and microbial organisms at the beginning of a filter run when the filter is first placed into service following filter backwash and/or maintenance. The amendments will require all filter plants that have the ability to filter-to-waste to do so following filter backwash and/or maintenance and before placing the filter into service. Filtering to waste will reduce the likelihood of pathogens passing through filters and into the finished drinking water.

All thirty states responding to an ASDWA survey require some of their filter plants to filter-to-waste. This regulation is not expected to negatively affect this Commonwealth because implementation is not expected to require any capital improvements.

Strengthen Resiliency Through Auxiliary Power or Alternate Provisions: The revisions to system service and auxiliary power requirements will strengthen system resiliency and ensure that safe and potable water is continuously supplied to consumers and businesses. A continuous and adequate supply of safe drinking water is vital to maintaining healthy and sustainable communities.

This Commonwealth's PWS sources and treatment facilities are susceptible to emergency situations resulting from both natural and man-made disasters. Examples of emergencies from recent years include tropical storms, flooding, high winds, ice, snow, industrial chemical plant runoff, pipeline ruptures, and transportation corridor spills. These emergencies have resulted in significant impacts to consumers and businesses due to inadequate water quantity or quality, and in water supply warnings and advisories. Examples of emergencies that have occurred in Pennsylvania and demonstrate the benefit of these amendments are provided in Section D of this preamble under "Revisions to System Services and Auxiliary Power Requirements".

New Annual Fees and Amended Permit Fees: To improve program performance, this final-form rulemaking will supplement Commonwealth costs for administering the Safe Drinking Water Program by filling the funding gap. The fees will total approximately \$7.5 million annually and will account for nearly 50% of the Program's Commonwealth funding. The fees will augment the Program funding currently coming from the General Fund (\$7.7 million).

The annual fees range from \$250 - \$40,000 for CWSs, \$50 - \$1,000 for NCWSs, and \$1,000 - \$2,500 for bottled and vended water systems, retail water facilities, and bulk water hauling systems (BVRB). The fees will most likely be passed on to the 11.3 million customers of these PWSs as a user fee. Per person costs are expected to range from \$0.35 to \$10 per year, depending on the water system size.

Please refer to Sections D and E for more information about the benefits and costs associated with the fees.

General Permits: These amendments will establish the regulatory basis for the issuance of general permits for high volume, low risk modifications or activities to streamline the permitting process. General permits provide a cost-effective method for a PWS to obtain a permit and for DEP to regulate such activities.

Requirements for NCWSs: These amendments will clarify that NCWSs that are not required to obtain a permit must still obtain Department approval of the facilities prior to construction and operation. The Department's public water supply well construction standards are measures that can prevent pollution from surface runoff and shallow aquifer zones that are above the source aquifer used for public water supply. Obtaining approval prior to constructing a source and associated water system facilities (such as treatment and storage) ensures the facility is planning and constructing a source and water system facilities that meet Pennsylvania's construction standards. This will avoid the costs for rehabilitating an improperly constructed source and avoid delays in obtaining approvals to operate the water system.

Address Gaps in Monitoring, Reporting and Tracking Back-up Sources: These amendments will address concerns related to gaps in the monitoring, reporting and tracking of back-up water sources and entry points. As per Federal and Commonwealth regulations, 40 CFR 141.23(a), 141.24(f) and (h) and 141.26(a) and 25 Pa. Code §§ 109.301 and 109.303, respectively, all sources and entry points must be included in routine compliance monitoring to ensure water quality meets safe drinking water standards. Sources and entry points that do not provide water continuously are required to be monitored when used. However, monitoring requirements for back-up sources are not currently tracked, which means that verifiable controls are not in place to ensure that all sources and entry points meet safe drinking water standards. Some of these sources have not been used in 5 to 10 years, and, therefore, the Department does not know the water quality for these sources. These concerns were most recently highlighted in a 2010 report from EPA's Office of Inspector General entitled "*EPA Lacks Internal Controls to Prevent Misuse of Emergency Drinking Water Facilities*" (Report No. 11-P-0001). These amendments will ensure that all sources and entry points are monitored at least annually. PWSs will also be required to document in a comprehensive monitoring plan how routine compliance monitoring will include all sources and entry points.

