

PFAS Policy and Regulations Subgroup

Meeting Minutes

11:00 am to 12:00 pm, June 21, 2021

Hosted by the Virginia Department of Health Office of Drinking Water

1. **Welcome and meeting overview:** ODW Policy Director, Nelson Daniel Called the meeting to order 11:03 a.m. The meeting was conducted by electronic communication means (WebEx) due to the ongoing public health emergency associated with the coronavirus pandemic and recorded. Nelson used a presentation for the meeting. It follows the Minutes.
2. **Meeting participants:**
 - a. Subgroup members present:
 - Phillip Musegaas (Potomac Riverkeeper Network)
 - Paul Nyffeler (Chem Law)
 - Jamie Hedges (Fairfax Water)
 - Wendy Eikenberry (Augusta County Service Authority)
 - Jessica Edwards–Brandt (Loudoun Water)
 - Mike McEvoy (Western Virginia Water Authority)
 - Nelson Daniel (Office of Drinking Water)
 - b. Guests:
 - Bob Angelotti (OUSA)
 - Ann Marie Gathright (Environmental Standards, Inc)
 - Ellen Egen (Aqua Law)
 - James Cherry (City of Virginia Beach)
 - Mitchell Smiley (Virginia Municipal League)
 - Brian Owsenek (Upper Occoquan Service Authority)
 - Amanda Waters (Aqua Law)
 - c. ODW Staff:
 - Kris Latino
 - Robert Edelman
3. **Minutes from the May 17, 2021 meeting:** Subgroup member reviewed the minutes prior to the meeting and did not have any changes; Nelson will post them as “final” on the Town Hall Website.
4. **Sampling Study Update:** Nelson provided a brief update on the status of the sampling study that is in progress.
 - a. 44 waterworks have agreed to collect samples,
42 waterworks have received sampling kits from the lab,

32 waterworks have returned sample kits to the lab, ODW has received 3 sets of test results from the same number of waterworks, The 3 waterworks should also have received sample results, ODW has started the process to QA/QC the 3 sets of test results, and Lab turnaround time has been more than 10 business days from receipt to allow for processing in batches.

- b. He also talked about what to expect after sampling is complete. Details are on slides 10 through 12 of the presentation.

5. PFAS Communication Toolkit: Nelson thanked Subgroup members for their contributions to the Communication Toolkit. He said that ODW had sent copies to participating waterworks and local health districts where PFAS sampling is taking place.

6. Member updates on state/federal development of maximum contaminant levels (MCLs) or other limits on per- and polyfluoroalkyl substances (PFAS)

- a. U.S. Environmental Protection Agency (EPA): EPA announced three actions the week of June 7, 2021 with respect to the agency's regulation of the use, import, and manufacture of PFAS.
 - i. EPA proposed a new rule requiring PFAS manufacturers and importers to report detailed information about their PFAS use, disposal, and potential health and environmental impacts, https://www.epa.gov/sites/production/files/2021-06/documents/prepubcopy_10017-78_fr_doc_esignature_2021-06-10.pdf
 - ii. EPA withdrew a Trump-era compliance guide that had narrowed a prior EPA Significant New Use Rule (SNUR) restricting the use, manufacture, and import of certain long-chain PFAS, and
 - iii. EPA added three PFAS chemicals to the Toxics Release Inventory (TRI) program
 - iv. See: <https://www.jdsupra.com/legalnews/environmental-protection-agency-issues-6958617/>
- b. Virginia Department of Environmental Quality (DEQ): DEQ is in the process of amending the solid waste management regulations. The committee that is discussing the amendments is considering requirements for groundwater monitoring for certain PFAS – making it either mandatory or triggered. DEQ and the committee are considering the timing to begin monitoring, suggesting there is a need to have regulatory limits in place for PFAS, such as state or federal MCLs for PFAS in drinking water, i.e., monitoring requirements may be related to the Board of Health establishing MCLs required by HB1257 (2020).
- c. California –
 - i. On March 12, 2021, the State Water Board issued Investigative Orders to Refineries and Bulk Fuel Terminals (161) (https://www.waterboards.ca.gov/pfas/docs/order_wq2021-0006-dwq_pfas.pdf) for a one-time sampling effort to determine whether soil, groundwater, surface water, and influent and effluent wastewater at their

locations were impacted by PFAS. These Orders included the required sampling for 31 PFAS compounds.

