

PROPOSED RULEMAKING

ENVIRONMENTAL QUALITY BOARD

[25 PA. CODE CH. 109]

Safe Drinking Water (General Update and Fees)

The Environmental Quality Board (Board) proposes to amend Chapter 109 (relating to safe drinking water). 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 auxiliary power.
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 proposal was adopted by the Board at its meeting of _____.

A. *Effective Date*

These amendments will go into effect upon publication in the *Pennsylvania Bulletin* as a final-form rulemaking. Several provisions are deferred for up to three years following promulgation to allow time for operational changes, budgeting or capital improvements.

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. Information regarding submitting comments on this proposal appears in Section I of this preamble. Persons with a disability may use the Pennsylvania AT&T Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This proposed rulemaking is available on the Department's web site at www.dep.pa.gov (select "Public Participation," then "Environmental Quality Board").

C. *Statutory Authority*

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

D. *Background and Purpose*

Part I: General Update Provisions

This rulemaking incorporates the remaining general update provisions that the Board previously determined should be proposed in a separate rulemaking. These general updates are intended to:

- 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, pre-drilling plan, evaluation of water quantity and quality, and 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 would be 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 auxiliary power or an alternate provision such as finished water storage or 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 proposed 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 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 Texas A&M study (1997) 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. The study also 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 (Trust for Public Land, 2002). A study by the Pennsylvania Legislative Budget and Finance Committee (2013) stated, “(r)educing pollution inputs from pipes and land-based sources can reduce locality costs to treat drinking water sources to safe standards.” Similarly, 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.

The need to understand and update potential threats to public drinking water sources, as well as ways to minimize those threats, was underscored by the January 2014 chemical spill in West Virginia that impacted the drinking water for 300,000 people. Currently, of the 10.6 million people served by CWSs in Pennsylvania, 7.7 million people are covered by local source water protection programs that have been substantially implemented. Substantial implementation is a term referenced in EPA work plans that indicates a measure of progress relative to source water protection efforts. These proposed amendments will help ensure that the remaining nearly three million people also benefit from local source water protection efforts.

Amendments to Surface Water Treatment Requirements:

The proposed amendments to surface water treatment requirements will benefit more than eight million Pennsylvanians who are supplied with water by PWSs utilizing filtration technologies. The amendments to the filtration requirements ensure identification and correction of problems at the plant before a turbidity exceedance occurs or escalates. 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 are 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 proposed amendments will 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 will prevent violations that pose an imminent threat to consumers, reduce PWS costs related to issuing public notice, reduce costs to the community, and maintain consumer confidence.

Revisions to System Service and Auxiliary Power Requirements:

The proposed 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.

Pennsylvania'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 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 proposed 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 (*i.e.*, 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.

Part II: New Annual Fees and Amended Permit Fees

Pennsylvania is ranked third in the nation in terms of the number of PWSs, with 8,521 PWSs across the Commonwealth. The Department is responsible for regulating all PWSs and ensuring that safe and potable drinking water is continuously supplied to the 10.7 million customers they serve. To carry out these responsibilities, the Department must ensure adequate funding for the Safe Drinking Water Program.

The Board has the authority to establish fees for permit applications, laboratory certification and other services. Section 4(c) of the SDWA requires that “such fees shall bear a reasonable relationship to the actual cost of providing a service” (35 P.S. § 721.4(c)). The Department considers the following minimum program elements to be components of a service provided by the Drinking Water Program:

- 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 all Commonwealth and Federal recordkeeping and reporting requirements;
- Conducting training;
- Providing technical assistance; and
- Responding to water supply emergencies.

The proposed rulemaking is necessary to generate adequate funding for the Department to carry out these minimum program elements. Failure to meet minimum program elements may result in an increased risk to public health as well as the loss of the Department’s ability to serve as the primary enforcement agency under Federal law. This proposed rulemaking is expected to generate sufficient funds to cover half of the Commonwealth’s share of the costs to implement the Safe Drinking Water Program. The remainder will continue to come from the Commonwealth’s general fund.

Program Staffing and Performance

The number of sanitary surveys (full inspections) conducted by the Department has steadily declined since 2009. The Federally mandated inspection frequency is every 3 years for CWSs and every 5 years for NCWSs.

SDW Measure	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
No. Sanitary Surveys	3,177	2,271	2,553	2,310	2,181	2,415	1,847

(Source: Governor’s Office Performance Measures, data source is Environment Facility Application Compliance Tracking System (eFACTS))

The number of overdue inspections has ranged from 448 to 703 in the last 6 years. Failure to conduct routine and timely inspections may mean that serious violations are not being identified. In 2015, all six DEP regions had overdue inspections. The range of overdue inspections was 2.4 % to 11.5 %. The total number of systems with overdue inspections was 542. The Federal Public Water System Supervision (PWSS) Grant and primacy measure for inspection frequency has not been met.

SDW Measure	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
No. Overdue Inspections	703	551	458	448	492	542

(Source: eFACTS and Pennsylvania Drinking Water Information System (PADWIS))

The reduction in staffing levels and inability to conduct routine and timely inspections because of funding shortfalls may be contributing to the overall declining trend in PWS compliance rates. For the last four years, the percentage of CWSs that met health-based drinking water standards fell short of the goal of 95%.

SDW Measure:	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
% of CWSs that Meet Health-based Drinking Water Standards	97%	97%	97%	91%	92%	92%	91%

(Source: Governor’s Office Performance Measures, data source is PADWIS)

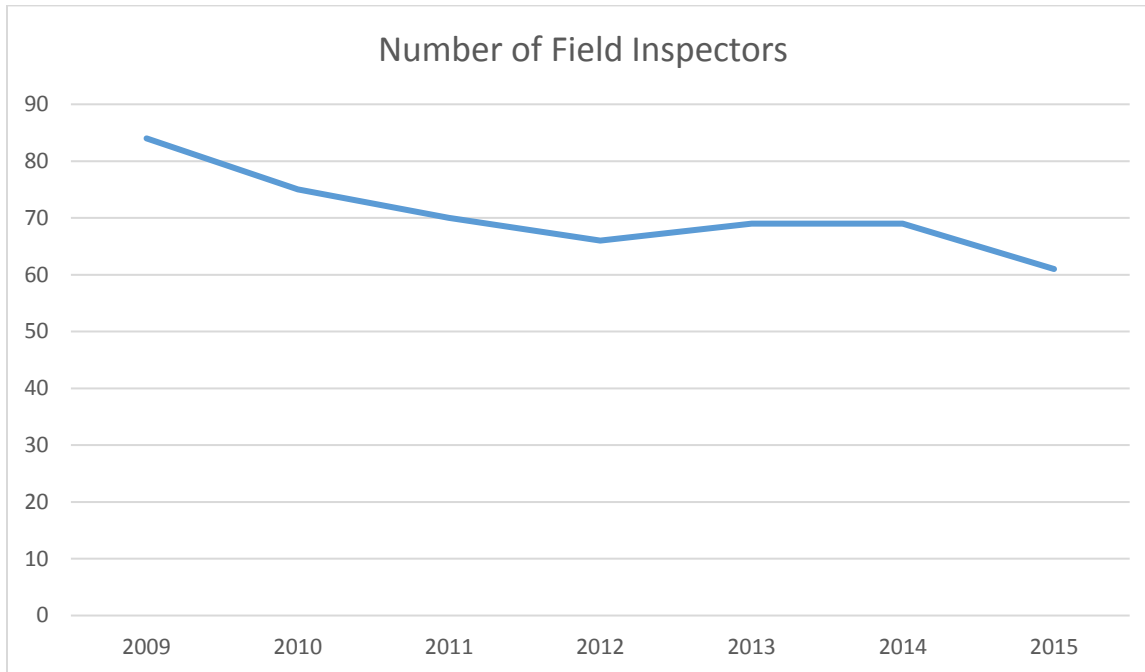
As per the Department’s Annual Compliance Report for 2015, PWSs continue to exceed health-based maximum contaminant levels (MCL), maximum residual disinfectant levels (MRDL), and treatment technique (TT) requirements for arsenic, radionuclides, volatile organic chemicals, disinfection byproducts, nitrate/nitrite and pathogens; and for failure to adequately treat drinking water for contaminants such as lead.

The number of unaddressed violations has also continued to increase. In 2015, three of six DEP regions had more than 500 violations that had not been returned to compliance within 180 days or addressed through formal enforcement. (Note: Unaddressed violations are tracked over a five-year period because it generally takes several years to return MCL violations to compliance.)

SDW Measure:	FY 05-10	FY 06-11	FY 07-12	FY 08-13	FY 09-14	FY 10-15
No. Unaddressed Violations	4,298	4,746	5,536	6,849	6,353	7,922

(Source: PADWIS)

Performance is directly tied to the mandated workload and available resources for the Safe Drinking Water Program. Overall, staffing levels are down by 25% since 2009.



Thus, the Department’s workload has steadily increased since 2009. As per a workload analysis, the recommended number of PWSs/sanitarian was determined to be 100-125 to ensure completion of mandated inspections, review of PWS self-monitoring data, compliance and enforcement determinations, maintenance of PADWIS and eFACTS, review of monitoring plans, emergency response plans, assessments, and waivers. In 2009, the Department’s average workload was within the recommended range at 118 PWSs/sanitarian. In 2015, five of six DEP regions exceeded the recommended workload. The recommended workload has been exceeded in at least four of six DEP regions for the last three years. As per a 2012 Association of State Drinking Water Administrators (ASDWA) survey, the national range and average of PWSs/inspector is 45-140 and 67, respectively. All DEP regions far exceed the national average.

Region	No. PWSs			No. Sanitarians			Sanitarian Workload (No. PWSs/San)		
	2009	2014	2015	2009	2014	2015	2009	2014	2015
1 SERO	1,062	911	911	9	7	6	118	130	152
2 NERO	2,973	2,555	2,559	23	20	19	129	128	135
3 SCRO	2,596	2,400	2,408	21	14	13	124	171	185
4 NCRO	1,115	937	941	10	7	6	112	134	157
5 SWRO	879	680	694	10	8	6	88	78	105
6 NWRO	1,302	1,211	1,205	11	9	7	118	117	158
Totals	9,927	8,694	8,718	84	65	57	118 Avg.	134 Avg.	153 Avg.

Final numbers for FY 2016/2017 will be finalized in June 2017. Currently, the number of sanitarian positions is 61. This workforce includes 43 sanitarians, 11 trainees and seven

vacancies. Due to the ever-increasing complexity of the drinking water program, trainees are not considered adequately trained until they have at least two years of experience. In addition, due to a Department-wide complement reduction, it is unclear if or when the program will receive approval to fill the seven vacancies. As such, the actual available workforce is 54 sanitarians with a workload of 158 PWSs/sanitarian. Of those 54 sanitarians, 26 have four years or less of experience.

