Regulatory Analysis Form

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INDEPENDENT REGULATORY REVIEW COMMISSION

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Independent Regulatory Review Commission

IRRC Number: 3334

(1) Agency:

Department of Environmental Protection

(2) Agency Number: 7

Identification Number: 569

(3) PA Code Cite: 25 Pa. Code, Chapter 109 (Safe Drinking Water)

(4) Short Title: Safe Drinking Water PFAS MCL Rule

(5) Agency Contacts (List Telephone Number and Email Address):

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(6) **Type of Rulemaking** (check applicable box):

- ☒ Proposed Regulation
- ☐ Final Regulation
- ☐ Final Omitted Regulation
- ☐ Emergency Certification Regulation;
- ☐ Certification by the Governor
- ☐ Certification by the Attorney General

(7) Briefly explain the regulation in clear and nontechnical language. (100 words or less)

This proposed rulemaking would set drinking water standards for two chemicals – perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) – which are part of a larger group of perfluoroalkyl and polyfluoroalkyl substances (PFAS). The proposed rulemaking also describes monitoring requirements for public water systems (PWSs) to demonstrate compliance with the PFOA and PFOS standards. Currently, these contaminants are not regulated in drinking water at the federal level or in Pennsylvania. Implementation of the drinking water standards in this proposed rulemaking will protect Pennsylvanians from the adverse health effects of these contaminants.

The proposed rulemaking also includes minor revisions to address incorrect cross-references and citations, delete duplicated text, and update language. These minor updates are a codification of existing practices and will have no change from current practice.

(8) State the statutory authority for the regulation. Include specific statutory citation.

Section 4 of the Pennsylvania Safe Drinking Water Act, 35 P.S. § 721.4, and section 1920-A of The Administrative Code of 1929, 71 P.S. § 510-20.

(9) Is the regulation mandated by any federal or state law or court order, or federal regulation? Are there any relevant state or federal court decisions? If yes, cite the specific law, case or regulation as well as, any deadlines for action.

The proposed rule is not federally mandated.

The U.S. Environmental Protection Agency (EPA) has established a lifetime health advisory level (HAL) for PFOA and PFOS of 70 parts per trillion (ppt) combined. HALs are not enforceable standards, but the Department has the regulatory authority to require corrective actions if HALs are exceeded, as well as having the statutory authority to set state maximum containment levels (MCLs) in drinking water. Current research indicates that the HAL is not sufficiently protective of public health. On February 22, 2021, EPA issued final regulatory determinations for contaminants of the fourth Contaminant Candidate List, which included a final determination to regulate PFOA and PFOS in drinking water. This determination was published in the *Federal Register* on March 3, 2021 (86 FR 12272), which starts a 24-month time clock for EPA to publish a proposed rulemaking. In the meantime, one of the goals of the PFAS Action Team in Pennsylvania, created by Executive Order 2018-08 signed in September 2018 by Governor Wolf, is the establishment of a state MCL in drinking water. Until EPA publishes a final rulemaking for PFOA and PFOS, a state drinking water standard is needed to improve public health protection.

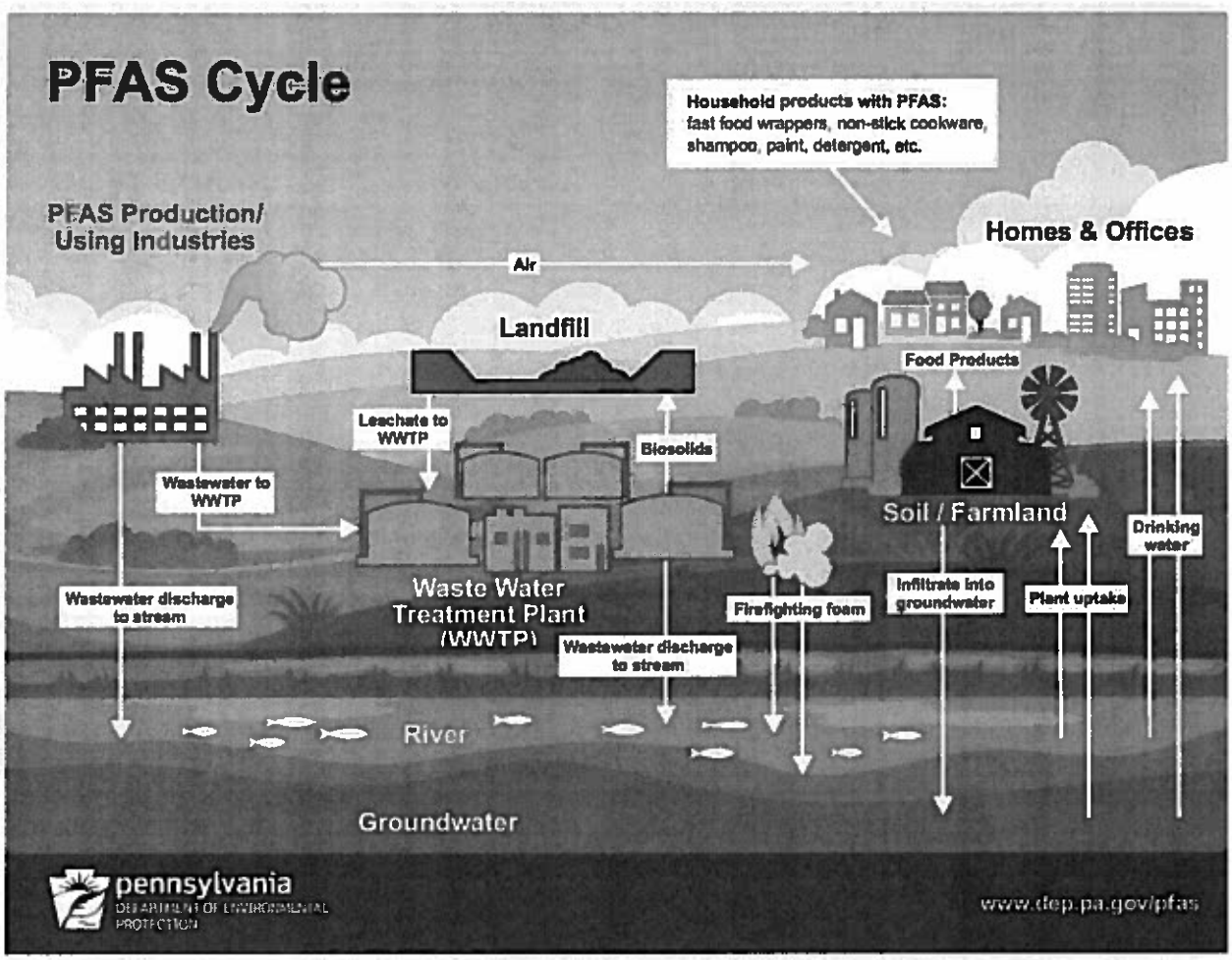
(10) State why the regulation is needed. Explain the compelling public interest that justifies the regulation. Describe who will benefit from the regulation. Quantify the benefits as completely as possible and approximate the number of people who will benefit.

This proposed rule is needed to better protect Pennsylvanians from the adverse health effects of exposure to PFOA and PFOS in drinking water.

PFAS are a large class of man-made synthetic chemicals that were created in the 1930s and 1940s for use in many industrial and manufacturing applications. It is estimated that the PFAS family includes more than 6,000 chemical compounds. PFAS have been widely used for their unique properties that make products repel water, grease and stains, reduce friction, and resist heat. PFAS are found in industrial and consumer products such as clothing, carpeting, upholstery, food packaging, non-stick cookware, fire-fighting foams, personal care products, paints, adhesives, metal plating, wire manufacturing and many other uses. Because of their unique chemical structure, PFAS readily dissolve in water and are mobile, are highly persistent in the environment, and bioaccumulate in living organisms over time.

Decades of widespread use of products containing PFAS has resulted in elevated levels of environmental pollution and exposure in some areas of the state. As illustrated below, PFAS remain in the environment and cycle through various media (i.e., air, water, soil) depending on how and where the substances were released. The primary means of distribution of PFAS throughout the environment has been though the air, water, biosolids, food, landfill leachate, and fire-fighting activities.

The PFAS cycle and its exposure pathways.



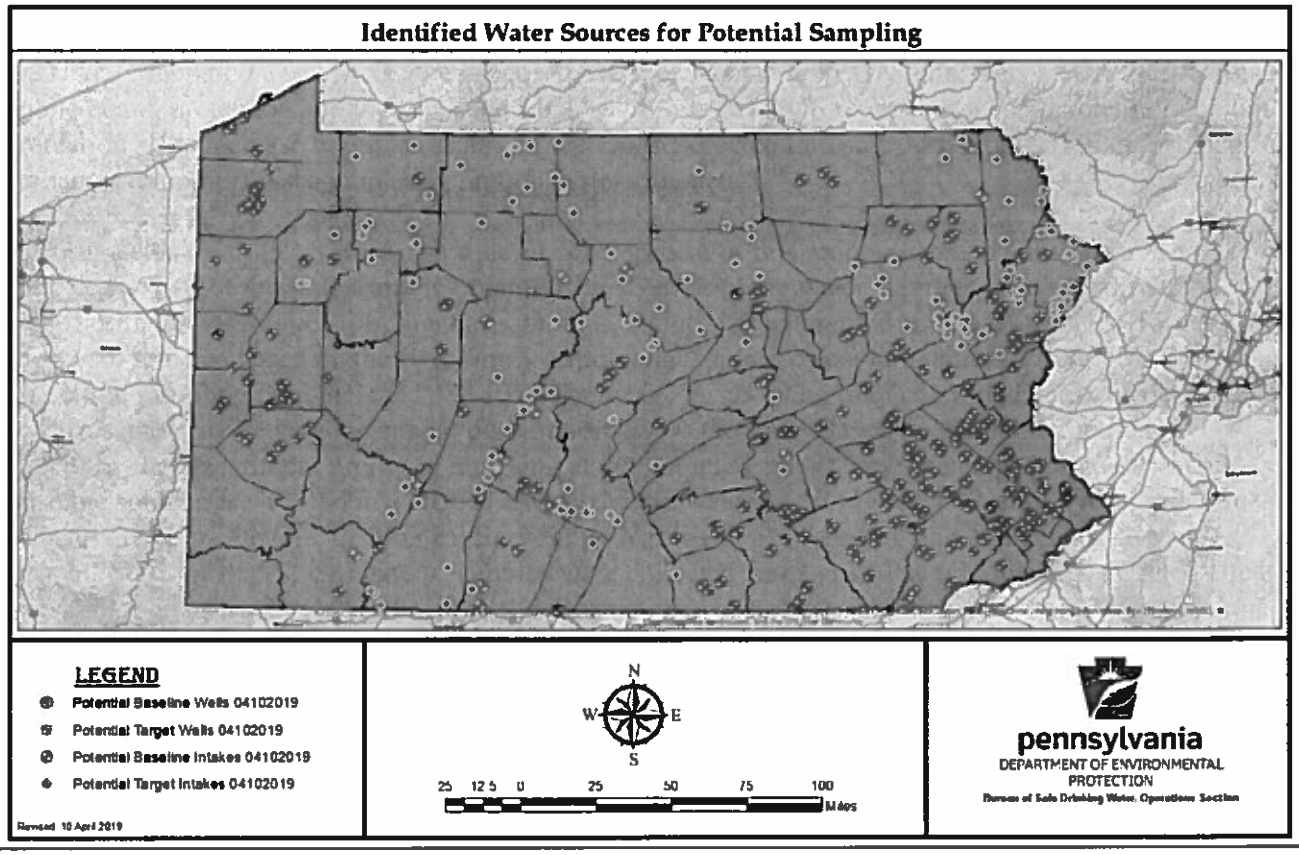
Through a toxicology services contract, a group of toxicologists and other scientific professionals at Drexel University – referred to here as the Drexel PFAS Advisory Group (DPAG) – determined that PFOA exposure has been linked to developmental effects (neurobehavioral and skeletal effects) and PFOS exposure has been linked to adverse immune system effects (including immune suppression); specific references used by DPAG in this research are cited in the DPAG report and workbook links to which are provided in the response to question 28.

EPA has established a combined lifetime HAL for PFOA and PFOS of 70 ppt in finished drinking water. While HALs are not enforceable regulatory standards, the Department has the regulatory authority to require corrective actions if HALs are exceeded. However, current research suggests that the HAL for PFOA and PFOS is not sufficiently protective of public health. EPA has started the process of setting more stringent standards for PFOA and PFOS in drinking water, but that process is expected to take several years to complete. For that reason, it is important that the Board act now to propose more protective standards for this Commonwealth, to protect the health of Pennsylvanians. This proposed rule will improve public health protection by requiring PWSs to comply with a lower standard for PFOA and PFOS in drinking water and to routinely monitor the drinking water they provide to ensure compliance with those lower standards.

The Department contracted toxicologists to review current health-based studies and research on select PFAS. Based on this research, recommendations were made to the Department for maximum contaminant level goals (MCLGs) for select PFAS. MCLGs are non-enforceable levels based solely on health effects and do not take into consideration other factors such as technical limitations or cost. The Department then determined proposed MCLs for PFOA and PFOS in part by assessing the percentage of improvement in health protection at various levels, including the recommended MCLGs, compared to the HAL. Compared to the HAL, the proposed MCL of 14 ppt for PFOA represents a 90% increase in public health protection and the proposed MCL of 18 ppt for PFOS represents a 93% increase in health protection. This increase in public health protection is expected to result from a reduction in instances of human development disruption and immune system impacts.

Occurrence data for PFAS were also used in development of this proposed rulemaking. Data were collected as part of the state sampling plan for PFAS in drinking water supplies. The below map identifies the PWS sources for potential sampling, including the targeted and baseline sites. Targeted sites were selected based on their proximity to potential sources of contamination (PSOC) for PFAS. The initial sampling pool included 493 PWS sources. The sampling pool contained a mix of PWS types and sizes and provided a good spatial distribution across the state. Based on available funding of $500,000, the Department proposed sampling at 360 targeted and 40 baseline entry point (EP) sites. Baseline sources are located in a HUC-12 watershed (a watershed assigned a 12-digit hydrologic unit code, or HUC, by the U.S. Geological Survey) with at least 75% forested land and at least five miles from a PSOC for PFAS. Ultimately, samples were collected from 412 EPs including 372 targeted sites and 40 baseline sites. Note that an EP to the distribution system may include water from more than one source of supply.

PFAS Sampling Plan – Pool of Identified PWS Sources for Potential Sampling.



A review of Unregulated Contaminants Monitoring Rule 3 (UCMR3) sample results was also conducted. The UCMR3 data includes results analyzed for six PFAS via EPA Method 537 version 1.1. The samples collected as part of the state sampling plan were analyzed for 18 PFAS via EPA Method 537.1. In the occurrence data, PFOA was detected in 29.9% of samples and PFOS was detected in 27.1% of samples. The occurrence data were also compared to the proposed MCLGs and MCLs. For PFOA, 10.6% of results were over the proposed MCLG of 8 ppt and 5.7% of results were over the proposed MCL of 14 ppt. For PFOS, 5.3% of results were over the proposed MCLG of 14 ppt and 5.1% of results were over the proposed MCL of 18 ppt. These data indicate that implementing a lower standard for PFOA and PFOS than the EPA HAL represents a meaningful opportunity to improve public health protection in Pennsylvania.

This proposed rulemaking will be applicable to all 3,117 community, nontransient noncommunity, bottled, vended, retail, and bulk PWSs in Pennsylvania. Of these, 1,905 are community water systems, serving a combined population of approximately 11.4 million Pennsylvanians. Another 1,096 are nontransient noncommunity water systems serving approximately 507,000 persons. Therefore, the proposed rulemaking will benefit approximately 11.9 million Pennsylvanians.

(11) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulations.

Yes, the provisions in this proposed rulemaking are more stringent than current federal standards. EPA has not set MCLs for PFOA or PFOS, and the proposed MCLs for PFOA and PFOS in this rulemaking are more stringent than the HAL established by EPA. Since PFOA and PFOS in drinking water are not currently regulated at the federal level, the monitoring frequencies and other provisions in this proposed rulemaking are also more stringent than any federal requirements. The Department developed these provisions to better protect public health in Pennsylvania, in accordance with the goals of the Pennsylvania PFAS Action Team.

- The MCLGs in this proposed rulemaking at § 109.202(a)(4)(ii) are based on the most current toxicological research available at the time the rule is proposed. Through a toxicology services contract, toxicologists at Drexel University conducted a thorough and independent review of federal and other states' work on MCLs for PFAS, including the available research, data, and scientific studies. Based on this research, recommendations were made to the Department for MCLGs for select PFAS. MCLGs are non-enforceable levels based solely on health effects and do not take into consideration other factors such as technical limitations or cost. They are the starting point for determining MCLs.

- The MCLs in this proposed rulemaking at § 109.202(a)(4)(ii) were determined based on a variety of factors, including MCLG recommendations and health effects information, occurrence data, a cost-benefit analysis, and technical considerations such as analytical methods and available treatment techniques. The cost-benefit analysis evaluated the percentage of improvement in health protection relative to the percentage of increased cost of implementation at various levels compared to the HAL. The MCLs determined based on this process represent a 90% and 93% improvement in health protection for PFOA and PFOS, respectively. This is a significant increase in public health protection and a compelling reason to move forward with more stringent standards than federal requirements.

- The monitoring requirements for community water systems (CWS), nontransient noncommunity water systems (NTNCWS), and bottled, vended, retail, and bulk (BVRB) systems for PFOA and

PFOS in this proposed rulemaking at § 109.301(16) and § 109.1003(a)(1)(xv) are necessary to demonstrate compliance with the MCLs. Monitoring requirements include initial quarterly monitoring, reduced repeat monitoring where there are no detections, quarterly repeat monitoring where there is a detection or an MCL exceedance, confirmation samples to confirm an MCL exceedance, and monitoring requirements for systems with treatment to remove PFAS, to ensure treatment efficacy.

- This rulemaking also proposes to establish MCL exceedances for PFOA and PFOS as chronic health-based violations requiring Tier 2 public notification (PN) and includes health effects language at § 109.411(e)(1)(ii) and (iii) to include in notices for MCL exceedances of PFOA or PFOS. Public notification of any MCL exceedance is a critical component of public health protection.

(12) How does this regulation compare with those of the other states? How will this affect Pennsylvania's ability to compete with other states?

At the time of the proposed rulemaking, six other states – Massachusetts, Michigan, New Hampshire, New Jersey, New York, and Vermont – have enacted regulations on PFAS in drinking water. A few other states – California, Connecticut, Minnesota, and Ohio – have implemented advisory, guidance, or response levels for PFAS in drinking water. Table 1 below summarizes other states' MCLs, applicability, public notification (PN) requirements, best available technology (BAT) or acceptable treatment, and analytical methods and minimum reporting levels (MRLs) and compares them to the provisions of this proposed rule. Monitoring requirements are summarized for comparison in Table 2.

Table 1. Comparison of state MCLs, applicability, PN requirements, BAT, and analytical methods for PFAS

State	PFOA MCL (ppt)	PFOS MCL (ppt)	Other PFAS MCLs (ppt)	Applicability	PN	BAT or Acceptable Treatment	Analytical Methods/MRL
PA (proposed)	14	18	NA	CWSs, NTNCWSs, BVRBs	Tier 2	GAC, ion exchange, reverse osmosis (RO), or other technologies approved by DEP	EPA 537 version 1.1, EPA 537.1, EPA 533; MRL = 5 ppt
MA	20 (sum of 6 PFAS: PFOA, PFOS, PFHxS, PFNA, PFHpA, PFDA)			CWSs & NTNCWSs (TNCs must conduct 1 round of monitoring)	Tier 2; Note: MCL exceedance triggers delivery of public education materials.	GAC, PAC, ion exchange resins, nanofiltration, and RO	EPA 537, EPA 537.1; MRL=2.0 ppt; Note: rule requires analysis and reporting of all PFAS in method
MI	8	16	HFPO-DA=370 PFBS=420 PFHxS=51 PFHxA=400,000 PFNA=6	CWSs & NTNCWSs (TNCs may be required to monitor)	Tier 2	GAC or an equally efficient technology	EPA 537.1 or other methods approved; MRL=2 ppt

NH	12	15	PFHxS=18 PFNA=11	CWSs & NTNCWSs	No PN Tier assignment	Not specified in rule; summary indicates compliance achieved using GAC	Methods not specified; Detection limit = 2 ppt
NJ	14	13	PFNA=13	CWSs & NTNCWSs	No PN Tier assignment	Not specified in rule	Methods not specified; recommended PQL values are 6 ppt for PFOA and 4.2 ppt for PFOS
NY	10	10	NA	CWSs & NTNCWSs	Tier 2	GAC	
VT	20 (sum of 5 PFAS: PFOA, PFOS, PFHxS, PFHpA, PFNA)			CWSs & NTNCWSs	Tier 1, Do Not Drink		EPA 537.1 or subsequent EPA-approved method; MRL = 2 ppt
CA	5.1	6.5		Notification Levels			
	10	40		Response Levels			
CT	70 (sum of 5 PFAS: PFOA, PFOS, PFNA, PFHxS, PFHpA)			Action Level			
MN	35	15		Guidance Values			
OH	70 (alone or combined)		HFPO-DA=700 PFBS=140,000 PFHxS=140 PFNA=21	Action Levels			

Table 2. Comparison of state monitoring requirements for PFAS

State	Monitoring
PA (proposed)	Initial: 4 Quarterly (Q) samples Repeat: If detected at or above minimum reporting level (MRL), continue Q for at least 4 Q and until reliably and consistently (R&C) < MCL. If R&C < MCL, DEP may allow system to monitor annually (A) during previously highest quarter. If detected > MCL, continue Q for at least 4 Q and until R&C <MCL. If R&C <MCL, DEP may allow A monitoring during previous highest quarter. Reduced: If not detected (ND), monitor every 3 years. Waivers: Systems with previous detections <MCL may apply for a use waiver to reduce from A to triennial monitoring. Notes: Confirmation sample required within 2 weeks of notice from lab of result > MCL. Entry points (EPs) with treatment monitor for compliance at least A, performance monitoring Q.
MA	Initial: 4 Q samples Routine: If ND, monitor every 3 years (small systems: 1 Q sample, medium/large systems: 2 Q samples) Increased: If detect > 10 ppt (50% of MCL), monitor monthly. If detect < 10 ppt, or R&C < 10, monitor A. If ND for 3 A periods, monitor every 3 years. Waivers: PWS on routine monitoring can request waiver for 3-year period which must be renewed; monitoring must be conducted at least once during first 3-year period of each 9-year cycle. Waivers are combination use and susceptibility. Notes: During initial monitoring, PWS can request to substitute previous Q data. If ND in first 2 Qs, PWS can request waiver for Qs 3 & 4. EPs w/treatment monitor Q. Detects require confirmation sample within 2 weeks and source water monitoring.

MI	Initial: If PWS participated in MI's Statewide PFAS Survey and results were >50% of MCL, PWS shall collect Q samples; if results were <50% of MCL, PWS shall collect one sample within 6 months. If PWS did not participate in Statewide Survey, PWS shall collect Q samples. Reduced: If ND, PWS may monitor A. If detects, monitor Q until results are R&C below MCL. If R&C below MCL, PWS may monitor A. Waivers: No waivers.
NH	Initial: 4 Q samples. If first 2 Qs ND, final 2 Qs can be waived. Reduced: If average of initial results is </=50% of MCL, monitor once every 3 years. If average of initial results is >50% of MCL, monitor A. Monitor during Q with highest result. Confirmation sample required within 14 days if result >50% of MCL. Increased: If running annual average (RAA) > MCL, monitor Q. If PWS installs treatment, monitor Q. Waivers: No waivers.
NJ	Requires monitoring as per EPA VOC requirements (141.24(f)). Includes initial Q monitoring. Rule allows substitution (grandfathering) of select existing data to fulfill initial Q monitoring requirement. Rule does not mention waivers.
NY	Initial: 4 Q samples. Repeat: Continue Q if detected. Reduced: State can reduce Q to A if R&C below MCL. After 3 A periods w/no detect, can apply for waiver. If detects, repeat monitoring must include all PFAS contained in method. If ND, sample every 18 months (medium /large systems >3,300) or every 3 years (small systems <3,300). Waivers: Rule allows 3-year use waivers.
VT	Initial: A monitoring. Reduced: If ND, monitor every 3 years. If ND for 2 consecutive triennial periods, monitor every 6 years. Increased: If detected <15 ppt, stay on A. If detected >15 ppt, conduct Q monitoring. If <15ppt for 4 Qs, monitor A.