- ii. May 10, 2021, California Assembly passed Assembly Bill 652 (https://leginfo.legislature.ca.gov/faces/billCompareClient.xhtml?bill_id=202120220AB652&showamends=false) by a vote of 53-0. If enacted, the law would ban PFAS from a wide range of products used by infants and children, including booster seats, changing pads, crib mattresses, playpens, car seats and more.
- iii. On March 5, 2021, the Division of Drinking Water issued a drinking water notification level and response level of 0.5 parts per billion (ppb) and 5 ppb, respectively for perfluorobutane sulfonic acid (PFBS).
- d. Rhode Island: S0107 – proposes to add Chapter 32, the “PFAS in Drinking Water, Groundwater and Surface Waters Act” to Title 46 of the General Laws entitled “Waters and Navigation.” On June 15, the Rhode Island Senate passed a substitute of the bill and referred it to the House. See: <https://legiscan.com/RI/bill/S0107/2021>
- e. Great Lakes area: a recent article in Grist said that scientists found high levels of PFAS in raindrops (up to 400 ppt) across several states in the Great Lakes region. See: <https://grist.org/science/its-raining-forever-chemicals-in-the-great-lakes/>
- f. Pennsylvania – following submission of a petition for rulemaking, subsequent environmental study, literature review and toxicology study, and recommendations for establishing MCLs, the Pennsylvania Environmental Quality Board voted 18-1 Tuesday morning (June 15, 2021) to pursue a MCL rule for the per- and polyfluoroalkyl substances found in public and private drinking water wells throughout the Commonwealth. Information about the Pennsylvania action is on slides 15 through 18 of the presentation and the Evaluation Report that is included after the presentation.

7. **Public Comment:** Nelson invited members of the public to provide comments or share concerns. No one commented.

8. **Future Meetings:** The next Subgroup meeting is scheduled for July 19, 2021 at 11:00 am. Based on news reports, it appears that the Declaration of Public Health Emergency will expire or be rescinded on June 30, 2021. Once the emergency declaration is no longer in effect, the exception to the public meeting laws that is currently in the State Budget, which allows state agencies and others to conduct meetings by electronic communication means, will also end. Nelson asked the group about their thoughts for conducting future meetings in-person or at least having a quorum physically assembled in one location and using electronic communication means to allow other members and the public to participate in the meeting. One Subgroup member indicated that he is not comfortable meeting in person yet and asked to continue meeting electronically. Other Subgroup members expressed a willingness to meet in-person, but asked ODW to schedule meetings no earlier than 11:00 a.m. to allow time for travel (if meeting in Richmond). Nelson said that ODW had not reached a decision about conducting

meetings after the Declaration of Public Health Emergency ends, but said that ODW would keep members and the public informed about upcoming meetings. Slide 21 in the presentation has text from the relevant section of the Virginia Freedom of Information Act, Code of Virginia § 2.2-3708.

9. Nelson concluded the meeting at 11:51 a.m.

The next Policy Subgroup meeting is tentatively scheduled for Monday, July ne 21, 2021 at 11:00 a.m. The next PFAS Workgroup meeting will be in late July or early August.

**PFAS Policy and Regulations Subgroup
Draft Meeting Agenda**

By WebEx

11:00 am to 12:00 pm, June 21, 2021

Hosted by the

Virginia Department of Health Office of Drinking Water

1. Welcome and meeting overview
2. Minutes from the May 17, 2021 meeting (Town Hall)
3. Member updates on state/federal development of MCLs or other limits on PFAS (as needed)
4. Sampling Update
5. Pennsylvania Department of Environmental Protection work on PFAS
6. Public Comment
7. Decision about conducting upcoming meetings