The use of unmonitored sources and entry points could adversely impact basic water quality, including pH, alkalinity, turbidity, corrosivity and lead solubility, dissolved inorganic carbon, and natural organic matter. Water suppliers may have limited information about how these sources or entry points will impact treatment efficacy and distribution system water quality. In addition, many sources may be off-line due to poor water quality or MCL exceedances. The use of these back-up or emergency sources, without proper monitoring and verifiable controls, could lead to an increased risk to public health.

Finally, treatment facilities and other appurtenances associated with these sources may also have gone unused, and may no longer be in good working order. Back-up sources and entry points with unknown water quality or that are no longer in good working order provide a false sense of security in terms of system resiliency and emergency response. While the Department understands that many facilities are not used on a 24/7 basis, these amendments will ensure that all permitted sources and entry points are monitored at least annually, or when in use.

Compliance Costs

The general update provisions will increase public health protection and system resiliency. 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 incidents of illness and reduce health care costs. For example, it is estimated that the total cost of the May 2000 *E. coli* contamination incident in Walkerton, Ontario was \$64.5 million. Costs related to the 1993 waterborne outbreak of cryptosporidiosis in Milwaukee, Wisconsin were \$96.2 million. Waterborne disease outbreaks result in significant economic and health impacts and can have long-term impacts due to the loss of trust in public water systems.

Proper investment in PWS 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 for years to come.

The fees are necessary to improve program performance and will supplement Commonwealth costs for administering the Safe Drinking Water Program. Program costs are directly tied to the resources needed to meet Federal and Commonwealth mandates for minimum program elements and for the administration of an effective Safe Drinking Water Program. Failure to meet minimum program elements may result in an increased risk to public health and the loss of primacy for the Safe Drinking Water Program and associated Federal funding.

Source water protection and permitting requirements: Per the Department’s records, approximately 30 new CWS sources are permitted each year. DEP estimates that an additional 8 hours of work completed for the CWS by a professional geologist will be needed to comply with the new source permitting amendments. This extra time will amount to approximately \$1,176 per source permitted, based on current hourly rates charged by consulting firms.

Revisions to turbidity monitoring, recording and reporting requirements: Filter plants that need to install continuous monitoring and recording devices will need to spend about \$3,000 - \$4,000 per monitoring site (includes turbidimeter, controller and installation), with estimated annual costs for maintenance and calibration of \$500 per plant. It is estimated that 21 filter plants will need to install this equipment on individual filters and 52 filter plants will need to install this equipment at their combined filter effluent monitoring site.

- IFE and CFE Monitoring Costs: Costs have been derived from vendors of HACH brand turbidimeters; the most commonly used turbidimeter in this Commonwealth. If the water supplier prefers a different brand of equipment, the cost may change. Some per instrument cost savings may occur when multiple instruments are purchased. The following table, provided for illustrative purposes, shows costs related to installing and maintaining one HACH continuous monitoring and recording device:

White Light Turbidimeter (analog) and Chart Recorder (analog)

Items	Initial Cost for First Turbidimeter and Recorder	Estimated Annual Calibration and Maintenance Cost	Additional Turbidimeter and Recorder
HACH 1720E and SC200 (analog signal)	\$2,881		\$2,881
Calibration Cylinder	\$ 89		
20 NTU StablCal x (4) Calibrations		\$ 556	
Lamp Assembly Replacement		\$ 62	
Chart Recorder- Duel Pen	\$1,657		\$1,657
Chart Recorder Paper		\$ 60	
Chart Recorder Replacement Pens		\$ 79	
Installation	\$1,000		