Other states not identified in the preceding tables do not have state MCLs for PFAS established as of the time of this proposed rulemaking. Those states have the current EPA lifetime HAL of 70 ppt combined for PFOA and PFOS to use as a guidance value, until such time that EPA or the individual state publishes a final rule setting MCLs and monitoring requirements for PFOA and PFOS.

By improving public health protections in Pennsylvania, this rule will enhance Pennsylvania's ability to compete with other states. This proposed rulemaking is not expected to negatively affect Pennsylvania's ability to compete with other states for at least two reasons. First, the MCLs for PFOA and PFOS in this proposed rulemaking are of similar magnitude as MCLs for PFOA, PFOS, and other PFAS established by other states, and the monitoring requirements in this proposed rulemaking are similar to those established by other states. Second, states that have not established state-level drinking water standards for PFAS would be required to adopt federal MCLs set by EPA.

(13) Will the regulation affect any other regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

The amendments will be incorporated into the existing language of 25 Pa. Code Chapter 109. Other than this incorporation, the amendments should not affect any existing or currently proposed regulations of the Department or any other state agency.

(14) Describe the communications with and solicitation of input from the public, any advisory council/group, small businesses and groups representing small businesses in the development and drafting of the regulation. List the specific persons and/or groups who were involved. ("Small business" is defined in Section 3 of the Regulatory Review Act, Act 76 of 2012.)

The draft proposed rulemaking was submitted to the Department's Public Water System Technical Assistance Center (TAC) Board for review and discussion on July 29, 2021. The Public Water System

TAC Board includes representatives from a broad array of drinking water professional associations and stakeholder organizations. As noted in the attached letter, the Public Water System TAC Board supported the Department moving the proposed rulemaking forward to the Environmental Quality Board for consideration.

(15) Identify the types and number of persons, businesses, small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012) and organizations which will be affected by the regulation. How are they affected?

This proposed rulemaking will be applicable to all 3,117 community, nontransient noncommunity, bottled, vended, retail, and bulk PWSs in Pennsylvania. Of these, 1,905 are CWS, serving a combined population of approximately 11.4 million Pennsylvanians. Another 1,096 are NTNCWS serving approximately 507,000 persons.

A review of the federal Small Business Size Regulations at 13 CFR Part 121 provides a standard for determining what constitutes a small business for the North American Industry Classification System (NAICS) category relating to PWSs. A PWS falls within NAICS category 221310, Water Supply and Irrigation Systems, which comprises establishments primarily engaged in operating water treatment plants and/or operating water supply systems. The federal small size standard for this NAICS category is annual receipts of not more than $27.5 million.

The Pennsylvania Safe Drinking Water Act and Chapter 109 regulations do not contain any requirements for the submission of financial records. As such, the Department has no way to estimate annual receipts of PWSs. The Department and EPA have historically classified system size based on the number of persons served by a water system. The National Primary Drinking Water Regulations at 40 CFR § 141.2 define three drinking water system size classifications: small systems, serving 3,300 persons or fewer; medium systems, serving 3,301 to 50,000 persons; and large systems serving more than 50,000 persons.

For purposes of identifying small businesses affected by this proposed rulemaking, the Department used the federal definition of a small water system in 40 CFR § 141.2 (i.e., a water system that serves 3,300 persons or fewer), and applied that definition to any PWS owned by a private individual or investor.

Of the 3,117 PWSs for which this proposed rulemaking is applicable, 1,519 are privately owned or investor-owned and can be considered as a small business; 887 of these are CWSs and 632 are NTNCWSs.

Of the 3,117 PWSs covered by the proposed rulemaking, at least 2,898 would be required to monitor for compliance with the proposed MCLs by sampling for PFOA and PFOS for four consecutive quarters in either the first or second year of implementation. CWSs and NTNCWSs serving more than 350 persons would monitor in the first year and CWSs and NTNCWSs serving 350 or fewer persons would monitor during the second year; BVRBs would all conduct initial monitoring in the first year of implementation. The remaining 219 PWSs are consecutive systems that purchase finished water from another PWS and would not be required to conduct monitoring unless the selling system fails to monitor as required. Those PWSs that detect PFOA or PFOS during the initial monitoring period would be required to perform additional monitoring. Those PWSs whose monitoring results exceed the PFOA MCL and/or the PFOS MCL would have several options for addressing the contamination including taking contaminated sources offline, making operational changes such as blending sources, using alternate sources of supply (developing new sources or using purchased sources from a new interconnect), or

adding treatment. A more detailed discussion of how the regulated community would be affected is included in the response to question 17.

The persons and communities served by these systems will benefit from increased public health protection and avoidance of health effects from consuming water containing PFOS and PFOA at levels above the proposed MCLs. As detailed in the response to question 19 below, complying with this rule will result in some cost increases to PWSs, which may be passed on to the customers they serve.

(16) List the persons, groups or entities, including small businesses, that will be required to comply with the regulation. Approximate the number that will be required to comply.

All 3,117 CWS, NTNCWS, and BVRB systems in Pennsylvania will be required to comply with this regulation. However, 219 of these systems are consecutive systems (i.e., purchasing finished water from another PWS) and would not be required to conduct monitoring unless the selling system fails to monitor as required. Consecutive systems would not be required to install treatment unless monitoring indicates PFAS levels within their system exceed a PFAS MCL.

As noted in the response to question 15, of the 3,117 systems required to comply with this rule, 1,519 are considered small businesses. However, 23 of these small systems are consecutive systems and would not be required to conduct monitoring. The remaining 1,496 small systems that are considered small businesses would be required to conduct monitoring and install treatment if results indicate levels are above the MCLs.

(17) Identify the financial, economic and social impact of the regulation on individuals, small businesses, businesses and labor communities and other public and private organizations. Evaluate the benefits expected as a result of the regulation.

The expected benefits of this proposed rule are the avoidance of adverse health effects from the consumption of drinking water contaminated with PFOA and PFOS, including chronic illnesses, as well as the cost savings expected from prevention of those illnesses. Improved health benefits expected to result from implementation of the proposed rule include a reduction in instances of developmental effects (including neurobehavioral and skeletal effects) and decreased immune response.

This regulation will provide a positive economic impact to individuals, small businesses, and businesses that provide services to the drinking water industry for sample collection and laboratory analysis, and design, construction, and operation and maintenance of water treatment technology.

The proposed rule is intended to reduce the public health risks and associated costs related to consumption of drinking water contaminated with PFAS. Compared to the current lifetime HAL for PFOA and PFOS of 70 ppt combined, the proposed MCL for PFOA is expected to result in a 90% improvement in public health protection, and the proposed MCL for PFOS is expected to result in a 93% improvement in public health protection.

There are 3,117 PWSs that will be affected by this proposed rule, including 2,648 small water systems (population served $\leq$ 3,300 persons); of those, 1,519 are privately owned or investor-owned and therefore considered small businesses. Complying with this rule will result in increased costs for additional monitoring by affected PWSs and increased treatment or other operational modification costs for those PWSs where monitoring shows MCL exceedances.

Additional monitoring

This rulemaking proposes monitoring for PFAS at each EP. Since most small systems have only one EP, the monitoring cost estimates for small systems assumes one EP per system. The cost of the additional monitoring these systems are expected to incur from this rulemaking is estimated at $516 per sample, with an additional potential cost of approximately $200 for sample collection services provided by a laboratory. During the quarterly initial monitoring proposed in this rulemaking, this represents an annual cost of approximately $2,064 to $2,864 per EP. This estimate is based on a survey conducted by the Department of Pennsylvania-accredited laboratories for PFAS analysis and represents an average analytical cost of laboratories that responded to the survey, including the cost of the associated field reagent blank.

This rulemaking proposes that the monitoring requirements following the initial monitoring year are determined by results of the initial monitoring. If PFOA or PFOS is detected at a level that is reliably and consistently below the MCL, the rulemaking proposes that monitoring would continue annually at an average annual cost of $516 to $716 per EP. If neither PFOA nor PFOS are detected in the initial monitoring, the rulemaking proposes that monitoring would be reduced to one sample every three years. If PFOA or PFOS or both exceeds the relevant MCL during initial monitoring, quarterly compliance monitoring would continue until results demonstrate levels are reliably and consistently below the MCLs, or until additional corrective actions are needed. If PFAS removal treatment is ultimately installed to comply with the MCLs, annual monitoring would include, at a minimum, annual compliance monitoring and quarterly performance monitoring, for a total annual cost of $2,580 to $3,580 per EP.

In addition to sample collection by the water system, as opposed to the water system paying a laboratory for sample collection services, additional potential cost savings include laboratory analysis discounts for fewer analytes than included in the approved method, no analysis of the associated field blank if all PFAS are not detected in the sample, and discounts for multiple samples per monitoring period.

MCL exceedances

In the occurrence data used in the development of this proposed rule, either the proposed PFOA MCL or the proposed PFOS MCL or both proposed MCLs were exceeded at 7.4% of the sites sampled. This exceedance rate may overestimate the exceedance rate for the other PWSs in Pennsylvania that were not sampled, because the occurrence data sampling predominately targeted sites near potential sources of PFAS contamination. However, the occurrence data provides the most relevant information currently available on the prevalence and levels of PFAS in PWSs in Pennsylvania. Based on the occurrence data, it is estimated that up to 7.4% of PWS EPs may exceed one or both proposed MCLs if this rule is implemented. Excluding consecutive water systems and assuming small systems have only one EP, at an estimated noncompliance rate of 7.4%, approximately 110 systems of the 1,496 small systems that are considered small businesses may exceed one or both proposed MCLs.

For systems that exceed one or both proposed MCLs, one way they may be able to achieve compliance is to install treatment for PFAS removal. As part of this proposed rulemaking, cost estimates for installation and operation and maintenance (O&M) of granular activated carbon (GAC) treatment and ion exchange (IX) treatment were used for the cost-benefit analysis. An annual average capital cost estimate for treatment installation of $248,025 per 1 million gallons per day (MGD) per EP was used. This represents an average of capital costs for GAC and IX, annualized over a 20-year period at 4% interest. Annual average O&M costs of $163,818 per MGD per EP plus annual performance monitoring costs of $22,167 per EP were also used. Performance monitoring costs are considered part of treatment O&M costs because performance monitoring is used to make operational decisions, such as when to change out treatment media.

The expected annualized capital costs for a system serving >3,300 customers to install treatment is estimated to be $248,025 per MGD per EP, with annual O&M costs of $163,818 per MGD per EP and annual performance monitoring costs of $22,167 per EP.

According to Department records in the Pennsylvania Drinking Water Information System (PADWIS), the average design capacity of small investor-owned or privately owned water systems affected by this regulation is approximately 0.1 MGD. The expected annualized capital costs for a small system with a design capacity of 0.1 MGD to install treatment is estimated to be $24,803 per EP, with annual O&M costs of $16,382 per EP and performance monitoring costs of $22,167 per EP.

Treatment cost estimates were based on surveys the Department conducted of systems with treatment installed and of treatment technology vendors.

For systems that have multiple water supply sources, another option for achieving compliance may involve source management. Abandoning a source or blending two or more sources are two options that would be less costly than installation and O&M of treatment.

(18) Explain how the benefits of the regulation outweigh any cost and adverse effects.

The proposed rulemaking would improve public health protection by ensuring that PWSs provide water that meets lower, more protective standards for PFOA and PFOS than the current HAL established by EPA.

Safe drinking water is vital to maintaining healthy and sustainable communities. Ensuring that water systems are providing drinking water that meets standards based on the most recent research and data can reduce health care costs and prevent illness and possibly death. Improved health benefits expected to result from implementation of the proposed rule include a reduction in instances of developmental effects (including neurobehavioral and skeletal effects) and decreased immune response associated with exposure to PFOA and PFOS, respectively, in drinking water.

The proposed rulemaking reasonably balances the health protection benefits to Pennsylvanians served by PWSs with the increased costs that will be incurred by PWSs in complying with the proposed rule.

(19) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

Compliance Monitoring Costs

Compliance monitoring cost estimates for this proposed rulemaking were determined based on a survey the Department conducted of laboratories accredited in Pennsylvania for PFAS analysis by one or more of the analytical methods in the proposed rule, as well as assumptions made based on an analysis of the occurrence data. According to lab survey results, the analytical cost for PFAS by either EPA Method 533, EPA Method 537 version 1.1, or EPA Method 537.1 varied greatly among the labs that responded, with a range of $325 to $750, and an average of $516, including the cost of analysis of the associated field reagent blank required by the methods for each sample site. This does not include an additional fee for sample collection, which also varied greatly among the labs offering that service; sample collection is approximately an additional $200 based on the survey.

Approximately half of the responding laboratories noted that they offer a cost reduction for reporting of fewer analytes than included in the method, which would provide a cost savings for systems since monitoring is required for only two analytes – PFOA and PFOS. Also, a few labs noted potential savings if there are no detections in the sample; the associated field blank would be extracted, but would not need to be analyzed, which would reduce the overall cost. A few labs also noted potential additional fees for PFAS-free blank water, overnight shipping costs for samples, and Level 4 data reports if requested.

For compliance monitoring cost estimates, it was assumed that approximately half of all water systems will collect their own samples and half will utilize sample collection services provided by the laboratory. Therefore, an average cost of $616 per sample was used in the following compliance monitoring cost estimate calculations.

In the proposed rule, initial quarterly monitoring for CWS and NTNCWS serving a population of more than 350 persons begins January 1, 2024, and initial quarterly monitoring for CWS and NTNCWS serving 350 or fewer persons begins January 1, 2025. This population breakdown was selected to evenly split initial monitoring across two years in order to ease laboratory capacity issues and allow small systems more time to prepare for compliance monitoring. Based on the number of PWSs and EPs in PADWIS at the time of this rulemaking, there are 1,885 EPs that will begin monitoring in year 1 (2024) and 1,900 that will conduct initial monitoring in year 2 (2025). Initial quarterly monitoring for BVRB systems begins January 1, 2024.

The proposed rule requires repeat compliance monitoring on a quarterly basis for any EPs at which either PFOA or PFOS is detected at a level above its respective minimum reporting limit (MRL), including those EPs at which one or both MCLs are exceeded. If the quarterly repeat monitoring results are reliably and consistently below the MCLs, the frequency of repeat monitoring may be reduced from quarterly monitoring to annual monitoring. Based on the occurrence data, it is assumed that up to 34.9% of all EPs will have a detection of PFOA and/or PFOS at or above the relevant MRL; this equates to 658 EPs of the year 1 initial systems that will need to continue quarterly repeat monitoring in year 2, and 663 EPs of the year 2 initial systems that will need to continue quarterly repeat monitoring in year 3. The remaining systems (1,227 EPs in year 1 and 1,237 EPs in year 2) were assumed to conduct annual repeat monitoring in each year following the initial monitoring. However, this overestimates the repeat monitoring requirements and costs after the initial monitoring because, for EPs where initial monitoring results do not detect PFOA or PFOS, the frequency of repeat monitoring is reduced from annual to once every three years.

In addition to and separate from the performance monitoring required by permit special condition, systems with EPs that exceed one or both MCLs may require treatment, which would require the system to conduct ongoing repeat compliance monitoring at least annually. Using the noncompliance rate of 7.4% from the occurrence data (as described in the response to question 17), a total of 280 EPs are estimated to require ongoing repeat compliance monitoring: 139 EPs from initial year 1 and 141 EPs from initial year 2. However, this is likely an overestimate because: (1) systems may have options other than installing treatment to address concentrations of PFOA and/or PFOS above the relevant MCL; and (2) the occurrence data sampling predominately targeted sites near potential sources of PFAS contamination, so the exceedance rate in the occurrence data may overestimate the exceedance rate for other PWSs in Pennsylvania that were not included in the occurrence data. For total compliance monitoring cost estimates, the ongoing annual compliance monitoring for EPs where treatment is installed was assumed to begin in the third year of monitoring (year 3 or year 4 overall).

Using these assumptions (which likely overestimate the compliance monitoring requirements and costs for the reasons described previously) and an estimated average cost of $616 per sample, Table 3

summarizes the overall cost estimates for compliance monitoring costs in each of the first four years of rule implementation. Note that this estimate does not include performance monitoring costs.

Table 3. Compliance Monitoring Costs	Total # EPs	Quarterly Initial EPs	Annual Repeat EPs	Quarterly Repeat EPs	Quarterly Compliance Monitoring Cost	Annual Compliance Monitoring Cost	Total Yearly Compliance Monitoring Cost
Year 1	1885	1885	0	0	$4,644,640	$0	$4,644,640
Year 2	1900	1900	1227	658	$6,302,579	$755,915	$7,058,495
Year 3		0	3122	663	$1,633,878	$1,923,090	$3,556,969
Year 4		0	3785	0	$0	$2,331,560	$2,331,560

Based on these estimates, the average annual monitoring costs over the first four years is $4,397,916.

Treatment costs

Treatment cost estimates were determined based on a survey conducted of Pennsylvania systems with existing PFAS treatment and of PFAS treatment manufacturers, an American Water Works Association published PFAS Case Study and from information provided by members of the Association of State Drinking Water Administrators (ASDWA). Costs were provided for granular activated carbon (GAC), anion exchange (IX), and reverse osmosis (RO). The RO costs were not included in the final cost estimates because, due to wastewater disposal requirements, the technology is currently impractical. Additionally, the costs for GAC, IX, and RO provided from the vendors were excluded from the final cost estimates because they were limited to media costs and did not include the infrastructure requirements.

GAC and IX construction costs were based on a lead lag configuration where the first vessel (lead vessel) is capable of treating the entire flow and second vessel (lag vessel) is provided for polishing.

All treatment costs were normalized to construction costs for treating 1 MGD. As shown in Table 4, the average capital cost for the GAC treatment was $3,457,110 per MGD per EP with an average annual O&M cost of $171,970 per MGD per EP.

Table 4. GAC Treatment Costs

Treatment	System	Capital Cost per MGD per EP	Annual O&M Cost per MGD per EP
GAC	Vendor A	$343,000 *	$32,018
GAC	Vendor B	$535,000 *	$356,000
GAC	System A (2 GAC and 1 IX)	$3,125,000	$107,007
GAC	System B, Site 1	$1,675,347	$121,528
GAC	System B, Site 2	$2,454,259	$220,820
GAC	System B, Site 3	$2,433,333	$194,444
GAC	System C	$9,250,000	unknown
GAC	System D	$3,139,000	unknown
GAC	System E	$1,135,497	unknown
GAC	System F	$4,444,444	unknown
Average cost of GAC per MGD per EP		$3,457,110	$171,970

* Not included in calculations

As shown in Table 5, the average capital cost for the IX treatment was $3,284,360 per MDG per EP with an average annual O&M cost of $155,666 per MGD per EP.

Table 5. IX Treatment Costs

Treatment	System	Capital Cost per MGD per EP	Annual O&M Cost per MGD per EP
IX	Vendor A	$357,000 *	$59,361 *
IX	Vendor B	$500,000 *	$175,000
IX	Vendor D	No information	$159,722
IX	System G	$10,400,000	unknown
IX	System H	$3,333,000	unknown
IX	System I	$634,900	unknown
IX	System J	$1,128,000	unknown
IX	System K	$925,900	$132,275
Average cost of IX per MGD per EP		$3,284,360	$155,666

* Not included in calculations

The average capital costs of the GAC and IX treatment is $3,370,735 per MGD per EP with an average annual O&M costs $163,818 per MGD per EP.

To estimate annual treatment costs, the average capital cost of treatment installation of $3,370,735 per MGD per EP was annualized over 20 years at a 4% interest rate. This yields an estimated annualized capital cost of $248,025 per MGD per EP.

In addition, water systems that install treatment will need to conduct performance monitoring to verify treatment efficacy. Using the average cost per sample of $616 and assuming a total of 36 performance monitoring samples per year – monthly samples at each of three locations (raw water, mid-point of treatment, and finished water) – that is an additional annual cost of $22,176 per EP.

In the occurrence data, the percentage of EPs exceeding the proposed MCLs for PFOA and PFOS was 5.7% and 5.1%, respectively; however, due to co-occurrence of PFOA and PFOS, some EPs that exceeded the proposed MCL for PFOA also exceeded the proposed MCL for PFOS. In the occurrence data, the percentage of EPs exceeding the proposed MCL for PFOA and/or the proposed MCL for PFOS was 7.4%. However, this exceedance rate may overestimate the exceedance rate for the other PWSs in Pennsylvania that were not sampled, because the occurrence data sampling predominately targeted sites near potential sources of PFAS contamination. Also, as treatment for PFOA and PFOS is the same, EPs exceeding both MCLs would not be required to install two different treatment systems; therefore, the estimated percentage of EPs requiring treatment is less than the combined percentage of EPs exceeding either MCLs in the occurrence data. Additionally, systems with MCL exceedances may have several options to address the contamination aside from installing treatment, including taking contaminated sources offline, making operational changes such as blending sources, or using alternate sources of supply (developing new sources or using purchased sources from a new interconnect). Recognizing that the MCL exceedance rates from the occurrence data may overestimate the proportion of systems that will need to install treatment to address MCL exceedances for the aforementioned reasons, the occurrence data provides the most relevant information currently available on the prevalence and levels of PFAS in PWSs in Pennsylvania. Using the 7.4% exceedance rate from the occurrence data to estimate

how many of the larger universe of 3,785 EPs may require treatment to meet one or both proposed MCLs produces an estimate of 280 EPs. At an average annualized treatment capital cost of $248,025 per MGD per EP, and assuming 280 EPs require treatment installed, the total estimated annual treatment costs are shown in Table 6.

Table 6. Total Estimated Annual Treatment Costs

Estimated average annualized treatment *capital* costs (per MGD per EP)	$248,025
Estimated average annual treatment *O&M* costs (per MGD per EP)	$163,818
Estimated average annual treatment *capital + O&M* costs (per MGD per EP)	$411,843
Estimated annual *performance monitoring* costs (per EP)	$22,167
Estimated # of EPs (of 3,785) that require treatment for one or both MCLs	280
Total estimated average annual treatment *capital + O&M* costs (per MGD)	**$115,316,040**
Total estimated annual *performance monitoring* costs	**$6,206,760**

Compliance Assistance Plan

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

In addition to the standard funding mentioned above, PENNVEST approved an additional funding program in 2021 under authority of Act 101 of 2019. The PENNVEST PFAS Remediation Program is designed as an annual funding opportunity to aid in the remediation and elimination of PFAS in PWSs. In 2021, approximately $25 million was made available for this grant program.

The Department's 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 Department's Bureau of Safe Drinking Water has staff dedicated to providing both training and technical outreach support services to PWS owners and operators. The Department's web site also provides timely and useful information for treatment plant operators.

(20) Provide a specific estimate of the costs and/or savings to the local governments associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

The only costs to local government will be costs incurred by systems that are owned and/or operated by local government. The cost estimates are based on the figures in question 19. Of the 3,117 PWS affected by this rulemaking, 291 are owned by municipalities.

There is currently no reliable way to predict which specific PWSs will need to conduct repeat compliance monitoring, at what frequencies, or which specific PWSs will need to install additional treatment as a result of this rulemaking. Therefore, the only costs for municipal-owned PWSs that may be estimated with reasonable certainty at this time are for the initial quarterly monitoring and annual monitoring, which are estimated to be $2,464 the first year and $616 for each year subsequent. However, as noted in the response to question 19, for municipal-owned systems where initial monitoring results do not detect PFOA or PFOS, the frequency of repeat monitoring would be reduced from annual to once every three years.

(21) Provide a specific estimate of the costs and/or savings to the state government associated with the implementation of the regulation, including any legal, accounting, or consulting procedures which may be required. Explain how the dollar estimates were derived.

The costs to state government will be those incurred by systems that are owned and/or operated by state government and costs to the Department associated with implementing and administering the rule. The cost estimates are based on the figures in question 19. Of the 3,117 PWS affected by this rulemaking, 30 are owned by state government entities, including the Department of Corrections, the Department of Conservation and Natural Resources, the Department of Military and Veterans Affairs, the Pennsylvania State System of Higher Education, and the Department of Human Services.