Next meeting: July 19, 2021, 11:00 am

PFAS Policy and Regulations Subgroup

Nelson Daniel

Virginia Department of Health
June 21, 2021

PFAS Policy Subgroup Meeting Overview

Update Member Reports on Research

- EPA, CA, CO, CT, MD, NY, MA, MI, MN, NH, NJ, NC, VT, Other States

Sampling Update

Pennsylvania DEP

Public comments

Planning and deliverables for the next meeting

Meeting Minutes

Minutes are published on:

- Virginia Town Hall
- <https://townhall.virginia.gov/> search for PFAS

Members receive email with minutes

Minutes saved on the PFAS Workgroup SharePoint

- PFAS Policy... Subgroup > Meetings

Need to approve meeting minutes of:

- May 17, 2021

Subgroup Members

- Phillip Musegaas (Potomac Riverkeeper Network) y
- Paul Nyffeler (Chem Law) y
- Jamie Hedges (Fairfax Water) y
- Jillian Terhune (City of Norfolk)
- Wendy Eikenberry (Augusta County Service Authority) y
- John Aulbach (Aqua Virginia)
- Russ Navratil (VA AWWA)
- Jessica Edwards-Brandt (Loudoun Water) y
- Mike McEvoy (Western Virginia Water Authority) y
- Andrea Wortzel (Mission H2O)
- Steve Risotto (ACC)
- Nelson Daniel (VDH Office of Drinking Water) y

Meeting Guests

-

Virginia PFAS Workgroup - Objectives

Determine the occurrence of PFAS in drinking water throughout the Commonwealth,
Identify possible sources of PFAS contamination, and

Evaluate existing approaches to regulating PFAS, including regulatory approaches adopted by other states and the federal government.

Six specific PFAS, including:

- Perfluorooctanoic acid (PFOA)
- Perfluorooctane sulfonate (PFOS)
- Perfluorobutyrate (PFBA) [aka Pentafluorobutanoic acid???
- Perfluoroheptanoic acid (PFHpA)
- Perfluorohexane sulfonate (PFHxS) [Perfluorohexane sulfonic acid]
- Perfluorononanoic acid (PFNA)

Other PFAS “as deemed necessary”