Items	Initial Cost for First Turbidimeter and Recorder	Estimated Annual Calibration and Maintenance Cost	Additional Turbidimeter and Recorder
Total (not including tax and shipping)	\$5,627	\$ 757	\$4,538

Laser Turbidimeter (digital) and Chart Recorder (analog)

Items	Initial Cost for First Laser Turbidimeter and Recorder	Estimated Annual Calibration and Maintenance Cost	Additional Turbidimeter and Recorder
HACH TU5400 Laser Turbidimeter (includes flow sensor RFID, and System Check)	\$6,142		\$6,142
HACH SC200 (includes flow sensor input, RFID, and Modbus))	\$2,596		\$2,596
Maintenance/Calibration Kit (includes primary standards)		\$1,100 (\$349 to replace the primary standards that are included in the kit)	
Replacement Desiccant Cartridge		\$ 17	
Chart Recorder- Duel Pen	\$1,657		\$1,657
Chart Recorder Paper		\$ 60	
Chart Recorder Replacement Pens		\$ 79	
Installation	\$1,000		
Total (not including tax and shipping)	\$11,395	\$ 1,256 (1 st year) \$ 505 (subsequent year)	\$10,395

- IFE Monitoring:*** This Commonwealth has 353 filter plants, of which 263 are currently required to continuously monitor and record their IFE and already have instrumentation installed. The amendments will require the remaining 90 filter plants to comply with the IFE monitoring requirements of which 69 already have the needed instrumentation. Therefore, 21 filter plants will need to install one or more monitoring and recording devices. The majority of these 21 filter plants only have two filters. The estimated cost for a water supplier having two filters to install IFE monitoring and recording equipment is expected to be \$10,165 for white light turbidimeters or \$21,790 for laser turbidimeters. The annual maintenance cost for the monitoring and recording equipment on two filters is estimated to be \$757 for the white light turbidimeters or \$505 for laser turbidimeters. The cumulative cost for the installation of the IFE monitoring and recording equipment at all 21 filter plants is estimated to be \$213,465 for white light turbidimeters or

\$457,590 for laser turbidimeters. The cumulative cost for maintaining the monitoring and recording equipment at all 21 filter plants is estimated to be \$15,897 per year for white light turbidimeters and \$10,605 per year for laser turbidimeters.

- CFE Monitoring: The majority of filter plants in this Commonwealth already continuously monitor and record their CFE. The exact number of filtration plants without this capability is not known, but based on a review of 90 filtration plants, it is estimated to be 15% of the 353 filter plants in this Commonwealth. The estimated cost to install CFE monitoring and recording equipment is \$5,627 per plant for white light turbidimeters and recorders or \$11,395 per plant for laser turbidimeters and recorders. The annual maintenance cost for the monitoring and recording equipment is estimated to be \$757 for the white light turbidimeters or \$505 for laser turbidimeters. The cumulative cost for an estimated 52 filter plants to install continuous monitoring and recording equipment is estimated to be \$292,604 for white light or \$592,540 for laser turbidimeters. The cumulative cost for maintaining the monitoring and recording equipment at all 52 filter plants is estimated to be \$39,364 per year for white light turbidimeters or \$26,260 per year for laser turbidimeters.

Annual Filter Inspection Program: No additional costs are expected to be associated with implementation of a filter inspection program.

Filter-To-Waste Requirements: No expected costs are associated with the filtering to waste amendments.

Automatic Alarms and Shutdown Capabilities: Depending on options chosen, systems may incur \$8,860 to \$11,980 per treatment plant with annual maintenance costs of \$600. Note: it is estimated that 317 of the 353 filter plants already meet these provisions and therefore will not incur any additional costs.

The following information is provided as example cost estimates related to adding automated alarm and shutdown capabilities at a small surface/GUDI water filtration plant. The costs include the monitor, controller and alarm dial-out system. It is assumed that the existing filtration plant will already have the chlorine residual analyzer, turbidity analyzer and clear-well level or other disinfection segment water level transmitter. These instruments are required to maintain compliance with existing regulations. An estimated cost for the equipment installation is provided. However, systems could save costs if they install the equipment using in-house staff or a local contract electrician.