There is currently no reliable way to predict which specific PWSs will need to conduct repeat compliance monitoring, at what frequencies, or which specific PWSs will need to install additional treatment as a result of this rulemaking. Therefore, the only costs for state-owned PWSs that may be estimated with reasonable certainty at this time are for the initial quarterly monitoring and annual monitoring, which are estimated to be $2,464 the first year and $616 for each year subsequent. However, as noted in the response to question 19, for state government-owned systems where initial monitoring results do not detect PFOA or PFOS, the frequency of repeat monitoring would be reduced from annual to once every three years.

(22) For each of the groups and entities identified in items (19)-(21) above, submit a statement of legal, accounting or consulting procedures and additional reporting, recordkeeping or other paperwork, including copies of forms or reports, which will be required for implementation of the regulation and an explanation of measures which have been taken to minimize these requirements.

Paperwork and reporting requirements include:

- Reporting of PFAS monitoring results using existing electronic reporting systems.
    - DEP's *Drinking Water Electronic Lab Reporting (DWELR) System*
- Optional monitoring waiver application using existing monitoring waiver application modules and forms.
    - *Monitoring Waiver Applications* (3930-FM-BSDW0020)
- Public water supply permit application, in the event of treatment installation to reduce PFAS levels, using existing permit application modules and forms.
    - *Public Water Supply Permit Application* (3900-PM-BSDW0002)
- Public notification (PN) and certification, in the event of an MCL exceedance, using existing forms and templates for Tier 2 PN.
    - *Public Notification (PN) Certification Form* (3930-FM-BSDW0076)
    - *Standard Health Effects Language for Public Notification* (3930-FM-BSDW0190)

(22a) Are forms required for implementation of the regulation?

No new forms are required for implementation of the proposed regulation. The existing forms listed above are required for implementation of this proposed regulation.

(22b) If forms are required for implementation of the regulation, attach copies of the forms here. If your agency uses electronic forms, provide links to each form or a detailed description of the information required to be reported. Failure to attach forms, provide links, or provide a detailed description of the information to be reported will constitute a faulty delivery of the regulation.

No new forms are required for implementation of the proposed regulation. The existing forms listed above are required for implementation of this proposed regulation.

(23) In the table below, provide an estimate of the fiscal savings and costs associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

	Current FY 2021-22	FY +1 2022-23	FY +2 2023-24	FY +3 2024-25	FY +4 2025-26	FY +5 2026-27
SAVINGS:	$	$	$	$	$	$
Regulated Community	0	0	0	0	0	0
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Savings	0	0	0	0	0	0
COSTS:						
Regulated Community	0	4,644,640	7,058,495	63,884,359	123,854,360	123,854,360
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Costs	0	4,644,640	7,058,495	63,884,359	123,854,360	123,854,360
REVENUE LOSSES:	0	0	0	0	0	0
Regulated Community	0	0	0	0	0	0
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Revenue Losses	0	0	0	0	0	0

Costs: The estimated costs to the regulated community include the estimated compliance monitoring costs presented in Table 3 in the response to question 19 plus the estimated annual treatment capital, O&M, and performance monitoring costs presenting in Table 6 in the response to question 19. The compliance monitoring costs for FY+5 are assumed to be the same as the compliance monitoring costs for FY+4 (Year 4 in Table 3). For purposes of totaling costs, the costs that vary with system design capacity (treatment O&M costs and treatment capital costs) were multiplied by a benchmark design capacity of 1 MGD. As described in the response to question 19, 280 systems are estimated to install treatment: 139 systems based on initial compliance monitoring conducted in FY+1 and 141 systems based on initial compliance monitoring conducted in FY+2. To account for the time these systems would need to install treatment, the annual treatment costs (capital, O&M, and performance monitoring costs) are accounted for two years following the initial compliance monitoring. In other words, the treatment

costs start in FY+3 for the 139 systems that install treatment based on initial compliance monitoring conducted in FY+1, and the treatment costs start in FY+4 for the 141 systems that install treatment based on initial compliance monitoring conducted in FY+2. For reasons discussed in the responses to questions 20 and 21, the estimated costs to systems owned by local and state governments are included with the costs to the regulated community, rather than broken out separately.

(23a) Provide the past three-year expenditure history for programs affected by the regulation.

Program	FY -3 (2018/19)	FY -2 (2019/20)	FY -1 (2020/21)	Current FY (2021/2022)
Environmental Program Management (161-10382)	$30,932,000	$27,920,000	$32,041,000	$34,160,000
Safe Drinking Water Fund (092-60065)	$1,929,000	$4,412,000	$4,874,000	$10,635,000

(24) For any regulation that may have an adverse impact on small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012), provide an economic impact statement that includes the following:

(a) An identification and estimate of the number of small businesses subject to the regulation.

All 3,117 CWS, NTNCWS, and BVRB systems in Pennsylvania will be required to comply with this regulation. However, 219 of these systems are consecutive (i.e. purchasing finished water from another PWS) and would not be required to conduct monitoring unless the selling system fails to monitor as required. Of the remaining 2,898 non-consecutive systems, 1,519 are small systems (serving a population of 3,300 persons or fewer) that are owned by a private individual or investor and can be considered as small businesses.

(b) The projected reporting, recordkeeping and other administrative costs required for compliance with the proposed regulation, including the type of professional skills necessary for preparation of the report or record.

Administrative costs associated with this proposed rulemaking may increase minimally, if at all. There are no new administrative requirements; PFOS and PFOA would be added to the existing standardized monitoring duties (e.g., sampling and reporting).

(c) A statement of probable effect on impacted small businesses.

Due to economies of scale, small systems with limited customer bases may be impacted more than larger systems. However, these small systems will have the same access to funding as other systems. The two most common treatment technologies for PFAS – GAC and IX – are not new technologies. These technologies are currently in use by various PWS types and sizes to treat for other contaminants such as volatile organic contaminants, nitrates, and various ions.

(d) A description of any less intrusive or less costly alternative methods of achieving the purpose of the proposed regulation.

No alternative regulatory schemes were considered because all customers of PWSs deserve equitable water quality and public health protection.

Additionally, the proposed rulemaking provides PWSs the flexibility to select the least costly method to comply. If either PFOA or PFOS is found at levels above the relevant MCL, the PWS will have several options for addressing the contamination including taking contaminated sources offline, making operational changes such as blending sources, using alternate sources of supply (developing new sources or using purchased sources from a new interconnect), or adding treatment. Each PWS with PFOA or PFOS levels above the relevant MCL will need to decide the most feasible option for addressing the contamination. PWSs that do not detect PFOA or PFOS at levels above the relevant MCL can request or qualify for reduced monitoring to save costs.

(25) List any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, the elderly, small businesses, and farmers.

The proposed rulemaking would give the smallest CWS and NTNCWS (those serving 350 or fewer people) extra time to prepare by proposing for those systems to begin initial compliance monitoring in year 2 rather than year 1. This will assist some small businesses in preparing to comply with the proposed rulemaking.

(26) Include a description of any alternative regulatory provisions which have been considered and rejected and a statement that the least burdensome acceptable alternative has been selected.

No alternative regulatory schemes were considered because all customers of PWSs deserve equitable water quality and public health protection.

The proposed regulatory provisions contain the least burdensome acceptable option because it provides PWSs the flexibility to select the least costly method to comply. If either PFOA or PFOS is found at levels above the relevant MCL, the PWS will have several options for addressing the contamination including taking contaminated sources offline, making operational changes such as blending sources, using alternate sources of supply (developing new sources or using purchased sources from a new interconnect), or adding treatment. Each PWS with PFOA or PFOS levels above the relevant MCL will need to decide the most feasible option for addressing the contamination. PWSs that do not detect PFOA or PFOS at levels above the relevant MCL can request or qualify for reduced monitoring to save costs.

(27) In conducting a regulatory flexibility analysis, explain whether regulatory methods were considered that will minimize any adverse impact on small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012), including:

a) **The establishment of less stringent compliance or reporting requirements for small businesses;**

For these provisions, no less stringent compliance or reporting requirements for small businesses were considered.

b) **The establishment of less stringent schedules or deadlines for compliance or reporting requirements for small businesses;**

For these provisions, no less stringent schedules or deadlines for small businesses were considered. However, smaller systems would not begin initial monitoring until 2025 which allows an additional year for these systems to plan for the proposed monitoring.

c) **The consolidation or simplification of compliance or reporting requirements for small businesses;**

For these provisions, neither consolidation nor simplification of compliance or reporting requirements for small businesses was considered.

d) **The establishment of performance standards for small businesses to replace design or operational standards required in the regulation; and**

For these provisions, no performing standards for small businesses to replace design or operational standards required in the regulation for small businesses were considered.

e) **The exemption of small businesses from all or any part of the requirements contained in the regulation.**

For these provisions, no exemptions for small businesses from all or any part of the requirements contained in the regulation were considered.

Alternative provisions were not considered for small water systems because the customers of water systems classified as small businesses must be afforded the same level of public health protection as customers of large water systems.

(28) If data is the basis for this regulation, please provide a description of the data, explain in detail how the data was obtained, and how it meets the acceptability standard for empirical, replicable and testable data that is supported by documentation, statistics, reports, studies or research. Please submit data or supporting materials with the regulatory package. If the material exceeds 50 pages, please provide it in a searchable electronic format or provide a list of citations and internet links that, where possible, can be accessed in a searchable format in lieu of the actual material. If other data was considered but not used, please explain why that data was determined not to be acceptable.

Substantial studies, reports, and data were used to develop this rulemaking.

Occurrence data:

To determine whether PFAS contaminants were occurring in Pennsylvania's water supplies at frequencies and concentrations expected to be at a level of concern, the Department collected occurrence data on a range of PFAS. The two primary sources for occurrence data were the final results from the Department's Bureau of Safe Drinking Water (BSDW) PFAS Sampling Plan and the Third Unregulated Contaminant Monitoring Rule (UCMR3) data.

The BSDW PFAS Sampling Plan prioritized sites for targeted PFAS sampling. A literature review identified several likely potential sources of PFAS contamination; specific references reviewed are cited in the sampling plan.

- PA DEP, April 2019, "Pennsylvania Department of Environmental Protection Bureau of Safe Drinking Water PFAS Sampling Plan," Available at www.dep.pa.gov/Citizens/My-Water/drinking_water/PFAS/Pages/DEP-Involvement.aspx.

PWS sources located within ½ mile of an identified PSOC of PFAS were included in the plan as target sites; additional sources located within ¾ mile of a PSOC were later added to the plan as needed to complete sampling. A selection of baseline sources representing a control group were also included;

these baseline sites were PWS sources located at least five miles from a PSOC and within a watershed containing 75% or more forested land. Sampling was planned for 360 target sites and 40 baseline sites. Sampling was conducted beginning in 2020 and ending in March 2021. Samples were analyzed by the Department's Bureau of Laboratories and a third-party contract lab via EPA Method 537.1. In all, a total of 412 sites were collected and analyzed, representing 372 target sites and 40 baseline sites. Final sampling plan results can be found on the Department's website.

- PA DEP, May 2021, "Summary of Results for SDW Sampling Project Using EPA Method 537.1," Available at www.dep.pa.gov/Citizens/My-Water/drinking_water/PFAS/Pages/default.aspx.

The Department's BSDW also reviewed UCMR3 data for PFAS detections. UCMR3 results can be found on EPA's website.

- US EPA, January 2018, "UCMR 3 Occurrence Data by State," Available at www.epa.gov/monitoring-unregulated-drinking-water-contaminants/occurrence-data-unregulated-contaminant#3.

Toxicology:

Through a toxicology services contract, the Drexel PFAS Advisory Group (DPAG), consisting of toxicologists and other scientific professionals at Drexel University, conducted a thorough and independent review of federal and other states' work on MCLs for PFAS, including the available research, data, and scientific studies to develop recommended MCLGs for select PFAS. MCLGs are non-enforceable, developed solely based on health effects, and do not take into consideration other factors, such as technical limitations and cost. MCLGs are the starting point for determining MCLs.

Specific references used by DPAG in this research are cited in the DPAG report and workbook.

- Drexel PFAS Advisory Group, June 2020, "Drexel PFAS Workbook," https://files.dep.state.pa.us/PublicParticipation/Public%20Participation%20Center/PubPartCenterPortalFiles/Environmental%20Quality%20Board/2021/June%2015/03_PFAS%20Petition/01b_App%202%20Drexel%20PFAS%20Workbook%20January%202021.pdf.
- Drexel PFAS Advisory Group, January 2021, "Maximum Contaminant Level Goal Drinking Water Recommendations for Per- and Polyfluoroalkyl Substances (PFAS) in the Commonwealth of Pennsylvania," https://files.dep.state.pa.us/PublicParticipation/Public%20Participation%20Center/PubPartCenterPortalFiles/Environmental%20Quality%20Board/2021/June%2015/03_PFAS%20Petition/01a_App%201%20Drexel%20PFAS%20Report%20January%202021.pdf.

Analytical considerations:

Resources were consulted to ensure that analytical methods sufficient to support the proposed rulemaking exist, including the following:

- Association of State Drinking Water Administrators (ASDWA), October 2020, "Technical Bulletin to Laboratories Reporting PFAS Analysis Using EPA Methods 533, 537, or 537.1," www.asdwa.org/wp-content/uploads/2020/10/ASDWA-PFAS-Lab-Reporting-Technical-Bulletin-FINAL-101420-1.pdf.
- Association of State Drinking Water Administrators (ASDWA), February 2021, "Per- and Polyfluoroalkyl Substances (PFAS) Laboratory Testing Primer for State Drinking Water

Programs and Public Water Systems," www.asdwa.org/wp-content/uploads/2021/02/ASDWA-PFAS-Lab-Testing-Primer-FINAL-02032021.pdf.

- Rosenblum, Laura and Steven C. Wendelken, November 2019, "Method 533: Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry," US EPA Office of Water, EPA Document No. 815-B-19-020, www.epa.gov/sites/default/files/2019-12/documents/method-533-815b19020.pdf.
- Shoemaker, J.A. and D.R. Tettenhorst, November 2018, "Method 537.1. Determination of Selected Per-and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MC/MC)," Version 1.0, US EPA Office of Research and Development, EPA Document # EPA/600/R-18/352, https://cfpub.epa.gov/si/si_public_record_Report.cfm?Lab=NERL&dirEntryId=343042.
- Shoemaker, J.A., P.E. Grimmett, and B.K. Boutin, September 2009, "Method 537. Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MC/MC)," Version 1.1, US EPA Office of Research and Development, EPA Document # EPA/600/R-08/092, https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NERL&dirEntryId=198984&simpleSearch=1&searchAll=EPA%2F600%2FR-08%2F092+.

In addition, the Department conducted a survey of laboratories accredited in Pennsylvania for PFAS analysis to evaluate available lab capacity and minimum reporting limits:

- PA DEP, May 2021, "Summary of Responses from Survey of Pennsylvania Accredited Laboratories for PFAS."

Treatment technologies:

The Department conducted a survey of PWSs currently treating for PFAS, other state agencies, and water treatment manufacturers to evaluate treatment technologies and treatment costs.

- PA DEP, July 2021, "PFAS Treatment Survey Response Summary."

Cost to Benefits:

- American Water Works Association (AWWA), 2020, "PFAS Case Study: Cape Fear Public Utility Authority (CFPUA)," www.awwa.org/Portals/0/AWWA/ETS/Resources/Technical%20Reports/CFPUA%20Case%20Study%20Report_FINAL.pdf?ver=2021-01-19-095055-317.
- PA DEP, July 2021, "PFAS Treatment Survey Response Summary."

Other States:

- Association of State Drinking Water Administrators (ASDWA), October 2020, "Per- and Polyfluoroalkyl Substances (PFAS) and State Drinking Water Program Challenges," www.asdwa.org/wp-content/uploads/2018/02/ASDWA-PFAS-2-Pager.pdf.
- California Water Boards, October 2020 "Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS)," www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/PFOA_PFOS.html.
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(29) Include a schedule for review of the regulation including:

A. The length of the public comment period:	60 days
B. The date or dates on which any public meetings or hearings will be held:	March 21, 22, 23, 24 and 25, 2022
C. The expected date of delivery of the final-form regulation:	Quarter 4 2022
D. The expected effective date of the final-form regulation:	Upon publication in the *Pennsylvania Bulletin*
E. The expected date by which compliance with the final-form regulation will be required:	Upon publication in the *Pennsylvania Bulletin*
F. The expected date by which required permits, licenses or other approvals must be obtained:	January 2025

(30) Describe the plan developed for evaluating the continuing effectiveness of the regulations after its implementation.

The amendments will be reviewed in accordance with the Sunset Review Schedule published by the Department.

CDL-1

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FOR FILING DOCUMENTS
WITH THE LEGISLATIVE REFERENCE BUREAU

(Pursuant to Commonwealth Documents Law)

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Independent Regulatory Review Commission

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Copy below is hereby approved as to form and legality. Attorney General

By: Amy M. Elliott (Deputy Attorney General)

Digitally signed by Amy M. Elliott
DN: cn=Amy M. Elliott, o=Pennsylvania Office of Attorney General, ou=Chief Deputy Attorney General, email=aelliott@attorneygeneral.gov, c=US
Date: 2022.02.09 08:30:17 -05'00'

2/9/22

DATE OF APPROVAL

☐ Check if applicable
Copy not approved. Objections attached.

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-569

DATE OF ADOPTION November 16, 2021

BY

TITLE PATRICK MCDONNELL
CHAIRPERSON

EXECUTIVE OFFICER CHAIRPERSON OR SECRETARY

Copy below is hereby approved as to form and legality Executive or Independent Agencies

BY

DATE OF APPROVAL
November 17, 2021
(Deputy General Counsel)
(Chief Counsel - Independent Agency)
(Strike inapplicable title)

☐ Check if applicable. No Attorney General Approval or objection within 30 days after submission.

NOTICE OF PROPOSED RULEMAKING

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

Safe Drinking Water PFAS MCL Rule

25 Pa. Code Chapter 109

PROPOSED RULEMAKING
ENVIRONMENTAL QUALITY BOARD
[25 PA. CODE CH. 109]

Safe Drinking Water PFAS MCL Rule

The Environmental Quality Board (Board) proposes to amend Chapter 109 (relating to safe drinking water) to read as set forth in Annex A. The proposed amendments will improve public health protection by setting maximum contaminant level goals (MCLG) and maximum contaminant levels (MCL) for two per- and polyfluoroalkyl substances (PFAS) — perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS).

PFAS are considered emerging contaminants because research is ongoing to better understand the potential impacts PFAS pose to human and animal health and the environment. PFAS are potentially linked to a number of adverse health effects, including high cholesterol, developmental effects including low birth weight, liver toxicity, decreased immune response, thyroid disease, kidney disease, ulcerative colitis, and certain cancers, including testicular cancer and kidney cancer.

The proposed amendments are intended to protect public health by setting State MCLs for contaminants in drinking water that are currently unregulated at the Federal level. With the proposed amendments, the Commonwealth would move ahead of the U.S. Environmental Protection Agency (EPA) in addressing PFOA and PFOS in drinking water and join a small group of states that have set MCLs for select PFAS in drinking water. Currently, six states have set MCLs for one or more PFAS – Massachusetts, Michigan, New Hampshire, New Jersey, New York and Vermont.

Safe drinking water is vital to maintaining healthy and sustainable communities. Proactively addressing PFOA and PFOS contamination in drinking water can reduce the incidence of illness and reduce health care costs. Recent research suggests that EPA's Combined Lifetime Health Advisory Level (HAL) for PFOA and PFOS is not sufficiently protective against adverse health effects. EPA has started the process of setting more stringent standards for PFOA and PFOS in drinking water, but that process is expected to take years to complete. For that reason, it is important that the Board act now to propose more protective standards for this Commonwealth, to protect the health of Pennsylvanians. 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 for years to come.

The proposed PFOA and PFOS MCLs will apply to all 3,117 community, nontransient noncommunity, bottled, vended, retail, and bulk water systems in this Commonwealth. Of these, 1,905 are community water systems, serving a combined population of approximately 11.4 million Pennsylvanians. Another 1,096 are nontransient noncommunity water systems serving approximately 507,000 persons.

The proposed amendments also include minor revisions to address incorrect cross-references and citations, delete duplicated text, and update language to be consistent with revisions made in the

2018 General Update of the Chapter 109 regulations. These minor updates are a codification of existing practices and will have no change from current practice.

This proposed rulemaking was adopted by the Board at its meeting of November 16, 2021.

A. *Effective Date*

This proposed rulemaking will go into effect upon final-form publication in the *Pennsylvania Bulletin*. Initial compliance monitoring for community and nontransient noncommunity water systems serving a population of greater than 350 persons and all bottled, vended, retail, and bulk systems begins January 1, 2024; initial monitoring for community and nontransient noncommunity water systems serving a population of less than or equal to 350 persons begins January 1, 2025.

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 Leda J. Lacomba, 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 proposed rulemaking appears in Section I of this preamble. Persons with a disability may use the Pennsylvania Hamilton Relay Service at (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This proposed rulemaking is available electronically through the Department of Environmental Protection's (Department) web site at www.dep.pa.gov (select "Public Participation," then "Environmental Quality Board," and then navigate to the Board meeting of November 16, 2021).

C. *Statutory Authority*

This proposed rulemaking is being made under the authority of section 4 of the Commonwealth's Safe Drinking Water Act (Act) (35 P. S. § 721.4), which grants the Board the authority to adopt rules and regulations governing the provision of drinking water to the public, and 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*

PFAS are a large class of man-made synthetic chemicals that were created in the 1930s and 1940s for use in many industrial and manufacturing applications. It is estimated that the PFAS family includes more than 6,000 chemical compounds. PFAS have been widely used for their unique properties that make products repel water, grease and stains, reduce friction, and resist heat. PFAS are found in industrial and consumer products such as clothing, carpeting, upholstery, food packaging, non-stick cookware, fire-fighting foams, personal care products, paints, adhesives, metal plating, wire manufacturing, and many other uses. Because of their unique chemical structure, PFAS readily dissolve in water and are mobile, are highly persistent in the environment, and bioaccumulate in living organisms over time.

Decades of widespread use of products containing PFAS has resulted in elevated levels of environmental pollution and exposure in some areas of the State. PFAS remain in the environment and cycle through various media (air, water, soil) depending on how and where the substances were released. The primary means of distribution of PFAS throughout the environment has been though the air, water, biosolids, food, landfill leachate, and fire-fighting activities. For a diagram showing the PFAS cycle and its exposure pathways, refer to the Department's PFAS webpage at www.dep.pa.gov/Citizens/My-Water/drinking_water/PFAS/Pages/DEP-Involvement.aspx.

The Department's Safe Drinking Water Program first became aware of PFAS as emerging contaminants in 2013 when the EPA included six PFAS in its Third Unregulated Contaminant Monitoring Rule (UCMR3). The six PFAS included in UCMR3 monitoring are PFOA, PFOS, perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), and perfluorobutanesulfonic acid (PFBS). The UCMR rules are Federal direct-implementation rules that are updated every five years to require monitoring for up to 30 unregulated contaminants in order to generate National occurrence data and inform the Federal regulatory determination process. Public water systems (PWS) serving more than 10,000 people and a select number of smaller PWSs were required to monitor for PFAS and other contaminants during 2013 – 2015 for UCMR3. In this Commonwealth, a total of 175 systems conducted PFAS monitoring for UCMR3; of these systems, PFAS was detected at six systems above the 2009 Provisional Health Advisory Levels (HALs) for PFOA and PFOS of 400 nanograms per liter (ng/L) or parts per trillion (ppt) and 200 ng/L, respectively. The Department worked closely with EPA and the PWSs to address the elevated levels of PFAS found during the UCMR3 monitoring.

In May of 2016, EPA issued the Final HAL for PFOA and PFOS as a Combined Lifetime HAL of 70 ng/L. At that time, the Department began implementing the EPA's Combined Lifetime HAL of 70 ng/L for PFOA and PFOS using existing authority under the Act and Chapter 109 regulations. PWSs that exceed the HAL are required to conduct follow-up and corrective actions to protect public health, including the following actions:

- One-hour reporting of sample results to the Department to ensure timely consultation and oversight regarding investigative and corrective actions (§ 109.701(a)(3)(iii)) (relating to reporting and recordkeeping),
- Collection of confirmation samples (§ 109.302) (relating to special monitoring requirements),
- Issuance of Tier 2 Public Notice to consumers (§ 109.409) (relating to tier 2 public notice—categories, timing and delivery of notice),
- Quarterly monitoring at the entry point to track levels of contamination (§ 109.302), and
- If levels continue to exceed the HAL, taking additional actions as needed to protect public health such as taking contaminated sources off-line or installing treatment (§ 109.4) (relating to general requirements).