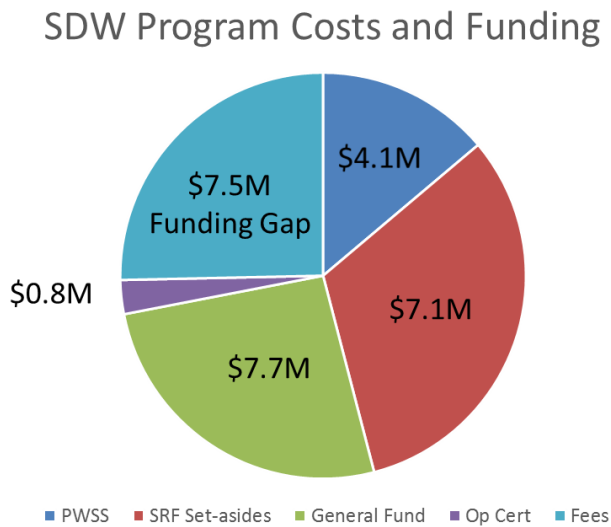
Performance issues and concerns have been well documented by EPA since 2009:

- EPA Region III PWSS Program Review for DEP Bureau of Water Standards and Facility Regulation (July 2009): identified the impacts of a 2008 hiring freeze that prevented the filling of vacancies to reach the full additional complement, and led to inadequate training of field staff. These problems continue today.
- EPA Region III Review of the Bureau of Safe Drinking Water (December 2012): identified that the Department was unsuccessful at retaining all allocated drinking water full time employees as of June 2009 due to budget cuts and increasing costs. Further, the report documented that the number of field inspectors was down by 20% since June of 2009. The report also found that because of staffing cuts, the Department had a backlog of required sanitary surveys (full inspections), and a backlog of Pennsylvania Drinking Water Information System (PADWIS) programming modifications and reports.
- Program performance is currently under review by EPA Region III. An EPA letter dated December 30, 2016 further documents the Department's poor performance. As per the letter, EPA's concerns include the following:
 - Programmatic requirements are not being met in a complete and timely manner. Minimum program requirements must be met for the Commonwealth to maintain primacy for the Safe Drinking Water Program.
 - DEP's average of 149 PWSs/sanitarian is more than double the ASDWA national average. EPA cautions DEP that this kind of excessive workload is not sustainable and program performance will continue to suffer.
 - DEP failed to meet the Federal requirement for sanitary surveys, which can have serious public health implications as major violations could be going unidentified.
 - In November 2016, EPA conducted a file review of PA's Lead and Copper Rule. EPA is currently reviewing the information collected. EPA's report intends to highlight insufficient program personnel in its findings and recommendations.
 - EPA is encouraged by DEP's proposed rulemaking to increase program funding and is hopeful that the Drinking Water Program will receive the necessary resources to improve program performance and reduce personnel shortfalls.
 - A written action plan was due to EPA within 60 days of the letter (by February 28, 2017). The Department sent a response to EPA on February 24, 2017. Failure to meet minimum program elements may jeopardize EPA's approval of the Department's authority to enforce the Federal law.

To improve program performance, the proposed rulemaking is intended to supplement state costs for administering the Safe Drinking Water Program by filling the funding gap. The proposed fees will total approximately \$7.5 million annually and will account for nearly 50% of the Program’s state funding. The fees will augment the Program funding currently coming from the General Fund (\$7.7 million). Note: If General Funds do not keep pace with state costs, the funding gap will continue to grow.

The below figure includes a breakdown of total Safe Drinking Water Program costs and funding sources.

TOTAL SAFE DRINKING WATER PROGRAM COSTS AND FUNDING



Total Safe Drinking Water Program costs and funding:

Federal funds (~\$11.2 million):

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

Commonwealth funds (~\$16 million):

- General Fund (~\$7.7 million) – used for personnel costs
- Operator Certification Sub-fund (\$0.8 million) – used for Operator Certification Program costs
- Funding Gap (\$7.5 million)

Total Costs = Federal (\$11.2 million) + Commonwealth (\$16 million) = \$27.2 million

The proposed annual fees and increased permit fees apply to all 8,521 PWSs, including:

- CWSs = 1,952
- Nontransient noncommunity water systems (NTNCWS) = 1,088
- Transient noncommunity water systems (TNCWS) = 5,309
- Bottled, vended, retail and bulk water hauling systems (BVRB) = 172

The annual fees range from \$250 - \$40,000 for CWSs, \$50 - \$1,000 for NCWSs, and \$1,000 - \$2,500 for BVRBs. The fees will most likely be passed on to the 10.7 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.

At least 26 states charge annual fees to augment the cost of their Drinking Water Program. 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 are summarized below.

Summary of Public Water System Fees Levied by Other States as of January 2017	
State	Fee
Alaska	18 AAC § 80.1910 Type: Fee for Service Examples: Sanitary survey - \$398 to \$585 for 1 st source + \$117 for each additional source, other inspections - \$64/hour
Arkansas *	AC § 20-28-104(a) Type: Annual Fee CWSs and NTNCWSs: Based on # connections \$0.30/connection/month, minimum fee = \$250 TNCWSs: \$125
California	Title 22 CCR, Division 4, Chapter 14.5, § 64305 Type: Annual Fee CWSs: minimum \$250 or \$6/connection (fee per connection on declining tiered scale from \$6 to \$1.35) NTNCWSs: minimum \$456 or \$2/person TNCWSs: \$800
Colorado	CRS § 25-1.5-209 Type: Annual Fee CWSs: Based on population Surface Water: ranges from \$75 - \$21,630 Ground Water: ranges from \$75 - \$4,450 NTNCWSs: ranges from \$75 - \$4,450 TNCWSs: ranges from \$75 - \$3,960
Delaware *	16 Del. Code § 135(b)(1) Type: Annual Fee CWSs: Based on # service connections, ranges from \$50 - \$3,000 NTNCWSs: \$50 TNCWSs: \$25

Summary of Public Water System Fees Levied by Other States as of January 2017	
State	Fee
Florida	FAC § 62-4.053 Type: Annual Fee CWSs: Based on permitted design capacity Ranges from \$100 – \$6,000 NTNCWSs: \$100 TNCWSs: \$50
Idaho	IAC § 58.01.08-010 Type: Annual Fee CWSs and NTNCWSs: Based on # connections 1-20 \$100 21-184 \$5/connection, max. \$735 185-3,663 \$4/connection, max. \$10,988 >3,664 \$3/connection TNCWSs: \$25
Indiana	IC § 13-18-20.5-2 Type: Annual Fee CWSs: Based on # connections - < 400 connections \$350 ≥ 400 connections \$0.95/connection NTNCWSs: Based on population – ranges from \$150 - \$300 TNCWSs: Based on source water type – ranges from \$100 - \$200
Kansas	K.A.R. 28-15-12 Type: Annual Fee CWSs: Capped at \$0.002 per 1,000 gallons of water sold
Louisiana *	Act 605 of 2016 Type: Annual Fee CWSs: Based on # connections, \$12/connection
Maine	§ 10-144, CMR Chapter 231, § 1-A Type: Annual Fee Base Fee (\$75) + (\$0.45 (per capita rate) x (pop)) Cap = \$30,000
Massachusetts	MGL, Chapter 21A, Section 18A Type: Annual Fee PWSs: Metered – minimum \$20, \$8.50/million gallons used Unmetered – \$50 - \$250 based on population
Michigan	MI SDWA, 1976, PA 399 Type: Annual Fee CWSs: Based on population, ranges from \$400 - \$134,000 NTNCWSs: \$575 TNCWSs: \$135
Minnesota *	Minnesota Statutes 2009, § 144.3831 Type: Annual Fee CWSs: Based on # connections, \$6.36/connection

Summary of Public Water System Fees Levied by Other States as of January 2017																
State	Fee															
Mississippi *	MS ST § 41-26-23 Type: Annual Fee CWSs: Based on # connections, \$3.00/connection, cap = \$40,000															
Missouri *	RSMO § 640.100.8 Type: Annual Fee CWSs only: Based on # connections, whether connections are metered, and the size of the meters. \$1.08 - \$3.24/connection															
Montana	ARM § 17.38.248 Type: Annual Fee CWSs: Based on # connections – \$2.00/connection, Minimum fee = \$100 NTNCWSs: \$100 TNCWSs: \$50															
New Jersey	NJAC § 7:10-15 Type: Annual Fee CWSs only: Based on population, and whether system has treatment. <table border="0" style="margin-left: 40px;"> <tr> <td></td> <td style="text-align: center;">w/o treatment</td> <td style="text-align: center;">w/t</td> </tr> <tr> <td>25-999</td> <td style="text-align: center;">\$60</td> <td style="text-align: center;">\$120</td> </tr> <tr> <td>1,000-9,999</td> <td style="text-align: center;">\$360</td> <td style="text-align: center;">\$720</td> </tr> <tr> <td>10,000-49,999</td> <td style="text-align: center;">\$790</td> <td style="text-align: center;">\$1,580</td> </tr> <tr> <td>>50,000</td> <td style="text-align: center;">\$1,640</td> <td style="text-align: center;">\$3,280</td> </tr> </table>		w/o treatment	w/t	25-999	\$60	\$120	1,000-9,999	\$360	\$720	10,000-49,999	\$790	\$1,580	>50,000	\$1,640	\$3,280
	w/o treatment	w/t														
25-999	\$60	\$120														
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10,000-49,999	\$790	\$1,580														
>50,000	\$1,640	\$3,280														
North Carolina	NC ST § 130A-328 Type: Annual Fee CWSs: Based on population, fee ranges from \$255 - \$5,950 NTNCWSs: \$150															
Ohio	R.C. § 3745.11 Type: Annual Fee CWSs: Based on sliding scale of # connections, min. \$112 For 100 or more connections, fee ranges from \$0.76 - \$1.92/connection <table border="0" style="margin-left: 40px;"> <tr> <td># Connections</td> <td></td> </tr> <tr> <td>278 (pop=750)</td> <td style="text-align: right;">\$534</td> </tr> <tr> <td>1,222 (pop=3,300)</td> <td style="text-align: right;">\$2,346</td> </tr> <tr> <td>3,704 (pop=10,000)</td> <td style="text-align: right;">\$5,482</td> </tr> <tr> <td>18,518 (pop=50,000)</td> <td style="text-align: right;">\$20,370</td> </tr> <tr> <td>92,592 (pop=250,000)</td> <td style="text-align: right;">\$85,185</td> </tr> </table> NTNCWSs: ranges from \$112 - \$16,820 TNCWSs: ranges from \$112 - \$792	# Connections		278 (pop=750)	\$534	1,222 (pop=3,300)	\$2,346	3,704 (pop=10,000)	\$5,482	18,518 (pop=50,000)	\$20,370	92,592 (pop=250,000)	\$85,185			
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18,518 (pop=50,000)	\$20,370															
92,592 (pop=250,000)	\$85,185															
Oklahoma	OAC § 631-3-21 Type: Annual Fee All PWSs: <table border="0" style="margin-left: 40px;"> <tr> <td colspan="4" style="text-align: center;">Flat fee for inspections + Flat fee for SDWA activities + Lab costs</td> </tr> <tr> <td>Ground water</td> <td style="text-align: center;">\$100</td> <td style="text-align: center;">+</td> <td style="text-align: center;">\$1,600</td> <td style="text-align: center;">+</td> </tr> <tr> <td>Surface water</td> <td style="text-align: center;">\$200</td> <td style="text-align: center;">+</td> <td style="text-align: center;">\$6,800</td> <td style="text-align: center;">+</td> </tr> </table>	Flat fee for inspections + Flat fee for SDWA activities + Lab costs				Ground water	\$100	+	\$1,600	+	Surface water	\$200	+	\$6,800	+	
Flat fee for inspections + Flat fee for SDWA activities + Lab costs																
Ground water	\$100	+	\$1,600	+												
Surface water	\$200	+	\$6,800	+												

Summary of Public Water System Fees Levied by Other States as of January 2017																
State	Fee															
Rhode Island	R46-13-DWQ Type: Annual License Fee CWSs: Based on # connections – \$1.50 per connection, ranges from \$330 - \$32,500 NTNCWSs: \$330 TNCWSs: \$200															
South Carolina	S.C. Code of Regulations R. 61-30.G(2) Type: Annual Fee CWSs and NTNCWSs: 3 Components: Administration + Distribution Monitoring + Source Monitoring Costs for Admin only: <table border="0"> <thead> <tr> <th># Connections</th> <th>Base amount + rate/tap</th> <th>Total Fee</th> </tr> </thead> <tbody> <tr> <td>278 (pop=750)</td> <td>\$769 + \$3.85/tap</td> <td>\$1,839</td> </tr> <tr> <td>1,222 (pop=3,300)</td> <td>\$3,749 + \$1.96/tap</td> <td>\$6,144</td> </tr> <tr> <td>18,518 (pop=50,000)</td> <td>\$23,389 + \$0.46/tap</td> <td>\$31,907</td> </tr> <tr> <td>92,592 (pop=250,000)</td> <td>\$35,239 + \$0.17/tap</td> <td>\$50,979</td> </tr> </tbody> </table> TNCWSs: \$275	# Connections	Base amount + rate/tap	Total Fee	278 (pop=750)	\$769 + \$3.85/tap	\$1,839	1,222 (pop=3,300)	\$3,749 + \$1.96/tap	\$6,144	18,518 (pop=50,000)	\$23,389 + \$0.46/tap	\$31,907	92,592 (pop=250,000)	\$35,239 + \$0.17/tap	\$50,979
# Connections	Base amount + rate/tap	Total Fee														
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92,592 (pop=250,000)	\$35,239 + \$0.17/tap	\$50,979														
Texas	30 TAC § 290.51 Type: Annual Fee CWSs and NTNCWSs: Based on # connections – <25 \$200 25-160 \$300 ≥161 \$4/connection TNCWSs: \$100															
Virginia	12VAC5-600-50 to 110 Type: Annual Fee CWSs: Based on # connections –\$3/connection, cap = \$160,000 <table border="0"> <thead> <tr> <th># Connections</th> <th></th> </tr> </thead> <tbody> <tr> <td>278 (pop=750)</td> <td>\$834</td> </tr> <tr> <td>1,222 (pop=3,300)</td> <td>\$3,666</td> </tr> <tr> <td>18,518 (pop=50,000)</td> <td>\$55,554</td> </tr> <tr> <td>92,592 (pop=250,000)</td> <td>\$160,000</td> </tr> </tbody> </table> NTNCWSs: \$90	# Connections		278 (pop=750)	\$834	1,222 (pop=3,300)	\$3,666	18,518 (pop=50,000)	\$55,554	92,592 (pop=250,000)	\$160,000					
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278 (pop=750)	\$834															
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18,518 (pop=50,000)	\$55,554															
92,592 (pop=250,000)	\$160,000															
Washington	WAC 246-290-070 Type: Annual Fee Based on # connections – cap = \$100,000 Base Fee + Per Connection Fee \$100 + \$1.05 to \$1.30															

* Indicates a State where a portion of the annual fee goes towards monitoring costs in addition to administrative costs to run the drinking water program.