The controller and monitor will include adjustable alarm set-points with time delay for a relay output which can be wired to the plant for shut down of the filter system upon the following conditions:

- Water levels needed to maintain adequate Giardia CT
- High or low entry point (EP) chlorine residual
- High CFE turbidity

The monitor and controller can be configured to send a pre-shut down warning to allow operators the opportunity to go to the plant to try to resolve the problem before reaching the shut-down set-point. If the process value reaches the shut-down set-point, the filter plant shut-down command will occur and a shut-down alarm message will be sent to the plant operator by text message, email or voice message.

If the facility already has an alarm dialer with capacity for three additional alarm inputs, the alarm dialer can be eliminated from the package. A deduction is shown for this on each equipment option. If the system is staffed continuously, then only alarm capabilities are necessary. This can be accomplished for a lower cost, or possibly no additional cost, depending on the capability of existing filter plant supervisory control and data acquisition (SCADA) equipment. The Department describes these type of monitor and alarm systems below, with associated cost estimates.

Option A – Monitor/Alarm System with Standard Dial-up Phone Line and Phonetics Alarm Dialer

- 1) One alarm control device with analog inputs for the following:
 - EP Chlorine Residual
 - CFE and IFE Turbidity
 - Water Levels Needed to Maintain Adequate Giardia CT
- 2) One Phonetics eight-channel alarm auto-dialer with power supply and battery backup. Requires standard dial-up telephone line connected to alarm dialer. Provides voice message alarm only.
- 3) One System Wiring Diagram – custom wiring diagram for specific analyzer types in use at Owners site. Exact terminal numbers will be provided based on Owners equipment to allow installation by local electrical contractor.
- 4) Furnish onsite calibration, programming and alarm configuration for all equipment and provide full onsite testing for all equipment including alarm testing and dial-out for plant designated phone numbers and/or pager numbers.
- 5) Provide onsite operator training on maintenance and standardization of above equipment.
- 6) Four Operation and Maintenance Manuals with complete Instruction Manuals for the above system.

Total System Price: \$8,860

Delivery: 2-3 Weeks (standard delivery)

Estimated Installation Cost: \$2,000

Deduct for use of Owner Furnished Alarm Dialer: (\$1,400)

Option B – Monitor/Alarm System with Standard Dial-up Phone Line and Alarm Dialer

- 1) One alarm control device with analog inputs for the following:
 - EP Chlorine Residual
 - CFE and IFE Turbidity
 - Water Levels Needed to Maintain Adequate Giardia CT
- 2) One eight-channel alarm auto-dialer with power supply and battery backup. Requires standard dial-up telephone line connected to alarm dialer. Provides voice message alarm only.
- 3) One System Wiring Diagram – custom wiring diagram for specific analyzer types in use at Owner’s site. Exact terminal numbers will be provided based on Owner’s equipment to allow installation by local electrical contractor.
- 4) Furnish onsite calibration, programming and alarm configuration for all equipment and provide full onsite testing for all equipment including alarm testing and dial-out for plant designated phone numbers and/or pager numbers.
- 5) Provide onsite operator training on maintenance and standardization of above equipment.
- 6) Four Operation and Maintenance Manuals with complete Instruction Manuals for the above system.

Total System Price: \$9,980

Delivery: 2-3 Weeks (standard delivery)

Estimated Installation Cost: \$2,000

Deduct for use of Owner Furnished Alarm Dialer: (\$2,500)

Option C – Monitor/Alarm System with Cellular Alarm Dialer

- 1) One alarm control device with analog inputs for the following:
 - EP Chlorine Residual
 - CFE and IFE Turbidity
 - Water Levels Needed to Maintain Adequate Giardia CT
- 2) One cellular alarm notification system with 8-channel alarm input with power supply and battery backup. No dial-up telephone line is required. Provides text and email alarm notification.
- 3) One System Wiring Diagram – custom wiring diagram for specific analyzer types in use at Owner’s site. Exact terminal numbers will be provided based on Owner’s equipment to allow installation by local electrical contractor.
- 4) Furnish onsite calibration, programming and alarm configuration for all equipment and provide full onsite testing for all equipment including alarm testing and dial-out for plant designated phone numbers and/or pager numbers.