PFAS Action Team

In the absence of Federal action to address PFAS, Governor Tom Wolf signed Executive Order 2018-08 (EO) on September 19, 2018. The EO created the PFAS Action Team, a multi-agency group tasked with, among other things, developing a comprehensive response to identify and eliminate sources of contamination, ensure drinking water is safe, manage environmental contamination, review gaps in data and oversight authority, and recommend actions to address those gaps. The PFAS Action Team released its Initial Report in December of 2019 to the Department's PFAS webpage at www.dep.pa.gov/pfas. The report includes information about PFAS, challenges associated with managing contamination, actions taken to date and recommendations for future actions. Recommendations include additional funding for communities dealing with PFAS contamination and strengthened statutory authorities to adequately address PFAS.

In 2019, the Department's Safe Drinking Water Program moved forward with two key projects to advance its knowledge of PFAS – the PFAS Sampling Plan and PFAS Toxicology Services Contract.

PFAS Sampling Plan

The PFAS Sampling Plan was developed and posted to the Department's PFAS webpage (www.dep.pa.gov/Citizens/My-Water/drinking_water/PFAS/Pages/DEP-Involvement.aspx) in April of 2019. The plan was intended to prioritize PWS sites for PFAS sampling and generate statewide occurrence data. Several factors were considered in developing the targeted plan, including:

- Identification of "potential sources of PFAS contamination" (PSOC) based on a literature review,
- Identification of PWS sources located within ½ to ¾ of a mile from PSOCs, and
- Selection of PWS sources to serve as a control or baseline group.

The selection process involved a combination of spatial analysis and programmatic review. The spatial analysis included the creation of a Geographic Information System (GIS) project using ArcMap 10.4.1 that focused on PWS source locations and information about PSOCs. The sampling pool was prioritized based on relative risk and included community water systems and nontransient noncommunity water systems.

In order to prioritize sampling, the selection process included an assessment of the potential risk from nearby PSOCs. Several layers containing locational and other information specific to PSOCs were created or otherwise included in the GIS. These layers include the following industries and land uses:

- Military bases
- Fire training schools/sites
- Airports
- Landfills

- Manufacturing facilities (apparel, chemicals, electronics, fabricated metal, paper products, textiles and leather, upholstered furniture)
- State Hazardous Sites Cleanup Act (HSCA) sites, EPA Superfund sites and other known PFAS-contamination sites

The sampling plan includes details about the sources of GIS data and multiple maps that indicate the locations and prevalence of the PSOCs and the locations of the targeted and baseline sampling sites.

Based on the compilation of PSOCs, the information was used to select PWS sources that are located within ½ to ¾ of a mile of a PSOC. The initial sampling pool included 493 PWS sources. The sampling pool contained a mix of PWS types and sizes and provided a good spatial distribution across the state. Based on available funding of $500,000, the Department proposed sampling at 360 targeted and 40 baseline entry point (EP) sites. Baseline sources are located in a HUC-12 watershed (a watershed assigned a 12-digit hydrologic unit code, or HUC, by the U.S. Geological Survey) with at least 75% forested land and at least five miles from a PSOC. Ultimately, samples were collected from 412 EPs including 372 targeted sites and 40 baseline sites. Note that an EP to the distribution system may include water from more than one source of supply.

Sampling and analysis began during the Summer of 2019 using EPA Method 537 and a PA-accredited lab to analyze samples for the six UCMR3 PFAS. However, in early 2020, the Department took the opportunity to modify its analysis of samples by switching to EPA Method 537.1, which expanded the collection of occurrence data to 18 PFAS and adding the Department's Bureau of Laboratories for analysis. For consistency purposes, the Department repeated the sampling and analysis that had been conducted in 2019. Sampling was temporarily suspended from March 2020 to July 2020 due to the COVID-19 pandemic and resulting business closures and travel restrictions established under the Governor's Emergency Declaration. Sampling resumed in August 2020 and was completed at the end of March 2021, with the final sample results posted to the Department's PFAS webpage in June 2021. Table 1 includes a summary of the results from the PFAS Sampling Plan for the same six PFAS that were sampled under UCMR3.

Table 1. Summary of PFAS Sampling Plan results. Full results available at www.dep.pa.gov/pfas

Summary of PFAS Sampling Plan Results							
	PFOA	PFOS	PFNA	PFHxS	PFHpA	PFBS	Units
Total No. Samples	412	412	412	412	412	412	--
Average	2.0	2.5	0.4	1.4	0.7	1.1	ng/L
Median	0 (ND)	0 (ND)	0 (ND)	0 (ND)	0 (ND)	0 (ND)	ng/L
Minimum	0 (ND)	0 (ND)	0 (ND)	0 (ND)	0 (ND)	0 (ND)	ng/L
Maximum	59.6	187.1	18.1	140.0	32.6	64.0	ng/L
No. and % of Detects	112 (27%)	103 (25%)	23 (6%)	52 (13%)	49 (12%)	66 (16%)	--
Avg Detect Value	7.5	9.9	7.2	10.9	6.1	7.0	ng/L

Med Detect Value	5.3	6.5	5.6	4.5	4.5	4.2	ng/L
Min Detect Value	1.7	1.8	1.8	1.9	1.8	1.7	ng/L
Max Detect Value	59.6	187.1	18.1	140.0	32.6	64.0	ng/L

For example, of the 412 samples analyzed for PFOA, 112 (27%) resulted in detectable concentrations of PFOA. The remaining 300 samples resulted in no detectable concentrations of PFOA. For the 112 samples in which PFOA was detected, the average detected value was 7.5 ng/L, the median detected value was 5.3 ng/L, the minimum detected value was 1.7 ng/L, and the maximum detected value was 59.6 ng/L.

At the sampling sites with detections, eight of the 18 PFAS included in EPA Method 537.1 were detected. The eight PFAS that were detected are: PFOA, PFOS, PFNA, PFHxS, PFHpA, PFBS, perfluorohexanoic acid (PFHxA), and perfluoroundecanoic acid (PFUnA). Of the PFAS detected, PFOA and PFOS were most common, detected at 112 (or 27%) and 103 (or 25%) sites, respectively. Of the 412 total samples, two of the results were above the EPA's HAL of 70 ng/L for the combined concentrations of PFOA and PFOS. Results were non-detect at all 412 sites for the other 10 PFAS that were tested.

Additionally, there are 23 results with detections from UCMR3 monitoring that were also included in the occurrence data evaluation. Because the reporting limits used for UCMR3 monitoring (40 ng/L for PFOA and 20 ng/L for PFOS) were much higher than current reporting limits (which are generally below 5 ng/L), the Department did not include UCMR3 data that was below the UCMR3 reporting limits.

Therefore, the Department used results from a total of 435 sampling sites in the evaluation of occurrence data.

PFAS Toxicology Services Contract

In December 2019, the Department's Safe Drinking Water Program executed a toxicology services contract with Drexel University to: review other state and Federal agency work on MCLs; independently review the data, science, and studies; and develop recommended MCLGs for select PFAS. MCLGs are non-enforceable, developed solely based on health effects and do not take into consideration other factors, such as technical limitations and cost. MCLGs are the starting point for determining MCLs.

Deliverables were completed in January 2021 and include the "Drexel PFAS Workbook" and "MCLG Drinking Water Recommendations for PFAS in the Commonwealth of PA" (MCLG Report), available at the following links: Workbook, https://files.dep.state.pa.us/PublicParticipation/Public%20Participation%20Center/PubPartCenterPortalFiles/Environmental%20Quality%20Board/2021/June%2015/03_PFAS%20Petition/01b_App%202%20Drexel%20PFAS%20Workbook%20January%202021.pdf and Report, https://files.dep.state.pa.us/PublicParticipation/Public%20Participation%20Center/PubPartCenterPortalFiles/Environmental%20Quality%20Board/2021/June%2015/03_PFAS%20Petition/01a_App%201%20Drexel%20PFAS%20Report%20January%202021.pdf. The MCLG Report was developed by the Drexel PFAS Advisory Group (DPAG) – a multidisciplinary team of experts in toxicology, epidemiology, and drinking water standards and risk assessment. The DPAG

reviewed pertinent literature and work across the country and independently developed recommended MCLGs based on non-cancer endpoints. The MCLG Report discusses relevant inputs and includes a summary table for each PFAS that documents the development of the recommended MCLG. Table 2 includes the Reference Dose and recommended Chronic Non-Cancer MCLG for each PFAS that was reviewed.

Table 2. DPAG Reference Dose and Recommended Chronic Non-Cancer MCLGs.

DPAG Reference Dose and Recommended Chronic Non-Cancer MCLGs		
PFAS	**Reference Dose (ng/kg/day)**	**MCLG (ng/L or ppt)**
PFOA	3.9	8
PFOS	3.1	14
PFNA	2.2	6
PFHxS	4.0	20
PFHpA	None derived*	8
PFBS	39	55
GenX (HFPO-DA)	75	108

*Reference dose was not derived due to a lack of evidence on its toxicity. Recommended MCLG is based on its chemical structure.

As the DPAG explains in its MCLG Report, it "reviewed a number of recommendations made by EPA and State agencies that chose to create a summative approach to PFAS, combining multiple minimal risk levels or advisory levels into one cumulative drinking water value. No clear consensus exists on this approach and the use of the summative approach was clearly designed to be a shortcut based on a presumption that the agents all have similar health effects and end points. While this approach may work for other toxins such as dioxins, furans, and coplanar polychlorinated biphenols, it does not appear to be based on evidence available for PFAS. The DPAG therefore committed early in the process to developing an individual MCLG for each of the requested PFAS." (DPAG, January 2021)

The DPAG further describes in the MCLG Report that "For each of the PFAS studied, the DPAG identified points of departure (POD) and rationale for selection from risk assessments published by other States, the EPA and ATSDR (Agency for Toxic Substances and Disease Registry). DPAG then assessed the underlying critical studies driving the selection of the POD. Every effort was made to use the experience and published findings from other agencies and build and refine on these as much as possible into a best practice approach." (DPAG, January 2021)

In the "Drexel PFAS Workbook", the DPAG explains how threshold levels (such as advisory levels, MCLGs, MCLs) are generally determined, although each state's process can vary. Table 3, taken from the workbook, is a helpful tool in understanding the process. More detail about the DPAG's determination of MCLGs can be found as follows, under the subsections for PFOA and PFOS.

Table 3. How POD is Used to Calculate Reference Dose (RfD) and Threshold Level
(DPAG, June 2020)

PFOA	
US EPA	
Office of Water 2016	
Standard / Guidance	Health Advisory
Media Type	Drinking Water
Threshold Level (ug/L) or (PPT)	0.07 ug/L 70 PPT (PFOA + PFOS cannot exceed this level)
Key Study Information	
Critical Effect Key Study Reference[1]	Developmental (reduced ossification, accelerated puberty) Lau, C., J.R. Thibodeaux, R.G. Hanson, M.G. Narotsky, J.M. Rogers, A.B. Lindstrom, and M.J. Strynar. 2006. Effects of perfluorooctanoic acid exposure during pregnancy in the mouse. Toxicological Science 90:510–518.
Species	Mice
Study Exposure Duration (days)	17 days
Kinetics	
Method of Administered Dose conversion to Internal Serum Level	Modeled AUC
Method to Derive Human Equivalent Dose	Dose adjustment factor of 0.00014 L/kg-day, based on first order kinetic clearance rate (Vd x (ln 2 ÷ t½))
Dose-Response	
Dose Response Modeling Method	LOAEL
POD[2]	38 mg/L
POD x DAF = Human Equivalent Dose[3]	0.0053 mg/kg/day
Uncertainty Extrapolation	
Human Variability (UFH)	10
Animal to Human (UFA)	3
Subchronic to Chronic (UFS)	1
LOAEL to NOAEL (UFL)	10
Database (UFD)	1
Total Composite (UFT)	300
HED/UFT= Reference Dose (mg/kg-day)[4]	(2 x 10-5 mg/kg-day) or 20 ng/kg/d
Receptor	Lactating women
Exposure	
Ingestion Rate (L/day)	
Body Weight (Kg)	
Normalized Drinking Water Intake (L/kg-day)	0.054
Relative Source Contribution	20%
Threshold Level (ug/L) or (PPT)[5]	0.07 ug/L 70 PPT (PFOA + PFOA cannot exceed this level)
Additional Information	90th percentile consumers only estimate of combined direct and indirect community water ingestion for lactating women (see Table 3-81 in USEPA 2011b).
Reference	Health Effects Support Document for Perfluorooctanoic Acid, U.S. Environmental Protection Agency Office of Water (4304T) Health and Ecological Criteria Division, EPA Document Number: 822-R-16-003. May 2016. and Drinking Water Health Advisory for Perfluorooctanoic Acid, U.S. Environmental Protection Agency Office of Water (4304T) Health and Ecological Criteria Division, EPA Document Number: 822-R-16-005. May 2016 https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos

Footnotes:

1 Critical effect selected
2 Point of Departure (POD) determined by critical review of study
3 POD adjusted by using preferred methods to derive Human Equivalent Dose (HED)
4 HED divided by Uncertainty Factors (UF) to achieve Reference Dose (RfD) in target population
5 Final adjustment made based on intake to derive Threshold Level (e.g. MCL, MCLG, HAL, etc.)

Following completion of these two key projects – the PFAS Sampling Plan and the PFAS Toxicology Services Contract – the Department's Safe Drinking Water Program moved forward with developing a proposed PFAS MCL rule.

MCL Rulemaking Process

The Department must follow a rigorous process when setting an MCL. An MCL rulemaking must be based on available data, studies, and science, and must consider all factors as required by the Federal Safe Drinking Water Act (Federal Act) and the Commonwealth's Regulatory Review Act (RRA), 71 P.S. §§ 745.1—745.15. Among other things, the Department must consider the following:

- Health effects,
- Occurrence data,
- Technical limitations such as available analytical methods and detection and reporting limits,
- Treatability of the contaminant and available treatment technologies, and
- Costs and benefits. (71 P.S. § 745.5b).

In addition to state requirements, the Department needs to consult the Federal Act and its implementing regulations. See 42 U.S.C.A. §§ 300f—300j-9; see also 40 CFR Parts 141, 142, and 143. EPA explains how the agency sets standards at the following link: www.epa.gov/sdwa/how-epa-regulates-drinking-water-contaminants. In establishing the MCLs in this proposed rulemaking, the Department was informed by EPA's procedure to establish an MCL. It is important for the Department to understand EPA's process of setting an MCL because similar criteria are required of the Department under the RRA and because the MCLs in this proposed rulemaking are the first MCLs that the Department has set; every other MCL in effect in this Commonwealth was set by EPA and incorporated by reference into the Department's Chapter 109 regulations. In addition, in order to retain primacy for implementing the Federal Act in this Commonwealth, the Department's standard setting process must be at least as stringent as the Federal process.

After reviewing health effects data, EPA sets an MCLG. MCLGs are non-enforceable public health goals. MCLGs consider only public health and not the limits of detection and treatment technology effectiveness. Therefore, MCLGs sometimes are set at levels which water systems cannot meet because of technical limitations.

Once the MCLG is determined, EPA sets an enforceable standard. In most cases, the standard is an MCL. The MCL is set as close to the MCLG as feasible. Taking cost into consideration, EPA must determine the feasible MCL.

As a part of the rule analysis, the Federal Act requires EPA to prepare a health risk reduction and cost analysis in support of any standard. EPA must analyze the quantifiable and non-quantifiable benefits that are likely to occur as the result of compliance with the proposed standard. EPA must also analyze increased costs that will result from the proposed drinking water standard. In addition, EPA must consider incremental costs and benefits associated with the proposed

alternative MCL values. Where the benefits of a new MCL do not justify the costs, EPA may adjust the MCL to a level that maximizes health risk reduction benefits at a cost that is justified by the benefits.

The amendments to Chapter 109 in this proposed rulemaking include new MCLGs and MCLs for PFOA and PFOS. The amendments also include the provisions necessary to comply with the MCLs, including requirements for monitoring and reporting, public notification, consumer confidence reports, acceptable treatment technologies and analytical requirements.

The Department is proposing to ***not*** move forward with an MCL for other PFAS at this time due to the reasons outlined in Table 4.

Table 4. Reasons for not moving forward with MCLs for other PFAS.

	PFNA	PFHxS	PFHpA	PFBS	HFPO-DA
Lack of occurrence data > MCLG	x	x		x	x
Incomplete cost/benefit data and analysis	x	x	x	x	x
Reference dose was not derived due to lack of evidence on its toxicity			x		
Lack of treatability data					x

The decision to not move forward with MCLs for additional PFAS at this time is further supported by a review of co-occurrence data. This review considers the frequency with which individual PFAS detections co-occurred with other PFAS detections in the occurrence data set used for this rulemaking. Based on an analysis of co-occurrence data, only 3.7% of all sites (or 16 out of 435 sites) had detections of at least one other PFAS at a level greater than its recommended MCLG when PFOA or PFOS levels did not exceed the proposed MCLs. In other words, the PFOA and PFOS proposed MCLs appear to be protective of other PFAS at least 96.3% of the time.

PFOA

PFOA – DPAG Development of MCLG

After a literature search and a review of the available evidence and recommendations from various agencies, the DPAG developed an MCLG recommendation for PFOA of 8 ng/L or ppt based on non-cancer endpoints. The DPAG determined that the most relevant inputs were from the EPA, Agency for Toxic Substances and Disease Registry (ATSDR), Minnesota Department of Health (MDH), New Jersey Department of Environmental Protection (NJDEP), and Michigan Department of Health and Human Services (MDHHS).

The DPAG selected Koskela, et al. (2016) and Onishchenko, et al. (2011) as the critical studies, which identified developmental effects (including neurobehavioral and skeletal effects) as critical. The DPAG adopted the ATSDR's estimated Point of Departure (POD) of 8.29 mg/L. The DPAG followed the approaches used by MDHHS, MDH, and ATSDR to select and

determine the Human Equivalent Dose (HED), Uncertainty Factors (UF), Reference Dose (RfD), Relative Source Contribution (RSC) and recommended MCLG. Table 5 provides a summary of the DPAG's derivation of the MCLG for PFOA.

Table 5. DPAG Derivation of PFOA MCLG (DPAG, January 2021)

PFOA	
Drexel PFAS Advisory Group (DPAG) 2021	
Dose Response Modeling Method	**LOAEL**
POD	The average serum concentration was estimated in the mice (8.29 mg/L) using a three-compartment pharmacokinetic model (Wambaugh et al. 2013) using animal species, strain, sex-specific parameters. (ATSDR 2018)
HED = POD x DAF (mg/kg/d)	DAF = Ke x Vd Ke = 0.000825175 (8.2 x 10-4) based on a human serum half-life of 840 days (Bartell et al. 2010) Vd = 0.17 L/kg (Thompson et al. 2010) HED_{LOAEL} = POD_{LOAEL} x DAF HED_{LOAEL} = POD_{LOAEL} x Ke x Vd HED_{LOAEL} = 8.29 mg/L x 0.0000825175 x 0.17 L/kg HED_{LOAEL} = 0.001163 mg/kg/d or 1.163 x 10^{-3} mg/kg/d
Uncertainty Extrapolation	
Human Variability (UFH)	10 (standard)
Animal to Human (UFA)	3 (DAF applied)
Subchronic to Chronic (UFS)	1 (Chronic effect studied)
LOAEL to NOAEL (UFL)	10 (standard)
Database (UFD)	1
Total Composite (UFT)	300
RfD = HED/UFT (mg/kg/d)	RfD = 0.001163 mg/kg/d/300 RfD = 3.9 ng/kg/day (3.9 x 10^{-6} mg/kg/d)
THSV = POD / UFT	THSV= 8.29 mg/L/ 300 THSV= 0.028 mg/L
Receptor	Infant exposure via breastmilk for 1 year, from mother chronically exposed via water, followed by lifetime of exposure via drinking water. Protective for short-term, subchronic and chronic. (also protective of formula fed infant). Goeden Model Parameters: Placental transfer of 87% and breastmilk transfer of 5.2% (MDH (2020 PFOA)). The Human Serum half-life is set at 840 days (Bartell et al. 2010). The Volume of distribution of 0.17 L/kg (Thompson et al. [2010]) Other factors include, 95th percentile drinking water intake, consumers only, from birth to more than 21 years old. Upper percentile (mean plus two standard deviations) breast milk intake rate. Time-weighted average water ingestion rate from birth to 30-35 years of age is used to calculate maternal serum concentration at delivery. (Goeden et al. [2019]) A Relative Source Contribution of 50% (0.5) is applied and based on studies which showed that infants RSC is similar to NHANES 95th percentiles for 3-11 (2013-2014) and over 12 years old (2015-2016) participants. (CDC 2019)
Chronic Non-Cancer MCLG	The model produces a Chronic Non-Cancer MCLG of 8 ng/L (ppt). This protects health during the growth and development of a breast fed infant.

In summary, the DPAG recommended a chronic non-cancer MCLG for PFOA of 8 ng/L to protect breast-fed infants and throughout life.

The Board is proposing to set the MCLG for PFOA at the DPAG recommended level of 8 ng/L.

PFOA – Occurrence Data

Table 6 is a summary of occurrence data for PFOA. The data includes 412 results from the PFAS Sampling Plan and detect data from 23 sites under UCMR3 for a total of 435 sample results.

Table 6. PFOA Occurrence Data > MCLG of 8 ng/L

PFOA Occurrence Data > Proposed MCLG of 8 ng/L	
# of sites (of 435) > MCLG	46
% of sites > MCLG	10.6%
Estimated # of EPs (of 3785) > MCLG	400

A review of occurrence data indicates that 46 EPs out of a total number of 435 EPs sampled exceeded the proposed MCLG for PFOA of 8 ng/L. This represents 10.6% of all EPs sampled. This exceedance rate may overestimate the exceedance rate for other PWSs in Pennsylvania that were not sampled because the occurrence data sampling predominately targeted sites near potential sources of PFAS contamination. However, the occurrence data provides the most relevant information currently available on the prevalence and levels of PFAS in PWSs in Pennsylvania. Applying the occurrence data PFOA MCLG exceedance rate (10.6%) to the total number of EPs for all applicable PWSs (3,785 EPs), it is estimated that 400 EPs will exceed the proposed MCLG of 8 ng/L.

PFOA – Proposed MCL of 14 ng/L

The Board is proposing an MCL of 14 ng/L for PFOA. The proposed MCL is based on the health effects and proposed MCLG, occurrence data, technical feasibility, and costs and benefits.

Table 7 is a summary of occurrence data for PFOA when compared to the proposed MCL of 14 ng/L.

Table 7. PFOA Occurrence Data > MCL of 14 ng/L

PFOA Occurrence Data > Proposed MCL of 14 ng/L	
# of sites (of 435) > MCL	25
% of sites > MCL	5.7%
Estimated # of EPs (of 3785) > MCLG	218

A review of occurrence data indicates that 25 EPs out of a total number of 435 EPs sampled exceeded the proposed MCL for PFOA of 14 ng/L. This represents 5.7% of all EPs sampled.

This exceedance rate may overestimate the exceedance rate for other PWSs in Pennsylvania that were not sampled because the occurrence data sampling predominately targeted sites near potential sources of PFAS contamination. However, the occurrence data provides the most relevant information currently available on the prevalence and levels of PFAS in PWSs in Pennsylvania. Applying the occurrence data PFOA MCL exceedance rate (5.7%) to the total number of EPs for all applicable PWSs (3,785 EPs), it is estimated that 218 EPs will exceed the proposed MCL of 14 ng/L.

Treatment cost estimates were determined based on a survey conducted of systems in this Commonwealth with existing PFAS treatment and of PFAS treatment manufacturers, an American Water Works Association published PFAS Case Study and from information provided by members of the Association of State Drinking Water Administrators (ASDWA). Costs were provided for granular activated carbon (GAC), anion exchange (IX) and reverse osmosis (RO). The RO costs were not included in the final cost estimates because, due to wastewater disposal requirements, the technology is currently impractical. Additionally, the costs for GAC, IX, and RO provided from the vendors were excluded from the final cost estimates because they were limited to media costs and did not include the infrastructure requirements.

All treatment capital cost were normalized to construction costs for treating 1 million gallons per day (MGD).