The proposed 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 Safe Drinking Water Act (35 P.S. § 721.14), 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. The funds may only be used for such purposes as are authorized under the Act.

Part III: New Amendments

Finally, this proposal will amend other parts of Chapter 109 to:

- Establish the regulatory basis for the issuance of general permits for high volume, low risk modifications or activities to streamline the permitting process.
- Clarify that NCWSs that are not required to obtain a permit must still obtain Department approval of the facilities prior to construction and operation.
- Address concerns related to gaps in the monitoring, reporting and tracking of back-up water sources and entry points. As per Commonwealth and Federal regulations, 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. PWSs will also be required to document in a comprehensive monitoring plan how routine compliance monitoring will include all sources and entry points.

The proposed rulemaking was presented to the Technical Assistance Center for Small Drinking Water Systems (TAC) on November 14, 2016. TAC met again on January 5, 2017 to continue its review and provide comments. Final comments were received on January 23, 2017. TAC made several recommendations, some of which were incorporated into this proposed rulemaking. Other recommendations were incorporated into this preamble as a means to solicit further public comment. Please refer to Section E for more information about TAC's comments and recommendations.

E. Summary of Regulatory Requirements

§ 109.1. Definitions.

New definitions are proposed for “Public Drinking Water Equipment Performance (PDWEP)”, “source water assessment”, “source water protection area”, “source water protection program”, “surface water intake protection area”, and “surface water intake protection program”, and amendments are proposed to the existing definitions for “wellhead protection area” and

“wellhead protection program”. Except for “PDWEP”, these terms are necessary to clarify source water protection requirements in the Federal Safe Drinking Water Act.

Regarding the definition of surface water intake protection area, TAC recommended that the Department take measures to protect the confidentiality of source water and intake locations consistent with the Public Utility Confidential Security Information Disclosure Protection Act (35 P.S. §§ 2141.1—2141.6) and the Right-to-Know Law (65 P.S. §§ 67.101—67.3104). The Department avers that source locational information is protected consistent with these laws.

§109.5. Organization of chapter.

This section is proposed to be amended to add a new Subchapter N (relating to drinking water fees) to the regulations.

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

Section 109.202(c)(1)(i)(A)(V) is proposed to be added to require PWSs to achieve, within one year of the effective date of promulgation of the final-form regulation, filtered water turbidity of less than or equal to 0.30 Nephelometric Turbidity Unit (NTU) in at least 95% of the measurements taken each month under § 109.301(1), and less than or equal to 1.0 NTU at all times measured under § 109.301(1).

TAC commented that “the federal turbidity requirement is 0.3 NTU, not 0.30 NTU”. TAC claimed that “adding a zero to the MCL is not based on science (see Standard Methods methodology regarding significant figures). The same issue applies to establishing the turbidity limit of 1.0 NTU”; TAC asserted “it should be 1 NTU per the EPA limit”. TAC further referenced “the formal public comment regarding significant figures by Jeanne VanBriesen, Professor, Carnegie Mellon University”, which was “provided to DEP on the proposed Disinfection Requirements Rule”.

The Department avers that the revisions to the turbidity standard are warranted. Turbidity is a surrogate measurement for pathogen breakthrough, primarily for the acute pathogen *Cryptosporidium*. As turbidity increases, particle (and pathogen) breakthrough increases. This relationship is well established and accepted by the industry. In addition, industry expert research indicates that as filter effluent turbidity increases from baseline levels, the risk of *Cryptosporidium* breakthrough also increases. For example, several peer reviewed studies have specifically documented significant reduction in *Cryptosporidium* removal during breakthrough filtration as compared to stable operation. (Huck, P.M. et al, 2002. *Effects of Filter Operation on Cryptosporidium Removal*. Jour. AWWA, 94:6:97.) , Emelko, M.B. et al, 2003. *Cryptosporidium and Microsphere Removal During Late in Cycle Filtration*. Jour. AWWA, 95:5:173.)

Per Department records, the large majority of filter plants in Pennsylvania typically produce water that is less than 0.10 NTU. Water suppliers may be most challenged at meeting the lower turbidity standard when they are experiencing significant increases in turbidity. The intent of the proposed amendments is that water suppliers will be able to take the necessary corrective actions

(e.g., remove filter from service) earlier if they are experiencing significant treatment issues. When water suppliers take timely corrective actions, higher turbidity water is prevented from reaching consumers, and violations are avoided.

Additionally, the Department asserts that it is appropriate to “add zeros” for some drinking water standards where the level of sensitivity is warranted by the analytical method. In fact, several Federal drinking water standards end with a zero, including fluoride (4.0 mg/L), arsenic (0.010 mg/L), total trihalomethanes (TTHMs) (0.080 mg/L), haloacetic acids (HAA5) (0.060 mg/L), bromate (0.010 mg/L), chlorite (1.0 mg/L), chlorine (4.0 mg/L) and chloramine (4.0 mg/L). As per Water Supply Guidance (WSG) 20, EPA states that all MCLs are expressed in the number of significant digits permitted by the precision and accuracy of the specified analytical procedures. EPA considers all digits within the MCL to be significant for purposes of determining compliance. For example, EPA issued very clear guidance for the arsenic rule regarding how to determine compliance with the MCL of 0.010 mg/L. Results that are equal to or greater than 0.0105 mg/L are rounded to the nearest 0.001 mg/L and constitute a violation of the MCL. Regarding turbidity monitoring and recording devices, the instrumentation and method can produce precise and accurate results to the thousandths decimal (e.g., 0.000) as evidenced by the manufacturer’s specifications. Therefore, the improved sensitivity is warranted, and the amendments will improve public health protection. WSG 20 may be found at the following link: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100NEI3.txt> .

Section 109.202(c)(1)(i)(C) is proposed to be amended to include specific treatment technique requirements for membrane filtration. These standards are consistent with the results of pilot testing conducted throughout the State, 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>

§ 109.204. *Disinfection profiling and benchmarking.*

Section 109.204(b) is proposed to be amended and subsections (d) and (e) are proposed to be added to clarify the disinfection benchmark requirements for PWSs using surface water or GUDI sources. These amendments and additions reflect the Federal requirements found in 40 CFR 141.172 and 141.709. These proposed amendments also ensure that simultaneous compliance issues are assessed and addressed before making any changes to treatment.

TAC recommended that subsection (d) reflect the Federal regulations related to disinfection benchmarking and profiling and that subsection (e) include a requirement for the submittal of certain information to the Department. The Department agreed with these recommendations and made modifications accordingly.

§ 109.301. General monitoring requirements.

Section 109.301(1)(i) is proposed to be amended to remove a reference to § 109.301(1)(iii).

Section 109.301(1)(i)(A) and (B) are proposed to be amended to sunset to one year after the effective date of the regulation.

Existing § 109.301(1)(i)(C) is proposed to be renumbered as § 109.301(1)(i)(D).

Existing § 109.301(1)(i)(D) is proposed to be renumbered as § 109.301(1)(i)(E).

Section 109.301(1)(i)(C) is proposed to be added to require continuous monitoring and recording of the combined filter effluent (CFE) beginning one year after the effective date of the regulation. This amendment is consistent with existing individual filter effluent (IFE) turbidity monitoring and recording requirements. Health effects associated with microbial contaminants tend to be due to short-term, single dose exposure rather than long-term exposure. These amendments are part of a multi-barrier approach to ensure treatment is adequate to provide safe and potable water to all users.

TAC commented that many filter plants do not have the capability to sample combined filter effluent; therefore, an alternative methodology and locations should be available to meet the regulation. TAC stated that DEP should allow averaging of the individual filter effluent or, in some instances, allow the plant effluent to be utilized.

The Department has historically considered, and will continue to consider, on a case-by-case basis, alternative methodologies to comply. More specifically, if it is physically impossible for a system to obtain a representative sample (via sample line) from the actual CFE monitoring location, the Department will allow for instantaneous averaging of the IFE turbidity results to be reported for CFE compliance. In these instances, the water supplier would be required to make reasonable efforts to address the lack of CFE sampling during any future plant modifications. Sole reliance on an instantaneous average of IFE turbidity makes the water supplier more vulnerable to reporting violations, in the long term, should the system experience a breakdown in IFE monitoring equipment. Therefore, it is to the water supplier's advantage to develop a true CFE monitoring location if at all feasible.

Existing § 109.301(1)(ii) is proposed to be deleted.

Existing § 109.301(1)(iii) is proposed to be renumbered as § 109.301(1)(ii) and sunset one year after the effective date of the regulation.

Existing § 109.301(1)(iv) is proposed to be renumbered as § 109.301(1)(iii) and additional text was added to require continuous monitoring and recording of the IFE turbidity for filtration technologies other than conventional and direct beginning one year after the effective date of the regulation. This amendment ensures consistency among all filtration technologies.

Existing § 109.301(1)(iv)(A) is proposed to be moved to § 109.304(e).

Existing § 109.301(1)(iv)(B) – (D) are proposed to be deleted.

Section 109.301(1)(iv) is proposed to be added to clarify that all failures of continuous turbidity and residual disinfectant monitoring and recording equipment require grab sampling and manual recording not to exceed five working days and that it applies to all PWSs. This amendment is based on existing language in § 109.301(1) and ensures consistency among all PWSs.

TAC recommended that if continuous monitoring equipment cannot be repaired or replaced within the five working days, the PWS should not be in violation of § 109.301(1) if it notifies DEP.

The Department asserts that the monitoring equipment that water suppliers use to measure and record compliance every 15 minutes is necessary to protect public health. Water suppliers must take actions necessary to resume continuous monitoring and recording as soon as possible, but no later than within five working days, because for each day that four-hour grab sampling is used, water suppliers will have very limited data (six grab sample data points) to assess water quality and make operational changes (instead of 96 monitoring data points when continuous monitoring equipment is in use). Significant volumes of water are produced between each four-hour grab sampling event and no verifiable controls will be in place to ensure that the water continuously meets safe drinking water standards. However, in response to TAC's comment, language has been added to clarify that the Department will consider case-by-case extensions of the time frame if the water supplier provides sufficient written documentation that it is unable to repair or replace malfunctioning equipment within 5 working days due to circumstances beyond its control. If extensions are not pre-approved in writing by the Department, then a violation will occur.

Existing § 109.301(2)(i)(B) and (C) are proposed to be amended to sunset one year after the effective date of the regulation.