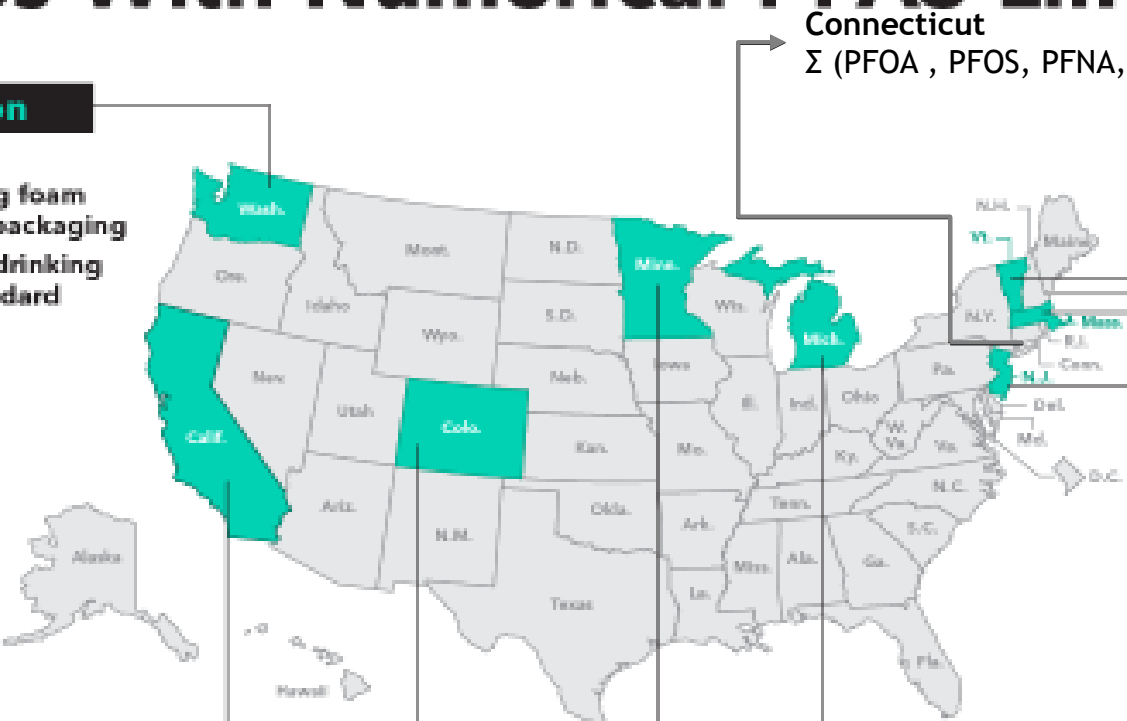
Virginia PFAS Workgroup - Objectives

May develop recommendations for specific maximum contaminant levels (MCLs) for:

- Perfluorooctanoic acid (PFOA)
- Perfluorooctane sulfonate (PFOS)
- Perfluorobutyrate (PFBA)
- Perfluoroheptanoic acid (PFHpA)
- Perfluorohexane sulfonate (PFHxS)
- Perfluorononanoic acid (PFNA)

And other PFAS “as deemed necessary”

States With Numerical PFAS Limits



Washington

- Banned in firefighting foam and food packaging
- Proposed drinking water standard

California

- 14 PPT (PFOA)
- ~~13 PPT (PFOS)~~
- Drinking water notification guidance 40 ppt PFOS

Colorado

- PFOA/PFAS listed as hazardous waste
- 70 PPT (Combined PFOA/PFOS)
- Groundwater quality standard for El Paso County only

Minnesota

- 35 PPT (PFOA)
- ~~27 PPT (PFOS)~~
- Health-based guidance values 15 ppt PFOS 47 ppt PFHxS

Michigan

- ~~70 PPT (Combined PFOA/PFOS)~~
- State standard for c1 in drinking water

Connecticut
 Σ (PFOA , PFOS, PFNA, PFHxS, PFHpA) < 70ppt

Vermont

- 20 PPT (PFAS)
- Drinking water health advisory for 5 PFAS

New Hampshire
 12 ppt PFOA
 15 ppt PFOS
 11 ppt PFNA
 18 ppt PFHxS

Massachusetts

- ~~70 PPT (PFAS)~~
- State guidance to concentrations of ~~5 PFAS~~ in drinking water

20 ppt Σ (PFOA , PFOS, PFNA, PFHxS, PFHpA, PFDA)

New Jersey

- Set PFNA standard at 13 ppt
- ~~Weighing proposed standards for:~~
 PFOA at 14 ppt
 PFOS at 13 ppt

8 ppt PFOA
 16 ppt PFOS
 6 ppt PFNA
 51 ppt PFHxS
 420 ppr PFBS
 400,000 PFHxA
 370 ppt Gen X

Bloomberg Environment

	California	Connecticut	Massachusetts	Michigan	Minnesota	New Hampshire	New Jersey	New York	Vermont	EPA*	avg
	Response Level	Action Level	MCL	MCL	Health Advisory	MCL	MCL	MCL	MCL	Health Advisory	
PFOA	10	✓	✓	8	35	12	14	10	✓	✓	14.8
PFOS	40	✓	✓	16	15	15	13	10	✓	✓	18.2
PFNA		✓	✓	6		11	13		✓	not included	10.0
PFHxS		✓	✓	51	47	18			✓	not included	38.7
PFHpA		✓	✓						✓	not included	
PFDA		not included	✓						not included	not included	
PFBS		not included	not included	420					not included	not included	
PFHxA		not included	not included	400000					not included	not included	
Gen X		not included	not included	370					not included	not included	
SUM		70	20						20	70	

Sampling Study

- 44 waterworks have agreed to collect samples
- 42 waterworks have received sampling kits from the lab
- 32 waterworks have returned sample kits to the Laboratory
- 3 sets of test results for the same number of waterworks received by ODW
- Sample QA/QC is in progress

What to expect after sampling

Laboratory turn-around time has been more than 10 business days from receipt to allow for processing in batches