- The average capital cost for the GAC treatment was $3,457,110 per MGD per EP with an average annual operation and maintenance (O&M) cost of $171,970 per MGD per EP.
- The average capital cost for the IX treatment was $3,284,360 per MGD per EP with an average annual O&M cost of $155,666 per MGD per EP.
- The average capital cost for using either GAC or IX treatment is $3,370,735 per MGD per EP with an average annual O&M cost of $163,818 per MGD per EP.
- Annualized over 20 years at a 4% interest rate, the average annual capital cost for either GAC or IX treatment is $248,025 per MGD per EP.

Below is a summary of the estimated costs and benefits associated with the proposed MCL for PFOA of 14 ng/L. Section F of this preamble presents additional information on the costs and benefits of this proposed rulemaking. Treatment cost estimates are based on the costs to install and maintain treatment for a 1 MGD treatment plant. The actual costs would be expected to be proportionally less for a treatment plant with a smaller design capacity. For example, the average design capacity for small systems is 100,000 gallons per day, which is one-tenth of 1 MGD (that is, 0.1 MGD); treatment cost estimates for a small system with a design capacity of 0.1 MGD would be one-tenth of the cost estimates presented below.

- Estimated costs:
  - Estimated average annual compliance monitoring costs (@ $616/EP/Quarter) = $2.9 M
  - Estimated average annual treatment costs (average of GAC and IX) = $89.8 M per MGD + estimated annual performance monitoring costs = $4.8 M

        - Estimated annual treatment capital costs, annualized over 20 years at 4% interest = $248,025 per MGD per EP x 218 EPs = $54.1 M per MGD
        - Estimated annual treatment O&M costs = $35.7 M per MGD + estimated annual performance monitoring costs = $4.8 M
            - Estimated annual treatment O&M costs = $163,818 per MGD per EP x 218 EPs = $35.7 M per MGD
            - Estimated annual performance monitoring costs = $616 per sample per EP x 36 samples = $22,176 per EP x 218 EPs = $4.8 M
    - Estimated total annual costs = $89.8 M per MGD in treatment costs + $7.7 M in compliance monitoring and performance monitoring costs
- Estimated benefits:
    - 90% improvement in health protection as compared to current EPA HAL of 70 ppt

Table 8 provides a comparison of annual costs and benefits for the proposed MCL for PFOA of 14 ng/L, EPA's HAL of 70 ng/L, and other values considered for the proposed MCL. Performance monitoring costs are considered part of treatment O&M costs because performance monitoring is used to make operational decisions, such as when to change out treatment media.

Table 8. PFOA Comparison of Annual Costs and Benefits

PFOA Annual Costs and Benefits Analysis								
Value (ng/L)	Estimated # of EPs (of 3,785) > Value	Compliance Monitoring Costs (Millions)	Treatment O&M Costs		Treatment Capital Costs (Millions) per MGD* annualized over 20 years	Total Costs (Millions)	% Increase in Cost Compared to HAL	% Improvement in Health Protection Compared to HAL
			Treatment O&M Costs (Millions) per MGD*	Performance Monitoring Costs (Millions)				
HAL = 70	58	$2.46	$9.50	$1.29	$14.39	$27.63	0%	0%
35	78	$2.56	$12.78	$1.73	$19.35	$36.41	32%	56%
20	200	$2.73	$32.76	$4.44	$49.60	$89.53	224%	80%
MCL = 14	**218**	**$2.89**	**$35.71**	**$4.83**	**$54.07**	**$97.51**	**253%**	**90%**
12	270	$2.97	$44.23	$5.99	$66.97	$120.15	335%	93%
10	313	$3.07	$51.28	$6.94	$77.63	$138.92	403%	96%
MCLG = 8	400	$3.39	$65.53	$8.87	$99.21	$177.00	541%	100%

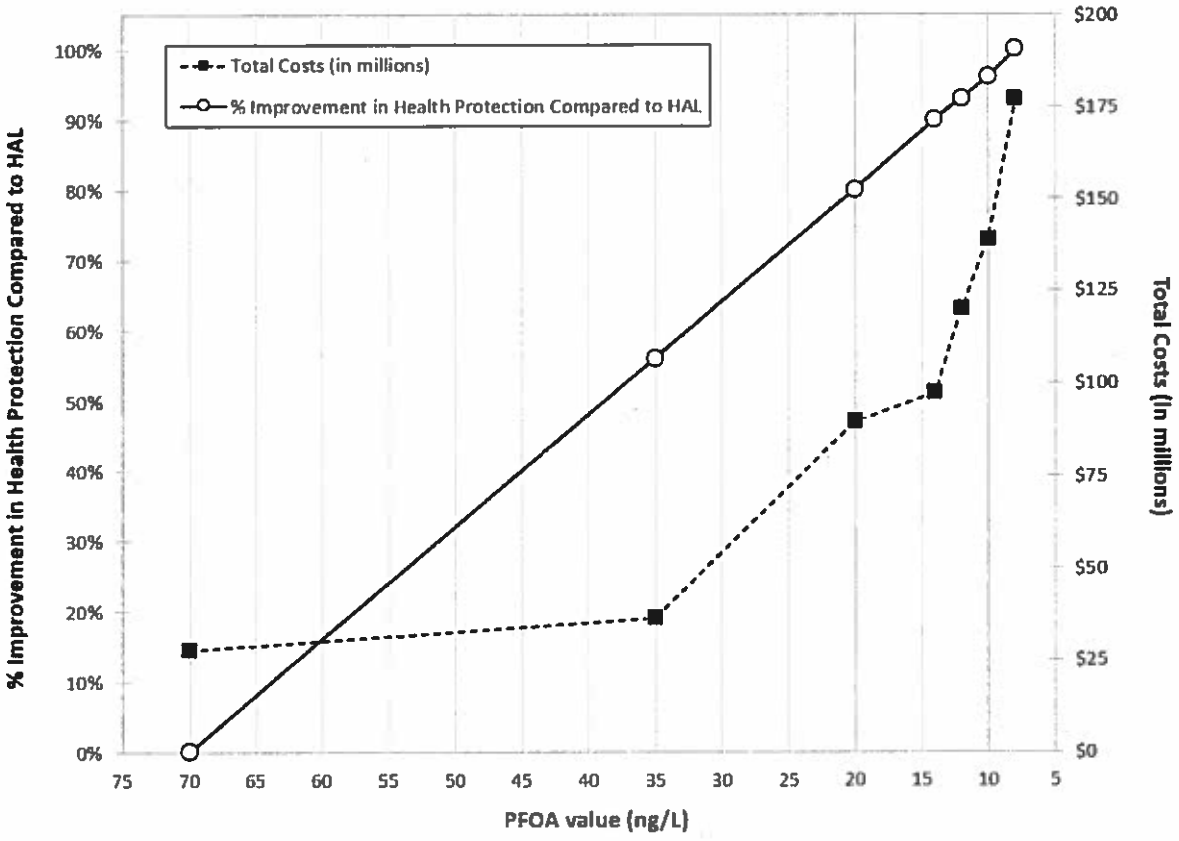
* For purposes of totaling annual costs, the costs that vary with design capacity (treatment O&M and treatment capital costs) were multiplied by a benchmark design capacity of 1 MGD.

In evaluating the costs and benefits, the Department's goal was to provide at least a 90% reduction in adverse health effects (a 90% improvement in health protection) when compared to the HAL of 70 ng/L. This goal is consistent with several existing drinking water standards including the following standards:

- the requirement to achieve at least a 90% inactivation of *Giardia* cysts using disinfection processes within a filtration plant (§ 109.202(c)(1)(ii) (relating to treatment technique requirements for pathogenic bacteria, viruses and protozoan cysts));
- the use of the 90th percentile lead and copper levels when determining compliance with the lead and copper action levels of 0.015 mg/L and 1.3 mg/L, respectively (§ 109.1102(a)) (relating to action levels for lead and copper)), and
- the requirement to meet the filtered water turbidity standards in 95% of measurements taken each month (§ 109.202(c)(1)(i)).

As shown in Table 8 and Figure 1, additional improvement in public health benefits at PFOA values lower than the proposed MCL of 14 ng/L would require increasingly steep costs. For example, compared with the proposed MCL of 14 ng/L, an MCL value of 10 ng/L is estimated to achieve an additional 6% increase at an additional annual cost of approximately $41.4 M (Table 8, Figure 1), which is a rate of approximately $7 M in additional annual costs for every additional 1% of benefits. Compared with the HAL, the proposed MCL of 14 ng/L is estimated to achieve a 90% improvement in public health benefits at an additional annual cost of roughly $70 M, which is a rate of approximately $0.8 M in additional annual costs for every additional 1% of benefits.

Figure 1. Annual Total Costs and Benefits (% Health Protection Improvement) at Various PFOA levels



For the aforementioned reasons, the Department believes that the proposed MCL for PFOA of 14 ng/L strikes an appropriate balance between the benefits (90% improvement in public health) and costs (253% increase in costs) when compared to the benefits and costs associated with meeting the HAL of 70 ng/L.

PFOS

PFOS – DPAG Development of MCLG

After a literature search and a review of the available evidence and recommendations from various agencies, the DPAG developed an MCLG recommendation for PFOS of 14 ng/L or ppt based on non-cancer endpoints. The DPAG referenced inputs from the EPA, ATSDR, MDH and MDHHS.

The DPAG selected Dong, et al. (2011) as the critical study, which identified immunotoxicity effects (including immune suppression) as critical. The DPAG determined that a POD of 2.36 mg/L is appropriate. The DPAG followed the approaches used by MDHHS, MDH and EPA to select and determine the Human Equivalent Dose (HED), Uncertainty Factors (UF), Reference

Dose (RfD), Relative Source Contribution (RSC) and recommended MCLG. Table 9 provides a summary of the DPAG's derivation of the MCLG for PFOS.

Table 9. DPAG Derivation of PFOS MCLG (DPAG, January 2021)

PFOS	
Drexel PFAS Advisory Group (DPAG) 2021	
Dose Response Modeling Method	**NOAEL**
POD	2.36 µg/mL (or 2.36 mg/L)
HED = POD x DAF (mg/kg/d)	Toxicokinetic Adjustment based on Chemical- Specific Clearance Rate (Li et al 2018, MDH 2020 PFOS) DAF = Vd (L/kg) x (Ln2/Half-life, days) DAF = 0.23 L/kg x (0.693/1241 days) = DAF = 0.00013 L/kg/d HED = POD x DAF (mg/kg/d) HED = 2.36 mg/L x 0.00013 L/kg/d HED = 0.000307 mg/kg/d
Uncertainty Extrapolation	
Human Variability (UFH)	10
Animal to Human (UFA)	3 (DAF applied)
Subchronic to Chronic (UFS)	1
LOAEL to NOAEL (UFL)	1
Database (UFD)	3
Total Composite (UFT)	100
RfD = HED/UFT (mg/kg/d)	RfD = HED/UFT (mg/kg/d) RfD = 0.000307 mg/kg-d/100 RfD = 3.1 ng/kg/d or 3.1×10^{-6} mg/kg-d
THSV = POD/UFT	ITSHV = 2.36 mg/L/100 ITSHV = 0.024 mg/mL
Receptor	Infant exposure via breastmilk for 1 year, from mother chronically exposed via water, followed by lifetime of exposure via drinking water. Protective for short-term, subchronic and chronic. The 95th percentile water intake rates (Table 3-1 and 3-3, USEPA 2019) or upper percentile breastmilk intake rates (Table 15-1, USEPA 2019) were used. Breast-fed infant, which is also protective of a formula-fed infant using Minnesota Department of Health Model based on Goeden (2019). Placental transfer of 40% (MDH 2020 PFOS). Breastmilk transfer of 1.7% (MDH 2020 PFOS). Human Serum half-life of 1241 days (Li et al. 2018) Volume of distribution of 0.23 L/kg (USA EPA 2016c) 95th percentile drinking water intake, consumers only, from birth to more than 21 years old (Goeden [2019]) Upper percentile (mean plus two standard deviations) breast milk intake rate (Goeden [2019]) Time-weighted average water ingestion rate from birth to 30-35 years of age (to calculate maternal serum concentration at delivery) (Goeden [2019])
Chronic Non-Cancer MCLG	The model produces a Chronic Non-Cancer MCLG of 14 ng/L (ppt). This protects health during the growth and development of a breast fed infant.

In summary, the DPAG recommended a chronic non-cancer MCLG for PFOS of 14 ng/L to protect breast-fed infants and throughout life.

The Board is proposing to set the MCLG for PFOS at the DPAG recommended level of 14 ng/L.

PFOS – Occurrence Data

Table 10 is a summary of occurrence data for PFOS. The data includes 412 results from the PFAS Sampling Plan and detect data from 23 sites under UCMR3 for a total of 435 sample results.

Table 10. PFOS Occurrence Data > MCLG of 14 ng/L

PFOS Occurrence Data > Proposed MCLG of 14 ng/L	
# of sites (of 435) > MCLG	23
% of sites > MCLG	5.3%
Estimated # of EPs (of 3785) > MCLG	200

A review of occurrence data indicates that 23 EPs out of a total number of 435 EPs sampled exceeded the proposed MCLG for PFOS of 14 ng/L. This represents 5.3% of all EPs sampled. This exceedance rate may overestimate the exceedance rate for other PWSs in Pennsylvania that were not sampled because the occurrence data sampling predominately targeted sites near potential sources of PFAS contamination. However, the occurrence data provides the most relevant information currently available on the prevalence and levels of PFAS in PWSs in Pennsylvania. Applying the occurrence data PFOS MCLG exceedance rate (5.3%) to the total number of EPs for all applicable PWSs (3,785 EPs), it is estimated that 200 EPs will exceed the proposed MCLG of 14 ng/L.

PFOS – Proposed MCL of 18 ng/L

The Board is proposing an MCL of 18 ng/L for PFOS. The proposed MCL is based on the health effects and proposed MCLG, occurrence data, technical feasibility, and costs and benefits.

Table 11 is a summary of occurrence data for PFOS when compared to the proposed MCL of 18 ng/L.

Table 11. PFOS Occurrence Data > MCL of 18 ng/L

PFOS Occurrence Data > Proposed MCL of 18 ng/L	
# of sites (of 435) > MCL	22
% of sites > MCL	5.1%
Estimated # of EPs (of 3785) > MCL	191

A review of occurrence data indicates that 22 EPs out of a total number of 435 EPs sampled exceeded the proposed MCL for PFOS of 18 ng/L. This represents 5.1% of all EPs sampled. This exceedance rate may overestimate the exceedance rate for other PWSs in Pennsylvania that were not sampled because the occurrence data sampling predominately targeted sites near potential sources of PFAS contamination. However, the occurrence data provides the most relevant information currently available on the prevalence and levels of PFAS in PWSs in Pennsylvania. Applying the occurrence data PFOS MCL exceedance rate (5.1%) to the total number of EPs for all applicable PWSs (3,785 EPs), it is estimated that 191 EPs will exceed the proposed MCL of 18 ng/L.

Below is a summary of the estimated costs and benefits associated with the proposed MCL for PFOS of 18 ng/L. Section F of this preamble presents additional information on the costs and benefits of this proposed rulemaking. Treatment cost estimates are based on the costs to install and maintain treatment for a 1 MDG treatment plant. The actual costs would be expected to be proportionally less for a treatment plant with a smaller design capacity. For example, the average design capacity for small systems is 100,000 gallons per day, which is one-tenth of 1 MGD (that is, 0.1 MGD); treatment cost estimates for a small system with a design capacity of 0.1 MGD would be one-tenth of the cost estimates presented below.

- Estimated costs:
    - Estimated average annual compliance monitoring costs (@ $616/EP/Quarter) = $2.7 M
    - Estimated average annual treatment costs (average of GAC and IX) = $78.7 M per MGD + estimated annual performance monitoring costs = $4.2 M
        - Estimated annual treatment capital costs, annualized over 20 years at 4% interest = $248,025 per MGD per EP x 191 EPs = $47.4 M per MGD
        - Estimated annual treatment O&M costs = $31.3 M per MGD + estimated annual performance monitoring costs = $4.2 M
            - Estimated annual treatment O&M costs = $163,818 per MGD per EP x 191 EPs = $31.3 M per MGD
            - Estimated annual performance monitoring costs = $616 per sample per EP x 36 samples = $22,176 per EP x 191 EPs = $4.2 M
    - Estimated total annual costs = $78.7 M per MGD in treatment costs + $6.9 M in compliance monitoring and performance monitoring costs
- Estimated benefits:
    - 93% improvement in health protection as compared to current EPA HAL of 70 ppt

Table 12 provides a comparison of annual costs and benefits for the proposed MCL for PFOS of 18 ng/L, EPA's HAL of 70 ng/L and other values considered for the proposed MCL. Performance monitoring costs are considered part of treatment O&M costs because performance monitoring is used to make operational decisions, such as when to change out treatment media.

Table 12. PFOS Comparison of Annual Costs and Benefits

PFOS Annual Costs and Benefits Analysis								
Value (ng/l)	Estimate # of EPs (of 3,785) > Value	Compliance Monitoring Costs (Millions)	Treatment O&M Costs		Treatment Capital Costs (Millions) per MGD* annualized over 20 years	Total Costs (Millions)	% Increase in Cost Compared to HAL	% Improvement in Health Protection Compared to HAL
			Treatment O&M Costs (Millions) per MGD*	Performance Monitoring Costs (Millions)				
HAL = 70	96	$2.57	$15.73	$2.13	$23.81	$44.24	----	----
35	148	$2.64	$24.25	$3.28	$36.71	$66.87	51%	63%
20	183	$2.70	$29.98	$4.06	$45.39	$82.13	86%	89%
MCL = 18	**191**	**$2.70**	**$31.29**	**$4.24**	**$47.37**	**$85.60**	**94%**	**93%**
16	200	$2.73	$32.76	$4.44	$49.60	$89.53	102%	96%
15	200	$2.81	$32.76	$4.44	$49.60	$89.61	103%	98%
MCLG = 14	200	$2.88	$32.76	$4.44	$49.60	$89.68	103%	100%

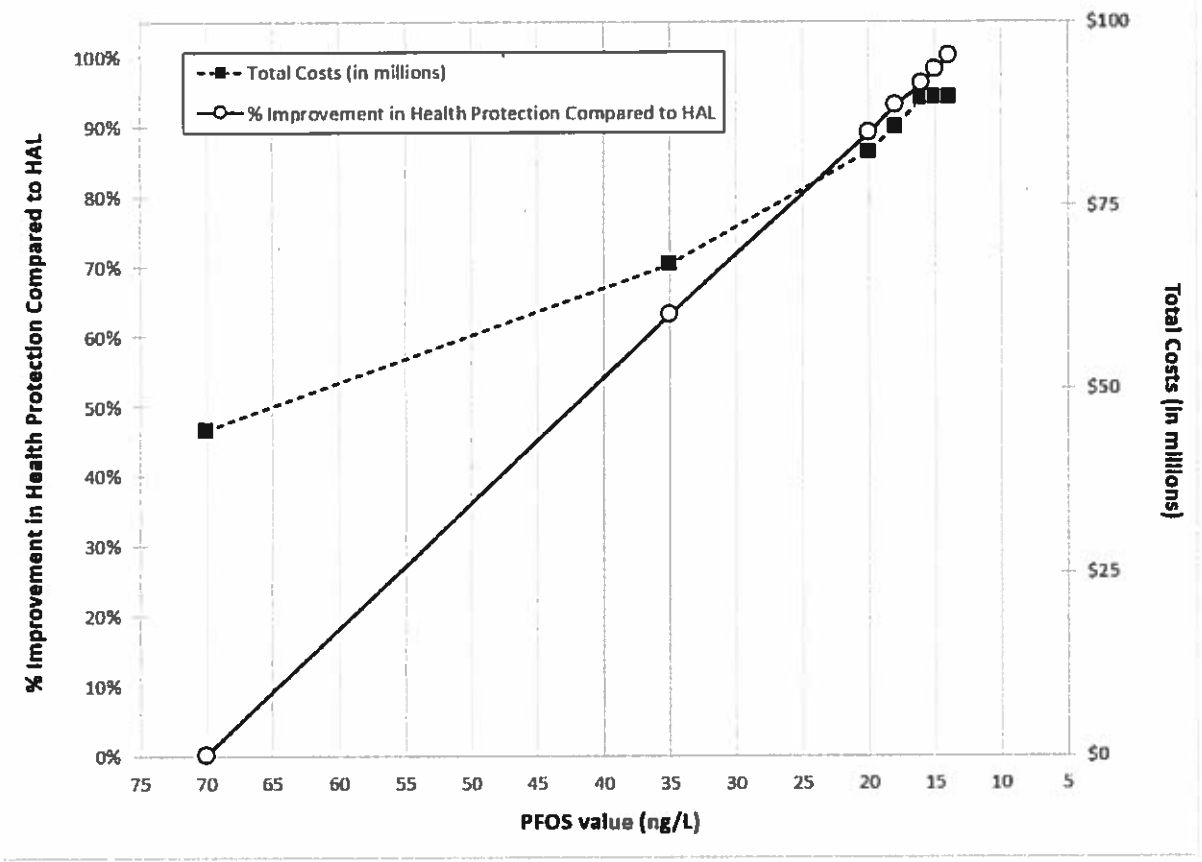
* For purposes of totaling annual costs, the costs that vary with design capacity (treatment O&M and treatment capital costs) were multiplied by a benchmark design capacity of 1 MGD.

In evaluating the costs and benefits, the Department's goal was to provide at least a 90% reduction in adverse health effects (a 90% improvement in health protection) when compared to the HAL of 70 ng/L. This goal is consistent with several existing drinking water standards including the following standards:

- the requirement to achieve at least a 90% inactivation of *Giardia* cysts using disinfection processes within a filtration plant (§ 109.202(c)(1)(ii) (relating to treatment technique requirements for pathogenic bacteria, viruses and protozoan cysts));
- the use of the 90th percentile lead and copper levels when determining compliance with the lead and copper action levels of 0.015 mg/L and 1.3 mg/L, respectively (§ 109.1102(a)) (relating to action levels for lead and copper)), and
- the requirement to meet the filtered water turbidity standards in 95% of measurements taken each month (§ 109.202(c)(1)(i)).

As shown in Table 12 and Figure 2, additional improvement in public health benefits at PFOS values lower than the proposed MCL of 18 ng/L would require increasingly steep costs. For example, compared with the proposed MCL of 18 ng/L, an MCL value of 16 ng/L is estimated to achieve an additional 3% increase at an additional annual cost of approximately $3.9 M (Table 12, Figure 2), which is a rate of approximately $1.3 M in additional annual costs for every additional 1% of benefits. Compared with the HAL, the proposed MCL of 18 ng/L is estimated to achieve a 93% improvement in public health benefits at an additional annual cost of roughly $41.4 M, which is a rate of approximately $0.4 M in additional annual costs for every additional 1% of benefits.

Figure 2. Annual Total Costs and Benefits (% Health Protection Improvement) at Various PFOS levels



For the aforementioned reasons, the Department believes that the proposed MCL for PFOS of 18 ng/L strikes a balance between the benefits (93% improvement in public health) and costs (94% increase in costs) when compared to the benefits and costs associated with meeting the HAL of 70 ng/L.

State Data

Currently, six other states have set MCLs for select PFAS, including PFOA and PFOS, as summarized in Table 13. The proposed MCLs for the Commonwealth are of comparable magnitude as the other state standards.

Table 13. PFOA and PFOS MCLs (in ng/L) from Six Other States

	NY	MI	NJ	NH	PA	MA	VT
PFOA	10	8	14	12	14	20*	20*
PFOS	10	16	13	15	18	20*	20*

* The MCL for MA & VT is for a group of 5 (VT) or 6 (MA) PFAS, including PFOA and PFOS (not individual contaminants).

Advisory Committee Review

The Public Water System Technical Assistance Center (TAC) Board reviewed the pre-draft proposed rulemaking on July 29, 2021, and recommended that the pre-draft rulemaking move forward to the Board as a proposed rulemaking.

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E. *Summary of Regulatory Requirements*

§ 109.1. Definitions

A definition for the acronym "CASRN—Chemical Abstracts Service Registry Number" is proposed to be added because the CASRN numbers are included for each of the individual PFAS compounds included in the regulation.

A definition for "GAC—Granular Activated Carbon" is proposed to be added because GAC is one of the treatment technologies considered acceptable for PFAS removal.

A definition for "MCLG—Maximum Contaminant Level Goal" is proposed to be added. The definition is from 40 CFR 141.2 (relating to definitions) with added text referencing MCLGs established under both the Federal and state acts.