Section 109.301(2)(i)(D) is proposed to be added to require continuous monitoring and recording of the source water turbidity and to clarify grab sample monitoring requirements. This amendment was added to be consistent with filtration monitoring and recording requirements because health effects associated with microbial contaminants tend to be due to short-term, single dose exposure rather than long-term exposure.

Existing § 109.301(2)(i)(D) is proposed to be renumbered as § 109.301(2)(i)(E).

Existing § 109.301(2)(i)(E) is proposed to be renumbered as § 109.301(2)(i)(F).

Section 109.301(2)(ii) is proposed to be amended to sunset one year after the effective date of the regulation.

Section 109.301(2)(iii) is proposed to be amended to sunset one year after the effective date of the regulation.

Section 109.301(11) is proposed to be amended to clarify the monitoring requirements for entry points that do not provide water continuously. At a minimum, all entry points shall provide water to the public on at least an annual basis to ensure all sources and entry points are included in routine compliance monitoring.

This amendment is intended to address concerns related to gaps in the monitoring, reporting and tracking of back-up water sources and entry points. As per Commonwealth and Federal regulations, 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 Pennsylvania, 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 Pennsylvania, the following data was retrieved from 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 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 conducting 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 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 proposed amendments will ensure that all permitted sources and entry points are monitored at least annually.

TAC requested the Department to provide more details about how this provision would be applied to interconnections, or instances where the use of a source is limited by some other entity

or permit/approval. TAC also recommended that this proposed amendment have an effective date of one year after the effective date of the regulation.

The Department anticipates that select purchased interconnections will be able to retain the “emergency” designation if the following criteria are met. 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 also anticipates that select sources may be able to be retained in the permit, without conducting routine annual compliance monitoring, if documentation is provided to the Department that the use of the source is limited by some other entity or permit or approval. Select sources 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.

The Board is seeking comment on this amendment, the inclusion of the additional information provided above related to retention of the emergency designation of interconnections, and whether deferred implementation is needed. The Board will consider other options that address these concerns while providing the same level of public health protection.

§ 109.302. Special monitoring requirements.

Section 109.302(a) is proposed to be amended to allow the Department to require special monitoring if the Department has reason to believe that a system is not in compliance with an action level for lead or copper.

§ 109.303. Sampling requirements.

Section 109.303(a) is proposed to be amended to ensure that all samples taken for compliance purposes are collected at the required locations.

Section 109.303(a)(4) is proposed to be amended to be consistent with Federal requirements at 40 CFR 141.61, 141.62 and 141.66. Water suppliers are required to monitor at each entry point representative of each source after all treatment. This section was also amended to clarify the monitoring requirements when sources are blended or alternated prior to the entry point. In some cases, additional samples may need to be collected to ensure that the samples are representative of all sources.

TAC recommended that the Department provide additional discussion and examples to clarify this amendment. TAC expressed concern that too many real-world scenarios may exist to be covered by a blanket requirement. TAC also recommended that the provision be addressed in the facility permit.

The Department avers that the system-specific scenarios will be able to be addressed in the system's comprehensive monitoring plan required under § 109.717. However, the Board is seeking comment on whether additional regulatory language is needed for clarity.

Section 109.303(i) is proposed to be added to clarify that samples taken to determine compliance shall be taken in accordance with a written comprehensive monitoring plan as specified in new § 109.717. These plans are subject to Department review and revision.

§ 109.304. Analytical requirements.

Section 109.304(c)(2) is proposed to be amended to clarify that an individual conducting analysis using a standard operating procedure must do so following not only the Water and Wastewater Systems Operators' Certification Act (63 P.S. § 1001—1015.1) but also the regulations promulgated under that act.

Section 109.304(e) is proposed to be added to clarify turbidimeter calibration requirements. Existing language moved from § 109.301(1)(iv)(A) and was amended as described previously under § 109.301 (relating to general monitoring requirements) of this section.

TAC recommended that “the calibration schedule should remain at the current quarterly frequency for consistency and ease of enforcement [see § 109.301(1)(i)(B)]”. The reasoning for this recommendation is a concern that “every 90 days is more difficult to track and is not the same as quarterly”.

The Department avers that this revision relates to critical monitoring equipment that is needed to ensure acute pathogens such as *Cryptosporidium* and *Giardia* are not present in the drinking water supplied to customers. Therefore, a routine calibration frequency is critical to ensure ongoing data integrity. The Department's experiences during inspections and filter plant performance evaluations (FPPE) indicate the opposite of TAC's comment – that “quarterly” is more difficult to track than “every 90 days”. Based on Department review of calibration records during FPPEs, filter plants with standard operating procedures (SOPs) for calibration every 90 days had much better overall routine calibration of critical equipment than systems with SOPs for calibration on a quarterly basis. In one case, a water supplier met the quarterly calibration frequency by calibrating the instrument during the first quarter on January 2, 2016, and then again on June 30, 2016 to meet the second quarterly requirement. This system was technically in compliance. However, 178 days lapsed between calibrations, making the validity of the data questionable. The quarterly calibration frequency is far less consistent and protective of data integrity than calibration every 90 days. In addition, references from the largest manufacturer of turbidimeters (HACH Company) include the following language “calibrate once every 90 days, when used for compliance”. This proposed revision is a necessary clarification consistent with leading industry manufacturer expectations, and serves as a basis for protecting public health by

insuring accuracy of turbidity data (the surrogate measurement for pathogens). In response to concerns raised by TAC about violations for missing the 90-day maximum frequency by just a few days, the Department modified the language to allow it to “*extend this 90-day calibration frequency if the calibration due date coincides with a holiday or weekend, or during a water system emergency which prevents timely calibration.*” This revision will help reduce the likelihood of inadvertent violations while still maintaining a routine frequency to insure instrument accuracy.

§ 109.305. Fees.

This section is proposed to be reserved. Data management fees were a one-time fee and are being deleted. Monitoring waiver fees are being relocated to the new Subchapter N (relating to drinking water fees).

§ 109.416. CCR Requirements.

Section 109.416(4)(i) is proposed to be amended and § 109.416(4)(ii) is proposed to be added to require a public water system to mail a paper copy of the annual Consumer Confidence Report (CCR) to the Department rather than the other direct delivery options (including electronic delivery) currently provided in subparagraph (i). The Department requires a paper copy for its files. Existing subparagraphs (ii) through (vii) of this paragraph were renumbered to reflect this addition.

TAC recommended that electronic submission of CCRs to DEP be allowed as an environmentally prudent option.

The Department continues to investigate options for water suppliers to submit reports electronically, but resource considerations (including creating a secure computer application accessible to water suppliers, creating and maintaining a CCR format, legal verification of electronic data submittal, server space and retrieval of records) will affect when and how electronic reporting to DEP occurs. CCRs are documents that must be easily available to the public upon request. Electronic submission of the CCR may still require the Department to print a paper copy for the public records file, which adds additional Department costs to print CCRs for the nearly 2,000 regulated CWSs. Additionally, water suppliers are required to maintain a sufficient number of paper copies to fulfill the good-faith delivery provisions to consumers that do not receive water bills, such as customers that rent, and to provide to the public upon request. Thus, one additional paper copy for the Department is not burdensome to a CWS.

§ 109.503. Public water system construction permits.

Section 109.503(a) is proposed to be amended to correct the Department’s Drinking Water Bureau name and mailing address.

Section 109.503(a)(1)(iii) is proposed to be amended to add the requirement to submit a source water assessment and pre-drilling plan as part of a new source permit application. In addition, the clauses under this subparagraph were reorganized to clarify the order in which key actions

are taken during the process of permitting a new source. These proposed amendments will help ensure that public water systems obtain the highest source water quality available, and that the proper level of treatment for the source is identified and installed in a timely manner. Overall, these amendments will not only protect public health but also help to maintain, reduce or avoid drinking water treatment costs. These amendments are consistent with existing Department guidance, and are based on a significant amount of experience permitting new drinking water sources throughout the Commonwealth.

TAC recommended that DEP provide confidentiality of the source and intake identification and location per the Public Utility Confidential Security Information Disclosure Protection Act and the Right-to-Know Law. As per long-standing policy, the Department protects source locational information consistent with these laws.

Section 109.503(c) is proposed to be amended to require an application fee in the amount required under the new Subchapter N.

§ 109.505. Requirements for noncommunity water systems.

Sections 109.505(a)(2)(i) and (ii) are proposed to be amended to clarify the specifications and conditions that noncommunity water systems must meet to avoid obtaining a permit from the Department. These amendments also clarify that Department approval is needed prior to construction or operation.

Section 109.505(a)(3)(ii) is proposed to be amended to correct a Chapter 109 cross reference to reflect amendments to § 109.503(a)(1)(iii).

§ 109.511. General permits.

This section is proposed to be added to establish the regulatory basis for the issuance of general permits. General permits are intended for high volume, low risk modifications or activities, and can streamline the permitting process.

TAC recommended that the entity submitting the first general permit application should not incur all the cost for submitting the General Permit Application because the general permit would benefit all future users and DEP. The cost to the first entity seeking coverage under a general permit issued by the Department would be the same for all entities seeking coverage. To provide certainty to the regulated community, the Department is proposing in this section that reasonable fees (not to exceed \$500) will be established in each general permit for anyone seeking coverage from the Department under a general permit. Draft general permits are noticed in the *Pennsylvania Bulletin* for public comment. The public will be able to provide comments on the fees in addition to the technical aspects of the general permit.

The Board is seeking comment on the types of modifications or activities that may be appropriate for a general permit.

§ 109.602. Acceptable design.

Section 109.602(a) is proposed to be amended to include Subchapter K (relating to lead and copper) to clarify that a public water system must be designed to be able to comply with standards established in that chapter.

Section 109.602(e) is proposed to be amended to clarify that point-of-use devices are not acceptable treatment to comply with a maximum residual disinfectant level (MRDL). The addition of “MRDL” was to remain consistent with regulatory language in Subchapter F.

Sections 109.602(f), (g), (h), and (i) are proposed to be 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 proposed 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 are included in Section F of this preamble.

The Department notes that the proposed 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 proposed 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.

Section 109.606(a) is proposed to be amended to clarify that equipment which may come into contact with water or affect the quality of the water may not be used unless the equipment is acceptable to the Department.

Section 109.606(c) is proposed to be amended to clarify that equipment, including mechanical devices and drinking water treatment equipment, which are certified for conformance with American National Standards Institute (ANSI)/NSF International (NSF) Standard 61 are deemed acceptable to the Department.

New § 109.606(d) is proposed to be added to clarify that drinking water treatment equipment shall be certified for inactivation, reduction or removal performance, and to allow equipment which is certified for conformance with the NSF Guidelines for Public Drinking Water Equipment Performance (PDWEP) to be acceptable for use in PWS construction or modification.

Existing § 109.606(d) is proposed to be renumbered as § 109.606(e) and amended to add reference to new subsection (d) and PDWEP.

New § 109.606(e)(2) and § 109.606(e)(3)(iv) are proposed to be amended to add references to new PDWEP.

TAC commented that water suppliers have encountered product suppliers that have certified products to conform to either Standard 60 or 61 or PDWEP and do not mark individual product containers. For example, bulk deliveries typically are provided with a certification document and not product markings. In these cases, it has been the Department's practice to require the water supplier to provide documentation that the bulk delivery was NSF certified. In this case, the chemical supplier must also be NSF certified for repackaging.

Section 109.606(e)(3)(v) is proposed to be added to require ANSI equivalent accreditation for the quality assurance/quality control (QA/QC) of equipment claimed to remove or reduce a contaminant.

Section 109.606(e) is proposed to be renumbered as § 109.606(f).

§ 109.612. POE devices.

Section 109.612(b) is proposed to be amended to update the reference to a subsection that was amended in § 109.606. This section was also amended in response to TAC's recommendation that the Department should add "components" to point-of-entry (POE) devices used by public water suppliers.

§ 109.701. Reporting and recordkeeping.

Section 109.701(a)(2)(i)(A) is proposed to be amended to clarify that this clause pertains to CFE turbidity.