5) Provide onsite operator training on maintenance and standardization of above equipment.

6) Four Operation and Maintenance Manuals with complete Instruction Manuals for the above system.

Total System Price: \$9,700

Delivery: 2-3 Weeks (standard delivery)

Estimated Installation Cost: \$2,000

The Department estimates that 10% of the 353 filter plants in this Commonwealth will need to install a controller. The cumulative installation cost for an estimated 35 filter plants to comply with automated alarms and shutdown capability is estimated to be between \$380,100 and \$419,300.

Strengthened System Resiliency Through Auxiliary Power or Alternate Provisions: All CWSs will be required to review their existing emergency response plan and equipment to complete an uninterrupted system service plan, using the form provided by the Department, to provide a consistent supply of adequate quantity and quality of water during emergency situations. The Department estimates that 400 CWSs do not even have an updated emergency response plan. CWSs that do not have a functional generator or do not have existing capability to meet this requirement via the alternate provision options may need to purchase a generator. The generator should be adequately sized such that it can supply power to critical treatment components necessary to supply safe and potable water. Therefore, the cost of the generator will be proportional to the size of the system (in other words, less expensive for small systems). It is difficult to predict system specific costs because of the various options to comply with the revisions. Estimates for small systems are \$3,000 - \$4,000 for the installation of a transfer switch, generator and concrete pad. Small systems may also explore the lower cost option to rent a portable generator for the following costs: Compact portable generator = \$70/day (daily rental cost) or \$35/day (weekly rental cost); Mobile towable generator = \$320/day (daily rental cost) or \$140/day (weekly rental cost). Costs for medium and large systems could range from \$50,000 - \$200,000 per treatment plant. Not all systems will require auxiliary power. Some systems may already meet reliability criteria through storage or interconnections. Several mid-Atlantic states have already moved forward with mandatory requirements for auxiliary power supply including New Jersey, New York and Connecticut.

In order to accommodate the variety of system specific differences that must be addressed in this provision, the Department has included the option to submit a schedule for necessary improvements which have not been completed by the compliance deadlines specified in § 109.708(a) for submittal of the USSP. More specifically, this new approach requires certification of completion of the USSP form provided by the Department by the deadlines specified in § 109.708(a). However, if the USSP identifies that deficiencies exist which prevent a continuous supply of safe and potable water as specified in § 109.708(a), and the community water supplier has not addressed those deficiencies by the deadline for USSP submittal, a schedule will need to be submitted within six months which includes detailed corrective actions and corresponding completion dates. These significant regulatory modifications will help enable

the cost for compliance with these provisions to be spread out over a longer period of time. Additionally, these revisions will provide water suppliers with even more flexibility in choosing the approach that best suits their particular water system, and adequate time to implement that plan in the most effective manner.

An estimated 30% of small systems (<3,300) or 485 systems may need to use rental services for a portable generator, or install a back-up power supply. Assuming that 50% of the small systems will rent a generator and 50% will install their own equipment, the cumulative cost is estimated to be \$1,115,620. The estimate for medium and large systems is that 20% or 65 systems may need to install a back-up power supply at a cumulative cost of \$8,125,000. Between proposed and final rulemaking, the Department expanded the combination of alternate provisions systems may use, and included more flexibility to potentially spread the cost of compliance over a longer time period. As such, the cost estimates have been spread out over an anticipated 5-year period. Please refer to the Regulatory Analysis Form for this final-form rulemaking for more information about estimated costs and savings.