The acronym "MDL" is proposed to be added to the existing definition "Method detection limit" with the amended definition alphabetically reordered. The definition for "Method detection limit" is also proposed to be revised to be consistent with the current definition in the Federal regulations at 40 CFR Part 136 Appendix B (relating to definition and procedure for the determination of the method detection limit – revision 2).

A definition for "MRL—Minimum reporting level" is proposed to be added.

Definitions for the following acronyms are proposed to be added: "PFAS," "PFOA," and "PFOS." Definitions for individual compounds include the CASRN number in order to eliminate confusion as to the specific chemical form that is included in the regulation.

A definition for Performance Evaluation Sample is proposed to be added to be consistent with federal language.

The existing definition for "Reliably and consistently below the MCL" is proposed to be amended to add "PFAS" defined as less than 80% of the MCL.

§ 109.202. State MCLs, MRDLs and treatment technique requirements

Proposed subsection (a)(4) for "Other MCLs" would add MCLs and MCLGs for PFOA and PFOS, with an effective date of the publication of the final rulemaking. The MCLs and MCLGs are listed in both milligrams per liter (mg/L), which are the traditional units for MCLs, as well as in nanograms per liter (ng/L) for clarity, since the numbers are so low.

§ 109.301. General monitoring requirements

The duplicated text in subparagraphs (2)(iv) through (2)(iii) (relating to performance monitoring for unfiltered surface water and GUDI), which was inadvertently added following the last regulatory update (48 Pa.B. 4974), is proposed to be deleted.

Subclauses (6)(vii)(A)(I) and (II) are proposed to be amended for consistency with existing definitions that were amended in 2018 and to clarify that the Zone I and Zone II wellhead protection areas and the Zone A and Zone B surface water intake protection areas are defined in § 109.1 (relating to definitions). The proposed amendments would apply to waivers issued for synthetic organic chemicals (SOCs).

Subparagraph (8)(iii) is proposed to be amended to clarify that consecutive water systems may be exempt from PFAS monitoring, in addition to VOCs, SOCs, IOCs and radionuclides.

Paragraph (9) is proposed to be amended to clarify monitoring requirements for point-of-entry (POE) devices. A POE device is installed on the service line to a house, building or other facility for the purpose of reducing contaminants in the water distributed to that property and is used as an alternative to centralized water treatment. POE devices must meet design and construction standards and may only be used as a treatment option by very small PWSs that serve 100 or fewer people for treating sources that were permitted prior to 1992; the POE device must be installed on every connection unless the PWS can demonstrate that water provided to a service connection meets water quality standards. See 25 Pa. Code § 109.612 (relating to POE devices).

As a result, POE devices are often not cost effective and currently there are no PWSs in this Commonwealth that have a permit for POE devices. However, the Commonwealth is required to maintain requirements for POE devices to comply with Federal safe drinking water requirements. Consequently, monitoring requirements for POE devices are proposed to be added for PFAS, as well as additional contaminants, as applicable, to correct the omission of paragraphs (10)-(15) and Subchapter K (relating to lead and copper). These requirements should have been added in previous rulemakings but were mistakenly overlooked due to no PWSs in this Commonwealth having a permit for POE devices.

Paragraph (11) is proposed to be amended to clarify that for EPs that do not provide water continuously, monitoring for PFAS is not required during quarters when water is not provided to the public.

Subparagraphs (15)(i) and (ii) are proposed to be amended to clarify monitoring for PFAS for reserve EPs and EPs that receive water from a reserve source.

Proposed paragraph (16) describes new monitoring requirements for PFAS for community water systems and nontransient noncommunity water systems. Throughout proposed paragraph (16), the proposed provisions utilize terms of art and phrasing that mirror Federal safe drinking water regulations and are consistent with language used throughout the Department's safe drinking water regulations in Chapter 109.

Proposed clauses (16)(i)(A) through (C) specify the initial monitoring requirements for PFAS. Initial monitoring consists of four consecutive quarterly samples at each EP, beginning January 1, 2024, for systems serving more than 350 persons, and beginning January 1, 2025, for systems serving 350 or fewer persons.

Proposed clauses (16)(ii)(A) through (C) specify the repeat monitoring requirements for EPs at which at least one of the PFAS with an MCL established under § 109.202(a)(4) is detected at a level equal to or greater than its MRL as defined in § 109.304(f) (relating to analytical requirements).

Proposed subparagraph (16)(iii) specifies the repeat monitoring requirements for EPs at which none of the PFAS with an MCL established under § 109.202(a)(4) are detected during initial monitoring.

Proposed subparagraph (16)(iv) specifies the repeat monitoring requirements for EPs at which at least one of the PFAS with an MCL established under § 109.202(a)(4) exceeds its corresponding MCL.

Proposed subparagraph (16)(v) requires collection of confirmation samples for each PFAS detected in exceedance of its MCL and the timing for collection of confirmation samples.

Proposed subparagraph (16)(vi) specifies the repeat and performance monitoring requirements for EPs with PFAS removal treatment.

Proposed subparagraph (16)(vii) describes the process by which systems may be able to obtain a monitoring waiver for PFAS. Systems using groundwater or groundwater under the direct

influence of surface water monitoring under § 109.301(16)(ii) may apply for a use waiver for EPs with 3 consecutive years or quarterly or annual samples with no detection of any PFAS with an MCL established under § 109.202(a)(4).

Proposed subparagraph (16)(viii) specifies when PFAS samples may be invalidated and utilizes the term "obvious sampling errors" consistent with 40 CFR 141.24(f)(13) and (h)(9) (relating to organic chemicals, sampling and analytical requirements).

Proposed subparagraph (16)(ix) specifies how compliance with the PFAS MCLs is determined.

§ 109.303. Sampling requirements

Paragraph (a)(4) is proposed to be amended to remove an incorrect cross reference to § 109.302(f) regarding special monitoring requirements. The special monitoring requirements under § 109.302(f) relate to groundwater under the direct influence of surface water and are taken from the collection facilities (raw source water) and not the EP to the distribution system.

Proposed paragraph (a)(6) specifies the sampling requirements for PFAS. Samples must be collected at the EP and be representative of each source during normal operating conditions. Samples must be collected by a properly trained sample collector.

§ 109.304. Analytical requirements

Proposed subsection (f) specifies the analytical requirements for the PFAS with an MCL.

Proposed paragraph (f)(1) specifies acceptable analytical methods and MRLs. The MRLs for PFOA and PFOS are set at 5 ng/L. This level was determined through the survey conducted by the Department of laboratories accredited by this Commonwealth for PFAS analysis. It was also determined using the Department's experience with laboratories finding a balance between reporting to a low level and still meeting all method required quality control.

Proposed paragraph (f)(2) specifies the requirement that analysis must be conducted by a laboratory accredited by the Department.

Proposed paragraph (f)(3) specifies the requirement for laboratories to determine MDLs for each analyte.

Proposed paragraph (f)(4) specifies the requirements for laboratories to analyze performance evaluation samples at least annually.

Proposed paragraph (f)(5) requires that the MRL must be contained within the range of calibration.

§ 109.411. Content of a public notice

Paragraph (e)(1) is proposed to be amended for formatting purposes to place the existing requirement to use the health effects language for fluoride in each Tier 2 public notice into a separate subparagraph.

Proposed subparagraph (e)(1)(i) includes the relocated requirement to use the health effects language for fluoride, which was previously included in paragraph § 109.411(e)(1).

Proposed subparagraphs (e)(1)(ii) and (iii) add the requirement to include the health effects language for PFOA or PFOS in each Tier 2 public notice for violation of the respective primary MCL, and includes the health effects language that must be used.

§ 109.416. CCR requirements

Proposed paragraph (3.1) adds consumer confidence report (CCR) reporting requirements for PFAS with an MCL.

Proposed clauses (3.1)(i)(A) through (G) specify the information on detected results that must be reported.

Proposed subparagraph (3.1)(ii) requires that the respective health effects language in §§ 109.411(e)(1)(ii) and (iii) must be included for violation of a primary MCL for PFOA or PFOS.

§ 109.503. Public water systems construction permits

Proposed subclause (a)(1)(iii)(D)(XIV.1) would add new source sampling requirements for PFAS.

§ 109.602. Acceptable design

Proposed subsection (j) identifies treatment technologies considered acceptable by the Department for compliance with the PFAS MCLs.

§ 109.701. Reporting and recordkeeping

Subparagraph (a)(3)(ii) is proposed to be amended to clarify that one-hour reporting is required when a sample result requires collection of a confirmation or check sample. The word "confirmation" is proposed to be added because the terms check and confirmation sample are often used interchangeably but each are used in different locations in § 109.301. Under proposed § 109.301(16)(v), a confirmation sample shall be collected when PFAS is detected in exceedance of its respective MCL.

§ 109.1003. Monitoring requirements

The proposed provisions for this section utilize terms of art and phrasing that mirror Federal safe drinking water regulations and are consistent with language used throughout the Department's safe drinking water regulations in Chapter 109.

Proposed subparagraph (a)(1)(xv) identifies the PFAS monitoring requirements for bottled, vended, retail, and bulk (BVRB) water systems. Compliance monitoring for all BVRB systems begins January 1, 2024.

Proposed clause (a)(1)(xv)(A) identifies the PFAS monitoring exemption for BVRB systems that obtain finished water from another permitted public water system.

Proposed clause (a)(1)(xv)(B) identifies the initial PFAS monitoring requirements for BVRB systems. Initial monitoring consists of 4 consecutive quarters at each entry point.

Proposed subclauses (a)(1)(xv)(C)(I) and (II) identify the repeat PFAS monitoring requirements for BVRB systems.

Proposed clause (a)(1)(xv)(D) identifies the confirmation sampling requirements for PFAS monitoring for BVRB systems that detect a PFAS in exceedance of its MCL during annual monitoring.

Proposed clause (a)(1)(xv)(E) identifies the repeat and performance PFAS monitoring requirements for BVRB systems with PFAS removal treatment.

Proposed subclauses (a)(1)(xv)(F)(I) and (II) specify when PFAS samples may be invalidated for BVRB systems and utilize the term "obvious sampling errors" consistent with 40 CFR 141.24(f)(13) and (h)(9).

Proposed clause (a)(1)(xv)(G) identifies how compliance with the PFAS MCLs is determined for BVRB systems.

Paragraph (b)(3) is proposed to be amended to clarify that sampling and analysis for PFAS must be in accordance with the requirements in § 109.304.

Paragraph (b)(6) is proposed to be amended to delete language that is also in paragraph (b)(3), and to add the requirement that compliance monitoring samples for PFAS for BVRB systems must be collected by a properly trained sample collector.

§ 109.1403. Monitoring waiver fees

Subsection (a) is proposed to be amended to add a PFAS use waiver fee of $100.

F. *Benefits, Costs and Compliance*

Benefits

The proposed PFOA and PFOS MCLs will apply to all 3,117 community, nontransient noncommunity, bottled, vended, retail, and bulk water systems in this Commonwealth. Of these, 1,905 are community water systems, serving a combined population of approximately 11.4 million Pennsylvanians. Another 1,096 are nontransient noncommunity water systems serving approximately 507,000 persons.

The benefits associated with reductions of PFOA and PFOS in drinking water arise from a reduction in adverse human health effects. Exposure to PFOA is associated with adverse developmental effects (including neurobehavioral and skeletal effects) and exposure to PFOS is associated with adverse immune system impacts (including immune suppression). Benefits may

also be derived from customer actions to avoid exposure, such as a customer's purchase of bottled water or the installation and operation of home water treatment systems.

The benefits of proposed MCLs can be presented as a percent improvement in public health protection as compared to EPA's HAL of 70 ng/L. Table 14 includes a summary of the percent improvement in public health protection for PFOA and PFOS at several levels.

Table 14. Percent Improvement in Health Protection as Compared to EPA's HAL

PFOA		PFOS	
Various Levels (ng/L)	**Percent Improvement in Health Protection as Compared to EPA HAL of 70 ng/L**	**Various Levels (ng/L)**	**Percent Improvement in Health Protection as Compared to EPA HAL of 70 ng/L**
35	56%	35	63%
20	80%	20	89%
14 (MCL)	**90%**	**18 (MCL)**	**93%**
12	93%	16	96%
10	96%	15	98%
8 (MCLG)	**100%**	**14 (MCLG)**	**100%**

The percentage improvement in health protection values for PFOA and PFOS are based on an assumption that there is a linear improvement in health protection between the EPA HAL and the DPAG MCLG. The amount of improvement is set such that it totals 100% between the EPA HAL and the DPAG MCLG. The equation for calculating percent improvement in health protection is established as follows:

$$\text{Percent Improvement} = ((\text{EPA HAL} - \text{MCLG})^{-1} \times 100) \times (\text{EPA HAL} - \text{Level "X"})$$

As per the DPAG MCLG Report, PFOA has the potential to disrupt human development. The most sensitive developmental effects observed include neurobehavioral and skeletal effects. It is anticipated that these developmental effects have a measurable effect on the health of infants. The proposed MCL for PFOA of 14 ng/L would be expected to improve health protection and lower the incidence of developmental effects by 90% compared with the EPA HAL of 70 ng/L.

The DPAG MCLG Report also found that PFOS has the potential to disrupt the immune system. The effects of immune suppression are anticipated to reduce the ability to resist infections, potentially increasing the risk, duration, and severity of diseases. These immune effects from PFOS have a substantial effect on the health and economy of this Commonwealth. The proposed MCL for PFOS of 18 ng/L would be expected to improve health protection and lower the incidence of immune suppression effects by 93% compared with the EPA HAL of 70 ng/L.

Compliance Monitoring Costs

Compliance monitoring cost estimates for this proposed rulemaking were determined based on a survey conducted of laboratories accredited in this Commonwealth for PFAS analysis by one or more of the analytical methods in the proposed rule, as well as assumptions made based on an analysis of the occurrence data. According to lab survey results, the analytical cost for PFAS by

either EPA Method 533, EPA Method 537 version 1.1, or EPA Method 537.1 varied greatly among the labs that responded, with a range of $325 to $750, and an average of $516, including the cost of analysis of the associated field reagent blank required by the methods for each sample site. This does not include an additional fee for sample collection, which also varied greatly among the labs offering that service; sample collection is approximately an additional $200 based on the survey.

Approximately half of the responding laboratories noted that they offer a cost reduction for reporting of fewer analytes than included in the method, which would provide a cost savings for systems since monitoring is required for only two analytes – PFOA and PFOS. Also, a few labs noted potential savings if there are no detections in the sample; the associated field blank would be extracted, but would not need to be analyzed, which would reduce the overall cost. A few labs also noted potential additional fees for PFAS-free blank water, overnight shipping costs for samples, and Level 4 data reports if requested.

For compliance monitoring cost estimates, it was assumed that approximately half of all water systems will collect their own samples and half will utilize sample collection services provided by the laboratory. Therefore, an average cost of $616 per sample was used in the following compliance monitoring cost estimate calculations.

In the proposed rule, initial quarterly monitoring for community and nontransient noncommunity systems serving a population of more than 350 persons begins January 1, 2024, and initial quarterly monitoring for community and nontransient noncommunity systems serving 350 or fewer persons begins January 1, 2025. This population breakdown was selected to evenly split initial monitoring across two years in order to ease laboratory capacity issues and allow small systems more time to prepare for compliance monitoring. Initial monitoring for BVRB systems begins January 1, 2024. Based on the number of PWSs and EPs in the Pennsylvania Drinking Water Information System (PADWIS) at the time of this rulemaking, there are 1,885 EPs that will begin monitoring in year 1 (2024) and 1,900 that will conduct initial monitoring in year 2 (2025).

The proposed rule requires repeat compliance monitoring on a quarterly basis for any EPs at which either PFOA or PFOS is detected at a level above its respective minimum reporting limit (MRL), including those EPs at which one or both MCLs are exceeded. If the quarterly repeat monitoring results are reliably and consistently below the MCLs, the frequency of repeat monitoring may be reduced from quarterly monitoring to annual monitoring. Based on the occurrence data, it is assumed that up to 34.9% of all EPs will have a detection of PFOA and/or PFOS at or above the relevant MRL; this equates to 658 EPs of the year 1 initial systems that will need to continue quarterly repeat monitoring in year 2, and 663 EPs of the year 2 initial systems that will need to continue quarterly repeat monitoring in year 3. The remaining systems (1,227 EPs in year 1 and 1,237 EPs in year 2) were assumed to conduct annual repeat monitoring in each year following the initial monitoring, but this overestimates the repeat monitoring requirements and costs after the initial monitoring because, for EPs where initial monitoring results do not detect PFOA or PFOS, the frequency of repeat monitoring is reduced from annual to once every three years.

In addition to and separate from the performance monitoring required by permit special condition, systems with EPs that exceed one or both MCLs may require treatment, which would require the system to conduct ongoing repeat compliance monitoring at least annually. Using the noncompliance rate of 7.4% from the occurrence data (as described in Section D of this preamble), a total of 280 EPs are estimated to require ongoing repeat compliance monitoring: 139 EPs from initial year 1 and 141 EPs from initial year 2. However, this is likely an overestimate because: (1) systems may have options other than installing treatment to address concentrations of PFOA and/or PFOS above the relevant MCL; and (2) the occurrence data sampling predominately targeted sites near potential sources of PFAS contamination, so the exceedance rate in the occurrence data may overestimate the exceedance rate for other PWSs in Pennsylvania that were not included in the occurrence data. For total compliance monitoring cost estimates, the ongoing annual compliance monitoring for EPs where treatment is installed was assumed to begin in the third year of monitoring (year 3 or year 4 overall).

Using these assumptions (which likely overestimate the compliance monitoring requirements and costs for the reasons described previously) and an estimated average cost of $616 per sample, Table 15 summarizes the overall cost estimates for compliance monitoring costs in each of the first four years of rule implementation. Note that this estimate does not include performance monitoring costs.

Table 15. Compliance Monitoring Costs

	Total # EPs	Quarterly Initial EPs	Annual Repeat EPs	Quarterly repeat EPs	Quarterly compliance monitoring cost	Annual compliance monitoring cost	Total yearly compliance monitoring cost
Year 1	1885	1885	0	0	$4,644,640	$0	$4,644,640
Year 2	1900	1900	1227	658	$6,302,579	$755,915	$7,058,495
Year 3		0	3122	663	$1,633,878	$1,923,090	$3,556,969
Year 4		0	3785	0	$0	$2,331,560	$2,331,560

Based on these estimates, the average annual monitoring costs over the first four years are $4,397,916. Note that this average annual compliance monitoring cost estimate of approximately $4.4 M is less than the sum of the average annual compliance monitoring cost estimates presented in Section D of this preamble for PFOA ($2.9 M) and PFOS ($2.7 M). The reason for this difference in the average annual compliance monitoring cost estimates when considered for each individual contaminant (that is, PFOA and PFOS separately) compared with both contaminants together is that exceedances of the proposed PFOA and PFOS MCLs are expected to co-occur at some sites. For instance, the occurrence data showed exceedance rates of the individual proposed MCLs for PFOA and PFOS of 5.7% and 5.1%, respectively; however, the exceedance rate for the proposed MCLs accounting for co-occurring exceedances was only 7.4% (not 10.8%, the sum of the exceedance rates for the proposed MCLs considered individually). Since the laboratory analytical methods include both PFOA and PFOS, systems with exceedances of both proposed MCLs will not have to collect separate samples for PFOA and PFOS, which results in some reduction in compliance monitoring costs for these systems compared with if each contaminant is considered separately. However, because PFOA and PFOS are each associated with different health effects and have different recommended MCLGs, the

compliance monitoring cost estimates are presented separately for each contaminant in Section D of this preamble to inform the cost-benefit analysis for each MCL.

Treatment costs

Treatment cost estimates were determined based on a survey conducted of systems in this Commonwealth with existing PFAS treatment and of PFAS treatment manufacturers, an American Water Works Association published PFAS Case Study, and from information provided by members of the Association of State Drinking Water Administrators (ASDWA). Costs were provided for granular activated carbon (GAC), anion exchange (IX), and reverse osmosis (RO). The RO costs were not included in the final cost estimates because, due to wastewater disposal requirements, the technology is currently impractical. Additionally, the costs for GAC, IX, and RO provided from the vendors were excluded from the final cost estimates because they were limited to media costs and did not include the infrastructure requirements.

GAC and IX construction costs were based on a lead lag configuration where the first vessel (lead vessel) is capable of treating the entire flow and second vessel (lag vessel) is provided for polishing.

All treatment costs were normalized to construction costs for treating 1 MGD. As shown in Table 16, the average capital cost for the GAC treatment was $3,457,110 per MGD per EP with an average annual O&M cost of $171,970 per MGD per EP.

Table 16. GAC Treatment Costs

Treatment	System	Capital Cost per MGD per EP	Annual O&M Cost per MGD per EP
GAC	Vendor A	$343,000 *	$32,018
GAC	Vendor B	$535,000 *	$356,000
GAC	System A (2 GAC and 1 IX)	$3,125,000	$107,007
GAC	System B, Site 1	$1,675,347	$121,528
GAC	System B, Site 2	$2,454,259	$220,820
GAC	System B, Site 3	$2,433,333	$194,444
GAC	System C	$9,250,000	unknown
GAC	System D	$3,139,000	unknown
GAC	System E	$1,135,497	unknown
GAC	System F	$4,444,444	unknown
Average cost of GAC per MGD per EP		$3,457,110	$171,970

* Not included in calculations

As shown in Table 17, the average capital cost for the IX treatment was $3,284,360 per MGD per EP with an average annual O&M cost of $155,666 per MGD per EP.

Table 17. IX Treatment Costs

Treatment	System	Capital Cost per MGD per EP	Annual O&M Cost per MGD per EP
IX	Vendor A	$357,000 *	$59,361 *
IX	Vendor B	$500,000 *	$175,000
IX	Vendor D	No information	$159,722
IX	System G	$10,400,000	unknown
IX	System H	$3,333,000	unknown
IX	System I	$634,900	unknown
IX	System J	$1,128,000	unknown
IX	System K	$925,900	$132,275
Average cost of IX per MGD per EP		$3,284,360	$155,666

* Not included in calculations

The average capital costs of the GAC and IX treatment is $3,370,735 per MGD per EP with an average annual O&M costs $163,818 per MGD per EP.

To estimate annual treatment costs, the average capital cost of treatment installation of $3,370,735 per MGD per EP was annualized over 20 years at a 4% interest rate. This yields an estimated annualized capital cost of $248,025 per MGD per EP.

In addition, water systems that install treatment will need to conduct performance monitoring, to verify treatment efficacy. Using the average cost per sample of $616 and assuming a total of 36 performance monitoring samples per year – monthly samples at each of three locations (raw water, mid-point of treatment, and finished water) – that is an additional annual cost of $22,176 per EP.

In the occurrence data, the percentage of EPs exceeding the proposed MCLs for PFOA and PFOS was 5.7% and 5.1%, respectively; however, due to co-occurrence of PFOA and PFOS, some EPs that exceeded the proposed MCL for PFOA also exceeded the proposed MCL for PFOS. In the occurrence data, the percentage of EPs exceeding the proposed MCL for PFOA and/or the proposed MCL for PFOS was 7.4%., However, this exceedance rate may overestimate the exceedance rate for the other PWSs in Pennsylvania that were not sampled, because the occurrence data sampling predominately targeted sites near potential sources of PFAS contamination. Also, as treatment for PFOA and PFOS is the same, EPs exceeding both MCLs would not be required to install two different treatment systems; therefore, the estimated percentage of EPs requiring treatment is less than the combined percentage of systems exceeding either MCL in the occurrence data. Additionally, systems with MCL exceedances may have several options to address the contamination aside from installing treatment, including taking contaminated sources offline, making operational changes such as blending sources, or using alternate sources of supply (developing new sources or using purchased sources from a new interconnect). Recognizing that the MCL exceedance rates from the occurrence data may overestimate the proportion of systems that will need to install treatment to address MCL exceedances for the aforementioned reasons, the occurrence data provides the most relevant

information currently available on the prevalence and levels of PFAS in PWSs in Pennsylvania. Using the 7.4% exceedance rate from the occurrence data to estimate how many of the larger universe of 3,785 EPs may require treatment to meet one or both proposed MCLs produces an estimate of 280 EPs. At an average annualized treatment capital cost of $248,025 per MGD per EP, and assuming 280 EPs require treatment installed, the total estimated annual treatment costs are shown in Table 18.