Section 109.701(a)(2)(i)(A)(VIII) and (IX) are proposed to be added to reflect proposed amendments in § 109.202(c)(1)(i).

Section 109.701(a)(2)(ii)(A) is proposed to be amended to clarify the turbidity reporting requirements for systems using unfiltered surface water sources and to reflect proposed amendments in § 109.301(2)(i).

Section 109.701(a)(3)(iii)(B) and (C) are proposed to be amended to clarify what situations would require one-hour reporting to the Department.

In addition to the reporting requirements found under § 109.701(a)(1), a new § 109.701(a)(10) is proposed to be added to require water systems to report individual constituents for TTHMs and HAA5. These data are already measured and determined by laboratories and have been voluntarily reported since 2011. These data are necessary for public water systems to identify trends in disinfection byproduct formation and better manage their disinfection practices. Reporting of individual constituent data are consistent with Federal reporting requirements.

Existing § 109.701(a)(10) is proposed to be renumbered as § 109.701(a)(11).

Section 109.701(e)(2) is 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) are 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 turbidity reporting requirements are being strengthened because health effects associated with microbial contaminants tend to be due to short-term, single dose exposure rather than long-term exposure. These amendments are part of a multi-barrier approach to ensure treatment is adequate to provide safe and potable water to all users.

TAC commented that this provision is “more stringent than Federal IFE turbidity standards” and that the “provision also reduces IFE turbidity standards significantly as well”. TAC referred to “the requirements of the Interim Enhanced Surface Water Treatment Rule and Long Term 1 Enhanced Surface Water Treatment Rule per EPA Fact Sheets and EPA Compilation of Quick Reference Guides from 2011”. TAC noted that the proposed amendments would require reporting in the following circumstances:

- IFE turbidity in two consecutive 15 minute readings at end of 4 hours of operation or after filter is off line exceeds 0.30 NTU rather than 0.5 NTU;
- IFE turbidity maximum in two consecutive 15 minute readings exceeds 0.30 NTU rather than 1.0 NTU;
- IFE turbidity in two consecutive 15 minute readings for three consecutive months exceeds 0.30 NTU rather than 1.0 NTU; and
- IFE turbidity in two consecutive 15 minute readings for two consecutive months exceeds 1.0 NTU rather than 2.0 NTU.

TAC asserted 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 offers 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 is very simple science supported by existing regulations and industry experts. The vast majority of 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. The real-world impact to operational practices at Pennsylvania filter plants under the proposed revisions would be that water suppliers take important corrective actions (*e.g.*, remove the filter from service, consult with Department, notify customers) sooner. This will 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 (*e.g.*, *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, the current IFE turbidity standards do not provide an adequate level of protection. Additionally, several peer reviewed studies have specifically documented significant reduction in *Cryptosporidium* removal during breakthrough filtration as compared to stable operation. (Huck, P.M. et al, 2002; Emelko, M.B. et al, 2003). Therefore, failure to adopt the proposed revisions will increase the risk of exposure to pathogens whenever significant operational problems occur with individual filters. This interim step is necessary to protect public health now. This small step will also better position water systems for future, more significant, reductions in turbidity requirements via Federal regulations.

In addition, for the reasons discussed previously under § 109.202, the Department believes that it is appropriate to add zeros for some drinking water standards where the level of sensitivity is warranted by the analytical method.

§ 109.702. Operation and maintenance plan.

Section 109.702(a) is proposed to be amended to clarify that a water system must have an operation and maintenance plan that follows guidelines in the Public Water Supply Manual, and includes the information contained in § 109.702(a)(1)-(14).

Section 109.702(a)(13) is proposed to be amended to require that the operation and maintenance plan also include an exercise and testing program for alarm and shutdown and auxiliary power equipment. This requirement was added because testing of all critical water system components is consistent with § 109.4(3) and (4).

§ 109.703. *Facilities operation.*

Section 109.703(b)(1)-(3) is proposed to be amended to remove implementation dates that have already passed.

Section 109.703(b)(1) is proposed to be also amended to strengthen filter-to-waste requirements. 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 backwashing and/or maintenance. For systems with filter-to-waste capabilities, an adequate filter-to-waste protocol following filter backwashing and/or maintenance and prior to placing a filter into service will reduce the likelihood of pathogens passing through filters and into the finished drinking water.

TAC commented that one full filter volume may be excessive and unnecessarily wasting water. TAC also commented that facilities may not be able to hold that volume of filter waste. Further, TAC asserted that many facilities do not have filter-to-waste capability because it is prohibitively expensive to provide. TAC reiterated its concern that achieving turbidity of less than 0.30 NTU is more stringent than EPA regulation and again raised the concern with the additional significant figure. TAC stated that DEP needs to allow new filter backwash technologies such as sub-fluidization; or resting a filter after backwash before putting a filter back in service. TAC suggested requiring filter-to-waste for one full filter volume or until the filter bed effluent turbidity is less than 0.3 NTU at the normal production flow rate or unless a filter plant can demonstrate that an alternate methodology provides turbidity compliance.

The Department notes that these proposed revisions only apply to operation of existing filter-to-waste capabilities and do not require installation of filter-to-waste. The proposed amendment makes this clarification. The Department believes that filtering to waste for one full filter bed volume is critical for public health protection. For effective operation, one full filter bed volume of water is necessary for a water supplier to determine how the filter will perform relative to the first slug of applied (settled) water. A shorter duration of filter-to-waste can lead to a secondary turbidity spike after the filter has been placed into service. Regarding TAC's comment about storage capacity, the Department is unaware of facilities that lack the waste holding capacity necessary to filter-to-waste one full filter bed volume. The Department agrees with TAC regarding its comment to include an alternate methodology.

In addition, for the reasons discussed previously under § 109.202, the Department believes that it is appropriate to add zeros for some drinking water standards where the level of sensitivity is warranted by the analytical method.

Section 109.703(b)(5) is proposed to be amended to clarify the requirements of the filter bed evaluation program and to ensure that all plants are evaluating their filters. A filter bed evaluation program assesses the overall health of each filter to identify and correct problems before a turbidity exceedance occurs. TAC recommended that the language regarding a filter bed evaluation program be revised to further clarify this requirement, which the Department has done.

TAC recommended that DEP should not be requiring best management practices unless a facility is not meeting turbidity requirements or not meeting filter plant performance objectives. The Department notes that this proposed requirement is not a best management practice. Rather, it is a minimum requirement to verify the critical filtration barrier is physically intact. Filter components are in constant use and as such are constantly aging. Operators routinely (*e.g.*, on average once per shift) walk through the filter plant to visually verify operational integrity of critical filter plant components. However, assessment of the physical integrity of one of the most critical components -- the filter itself -- is difficult, or often impossible, for operators to evaluate during walk-throughs. Most of the filter's components are below the water line or buried within the filter media. Physical inspection of filter components once per year constitutes a minimum preventative measure, and not a best management practice. If a water system waits until a filter plant is no longer meeting performance objectives before investigating the integrity of the filter components, significant deterioration may have occurred and public health may have been compromised. In addition, the amount of time necessary to repair compromised filter components can be excessive. During times of filter repair, loading ratings are increased on adjacent filters or production is limited. Proactive annual investigations should be more cost effective in the long run because it increases the chances of identifying and fixing small problems before they become larger and more widespread.

Section 109.703(c) is proposed to be added to require a water supplier to test alarm and shutdown capabilities at the filter plant and to outline the procedures to be followed in the event of a failure of alarm or shutdown equipment. This paragraph is proposed to be added because testing of all critical water system components is consistent with § 109.4(3) and (4). TAC recommended that during quarterly tests of plant shutdown capabilities, the Department should allow for simulation of a shutdown. The Department agrees and has proposed that simulated testing of shutdown capabilities would be acceptable.

§ 109.704. Operator certification.

Section 109.704(a) is proposed to be amended to clarify that CWSs and NTNCWSs must have personnel certified to operate and maintain a public water system under the Water and Wastewater Systems Operators' Certification Act and the regulations promulgated under that act.

§ 109.705. System evaluations and assessments.

Section 109.705(a)(1) is proposed to be amended by separating all existing language following the first sentence of the paragraph into three subparagraphs (i)-(iii). The first sentence of existing § 109.705(a)(1) was amended to replace "drainage area or wellhead" to incorporate the new term "source water protection area" as defined in § 109.1.

Section 109.705(a)(1)(i) is proposed to be added using language from existing § 109.705(a)(1). This language is proposed to be amended to replace "wellhead protection area" with the new term "source water protection area" as defined in § 109.1.

Section 109.705(a)(1)(iii) is proposed to be added to require revisions to the source water assessment if a system evaluation identified any changes to actual or potential sources of

contamination. This addition was made to fulfill the EPA's expectation that source water assessments are routinely updated.

Section 109.705(a)(2) is proposed to be amended to remove the requirement for an evaluation of "source protection" since a CWS will be required to inspect portions of a source water protection area as part of an evaluation conducted under § 109.705(a)(1).

Section 109.705(a)(6) is proposed to be added to require the system evaluation be documented and made available to the Department upon request instead of requiring the water system to submit the evaluation.

Sections 109.705(c)-(d) are proposed to be amended to remove significant deficiency language that would be incorporated in proposed § 109.716.

§ 109.706. System distribution map.

The title of § 109.706 is proposed to be revised to "System map" to be consistent with changes to the map requirements listed in the section.

Section 109.706(a) is proposed to be amended to require all PWSs to prepare and maintain a system map. This amendment was made to ensure that public water suppliers "[p]rovide and effectively operate and maintain public water system facilities" to be consistent with § 109.4(3).

Section 109.706(b) and (c) are proposed to be amended to clarify system map requirements.

TAC commented that medium to large facilities will not be able to capture all of the minimum requirements on one system map. Systems should be able to develop maps and or schematics of their systems as appropriate for that system. Direction of flow is not predictable or known under all circumstances depending on system conditions. Flow may go in different directions dependent on system demands. TAC claimed that DEP's request for one system map is overly simplified and not realistic for how systems operate; distribution systems are dynamic and not static; therefore, larger systems will not be able to meet this requirement. Further, TAC stated that this information should be protected under the Public Utility Confidential Security Information Disclosure Protection Act and the Right-to-Know Law.

Multiple maps are acceptable. Map scale would be the determining factor regarding the overall number of maps. Maps should be of sufficient scale and detail to be interpreted during on-site review by Department staff. The Department is not requesting submittal of these maps. Rather, they should be kept on file at the facility for on-site review during inspection, and submittal upon request. Regarding direction of flow, the Department recognizes TAC's comment that direction of flow can change with time. The Department's expectation is that the maps will contain adequate detail so water system staff can explain to Department staff the expected direction of flow under a specific circumstance (*e.g.*, tanks filling, tanks drawing). The "direction of flow" requirement was removed from the provision. If a system's distribution system is so complex that staff are unable to use a map to determine expected direction of flow under specific circumstances, then a calibrated hydraulic model should be developed and maintained. The

Department revised subsection (c) to provide that “*systems may meet this requirement by maintaining a calibrated hydraulic model instead of paper maps*”.

§ 109.708. *Planned service interruptions.*

Section 109.708 is proposed to be amended to describe new requirements for system resiliency.

The heading is proposed to be amended to read “System service and auxiliary power.”

Pennsylvania 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 Pennsylvania’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. In fact, 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 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> . Finally, 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 .

The Board is seeking comment on the following:

- What actual costs have been incurred by water systems that have already installed an auxiliary power supply or other resiliency measures?
- Which facilities should be considered a primary component of a water system, meaning the facilities are indispensable to the effective operation of the water system?
- Costs vary considerably for portable versus fixed generators. The type of fuel supply also impacts costs. What are the pros and cons of these various options?
- Do additional alternatives exist to meet the system service requirements of subsection (a)?

TAC commented that DEP should not be prescribing the methods by which a public water supplier obtains auxiliary power. TAC further claimed that DEP 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 DEP 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.

The proposed regulation does not prescribe the specific method by which a system must comply. Rather, it would require 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. In fact, the Department estimates that more than 400 CWSs do not have an up-to-date emergency response plan.