Cost savings of avoiding interruption of continuous supply of safe and potable water were evaluated using the Water Health and Economic Analysis Tool (WHEAT) software developed by EPA. The Department ran the model for a scenario of a water system serving 2,500 customers and experiencing a water outage for two days. The model outcomes regarding economic consequences are summarized as follows:

- The value of water sales that would have occurred if there was no disruption in water service is estimated to be \$2,891.
- The value of additional operating costs incurred during the event, which may include bottled/replacement water, equipment, other remediation, or miscellaneous costs is estimated at \$24,775.
- Total economic impact on the water utility due to the two-day outage (sum of the above losses) is estimated at \$27,666.
- Regional economic consequences for this same event are estimated at \$926,486. This is the total value of economic activity lost among businesses directly affected by the water service disruption, due to the contraction in business activity during the two-day event.

If the water utility complies with the revisions, the potential cost savings for this two-day outage, offsetting the costs to install additional auxiliary power, emergency interconnections with neighboring water systems, and/or finished water storage, are summarized above. These costs would increase with each additional day that the water outage continues.

Additional costs savings to water systems and customers will be the prevention of dewatering of the distribution system piping and protection from damage to collapsed water lines (due to lack of ability to provide adequate quantity water to maintain positive pressure).

An estimated 250 boil water advisories (BWA) occur each year and 25% or 63 BWAs are caused by water supply disruptions. The total annual cost savings to the regulated water systems is estimated at \$1,742,958. However, the regional economic cost savings to businesses is

estimated at more than \$58 million. These cost savings will offset the costs of improving system resiliency.

Compliance Assistance Plan

The Safe Drinking Water Program uses the Commonwealth's PENNVEST Program to offer financial assistance to eligible PWSs. 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, project affordability and 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 PWS operators. The DEP website also provides timely and useful information for treatment plant operators.

Paperwork Requirements

Paperwork requirements include:

- Updating a source water assessment report when a community water system's annual evaluation identifies changes to actual or potential sources of contamination.
- Reporting a failure of alarm or shutdown equipment.
- Developing and maintaining a distribution map for noncommunity water systems.
- Developing and maintaining a comprehensive monitoring plan.
- For CWSs, completing the USSP form provided by the Department, which provides a form field template for a plan, and incorporating this completed plan into their existing emergency response plans. Water suppliers will also need to submit the accompanying USSP Certification Form to verify they have completed a USSP, and that it is available upon Department request.
- For CWSs which have identified deficiencies in their ability to provide uninterrupted system service, but have not corrected these deficiencies by the deadlines specified in § 109.708(a) submitting a detailed corrective action plan and corresponding schedule.

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. Under this final-form rulemaking, the Department will evaluate the fees every three years and recommend regulatory changes to address any disparity between the program income generated by the fees and the Department's cost of administering the program.

H. *Regulatory Review*

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on August 9, 2017, the Department submitted a copy of the notice of proposed rulemaking, published at 47 Pa.B. 4986, 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 _____, 2018, this final-form rulemaking was deemed approved by the House and Senate Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on _____, 2018, and approved this final-form rulemaking.

I. *Findings of the Board*

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 at 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 proposal published 47 Pa.B. 4986 (August 26, 2017).
- (4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this order.

J. *Order of the Board*

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

- (a) The regulations of the Department of Environmental Protection, 25 Pa. Code Chapter 109, are amended by amending §§ 109.1, 109.5, 109.202, 109.204, 109.301 - 109.304, 109.416, 109.503, 109.505, 109.602, 109.606, 109.612, 109.701 - 109.706, 109.708, 109.713, 109.810, 109.1003, 109.1005, 109.1105, 109.1107, 109.1108, 109.1202 - 109.1204, 109.1206, 109.1302, 109.1303 and 109.1305 - 109.1307, and adding §§ 109.511, 109.716, 109.717, 109.1401 - 109.1413 to read as set forth in Annex A, and reserving § 109.305.

- (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.
- (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