Table 18. Total Estimated Annual Treatment Costs

Estimated average annualized treatment *capital* costs (per MGD per EP)	$248,025
Estimated average annual treatment *O&M* costs (per MGD per EP)	$163,818
Estimated average annual treatment *capital* + *O&M* costs (per MGD per EP)	$411,843
Estimated annual *performance monitoring* costs (per EP)	$22,167
Estimated # of EPs (of 3,785) that require treatment for one or both MCLs	280
Total estimated average annual treatment *capital* + *O&M* costs (per MGD)	**$115,316,040**
Total estimated annual *performance monitoring* costs	**$6,206,760**

Compliance Assistance Plan

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

In addition to the standard funding mentioned above, PENNVEST approved an additional funding program in 2021 under authority of Act 101 of 2019. The PENNVEST PFAS Remediation Program is designed as an annual funding opportunity to aid in the remediation and elimination of PFAS in PWSs. In 2021, approximately $25 million was made available for this grant program.

The Department's 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 Department's Bureau of Safe Drinking Water has staff dedicated to providing both training and technical outreach support services to PWS owners and operators. The Department's web site also provides timely and useful information for treatment plant operators.

Paperwork Requirements

No new forms are required for implementation of the proposed amendments.

G. *Sunset Review*

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

H. *Regulatory Review*

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on February 15, 2022, 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 this proposed rulemaking within 30 days of the close of the public comment period. The comments, recommendations or objections must specify the regulatory review criteria in section 5.2 of the Regulatory Review Act (71 P. S. § 745.5b) 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.

I. *Public Comments*

Interested persons are invited to submit written comments, suggestions or objections regarding this proposed rulemaking to the Board. The Board is seeking comments on any aspect of this proposed rulemaking, but particularly on anticipated health benefits and on the anticipated costs to comply with the proposed MCLs, including costs to design, install, and operate treatment and other remedies. Comments, suggestions, or objections must be received by the Board by April 27, 2022.

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 this 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.

J. *Public Hearings*

The Board will hold five virtual public hearings for the purpose of accepting comments on this proposed rulemaking. The hearings will be held as follows:

March 21, 2022, at 1 p.m.
March 22, 2022, at 6 p.m.
March 23, 2022, at 1 p.m.
March 24, 2022, at 9 a.m.
March 25, 2022, at 9 a.m.

Persons wishing to present testimony at a hearing must contact Jennifer Swan for the Department and the Board, (717) 783-8727 or RA-EPEQB@pa.gov, by 5 p.m. on March 18, 2022, to reserve a time to present testimony. Language interpretation services are available upon request. Persons in need of language interpretation services must contact Jennifer Swan at (717) 783-8727 by 5 p.m. on March 17, 2022.

Oral testimony is limited to 5 minutes for each witness. Organizations are limited to designating one witness to present testimony on their behalf at one hearing. Witnesses may provide testimony by means of telephone or Internet connection. Video demonstrations and screen sharing by witnesses will not be permitted.

Witnesses are requested to submit written copy of their verbal testimony by e-mail to RegComments@pa.gov after providing testimony at the hearing.

Information on how to access the virtual public hearings will be available on the Board's webpage found through the Public Participation tab on the Department's web site at www.dep.pa.gov (select "Public Participation," then "Environmental Quality Board"). Prior to a hearing, individuals are encouraged to visit the Board's webpage for the most current information for accessing the hearing.

Any members of the public wishing to observe a virtual public hearing without providing testimony are also directed to access the Board's webpage. Those who have not registered with Jennifer Swan in advance as described previously will remain muted for the duration of the public hearing.

Persons in need of accommodations as provided for in the Americans with Disabilities Act of 1990 should contact the Board at (717) 787-4526 or through the Pennsylvania Hamilton Relay Service at (800) 654-5984 (TDD) or (800) 654-5988 (voice users) to discuss how the Board may accommodate their needs.

PATRICK McDONNELL,
Chairperson

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION
PART 1. DEPARTMENT OF ENVIRONMENTAL PROTECTION
Subpart C. PROTECTION OF NATURAL RESOURCES
ARTICLE II. WATER RESOURCES
CHAPTER 109. SAFE DRINKING WATER

Subchapter A. GENERAL PROVISIONS

§ 109.1. Definitions.

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

* * * * *

Bulk water hauling system—A public water system which provides water piped into a carrier vehicle and withdrawn by a similar means into the user's storage facility or vessel. The term includes, but it not limited to, the sources of water, treatment, storage or distribution facilities. The term does not include a public water system which provides only a source of water supply for a bulk water hauling system.

***CASRN*—Chemical Abstracts Service Registry Number.**

* * * * *

***GAC— Granular Activated Carbon*—A highly porous adsorbent carbon material produced by heating organic matter that can absorb various dissolved chemicals in the water.**

* * * * *

MCL—Maximum Contaminant Level—The maximum permissible level of a contaminant in water which is delivered to a user of a public water system, and includes the primary and secondary MCLs established under the Federal act, and MCLs adopted under the act.

MCLG—Maximum Contaminant Level Goal—

(i) The maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety.

(ii) The term includes the MCLGs established under the Federal act and MCLGs adopted under the act.

(iii) Maximum contaminant level goals are nonenforceable health goals.

***MDL—Method detection limit*—The minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results.**

MRDL—Maximum Residual Disinfectant Level—The maximum permissible level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. The consumer's tap means the entry point for bottled water and vended water systems, retail water facilities and bulk water hauling systems.

***MRL—Minimum reporting level*—The minimum quantitation limit that can practically and consistently be achieved, with 95% confidence, by capable analysts at 75% or more of laboratories using a specified analytical method.**

Membrane filtration—

(i) A pressure or vacuum driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test.

(ii) The term includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration and reverse osmosis.

[*Method detection limit*—The amount of a substance which the EPA has determined to be the minimum concentration which can be measured and be reported with 99% confidence that the true value is greater than zero.]

* * * * *

PDWEP—Guidelines for Public Drinking Water Equipment Performance issued by NSF.

PFAS—Perfluoroalkyl and Polyfluoroalkyl Substances.

***PFOA*—Perfluorooctanoic acid—CASRN 335-67-1.**

***PFOS*—Perfluorooctanesulfonic acid—CASRN 1763-23-1.**

Performance Evaluation Sample—A reference sample provided to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within the limits of performance specified by the Department. The true value of the concentration of the reference material is unknown to the laboratory at the time of the analysis.

* * * * *

Recycle flows—Any water, solid or semi-solid generated by a conventional or direct filtration plant's treatment process and residual treatment processes that is returned to the plant's treatment process.

Reliably and consistently below the MCL—

(i) For **[VOCs, SOCs, and IOCs (with the exception of nitrate and nitrite),]** **VOCs, SOCs, IOCs (with the exception of nitrate and nitrite), and PFAS,** this means that each sample result is less than 80% of the MCL.

(ii) For nitrate and nitrite, this means that each sample result is less than 50% of the MCL.

* * * * *

Subchapter B. MCLs, MRDLs OR TREATMENT TECHNIQUE REQUIREMENTS

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

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

* * * * *

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

(4) Other MCLs.

(i) ***Effective dates.*** **The MCLGs and MCLs in subparagraph (ii)(A)—(B) are effective on _____.** (*Editor's Note*: The blank refers to the effective date of adoption of this proposed rulemaking when published as a final-form rulemaking.)

(ii) The MCLGs and MCLs for PFAS are:

	CASRN	*Contaminant*	*MCLG (mg/L)*	*MCL (mg/L)*	*MCLG (ng/L)*	*MCL (ng/L)*
(A)	335-67-1	PFOA	0.000008	0.000014	8	14
(B)	1763-23-1	PFOS	0.000014	0.000018	14	18

* * * * *

Subchapter C. MONITORING REQUIREMENTS

§ 109.301. General monitoring requirements.

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

* * * * *

(2) *Performance monitoring for unfiltered surface water and GUDI.* A public water supplier using unfiltered surface water or GUDI sources shall conduct the following source water and performance monitoring requirements on an interim basis until filtration is provided, unless increased monitoring is required by the Department under § 109.302:

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

(A) Shall perform *E. coli* or total coliform density determinations on samples of the source water immediately prior to disinfection. Regardless of source water turbidity, the minimum

frequency of sampling for total coliform or *E. coli* determinations may be no less than the following:

System Size (People)	*Samples/Week*
‹500	1
500—3,299	2
3,300—10,000	3
10,001—25,000	4
25,001 or more	5

(B) Shall measure the turbidity of a representative grab sample of the source water immediately prior to disinfection as follows until August 19, 2019:

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

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

(C) May substitute continuous turbidity monitoring for grab sample monitoring until August 19, 2019, if it validates the continuous measurement for accuracy on a regular basis using a procedure specified by the manufacturer. At a minimum, calibration with an EPA-approved primary standard shall be conducted at least quarterly.

(D) Shall continuously monitor and record the turbidity of the source water immediately prior to disinfection beginning August 20, 2019, using an analytical method specified in 40 CFR 141.74(a) and record the results at least every 15 minutes while the source is operating. If there is a failure in the continuous turbidity monitoring or recording equipment, or both, the supplier shall conduct grab sampling or manual recording, or both, every 4 hours in lieu of continuous monitoring or recording. The public water supplier shall notify the Department within 24 hours of the equipment failure. Grab sampling or manual recording may not be substituted for continuous monitoring for longer than 5 working days after the equipment fails. The Department will consider case-by-case extensions of the time frame to comply if the water supplier provides written documentation that it was unable to repair or replace the malfunctioning equipment within 5 working days due to circumstances beyond its control.

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

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

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

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

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

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

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

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

(ii) Until August 19, 2019, for a public water supplier serving 3,300 or fewer people, the Department may reduce the residual disinfectant concentration monitoring for the water being supplied to the distribution system to a minimum of 2 hours between samples at the grab sampling frequencies prescribed as follows if the historical performance and operation of the system indicate the system can meet the residual disinfectant concentration at all times:

System Size (People)	*Samples/Day*
‹500	1
500—1,000	2
1,001—2,500	3
2,501—3,300	4

If the Department reduces the monitoring, the supplier shall nevertheless collect and analyze another residual disinfectant measurement as soon as possible, but no longer than 4 hours from any measurement which is less than the residual disinfectant concentration approved under § 109.202(c)(1)(iii).

(iii) Until August 19, 2019, for a public water supplier serving fewer than 500 people, the Department may reduce the source water turbidity monitoring to one grab sample per day, if the historical performance and operation of the system indicate effective disinfection is maintained under the range of conditions expected to occur in the system's source water.

Editor's Note: The bracketed text below to be deleted is text that is duplicated due to a previous printing error.

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

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

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

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

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

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

(vi) In addition to the requirements specified in subparagraph (v), a public water supplier that uses a disinfectant other than chlorine to achieve log inactivation shall calculate the log inactivation of viruses at least once per day during expected peak hourly flow. The log inactivation for viruses shall also be calculated whenever the residual disinfectant concentration at the entry point falls below the minimum value specified in § 109.202(c) and continue to be calculated every 4 hours until the residual disinfectant concentration at the entry point is at or above the minimum value specified in § 109.202(c). Records of log inactivation calculations shall be reported to the Department in accordance with § 109.701(a).

(2) *Performance monitoring for unfiltered surface water and GUDI.* A public water supplier using unfiltered surface water or GUDI sources shall conduct the following source water and performance monitoring requirements on an interim basis until filtration is provided, unless increased monitoring is required by the Department under § 109.302:

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

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

System Size (People)	*Samples/Week*
‹500	1
500—3,299	2
3,300—10,000	3
10,001—25,000	4
25,001 or more	5

(B) Shall measure the turbidity of a representative grab sample of the source water immediately prior to disinfection as follows until August 19, 2019:

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

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

(C) May substitute continuous turbidity monitoring for grab sample monitoring until August 19, 2019, if it validates the continuous measurement for accuracy on a regular basis using a procedure specified by the manufacturer. At a minimum, calibration with an EPA-approved primary standard shall be conducted at least quarterly.

(D) Shall continuously monitor and record the turbidity of the source water immediately prior to disinfection beginning August 20, 2019, using an analytical method specified in 40 CFR 141.74(a) and record the results at least every 15 minutes while the source is operating. If there is a failure in the continuous turbidity monitoring or recording equipment, or both, the supplier shall conduct grab sampling or manual recording, or both, every 4 hours in lieu of continuous monitoring or recording. The public water supplier shall notify the Department within 24 hours of the equipment failure. Grab sampling or manual recording may not be substituted for continuous monitoring for longer than 5 working days after the equipment fails. The Department will consider case-by-case extensions of the time frame to comply if the water supplier provides written documentation that it was unable to repair or replace the malfunctioning equipment within 5 working days due to circumstances beyond its control.

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

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

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

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

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

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

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

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

(ii) Until August 19, 2019, for a public water supplier serving 3,300 or fewer people, the Department may reduce the residual disinfectant concentration monitoring for the water being supplied to the distribution system to a minimum of 2 hours between samples at the grab sampling frequencies prescribed as follows if the historical performance and operation of the system indicate the system can meet the residual disinfectant concentration at all times:

System Size (People)	*Samples/Day*
‹500	1
500—1,000	2
1,001—2,500	3
2,501—3,300	4

If the Department reduces the monitoring, the supplier shall nevertheless collect and analyze another residual disinfectant measurement as soon as possible, but no longer than 4 hours from any measurement which is less than the residual disinfectant concentration approved under § 109.202(c)(1)(iii).

(iii) Until August 19, 2019, for a public water supplier serving fewer than 500 people, the Department may reduce the source water turbidity monitoring to one grab sample per day, if the historical performance and operation of the system indicate effective disinfection is maintained under the range of conditions expected to occur in the system's source water.]

* * * * *

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

* * * * *

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

Entry points at which treatment has been installed to remove an SOC are not eligible for a monitoring waiver for the SOCs for which treatment has been installed.

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

(I) For groundwater or GUDI entry points, the vulnerability assessment area shall consist of wellhead protection area Zones I and II **as defined under § 109.1 (relating to definitions)**.

(II) For surface water entry points, the vulnerability assessment area shall consist of **[the area that supplies water to the entry point and is separated from other watersheds by the highest topographic contour]** **surface water intake protection area Zones A and B as defined under § 109.1**.

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

* * * * *

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

* * * * *

(iii) Consecutive water suppliers may be exempt from conducting monitoring for the MCLs for **[VOCs, SOCs and IOCs and radionuclides]** **VOCs, SOCs, IOCs, radionuclides and PFAS** if the public water system from which the finished water is obtained complies with paragraphs **[(5)—(7) and (14)]** **(5)—(7), (14) and (16)** and is in compliance with the MCLs, except that asbestos monitoring is required in accordance with subparagraph (ii).

* * * * *

(9) *Monitoring requirements for POE devices.* A public water supplier using a POE device shall, in addition to the monitoring requirements specified in paragraphs (1)—(8), **(10)—(16) and Subchapter K (relating to lead and copper)**, conduct monitoring on the devices installed. As a minimum, the monitoring shall include the MCLs for which the POE device is intended to treat and monthly microbiological monitoring. The Department may allow the water supplier to reduce the frequency of microbiological monitoring based upon historical performance. Except for microbiological contaminants, monitoring shall be performed quarterly on 25% of the installed POE devices with the locations rotated so that each device is monitored at least once annually, unless increased monitoring is required by the Department under § 109.302.

* * * * *

(11) *Monitoring requirements for entry points that do not provide water continuously.* Entry points from which water is not provided during every quarter of the year shall monitor in accordance with paragraphs **[(5)—(7) and (14)]** **(5)—(7), (14) and (16)**, except that monitoring is not required during a quarter when water is not provided to the public, unless special monitoring is required by the Department under § 109.302.

* * * * *

(15) *Monitoring requirements for reserve entry points and entry points supplied by one or more reserve sources.* Beginning August 20, 2019, a water supplier using reserve sources or reserve entry

points as defined and identified in the comprehensive monitoring plan in § 109.718(a) (relating to comprehensive monitoring plan) shall:

(i) Monitor reserve entry points at the initial frequencies specified in paragraphs **[(5)—(7) and (14)]** **(5)—(7), (14) and (16)**.

(ii) Monitor permanent entry points at the initial frequencies specified in paragraphs **[(5)—(7) and (14)]** **(5)—(7), (14) and (16)** while the entry point is receiving water from a reserve source.

(iii) Conduct special monitoring as required by the Department under § 109.302.

* * * * *

(16) *Monitoring requirements for PFAS.* Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for PFAS established under § 109.202(a).

(i) *Initial monitoring.* Initial monitoring shall consist of 4 consecutive quarterly samples at each entry point in accordance with the following monitoring schedule.

(A) Systems serving more than 350 persons shall begin monitoring for the PFAS listed in § 109.202(a)(4)(ii)(A)—(B) during the quarter beginning January 1, 2024.

(B) Systems serving 350 or fewer persons shall begin monitoring for the PFAS listed in § 109.202(a)(4)(ii)(A)—(B) during the quarter beginning January 1, 2025.

(C) Systems that add new sources to new or existing entry points on or after the applicable dates in clauses (A)—(B), shall conduct initial monitoring according to this clause. An entry point with one or more new sources shall be monitored for 4 consecutive quarters, beginning the first full quarter the entry point begins serving the public.

(ii) *Repeat monitoring for entry points at which at least one of the PFAS with an MCL is detected.* For entry points at which at least one of the PFAS with an MCL established under § 109.202(a) is detected at a level equal to or greater than its corresponding MRL as defined in § 109.304(f), then:

(A) Monitoring for compliance with the MCLs for PFAS established under § 109.202(a) shall be repeated quarterly, beginning the quarter following the detection, until reduced monitoring is granted in accordance with this subparagraph.

(B) The Department may decrease the quarterly monitoring requirement specified in clause (A) if it has determined that monitoring results are reliably and consistently below all MCLs for PFAS established under § 109.202(a). The Department will not make this determination until the water system obtains results from a minimum of four consecutive quarterly samples that are reliably and consistently below all PFAS MCLs.

(C) If the Department determines that monitoring results are reliably and consistently below all PFAS MCLs, the Department may allow the system to monitor annually. Systems which monitor annually shall monitor for compliance with the MCLs for PFAS established under § 109.202(a) during the quarter that previously yielded the highest analytical result, or as specified by the Department.

(iii) *Repeat monitoring at entry points at which none of the PFAS are detected.* For entry points at which none of the PFAS with an MCL established under § 109.202(a) are detected during initial monitoring in accordance with subparagraph (i), required monitoring is reduced to one sample per entry point during each subsequent compliance period. This

reduced monitoring shall be conducted in the same year as reduced monitoring granted for VOCs under paragraph (5)(iv)(B) and SOCs under paragraph (6)(iii) as specified by the Department.

(iv) *Repeat monitoring for entry points at which at least one of the PFAS exceeds an MCL.* For entry points at which a result for at least one of the PFAS exceeds an MCL established under § 109.202(a), monitoring for compliance with the MCLs for PFAS established under § 109.202(a) shall be conducted quarterly, beginning the quarter following the exceedance. Quarterly monitoring shall continue until a minimum of 4 consecutive quarterly samples shows the system is in compliance as specified in subparagraph (ix) and the Department determines the system is reliably and consistently below all PFAS MCLs. If the Department determines that the system is in compliance and is reliably and consistently below all PFAS MCLs, the Department may allow the system to monitor in accordance with subparagraph (ii)(C).

(v) *Confirmation samples.* A confirmation sample shall be collected and analyzed for each of the PFAS detected in exceedance of its MCL during annual or less frequent compliance monitoring. The confirmation sample shall be collected within 2 weeks of notification from the accredited laboratory performing the analysis that an MCL has been exceeded.

(vi) *Repeat and performance monitoring for entry points with PFAS removal treatment.* The reduced monitoring option in subparagraph (iii) does not apply to entry points at which treatment has been installed for removal of at least one of the PFAS with an MCL established under § 109.202(a). Compliance monitoring shall be conducted at least annually at entry points with PFAS treatment. Performance monitoring shall be conducted quarterly for the specific PFAS for which treatment is provided.

(vii) *Waivers.* Systems conducting monitoring under subparagraph (ii) at groundwater or GUDI entry points may apply for a use waiver for those entry points which have 3 consecutive years of quarterly or annual samples with no detection of any of the PFAS with an MCL established under § 109.202(a). A use waiver from conducting monitoring under subparagraph (ii)(C) may be granted to a public water supplier with groundwater or GUDI entry points based on documentation provided by the public water supplier and a determination by the Department that the requirements in clauses (A) and (B) have been met. Entry points at which treatment has been installed to remove one or more of the PFAS with MCLs established under § 109.202(a) are not eligible for a waiver.

(A) A use waiver may be granted for a specific entry point after evaluating knowledge of previous use, including storage, manufacturing, transport or disposal of one or more PFAS within the wellhead protection area Zones I and II as defined under § 109.1. If a determination by the Department reveals no previous use, a waiver may be granted for the entry point.

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

(C) If a use waiver is granted by the Department, required monitoring at that entry point is reduced to one sample during the subsequent compliance period. This monitoring shall be conducted during the quarter that previously yielded the highest analytical result, or as specified by the Department, and in the same years as any

reduced monitoring granted for VOCs under paragraph (5)(iv)(B) and SOCs under paragraph (6)(iii) as specified by the Department.

(D) A waiver is effective for one compliance period and may be renewed in each subsequent compliance period.

(viii) *Invalidation of PFAS samples.*

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

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

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

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

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

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

(D) If a system fails to collect the required number of samples, compliance with the MCL will be based on the total number of samples collected.

(E) If a sample result is less than the MRL, zero will be used to calculate compliance.

* * * * *

§ 109.303. Sampling requirements.

(a) The samples taken to determine a public water system's compliance with MCLs, MRDLs or treatment technique requirements or to determine compliance with monitoring requirements shall be taken at the locations identified in §§ 109.301, 109.302, 109.1003, 109.1103, 109.1202 and 109.1303 and as follows:

* * * * *

(4) Samples for determining compliance with MCLs for organic contaminants listed by the EPA under 40 CFR 141.61 (relating to maximum contaminant levels for organic contaminants), inorganic contaminants listed by the EPA under 40 CFR 141.62 (relating to maximum contaminant levels (MCLs) for inorganic contaminants), radionuclide contaminants listed by the EPA under 40 CFR 141.66 (relating to maximum contaminant levels for radionuclides) **[and with the special monitoring requirements for unregulated contaminants under § 109.302(f) (relating to special monitoring requirements)]** shall be taken at each entry point to the distribution system which is representative of each source after an application of treatment during periods of normal operating conditions. If a system draws water from more than one source and the sources are combined prior to distribution, the system shall sample at the entry point during periods of normal operating conditions when water is representative of all sources being used.

(5) Asbestos sampling points shall be at the distribution tap where asbestos contamination is expected to be the greatest based on the presence of asbestos cement pipe and lack of optimum corrosion control treatment, and at the entry point for each source which the Department has reason

to believe may contain asbestos, except that a collected distribution sample which is representative of a source may be substituted for a required entry point sample.

(6) Samples for determining compliance with MCLs for PFAS contaminants listed in § 109.202(a)(4) shall be taken as follows:

(i) Samples shall be collected at each entry point to the distribution system which is representative of each source after an application of treatment during periods of normal operating conditions. If a system draws water from more than one source and the sources are combined prior to distribution, the system shall sample at the entry point during periods of normal operating conditions when water is representative of all sources being used.

(ii) Samples shall be collected by a person properly trained by a laboratory accredited by the Department to conduct PFAS analysis.

* * * * *

§ 109.304. Analytical requirements.

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

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(f) For the purpose of determining compliance with the PFAS MCLs established in § 109.202(a)(4) (relating to State MCLs, MRDLs and treatment technique requirements), sampling and analysis for PFAS shall be conducted as follows:

(1) Sampling and analysis shall be according to the following approved methods and MRLs:

	Contaminant	*Methods*	*MRL (ng/L)*
(i)	PFOA	EPA 533, EPA 537.1, EPA 537 Version 1.1	5
(ii)	PFOS	EPA 533, EPA 537.1, EPA 537 Version 1.1	5

(2) Analysis shall be conducted by a laboratory accredited by the Department.

(3) Accredited laboratories must determine the MDL for each analyte, according to the procedure in Appendix B, Revision 2 to 40 CFR Part 136 (relating to definition and procedure for the determination of the method detection limit) or as specified in the method.