Regarding TAC's comment that systems can use the services of PaWARN to comply, PaWARN has limited resources. Those resources will be quickly overwhelmed during any large scale event. Additionally, as of December 2016, PaWARN had approximately 100 members, and approximately 89 of those members manage CWSs throughout the Commonwealth. This is a small subset of the 1,952 CWSs in Pennsylvania.

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 would 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 emergencies occur. It is only a matter of time before another natural or man-made disaster significantly impacts water systems in Pennsylvania. If proposed revisions are not adopted, it is anticipated that a large number of CWSs will not be able to provide a consistent supply of safe and potable water.

§ 109.713. *Wellhead protection program.*

The title of § 109.713 is proposed to be revised to “Source water protection program” to be consistent with the new definition of “source water protection program” specified in § 109.1.

Section 109.713(a)(1) – (2) are proposed to be amended to change “wellhead” to “source water” to remain consistent with the new definition of “source water protection program” specified in § 109.1, which encompasses both a surface water intake protection program and a wellhead protection program.

Section 109.713(a)(3) and (4) are proposed to be rewritten to remain consistent with the new definitions of “source water protection area” and “source water assessment” specified in § 109.1.

Section 109.713(a)(5) is proposed to be amended to change all references to “wellhead” to “source water” to remain consistent with the new proposed definition of “source water protection program” specified in § 109.1, which encompasses both a surface water intake protection program and a wellhead protection program.

Section 109.713(a)(6) is proposed to be amended to make the contingency planning for the provision of alternate water supplies relate to all sources, not just groundwater. This proposed amendment is consistent with the proposed definition of a “source water protection program”, which encompasses both surface and groundwater sources.

Section 109.713(a)(7) is proposed to be amended to make the provisions for protection of new source sites applicable to all source types. This amendment is consistent with the proposed definition of a “source water protection program”, which encompasses both surface and ground water sources.

Section 109.713(b) is proposed to be added to require water suppliers with an approved source water protection program to conduct an annual review of the program. This proposed addition is made to clarify an existing program requirement that fulfills the EPA’s expectation that source water assessments are routinely updated.

TAC commented that this provision mandates that a public water supplier is responsible for ensuring protection of their sources, when the Source Water Protection Program does not provide legal access or the authority for the water supplier to inspect or enforce up-gradient facilities that pose a potential source water contamination. The Department notes that this proposed revision was not intended to mandate water supplier inspection or enforcement of up-gradient facilities. However, the provision has been revised to address TAC’s concerns.

§ 109.716. *Significant deficiencies.*

Language contained in this proposed new section was compiled from existing §§ 109.705 and 109.1302 to provide implementation consistency in identifying and responding to significant

deficiencies by systems using surface and ground water sources. This section will ensure that all Federal requirements are met.

§ 109.717. Comprehensive monitoring plan.

This section is proposed to be added to ensure that all sources and entry points are included in routine compliance monitoring at the entry point and within the distribution system. 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.

Section 109.717(a) contains the basic components of the plan.

Section 109.717(b) clarifies that the monitoring plans required under other sections must be added to the system's comprehensive monitoring plan. In other words, all monitoring plans must be stored in the same comprehensive plan.

Section 109.717(c) contains the requirements for an annual PWS review and update of the plan. The date of each update must be recorded on the plan.

Section 109.717(d) contains the requirements for submission of the plan to the Department. The plans are subject to Department review and revision.

§ 109.810. Reporting and notification requirements.

Section 109.810(b) is proposed to be amended to clarify laboratory reporting and notification requirements.

§ 109.1003. Monitoring requirements.

Section 109.1003(b)(3) is proposed to be amended to clarify sampling and analysis requirements in order to be consistent with § 109.304(a) and is necessary to maintain primacy in response to EPA comments.

§ 109.1005. Permit Requirements.

Section 109.1005(c)(5)(ii) is proposed to be amended to correct a Chapter 109 citation.

Section 109.1005(e) is proposed to be amended to correct the Department's Drinking Water Bureau name.

Section 109.1005(i) is proposed to be amended to clarify that the permit fees that have been moved to the new proposed Subchapter N.

§ 109.1105. Permit requirements.

Section 109.1105(b)(1) and (2) are proposed to be amended to clarify that CWSs and NTNCWSs should follow the requirements specified in those paragraphs only until the effective date of the regulation. After that time, they should follow the requirements specified in new proposed paragraph (3).

Section 109.1105(b)(3) is proposed to be added to require all CWSs and NTNCWSs to obtain a construction and operations permit for new corrosion control treatment beginning the effective date of the regulation. This paragraph was added to be consistent with existing permitting requirements in subchapter E.

§ 109.1107. System management responsibilities.

Section 109.1107(a)(2)(i) is proposed to be amended to delete the reporting requirements under the Lead and Copper Rule that required accredited labs to calculate and submit the 90th percentile values. DEP now calculates the 90th percentile compliance values so labs are only required to report the individual lead and copper results. In addition, the requirements that information regarding the number of lead and copper samples required and the number of samples taken and whether a lead and copper action level has been exceeded are proposed to be deleted.

§ 109.1108. Fees.

Fees for activities under the Lead and Copper Rule are proposed to be relocated to the new proposed Subchapter N.

§ 109.1202. Monitoring requirements.

Section 109.1202(l) is proposed to be amended to clarify the section title.

The title of § 109.1202(n) is proposed to be amended to clarify that the paragraph applies to source water sample locations for plants with bank filtration. This proposed amendment is consistent with the existing title of § 109.1202(k) and (m).

The title of § 109.1202(o) is proposed to be amended to clarify that the paragraph applies to source water sample locations for plants with multiple sources. This amendment is consistent with the existing title of § 109.1202(k) and (m).

§ 109.1203. Bin classification and treatment technique requirements.

Section 109.1203(f)(2) is proposed to be amended to clarify a citation relating to requirements for microbial toolbox components.

Section 109.1203(g) is proposed to be amended to clarify a citation relating to requirements for microbial toolbox components.

§ 109.1204. Requirements for microbial toolbox components.

Section 109.1204(h) is proposed to be amended to clarify a citation relating to general monitoring requirements.

§ 109.1206. Reporting and recordkeeping requirements.

Section 109.1206(e)(1) is proposed to be amended to clarify a citation to account for the addition of a subparagraph.

A new § 109.1206(e)(1)(viii) is proposed to be added to require a system to report the concentration of oocysts per liter when reporting the results of each *Cryptosporidium* analysis.

Existing § 109.1206(e)(1)(viii)-(x) are proposed to be renumbered to account for the addition of new § 109.1206(e)(1)(viii).

§ 109.1302. Treatment technique requirements.

The title of § 109.1302(c) was amended to improve readability.

Section 109.1302(c)(1) is proposed to be amended to remove significant deficiency language that is proposed to be incorporated in § 109.716.

Section 109.1302(c)(2)(iii) is proposed to be deleted to remove a provision providing that a groundwater system with an *E. coli*-positive groundwater source sample will receive direction from the Department that it needs correction. This clarifies that all *E. coli*-positive source water samples require corrective action under § 109.716.

Section 109.1302(c) is proposed to be amended to remove significant deficiency language from the text of paragraph (1). Paragraph (3) is proposed to be moved to § 109.716 with minor amendments and to include a citation in amended paragraph (3) directing the PWS to that section. Paragraph (4) is proposed to be deleted.

§ 109.1303. Triggered monitoring requirements for groundwater sources.

Section 109.1303(h) is proposed to be amended to remove the corrective action provisions of subparagraphs (1) and (2) and move the Tier 1 notification provision of subparagraph (3) to be incorporated into the text of the subsection.

§ 109.1305. Compliance monitoring.

Section 109.1305(a)(1)(iii) is proposed to be amended to clarify grab sample and manual recording and reporting requirements in the case of a failure of continuous monitoring equipment. These proposed amendments are consistent with revised language contained in § 109.301.

Section 109.1305(a)(2)(i) is proposed to be amended to clarify that a groundwater system must record the results of the follow up samples which are required under this paragraph.

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

Section 109.1306(b)(3) is proposed to be amended to correct the Department’s Drinking Water Bureau name.

§ 109.1307. System management responsibilities.

Section 109.1307(a)(1)(ii) is proposed to be amended to further clarify the time period which constitutes a breakdown in treatment.

§ 109.1401. General.

This proposed section contains the general requirements for fees being collected under the Safe Drinking Water Act.

§ 109.1402. Annual fees.

Subsection (a) is proposed to add the general requirements for annual fees being collected under the Safe Drinking Water Act. The proposed annual fees for CWSs are based on population, and range from \$250 to \$40,000. The per-person costs range from \$0.35 to \$10/person/year.

Proposed Community Water System Annual Fees (Based on Population)		
Population Served	Annual Fee	Cost/Person/Year
25 - 100	\$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
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 annual fees are intended to bear a reasonable relationship to the actual cost of providing services. Based on a workload analysis, the Department estimates the minimum costs for providing services to various sizes of CWSs are as follows:

Estimated Minimum Cost of Providing Select Services							
Activity	Hours/Activity/Year for CWSs Serving the Following Population						
	<100	150	750	3,300	5,000	50,000	>100,000
Conduct sanitary surveys	7.5	7.5	7.5	10	10	25	37.5
Conduct other inspections	2.5	2.5	2.5	3.3	3.3	5	10
Determine compliance	12	12	12	12	12	15	15
Maintain PADWIS/eFACTS	7.5	7.5	7.5	7.5	7.5	10	10
Review plans/reports	7.5	7.5	7.5	10	10	15	15
Provide technical assistance/training	7.5	7.5	7.5	7.5	7.5	10	10
Total Hours	44.5	44.5	44.5	50.3	50.3	80	97.5
@ \$49/hr =	\$2,180	\$2,180	\$2,180	\$2,465	\$2,465	\$3,920	\$4,778

TAC recommended that the Department explain and document the basis for the \$49/hour rate used to calculate the fee and that fees be based only on the direct costs (salary and benefits) of a field inspector. In response, the Department offers the following. The hourly rate is provided by the Department’s fiscal office and includes salary, benefits, and in-directs (supplies, etc.).

The following table shows the relationship between the proposed annual fees (based on population) and the cost of providing select services.

Annual Fees (Based on Population) vs. Cost of Providing Select Services			
Population Served	Annual Fee	Cost of Services	Percent of Cost of Services
25 - 100	\$250	\$2,180	11 %
101 – 500	\$500	\$2,180	23 %
501 – 1,000	\$1,000	\$2,180	46 %
1,001 – 2,000	\$2,000	\$2,180	92 %
2,001 – 3,300	\$4,000	\$2,465	162 %
3,301 – 5,000	\$6,500	\$2,465	264 %
5,001 – 10,000	\$10,000	\$2,465	406 %
10,001 – 25,000	\$20,000	\$3,920	510 %
25,001 – 50,000	\$25,000	\$3,920	638 %
50,001 – 75,000	\$30,000	\$4,778	628 %
75,001 – 100,000	\$35,000	\$4,778	732 %
100,001 or more	\$40,000	\$4,778	837 %

The Percent of Cost of Services column is intended to show where water systems are paying less than the Department’s cost to provide services, and where water systems are paying more for the Department’s services. Systems serving 2,000 or less people (above the bold line) are paying less than the Department’s costs. Systems serving 2,000 or more people (below the line) are paying more for the Department’s services.

The Board is seeking comment on whether the proposed annual fee structure (based on population) is the most appropriate method. Several options are available for assessing annual fees. Some states assess fees for services rendered. Other states assess fees based on the number of service connections. Some states set minimum and maximum fees, and others do not. Each method has advantages and disadvantages. As per section 4(c) of the SDWA, fees must bear a reasonable relationship to the actual cost of providing services. The Department also factored in affordability and equitability issues (*i.e.*, ability to pay, or cost per person or household).

For comparison purposes, the Department is providing annual fee estimates using several other options. The Department is providing fee estimates for the following additional options:

1. Option #1: Annual fee based on the number of service connections (estimating the number of service connections, using a flat rate per connection, and no minimum or maximum fees).
2. Option #2: Annual fee based on the number of service connections (estimating the number of service connections, using a sliding scale rate per connection, and a minimum fee).

Note: TAC recommended that the Department also evaluate a surcharge rate factor based on gallons produced for each permitted facility to determine the annual fee for community, bottled, vended, retail and bulk hauling water systems. TAC also claimed that bottled and vended water fees do not seem equitable in relationship to the cost of the product and asked why the fee is not based on the gallons produced. The Department does not currently have sufficient data to determine the gallons produced as this is not a required data field.

Alternate Option #1: Annual Fees Based on Flat Rate Per Number of Connections

Based on the revenue required and the total number of CWS connections, the estimated fee per connection would be ~ \$1.70.

Note: The Department does not currently have accurate data on the number of service connections. This is not a required field in the Federal or Commonwealth databases. To estimate the number of service connections, the population served was divided by 2.7 persons per household.

Option #1: Annual Fees Based on Flat Rate/Connection vs. Cost of Providing Services				
Population Served	# Service Connections	Annual Fee	Cost of Services	% of Cost of Services
25	9	\$15.30	\$2,180	<1 %
125	46	\$78.20	\$2,180	4 %
750	278	\$472.60	\$2,180	22 %
3,300	1,222	\$2,077.40	\$2,465	84 %
10,000	3,704	\$6,296.80	\$2,465	255 %
50,000	18,518	\$31,480.60	\$4,778	659 %
100,000	37,037	\$62,962.90	\$4,778	1,318 %
120,000	45,052	\$76,588.40	\$4,778	1,603 %
160,000	59,259	\$100,740.30	\$4,778	2,108 %

250,000	92,592	\$157,406.40	\$4,778	3,294 %
660,000	244,444	\$415,554.80	\$4,778	8,697 %
820,000	303,704	\$516,296.80	\$4,778	10,806 %
1,600,000	592,593	\$1,007,408.10	\$4,778	21,084 %

Regarding Option #1:

- If the fees are passed on to consumers as a user fee, each service connection would pay the same amount = \$1.70.
- Smaller systems are paying considerably less than the Department's cost to provide basic services.
- Larger systems are paying as much as 21,084 % more than the Department's costs.
- As a ratio of the percentage of costs to provide services, larger systems would be paying $21,084 / 0.70 = 30,120$ times as much as smaller systems.

Alternate Option #2: Annual Fees Based on Sliding Rate with Minimum Fee

Based on the revenue required and the total number of CWS connections, the estimated sliding scale fee per connection would be as follows:

Sliding Scale Fee Per Connection	
Number of Service Connections	Fee Per Connection
≤ 49	\$250 total fee
50 – 99	\$400 total fee
100 – 2,499	\$3.20
2,500 – 4,999	\$3.00
5,000 – 7,499	\$2.70
7,500 – 9,999	\$2.50
10,000 – 14,999	\$2.10
15,000 – 24,999	\$1.70
25,000 – 49,999	\$1.50
50,000 – 99,999	\$1.50
100,000 – 149,999	\$1.20
150,000 – 199,999	\$1.20
200,000 or more	\$1.00

The sliding scale fee per connection would result in the following annual fees:

Option #2: Annual Fees Based on Sliding Scale/Connection vs. Cost of Providing Services				
Population Served	# Service Connections	Annual Fee	Cost of Services	% of Cost of Services
25	9	\$250.00	\$2,180	11 %
125	46	\$250.00	\$2,180	11 %
750	278	\$889.60	\$2,180	41 %
3,300	1,222	\$3,910.40	\$2,465	159 %
10,000	3,704	\$11,112.00	\$2,465	450 %
50,000	18,518	\$31,480.60	\$4,778	659 %

100,000	37,037	\$55,555.50	\$4,778	1,163 %
120,000	45,052	\$67,578.00	\$4,778	1,414 %
160,000	59,259	\$88,888.50	\$4,778	1,860 %
250,000	92,592	\$138,888.00	\$4,778	2,907 %
660,000	244,444	\$244,444.00	\$4,778	5,116 %
820,000	303,704	\$303,704.00	\$4,778	6,356 %
1,600,000	592,593	\$592,593.00	\$4,778	12,402 %

As a ratio of the percentage of costs to provide services, large systems would be paying 12,402 / 11 = 1,127 times as much as small systems.

The following table compares all three methods of calculating fees.

Comparison of Proposed Annual Fees and Options #1 and #2				
Population Served	# Service Connections	Proposed Fees (Per Pop)	Option #1 (Flat Rate per Connection)	Option #2 (Sliding Rate per Connection)
25	9	\$250	\$15.30	\$250.00
125	46	\$500	\$78.20	\$250.00
750	278	\$1,000	\$472.60	\$889.60
3,300	1,222	\$4,000	\$2,077.40	\$3,910.40
10,000	3,704	\$10,000	\$6,296.80	\$11,112.00
50,000	18,518	\$25,000	\$31,480.60	\$31,480.60
100,000	37,037	\$35,000	\$62,962.90	\$55,555.50
120,000	45,052	\$40,000	\$76,588.40	\$67,578.00
160,000	59,259	\$40,000	\$100,740.30	\$88,888.50
250,000	92,592	\$40,000	\$157,406.40	\$138,888.00
660,000	244,444	\$40,000	\$415,554.80	\$244,444.00
820,000	303,704	\$40,000	\$516,296.80	\$303,704.00
1,600,000	592,593	\$40,000	\$1,007,408.10	\$592,593.00

TAC asserted that the public water supply community needs adequate time to review and evaluate the proposed fees. TAC recommended that, prior to seeking fees from the regulated water suppliers, the Department should first request adequate funding from the Legislature to maintain the Safe Drinking Water Program and its core functions, including upgraded IT systems. Further, TAC recommended that the Department should streamline operating costs and improve efficiencies before seeking fees. TAC asserted that improving IT systems would greatly improve the efficiency of the Department. Further, TAC stated that the General Fund should subsidize the small systems, not the ratepayers of the medium and large systems.

The Department believes that its operations have been streamlined in nearly all areas, with the exception of e-Inspections. In response to many years of staffing and resource shortfalls, the program has been pared down to only those activities that are mandated by Commonwealth and Federal laws, regulations and primacy requirements. Implementation of e-Inspections would streamline data management by eliminating the manual entry of inventory updates, inspection results, etc. into PADWIS and eFACTS. However, the Department would need additional funding in order to purchase mobile devices, and develop and maintain e-Inspection computer programs. If e-Inspections or other efficiencies are developed in the future, the ongoing three-

year review of fees will be updated accordingly. However, future efficiencies may also be offset by new regulations and mandates. All of these circumstances will be considered every three years. If overall Department costs go down due to improved efficiencies, the fees will be adjusted accordingly.

The Board is seeking comment on whether the proposed annual fee structure (based on population) is the most appropriate method. As per the Safe Drinking Water Act, fees must bear a reasonable relationship to the actual cost of providing services.

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

Subsection (b) specifies that the number of customers served shall be based on the Department's public water system inventory, PADWIS, at the time of billing for annual fees.

Subsection (c) contains a schedule of payments for the annual fees. The Department will allow quarterly payments for fees of \$10,000 or more.

§ 109.1403. Monitoring waiver fees.

Subsection (a) is proposed to add the fees for waiving the monitoring requirements for volatile organic chemicals (VOC), synthetic organic chemicals (SOC), and inorganic chemicals (IOC) for systems with a single source of drinking water.

Subsection (b) is proposed to add the fees for renewing a waiver from monitoring requirements for systems with a single source of drinking water.

Subsection (c) is proposed to add the fees for waiving the monitoring requirements for systems with more than one source of drinking water.

§ 109.1404. Community and noncommunity water system permitting fees.

The proposed permitting fees were determined using a workload analysis. Costs were assigned based on the relative complexity of the permit review. Permit fees have not been increased since they were originally adopted in 1984.

Subsection (a) is proposed to add the fee schedule for applications for construction permits or major construction permit amendments under § 109.503 (relating to public water system construction permits), except for an application for BVRB facilities under § 109.1005.

Subsection (b) is proposed to add the fee schedule for requests for minor construction permit amendments under § 109.503, except for a change in legal status.

Subsection (c) is proposed to add the fee for changes in legal status of the permit.

Subsection (d) is proposed to add the fee for new or amended operations permits under § 109.504 (relating to public water system operating permits).

Subsection (e) is proposed to add the fee for a request for an emergency permit.

TAC recommended that permit fees should not be based on population. Rather, TAC asserted that the fees should be based on the type, scope, size and complexity of the project. TAC also commented that minor amendments should not require extensive review and should be substantially less than major amendments or new permits.

Based on a workload analysis and a review of historical permits, the Department determined that the assessment of permit fees by population generally takes into consideration the size and complexity of the project. Projects for larger systems are generally larger and more complex than projects for smaller systems. Larger systems generally have more complicated simultaneous compliance concerns, which add to the complexity of the project. Finally, the fees for minor amendments are lower than the fees for major amendments or new permits.

§ 109.1405. Permitting fees for general permits.

The proposed section explains that fees for general permits will be established in the general permit and will not exceed \$500.

§ 109.1406. Permitting fees for bottled water and vended water systems, retail water facilities, and bulk water hauling systems.

Subsection (a) is proposed to add the fees for construction permits or major construction permit amendments under § 109.1005 (relating to permit requirements), except an out-of-state facility or system using finished water as its sole source of water.

Subsection (b) is proposed to add fees for a bottled water system, retail water facility or bulk water hauling system purchasing finished water, as its sole source of water.

Subsection (c) is proposed to add the fees for an out-of-State bottled water system submitting proof of out-of-State approval under § 109.1005.

Subsection (d) is proposed to add the fees for minor construction permit amendments under § 109.1005, except for a change in legal status.

Subsection (e) is proposed to add the fees for a change in legal status, such as a transfer of ownership, incorporation or merger.

Subsection (f) is proposed to add the fees for a new or amended operations permit.

Subsection (g) is proposed to add the fees for an emergency permit.

§ 109.1407. Feasibility Study.

This section is proposed to add the fees for feasibility study and pilot study review services from the Department.

TAC recommended that the fees should be based on the type, scope and complexity of the project, rather than the system population. The Department notes that system population takes into account the increasing complexity of water systems as population increases.

§ 109.1408. Noncommunity Water System Application for Approval.

This section is proposed to add the fees for an Application for Approval for a NCWS that is released from the obligation to obtain a construction and an operation permit under section 109.505 (relating to requirements for noncommunity water systems).

§ 109.1409. Noncommunity Water System 4-Log Permit.

This section is proposed to add the fees for NCWSs demonstrating 4-log treatment of viruses under subchapter M (relating to additional requirements for groundwater sources).

§ 109.1410. Payment of fees.

This section is proposed to add requirements for paying the fees required by subchapter N.

§ 109.1411. Disposition of funds.

As per the Safe Drinking Water Act, this section is proposed to require that all fees be paid into the State Treasury into a special restricted revenue account in the General Fund known as the Safe Drinking Water Account, which is to be administered by the Department for use in protecting the public from the hazards of unsafe drinking water.

§ 109.1412. Failure to remit fees.

As requested by TAC, this section is proposed to add provisions for the addition of 6% interest for systems which do not pay their annual fees in a timely manner.

This section would also allow the Department to suspend technical services, such as issuing monitoring waivers, plan approvals or permits, for water systems with delinquent fees in excess of 180 days.

§ 109.1413. Evaluation of fees.

This section is proposed to require the Department to provide the Board with an evaluation of the fees set forth in this Chapter and recommend regulatory changes to the Board to address any disparity between the program income generated by the fees and the Department's cost of

administering the program with the objective of ensuring fees meet program costs and programs are self-sustaining.

TAC concurred with the three-year cycle for evaluating fees.

F. Benefits, Costs and Compliance

Benefits

One or more of the proposed amendments will affect all 8,521 PWSs serving approximately 12.7 million Pennsylvanians. The residents of the Commonwealth will benefit from: (1) the avoidance of a full range of health effects from the consumption of contaminated drinking water such as acute and chronic illness, endemic and epidemic disease, waterborne disease outbreaks, and death; (2) the continuity of a safe and adequate supply of potable water; and (3) the 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 proposed changes relating to new sources of supply in § 109.503 will more clearly define the existing 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 proposed amendments, the development of a local source water protection program will remain voluntary in Pennsylvania.