(4) Accredited laboratories must analyze Performance Evaluation Samples provided by a third party at least once per year by each method for which the laboratory maintains certification. Results of Performance Evaluation Samples must be within ±30% of the true value.

(5) The MRL must be contained within the range of calibration.

Subchapter D. PUBLIC NOTIFICATION

§ 109.411. Content of a public notice.

(a) *Elements of a public notice.* When a public water system is required to give public notice under this subchapter, each public notice must include the following elements:

* * * * *

(e) *Standard language for a public notice.* Public water systems shall include the following standard language in their public notice:

(1) *Standard health effects language for primary MCL or MRDL violations, treatment technique violations, and violations of the condition of a variance or exemption.* Public water systems shall include in each public notice appropriate health effects language. This subchapter incorporates by reference the health effects language specified in 40 CFR Part 141, Subpart Q, Appendix B (relating to standard health effects language for public notification), corresponding to each primary MCL, MRDL and treatment technique violation listed in 40 CFR Part 141, Subpart Q, Appendix A (relating to NPDWR violations and other situations requiring public notice), and for each violation of a condition of a variance or exemption, unless other health effects language is established by regulations or order of the Department. **[The health effects language for fluoride is not incorporated by reference. Public water systems shall include the following health effects language in each Tier 2 public notice for violation of the primary MCL of 2 mg/L for fluoride:]**

(i) The health effects language for fluoride is not incorporated by reference. Public water systems shall include the following health effects language in each Tier 2 public notice for violation of the primary MCL of 2 mg/L for fluoride:

"This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). Dental fluorosis, in its moderate or severe forms, may result in a brown staining and or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Drinking water containing more than 4 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease."

(ii) Public water systems shall include the following health effects language in each Tier 2 public notice for violation of the primary MCL for PFOA:

"Drinking water containing PFOA in excess of the MCL of 14 ng/L may cause adverse health effects, including developmental effects (neurobehavioral and skeletal effects)."

(iii) Public water systems shall include the following health effects language in each Tier 2 public notice for violation of the primary MCL for PFOS:

"Drinking water containing PFOS in excess of the MCL of 18 ng/L may cause adverse health effects, including decreased immune response."

* * * * *

§ 109.416. CCR requirements.

This section applies only to community water systems and establishes the minimum requirements for the content of the annual CCR that each system shall deliver to its customers. This report must contain information on the quality of the water delivered by the system and characterize the risks, if any, from exposure to contaminants detected in the drinking water in an accurate and understandable manner.

* * * * *

(3) Except as noted in subparagraphs (i)—(v), the annual report that a community water system provides to its customers shall contain all of the information, mandatory language and optional text specified by the EPA under 40 CFR 141.153 and 141.154 (relating to content of the reports; and

required additional health information), which are incorporated by reference, and under 40 CFR 141, Subpart O, Appendix A (relating to regulated contaminants), which is incorporated by reference, unless other information, mandatory language or optional text is established by regulations or order of the Department. The health effects language for fluoride is not incorporated by reference. Public water systems shall include the health effects language specified in § 109.411([d] e)(1)(i) (relating to content of a public notice) for violation of the primary MCL of 2 mg/L fluoride.

(i) If a water system wants to use wording of its own choice in place of optional text, the water supplier shall submit the proposed wording to the Department for review and written approval prior to including it in its annual CCR. Once approved, the water supplier's wording may be used in future CCRs without further approval from the Department as long as it is not changed and is still applicable.

(ii) The CCR shall contain information in Spanish regarding the importance of the report or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the report or to request assistance.

(iii) For each non-English-speaking group other than Spanish-speaking that exceeds 10% of the residents for systems serving at least 1,000 people or 100 residents for systems serving less than 1,000 people, and speaks the same language other than English, the report shall contain information in the appropriate languages regarding the importance of the report or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the report or to request assistance in the appropriate language. The Department will make the final determination of which systems need to include this information.

(iv) For the purpose of defining how certain portions of a CCR shall appear, the term "prominently display" as used in 40 CFR 141.154(a) means that the information shall be printed either in a larger size typeface or bolded or enclosed within a border or all these so as to make the information conspicuous in comparison to the rest of the text appearing before and after the prominently displayed text. Prominently displayed text placed away from other text (such as, in a highlighted or boxed area) shall be printed no smaller than the text used elsewhere in the body of the report, excluding main or section titles.

(v) Information contained in a CCR shall appear in an easy-to-read format. Font sizes below 10 points or color combinations, or both, that make it difficult for persons to read and understand the information contained in the CCR may not be used.

(3.1) Public water suppliers required to conduct monitoring for PFAS under § 109.301(16) (relating to monitoring requirements) shall also include at a minimum the following information:

(i) Information on results detected.

(A) MCL in ng/L.

(B) MCLG in ng/L.

(C) Highest level detected in ng/L.

(D) Range of detections in ng/L.

(E) Sample dates.

(F) Whether a violation occurred.

(G) Sources of contamination. The likely source(s) of detected contaminants to the best of the public water supplier's knowledge. Specific information regarding contaminants may be available in sanitary surveys or source water assessments and should be used

when available. If the public water supplier lacks specific information on the likely source or sources of the contaminant or contaminants, the following statement shall be used:

"Discharge from manufacturing facilities and runoff from land use activities."

(ii) Health effects language. Public water systems shall include the health effects language specified in § 109.411(e)(1)(ii)-(iii) (relating to content of a public notice) for violation of a primary MCL for PFAS specified in § 109.202(a) (relating to State MCLs, MRDLs and treatment technique requirements).

(4) Each community water system shall do the following:

(i) Mail or otherwise directly deliver to each customer one copy of the annual CCR no later than the date specified in paragraph (2).

(ii) Mail a paper copy of the annual CCR to the Department no later than the date the water system is required to distribute the CCR to its customers.

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Subchapter E. PERMIT REQUIREMENTS

§ 109.503. Public water system construction permits.

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

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

* * * * *

(iii) *Information describing new sources.* Information describing new sources must include the items specified in clauses (A)—(F). The information specified in clauses (C) and (D) may not be more than 2 years old from the date the permit application is submitted unless the Department approves the use of data more than 2 years old. The Department may accept approval of an out-of-State source by the agency having jurisdiction over drinking water in that state if the supplier submits adequate proof of the approval and the agency's standards are at least as stringent as this chapter:

* * * * *

(D) An evaluation of the quality of the raw water from each new source. For groundwater sources, the evaluation shall be conducted at the conclusion of the constant rate aquifer test. This clause does not apply when the new source is finished water obtained from an existing permitted community water system unless the Department provides written notice that an evaluation is required. The evaluation must include analysis of all of the following:

* * * * *

(XIV) For groundwater sources, the monitoring specified in § 109.302(f) (relating to special monitoring requirements) if the Department determines that the source is susceptible to surface water influence.

(XIV.1) PFAS for which MCLs have been established under § 109.202(a).

(XV) Other contaminants that the Department determines necessary to evaluate the potability of the source.

* * * * *

Subchapter F. DESIGN AND CONSTRUCTION STANDARDS

§ 109.602. Acceptable design.

(a) A public water system shall be designed to provide an adequate and reliable quantity and quality of water to the public. The design must ensure that the system will, upon completion, be capable of providing water that complies with the primary and secondary MCLs, MRDLs and treatment techniques established in Subchapters B, K, L and M except as further provided in this section.

* * * * *

(i) *PFAS.*

(1) The Department identifies the following treatment technologies as acceptable for achieving compliance with the MCLs for PFAS, established under § 109.202(a) (relating to State MCLs, MRDLs and treatment technique requirements):

(i) GAC.

(ii) Ion exchange.

(iii) Reverse Osmosis.

(2) Other treatment technologies may be approved by the Department if the applicant demonstrates the alternate technology is capable of providing an adequate and reliable quantity and quality of water to the public.

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Subchapter G. SYSTEM MANAGEMENT RESPONSIBILITIES

§ 109.701. Reporting and recordkeeping.

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

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

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

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

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

* * * * *

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

§ 109.1003. Monitoring requirements.

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

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

* * * * *

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

* * * * *

(xv) Beginning January 1, 2024, monitor for compliance with the MCLs for PFAS established under § 109.202(a).

(A) *Monitoring exemption.* Systems that obtain finished water from another permitted public water system are exempt from conducting monitoring for PFAS if the public water system supplying the finished water performs the required monitoring at least annually and a copy of the analytical reports are received by the Department.

(B) *Initial monitoring.* Initial monitoring shall consist of 4 consecutive quarterly samples at each entry point. Systems that add new sources to new or existing entry points on or after January 1, 2024 shall conduct initial monitoring according to this clause. An entry point with one or more new sources shall be monitored for 4 consecutive quarters, beginning the first full quarter the entry point begins serving the public.

(C) *Repeat monitoring.* Repeat monitoring for entry points shall be conducted as follows:

(I) For an entry point at which at least one of the PFAS with an MCL established under § 109.202(a) is detected during initial monitoring or where one or more PFAS is detected anytime at a level in excess of its MCL, compliance monitoring shall be repeated quarterly for the PFAS for which an MCL has been established under § 109.202(a). After analyses of four consecutive quarterly samples at an entry point, including initial quarterly monitoring samples, demonstrate that the PFAS levels in each quarterly sample are less than the MCLs, the required compliance monitoring is reduced to one sample per year at that entry point for all PFAS for which an MCL has been established under § 109.202(a).

(II) For a groundwater or surface water entry point at which no PFAS for which an MCL has been established under § 109.202(a) are detected during the initial and subsequent repeat monitoring, repeat monitoring shall be one sample per year from that entry point.

(D) *Confirmation samples.* A confirmation sample shall be collected and analyzed for each of the PFAS detected in exceedance of its MCL during annual monitoring. The confirmation sample shall be collected within 2 weeks of notification from the accredited laboratory performing the analysis of the MCL exceedance.

(E) *Repeat and performance monitoring for entry points with PFAS removal treatment.* Compliance monitoring shall be conducted annually at entry points with PFAS treatment. Performance monitoring shall be conducted quarterly for the specific PFAS for which treatment is provided.

(F) *Invalidation of PFAS samples.*

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

(II) A sample invalidated under this clause does not count towards meeting the minimum monitoring requirements of this subparagraph.

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

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

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

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

(IV) If a system fails to collect the required number of samples, compliance with the MCL will be based on the total number of samples collected.

(V) If a sample result is less than the MRL, zero will be used to calculate compliance.

* * * * *

(b) *Sampling requirements.*

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(3) Sampling and analysis shall be performed in accordance with analytical techniques adopted by the EPA under the Federal act or methods approved by the Department **in accordance with § 109.304.**

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

* * * * *

(6) **[Sampling and analysis shall be performed in accordance with analytical techniques adopted by the EPA under the Federal act or methods approved by the Department.]** **Compliance monitoring samples for PFAS, as required under subsection (a)(1)(xv), shall be collected by a person properly trained by a laboratory accredited by the Department to conduct PFAS analysis.**

* * * * *

Subchapter N. DRINKING WATER FEES

§ 109.1403. Monitoring waiver fees.

(a) *New waivers.* An application for a new waiver from the monitoring requirements in §§ 109.301 and 109.302 (relating to general monitoring requirements; and special monitoring requirements) for a single source must be accompanied by a fee as follows:

Waiver Type	*New Waiver Fee*
VOC use waiver	$100
SOC use waiver	$100
SOC susceptibility waiver	$300
IOC waiver	$100
PFAS use waiver	**$100**

* * * * *

Summary of Responses from Survey of Pennsylvania Accredited Laboratories for PFAS, May 2021

Lab Designation	Methods accredited?	Additional methods considered?	Maximum capacity?	% of max capacity?	MRLs?	Failure to meet QA/QC?	If >10%, considered higher MRL?	Average cost per sample?	Reduction in cost for fewer analytes?	Additional collection cost?	Additional charges, if any?
Lab A	NO RESPONSE										
Lab B	537.1	No	75 (?) (not indicated whether per day, week, or month)	20%	PQLs = 2 ng/L	2%	NA	265 (not indicated if includes FRB)	No reduction		no
Lab C	EPA Method 537.1	Yes, EPA Method 533	40 Samples/day, including Field Blanks (800/month)	75%	2.0 ng/L for all Analytes	< 5%	NA	$200 (DOES NOT INCLUDE FRB)	No reduction	NA – Our lab does not provide collection services	None
Lab D	NO RESPONSE										
Lab E	NO RESPONSE										
Lab F	NO RESPONSE										
Lab G	NO RESPONSE										
Lab H	537.1	533	120/day combined 537.1 and 533 (but not accredited in PA for 533); est. 1200/month for 537.1	50%	2 ppt	< 1%	NA	$750 (includes sample and FRB extraction and analysis)	yes	collection not offered	none
Lab I	537.1	533	45/day 212/week 900/month	80%	2 ng/L	10%	No, most appear to be related to matrix as noted by surrogate standard recoveries	$520 for 537.1; $750 for 533 (not accred.)	No reduction	depends on location	Depends on the added on items. For example, level IV data report may incur fees of $50 for each report
Lab J	EPA 533, EPA 537.1, and EPA 537 Revision 1.1	Yes as additional methods become available, we will evaluate and pursue certification for each.	Approximately 40,000 samples per month for all matrices	60%-80%	For most analytes, the reporting level is 2 ng/l	20% to 30% (includes failures for internal stds, surrogates, lab control stds, and method blanks)	Higher MRL would decrease % somewhat, but only for blank contamination situations; main issue is extraction standards/surrogates that fail due to high conc. of target compounds in sample	EPA 537.1 or EPA 537 v 1.1: $250-$275 EPA 533: $300 (DOES NOT INCLUDE FIELD BLANK)	Yes, in potable water samples if a client requests PFOA/PFOS only, we reduce the price accordingly	collection is $225 for the first sample collected and $100 for each additional sample collected at the same location	$100 extract and hold fee (if FRB analysis not needed, analysis cost is half plus 100), $15 for PFAS free water needed to fill the field blank
Lab K	537.1	533	40-80/day; est 1200/month	30-60%	2 ng/L for 537.1 and 533	10-15%	Yes, but keeping at 2 ppt for most analytes with focus on efforts to reduce QA/QC failures	$37.1 = $600 ($33 = $800; not accred.) (includes FRB)	No reduction	$75 per hour, portal to portal, plus mileage	Level IV data deliverable report is a 10% surcharge
Lab L	537 revision1.1 and EPA 537.1	EPA method 533	60/day 300/week 1200/month	75%	2 ng/L for all PFAS	< 5%	NA	EPA 537 rev 1.1 is $300; EPA 537.1 is $325; includes field blank analysis.	UCMR 3 list, 6 compounds at $250 per sample including field blank	collection not offered	Overnight shipping back to us. We ship supplies and coolers to client for free
Lab M	EPA 537.1, and EPA 537 Revision 1.1	currently applying for reciprocity for 533	20/day 100/week 400-500/month	30%	2 ng/L for most analytes	< 5%	NA	537 1.1 - 200.00; 537.1 - 220.00; 533 - 275.00 (not accred) - includes FRB?	YES	NA for PA - only collect locally	extract and Hold - $0.00 PFAS Free DI Water - 25.00 per gallon Rush fees available upon request 5% for Level 4 data packages
Lab N	Relinquished accreditation										
Lab O	Drinking Water: EPA Method 533, EPA Method 537 Revision 1.1, and EPA Method 537.1	NA	90 samples per day, 450 samples per week and 1,800 samples per month	50%	2 ng/L for most analytes	< 1%	NA	537R1.1= $480 537.1=$520 533=$600 (includes FRB)	Yes (e.g., PFOA and PFOS only is ~$225 per sample)	NA- sample collection not offered	electronic data deliverable (EDD), full data package, lab-provided PFAS-free water, and expedited sample container and cooler shipping are extra

Treatment	Information Provided by	Source Information	Capital Cost per 1 MGD	Total Capital Cost	Capacity (MGD)	Annual O&M Cost per 1 MGD	Reported Annual O&M Cost	Notes
GAC	Vendor A	Vendor	$343,000	$3,430,000	10	$32,018		Capital cost (based on 10 MGD plant) does not include vessels, piping installation or tying into existing system. O&M includes only reactivation of spent GAC at 80,000 bed volumes.
GAC	Vendor B	Vendor	$535,000			$356,000		Capital cost does not include civil work. O&M does not include labor, electricity or testing. Includes expendable media only.
GAC	System A (2 GAC and 1 IX)	PWS	$3,125,000	$1,800,000	0.576	$107,007	$56,500	June through April sampling only cost reported for O&M
GAC	System B, Site 1	PWS	$1,675,347	$965,000	0.576	$121,528	$70,000	Sites 1 and 2 were designed and installed under single contract.
GAC	System B, Site 2	PWS	$2,454,259	$778,000	0.317	$220,820	$70,000	Sites 1 and 2 were designed and installed under single contract.
GAC	System B, Site 3	PWS	$2,433,333	$876,000	0.36	$194,444	$70,000	
GAC	System C	ASDWA	$9,250,000	$47,750	0.005225	unknown	unknown	
GAC	System D	ASDWA	$3,139,000	$660,000	0.72	unknown	unknown	
GAC	System E	ASDWA	$1,135,497	$2,623,000	2.31	unknown	unknown	$1,980,000 in 2006 dollars, which includes generator, clearwell, high speed pumps, and chemical feed facilities
GAC	System F	ASDWA	$4,444,444	$8,000,000	1.8	unknown	unknown	Includes cost of Fe/Mn filters installed prior to GAC
IX	Vendor A	Vendor	$357,000	$3,570,000	10	$59,361	$593,615	Cost includes incineration of resin.
IX	Vendor B	Vendor	$500,000			$175,000	$175,000	Capital cost does not include civil work. O&M does not include labor, electricity or testing. Includes expendable resin only.

Treatment	Information Provided by	Source Information	Capital Cost per 1 MGD	Total Capital Cost	Capacity (MGD)	Annual O&M Cost per 1 MGD	Reported Annual O&M Cost	Notes
IX	Vendor D	Vendor	No information	No information	1	$159,722	$125,925	Capital cost including construction power and maintenance estimated at 15 cents per 1000 gallons based on 100 MGD plant. O&M based on media installation and disposal raging from 8-53 cents per 1000 gallons.
IX	System G	PWS	$10,400,000	$3,000,000	0.288	unknown	unknown	Capital cost includes construction of new building for treatment units
IX	System H	ASDWA	$3,333,000	$250,000	0.075	unknown	unknown	
IX	System I	ASDWA	$634,900	$320,000	0.504	unknown	unknown	
IX	System J	ASDWA	$1,128,000	$3,250,000	2.88	unknown	unknown	
IX	System K	ASDWA	$925,900	$1,400,000	1.512	$132,275	$200,000	

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

July 30, 2021

Ms. Lisa Daniels, Director
Bureau of Safe Drinking Water
P.O. Box 8467
Harrisburg, PA 17105-8467

Re: Comments on the Pre-Draft Proposed PFAS Rule revisions to Chapter 109

Dear Ms. Daniels:

The Public Water System Technical Assistance Center (TAC) Board met on July 29, 2021 to review and discuss the Department's Pre-Draft Proposed revisions to the safe drinking water regulations, specific to the PFAS Rule. The following comment was approved by the TAC Board:

> The Public Water System TAC Board supports the Department moving forward in the rulemaking process to present a proposed PFAS Rule to the Environmental Quality Board.

Thank you for the opportunity to comment.

Sincerely,

Serena A. DiMagno
Chairperson

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

February 15, 2022

David Sumner
Executive Director
Independent Regulatory Review Commission
333 Market Street, 14th Floor
Harrisburg, PA 17120

Re: Proposed Rulemaking: Safe Drinking Water PFAS MCL Rule (#7-569)

Dear Mr. Sumner:

Pursuant to Section 5(a) of the Regulatory Review Act, please find enclosed a copy of the Safe Drinking Water PFAS MCL Rule proposed rulemaking (#7-569) for review by the Independent Regulatory Review Commission (Commission). This proposal is scheduled for publication in the *Pennsylvania Bulletin* on February 26, 2022, with a 60-day public comment period ending on April 27, 2022. The Environmental Quality Board adopted this proposal on November 16, 2021.

This proposed rulemaking would set maximum contaminant level goals (MCLG) and maximum contaminant levels (MCL) for two per- and polyfluoroalkyl substances (PFAS) —perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). PFAS are potentially linked to a number of adverse health effects, including high cholesterol, developmental effects including low birth weight, liver toxicity, decreased immune response, thyroid disease, kidney disease, ulcerative colitis, and certain cancers, including testicular cancer and kidney cancer. The proposed amendments are intended to protect public health by setting State MCLs for contaminants in drinking water that are currently unregulated at the Federal level.

As set forth in the Regulatory Review Act, the Department will consider any comments and recommendations made by the Commission, as well as the House and Senate Environmental Resources and Energy Committees and the public, prior to final adoption of the enclosed rulemaking.

Please contact me by e-mail at laurgriffi@pa.gov or by telephone at 717.783.8727 if you have any questions or need additional information.

Sincerely,

Laura E. Griffin

Laura Griffin
Regulatory Coordinator

Enclosures

0120-FM-PO0011 6/2015

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
POLICY OFFICE

TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE REGULATORY REVIEW ACT

I.D. NUMBER: 7-569

SUBJECT: Safe Drinking Water PFAS MCL Rule

AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION, Environmental Quality Board

TYPE OF REGULATION

- [x] Proposed Regulation
- [ ] Final Regulation
- [ ] Final Regulation with Notice of Proposed Rulemaking Omitted
- [ ] 120-day Emergency Certification of the Attorney General
- [ ] 120-day Emergency Certification of the Governor
- [ ] Delivery of Tolled Regulation
  a. [ ] With Revisions b. [ ] Without Revisions

RECEIVED
FEB 15 2022
Independent Regulatory Review Commission

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
2/15/22	Pam Newgard	Majority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Representative Daryl Metcalfe
2/15/22		Minority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Representative Greg Vitali
2/15/22		Majority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Senator Gene Yaw
2.15.22		Minority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Senator Carolyn Comitta
		INDEPENDENT REGULATORY REVIEW COMMISSION David Sumner
		ATTORNEY GENERAL (for Final Omitted only)
2/15/22	electronic submittal	LEGISLATIVE REFERENCE BUREAU (for Proposed only) Leah Brewn

Kathy Cooper

From: Bulletin <bulletin@palrb.us>
Sent: Tuesday, February 15, 2022 10:34 AM
To: Griffin, Laura; Code&Bulletin
Cc: Adeline E. Gaydosh; Leah Brown; A.J. Mendelsohn
Subject: [External] RE: Delivery of Proposed Rulemaking - Safe Drinking Water PFAS MCL Rule (7-569)

ATTENTION: This email message is from an external sender. Do not open links or attachments from unknown sources. To report suspicious email, forward the message as an attachment to CWOPA_SPAM@pa.gov.

Good morning Laura,

Thank you for sending this proposed rulemaking. Someone from our office will contact you regarding publication in the Pennsylvania Bulletin.

Take care,

Ernest L. Engvall | Legal Assistant
eengvall@palrb.us | 717.783.1531
Legislative Reference Bureau
Code and Bulletin Office

From: Griffin, Laura <laurgriffi@pa.gov>
Sent: Tuesday, February 15, 2022 10:31 AM
To: Code&Bulletin <codeandbulletin@palrb.us>; Bulletin <bulletin@palrb.us>
Cc: Adeline E. Gaydosh <agaydosh@palrb.us>; Leah Brown <lbrown@palrb.us>; A.J. Mendelsohn <amendelsohn@palrb.us>
Subject: Delivery of Proposed Rulemaking - Safe Drinking Water PFAS MCL Rule (7-569)
Importance: High

Good morning,

Please see the attached documents, including Word versions of the Preamble and Annex A, for Proposed Rulemaking – Safe Drinking Water PFAS MCL Rule (#7-569), for publication on **February 26, 2022.**

The transmittal sheet confirming receipt of the rulemaking by the House and Senate ERE Committees is attached.

Please confirm that you received the rulemaking documents for publication.

Thank you!
Laura

Laura Griffin | Regulatory Coordinator

she/her/hers
Department of Environmental Protection | Policy Office
Rachel Carson State Office Building
400 Market Street | Harrisburg, PA
Phone: 717.772.3277| Fax: 717.783.8926
Email: laurgriffi@pa.gov
www.dep.pa.gov

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