Turbidity and Filtration Requirements: Proposed amendments to the monitoring, calibration, recording and reporting requirements for the measurement of turbidity are more stringent than Federal requirements. These proposed 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 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 4 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 proposed 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.

IFE monitoring ensures that filter deficiencies are identified and corrected before a CFE turbidity exceedance occurs. Existing regulations require continuous IFE turbidity monitoring at conventional and direct filtration plants. The proposed amendments for IFE monitoring include all filtration types. In recent years, the Department has documented breakdowns in treatment of individual filters at filter plants not classified as conventional or direct. The likelihood of a breakdown in treatment or physical integrity of an individual filter is a concern regardless of the specific type of filter technology utilized. Thus, an expansion of existing requirements is needed.

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 at both CFE and IFE locations for 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.

The proposed amendments lower IFE trigger levels to be consistent with CFE turbidity requirements. Exceeding an IFE trigger is not a violation; instead, it prompts the water supplier to investigate the cause of the problem and correct any deficiencies. If water suppliers are diligent, no violations should occur.

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 Pennsylvania 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 proposed 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 ASDWA on behalf of Pennsylvania. 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 proposed 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 proposed 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. Pennsylvania's proposed amendments are less stringent than twelve other states since attended operation is not being required. In addition, the proposed amendments related to plant automation, alarms, and shutdown capabilities are less stringent than the 10 States Standards.

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 proposed 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. The proposed amendments will not require water suppliers without filter-to-waste capabilities or with undersized filter-to-waste capabilities to make a capital improvement.

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

Strengthen Resiliency Through Auxiliary Power or Alternate Provisions: The proposed 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.

Pennsylvania'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, the proposed rulemaking is intended to supplement Commonwealth costs for administering the Safe Drinking Water Program by filling the funding gap. The proposed 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 proposed annual fees range from \$250 - \$40,000 for CWSs, \$50 - \$1,000 for NCWSs, and \$1,000 - \$2,500 for bottled, vended, retail, and bulk water haulers (BVRB). The fees will most likely be passed on to the 10.7 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 proposed fees.

General Permits: These proposed 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 to regulate such activities.

Requirements for NCWSs: These proposed 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.

Address Gaps in Monitoring, Reporting and Tracking Back-up Sources: These proposed amendments will address concerns related to gaps in the monitoring, reporting and tracking of back-up water sources and entry points. As per Commonwealth and Federal regulations, 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 proposed 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.

Compliance Costs

The proposed 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 an *E. coli* contamination incident in Walkerton, Ontario was \$64.5 million. Costs related to the 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 proposed fees are necessary to improve program performance and fulfill the Department’s fiscal responsibility to cover most, if not all, of its Commonwealth program costs. 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 State 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 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 Pennsylvania. 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)	\$2,881.00		\$2,881.00
Calibration Cylinder	\$ 89.00		
20 NTU StablCal x (4) Calibrations		\$ 556.00	
Lamp Assembly Replacement		\$ 62.00	
Chart Recorder- Duel Pen	\$1,657.00		\$1,657.00
Chart Recorder Paper		\$ 60.00	

Chart Recorder Replacement Pens		\$ 79.00	
Installation	\$1,000.00		
Total (not including tax and shipping)	\$5,627.00	\$ 757.00	\$4,538.00

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)	\$6,142.00		\$6,142.00
HACH SC200 (includes flow sensor input, RFID, and Modbus))	\$2,596.00		\$2,596.00
Maintenance/Calibration Kit (includes primary standards)		\$1,100.00 (\$349 to replace the primary standards that are included in the kit)	
Replacement Desiccant Cartridge		\$ 17.00	
Chart Recorder- Duel Pen	\$1,657.00		\$1,657.00
Chart Recorder Paper		\$ 60.00	
Chart Recorder Replacement Pens		\$ 79.00	
Installation	\$1,000.00		
Total (not including tax and shipping)	\$11,395.00	\$ 1,256.00 (1 st year) \$ 505.00 (subsequent year)	\$10,395.00

- IFE Monitoring:*** Pennsylvania has 353 filter plants, of which 263 are currently required to continuously monitor and record their IFE and already have instrumentation installed. The proposed 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 \$10,165.00 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 \$757.00 for the white light turbidimeters or \$505.00 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 \$213,465.00 for white light turbidimeters or \$457,590.00 for laser turbidimeters. The cumulative cost for

maintaining the monitoring and recording equipment at all 21 filter plants is estimated to be \$15,897.00 per year for white light turbidimeters and \$10,605 per year for laser turbidimeters.

- CFE Monitoring: The majority of filter plants in Pennsylvania 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 the Commonwealth. The estimated cost to install CFE monitoring and recording equipment is \$5,627.00 per plant for white light turbidimeters and recorders or \$11,395.00 per plant for laser turbidimeters and recorders. The annual maintenance cost for the monitoring and recording equipment is estimated to be \$757.00 for the white light turbidimeters or \$505.00 for laser turbidimeters. The cumulative cost for an estimated 52 filter plants to install continuous monitoring and recording equipment is estimated to be \$292,604.00 for white light or \$592,540.00 for laser turbidimeters. The cumulative cost for maintaining the monitoring and recording equipment at all 52 filter plants is estimated to be \$39,364.00 per year for white light turbidimeters or \$26,260.00 per year for laser turbidimeters.

Annual Filter Inspection Program: No significant 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 proposed filtering to waste amendments.

Automatic Alarms/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 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:

- High or Low Clear Well Level
- High or Low Entry Point 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.

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:
 - CFE Chlorine Residual
 - CFE Turbidity
 - Clear Well Level
- 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: \$8,860.00

Delivery: 2-3 Weeks (standard delivery)

Estimated Installation Cost: \$2,000.00

Deduct for use of Owner Furnished Alarm Dialer: (\$1,400.00)

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:

- CFE Chlorine Residual
- CFE Turbidity
- Clear Well Level

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 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: \$9,980.00

Delivery: 2-3 Weeks (standard delivery)

Estimated Installation Cost: \$2,000.00

Deduct for use of Owner Furnished Alarm Dialer: (\$2,500.00)

Option C – Monitor/Alarm System with Cellular Alarm Dialer

1) One alarm control device with analog inputs for the following:

- CFE Chlorine Residual
- CFE Turbidity
- Clear Well Level

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 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: \$9,700.00

Delivery: 2-3 Weeks (standard delivery)

Estimated Installation Cost: \$2,000.00

The Department estimates that 10% of the 353 filter plants in Pennsylvania will need to install a controller.

Strengthened System Resiliency Through Auxiliary Power or Alternate Provisions: All CWSs will be expected to review their existing emergency response plan and equipment to specifically develop a plan 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 (*e.g.*, less expensive for small systems). It is difficult to predict system specific costs because of the various options to comply with the proposed revisions. Estimates for small systems are \$3,000 - \$4,000 for the installation of a transfer switch, generator and concrete pad. 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.

An estimated 30% of small systems (<3,300) or 485 systems may need to install a back-up power supply. The cumulative cost is estimated to be \$1,940,000. 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.

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 wasn't a disruption in water service is estimated to be \$2,891.00.
- 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 \$24,775.00.
- Total economic impact on the water utility due to the two-day outage (sum of the above losses) is estimated at \$27,666.00.

- 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 proposed 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 off-set 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 PWS. This assistance is in the form of a low-interest loan, with some augmenting grant funds for hardship cases. Eligibility is based upon factors such as public health impact, compliance necessity and project/operational affordability.

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

In addition to this network of training staff, the Bureau of Safe Drinking Water has staff dedicated to providing both training and outreach support services to PWS operators. The DEP website also provides timely and useful information for treatment plant operators.

Paperwork Requirements

Paperwork requirements may include:

- Updating of a source water assessment report when a community water system's annual evaluation identifies changes to actual or probable sources of contamination.
- Additional reporting requirements for PWSs that exceed the lower IFE triggers.
- Reporting a failure of alarm or shutdown equipment.
- Development and maintenance of a distribution map for noncommunity water systems.
- Development and maintenance of a comprehensive monitoring plan.

- CWSs will be required to update their existing emergency response plans to include specific information on how they will meet the requirements of this proposal. To minimize the reporting burden and for maintaining security of sensitive documents, the system specific plans for providing a continuous supply of safe and potable water (Uninterrupted System Service Plan – USSP) will not be required to be reported to the Department; rather, this information will be kept onsite for Department review during inspections and/or emergencies. A USSP template will be provided to water suppliers to help facilitate development of the plans.

G. *References*

The following is a comprehensive list of references listed in the order in which they appear throughout this preamble.

1. The Economic Costs of the Walkerton Water Crisis, John Livernois, 2001.
2. Costs of Water Treatment Due to Diminished Water Quality: A Case Study in Texas McCarl B.A. et al, 1997.
3. The Cost of Not Protecting Source Waters, Trust for Public Land, 2002
4. A Cost Effective Alternative Approach to Meeting Pennsylvania’s Chesapeake Bay Nutrient Reduction Targets, Pennsylvania Legislative Budget and Finance Committee, January 2013.
5. National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009.
6. Cost of Illness in the 1993 Waterborne Cryptosporidium Outbreak, Milwaukee, Wisconsin, Corso, et al., Emerging Infectious Diseases, Volume 9, No. 4, April 2003.
7. Effects of Filter Optimization on Cryptosporidium Removal, Huck, P.M. et al, 2002.
8. Cryptosporidium and Microsphere Removal During Late In-Cycle Filtration, Jour. AWWA, 95:5:173, Emelko, M.B. et al, 2003.
9. EPA Water Supply Guidance 20.
10. EPA Membrane Filtration Guidance (EPA 815-R-06-009), November 2005.
11. EPA Lacks Internal Controls to Prevent Misuse of Emergency Drinking Water Facilities (Report No. 11-P-0001), EPA’s Office of Inspector General, 2010.

H. *Sunset Review*

Certain provisions in § 109.301(1) and (2) are proposed to sunset in one year. Otherwise, the Board is not establishing a sunset date for this regulation, since it is needed for the Department to carry out its statutory authority. The Department will continue to closely monitor this regulation for its effectiveness and recommend updates to the Board as necessary.

I. *Regulatory Review*

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on _____, 2017, the Department submitted a copy of this proposed rulemaking and a copy of a Regulatory Analysis Form to the Independent Regulatory Review Commission (IRRC) and to the Chairpersons of the House and Senate Environmental Resources and Energy Committees. A copy of this material is available to the public upon request.

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

J. Public Comments

The Board is seeking comment on several proposed amendments included in this rulemaking. Comment is requested on specific proposed amendments that are included in this preamble in Section E – Summary of Regulatory Requirements. Please refer to Sections 109.301(11), 109.303, 109.511, 109.708, and 109.1402.

Interested persons are invited to submit written comments, suggestions, support, or objections regarding the proposed rulemaking to the Board. Comments, suggestions, support, or objections must be received by the Board by **DATE**. In addition to the submission of comments, interested persons may also submit a summary of their comments to the Board. The summary may not exceed one page in length and must also be received by the Board by **DATE**. The one-page summary will be distributed to the Board and available publicly prior to the meeting when the final-form rulemaking will be considered.

Comments including the submission of a one-page summary of comments may be submitted to the Board online, by e-mail, by mail or express mail as follows.

Comments may be submitted to the Board by accessing eComment at <http://www.ahs.dep.pa.gov/eComment>.

Comments may be submitted to the Board by e-mail at RegComments@pa.gov. A subject heading of the proposed rulemaking and a return name and address must be included in each transmission.

If an acknowledgement of comments submitted online or by e-mail is not received by the sender within 2 working days, the comments should be retransmitted to the Board to ensure receipt. Comments submitted by facsimile will not be accepted.

Written comments should be mailed to the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477. Express mail should be sent to the Environmental Quality Board, Rachel Carson State Office Building, 16th Floor, 400 Market Street, Harrisburg, PA 17101-2301.

Patrick McDonnell,
Acting Chairperson