Laboratory Reports:

- Laboratory reports (PDF) emailed to ODW and waterworks
- Electronic Data Deliverable (EDD) emailed to ODW

ODW will file PDF reports

ODW will maintain results in a searchable database (after QA/QC)

- Not in the Safe Drinking Water Information System (SDWIS) database
- Not available on Drinking Water Watch on ODW's website

What to expect after sampling

ODW Envisions data will become public through:

- Freedom of Information Act (FOIA) Requests
 - ODW will notify utilities of data requests
- ODW's publicly-facing website
 - ODW will notify utilities in advance of making this public
 - Envisioning a clickable map that will display data
 - Possible .pdf or Excel spreadsheet of data
- Report to the General Assembly
 - ODW will share the data table with utilities as part of the drafting
 - Draft by October

PFAS Communication Toolkit

- Any follow-up?

Updates from May Policy Subgroup Meeting

California - On March 5, 2021, DDW issued a drinking water notification level and response level of 0.5 parts per billion (ppb) and 5 ppb, respectively for perfluorobutane sulfonic acid (PFBS).

Rhode Island: S0107 - proposes to add Chapter 32, the “PFAS in Drinking Water, Groundwater and Surface Waters Act” to Title 46 of the General Laws entitled “Waters and Navigation” - passed Senate 6/15 (w/substitute), referred to House

EPA - (see minutes)

Great Lakes Region - article re study in great lakes regions, rainwater had 100-400 ppt in samples, public concern, talk about how to trace back to mfrs
<https://grist.org/science/its-raining-forever-chemicals-in-the-great-lakes/>

Pennsylvania

- Discuss response to petition, rulemaking (for PFOA)?
- PA had a \$500,000 budget and planned to collect samples from 360 targeted public water system sources and 40 baseline sources for a total of 400 samples
- PA used EPA Method 537.1 (18 PFAS - the original 6 from UCMR 3 (PFOS, PFOA, PFNA, PFHxS, PFHpA, PFBS) + others)
- Sampling began in 2019, halted March 2020 until August 2020, completed in March 2021
- Based on sampling, Petitioner is requesting PA sect MCL for PFOA at 1 ppt or, in the alternative, 6 ppt (original request)

Pennsylvania

- Rulemaking should be based on available data, studies, and science, and should consider all factors such as health effects, technical limitations, and costs. (factors in addition to health effects - as required by the Federal SDWA and Pennsylvania Regulatory Review Act)
- VA - enabling legislation, Administrative Process Act

Pennsylvania

- A Drexel University study on PFAS rules set by other states and statewide sampling published in January proposed several limits for Pennsylvania to consider.
- The Drexel study recommended a limit of 8 ppt for PFOA and 14 ppt for PFOS, two of the most prevalent compounds.

Pennsylvania

The state's Environmental Quality Board voted 18-1 Tuesday morning to pursue a Maximum Contaminant Level rule for the per- and polyfluoroalkyl substances found in public and private drinking water wells throughout the commonwealth.

<https://www.buckscountycouriertimes.com/story/news/2021/06/15/pennsylvania-dep-inches-closer-setting-pfas-limits/7700200002/>

Public Comment

Other PFAS Events:
PFAS Workgroup – July ??, 2021

Meeting minutes, information on Town Hall, the VDH/ODW PFAS website, and the PFAS Workgroup SharePoint site

Next Meeting – July 19, 2021

Declaration of Public Health Emergency will expire June 30, 2021

ODW has conducted meetings by electronic communication means under an exemption to the public meeting law (Budget)

Public meetings law, Va.Code 2.2-3708.2 D, allows meetings by electronic communication means:

Code of Virginia 2.2-3708.2 D

1. Except as provided in subsection D of § 2.2-3707.01, state public bodies may also conduct any meeting wherein the public business is discussed or transacted through electronic communication means, provided that (i) a quorum of the public body is physically assembled at one primary or central meeting location, (ii) notice of the meeting has been given in accordance with subdivision 2, and (iii) members of the public are provided a substantially equivalent electronic communication means through which to witness the meeting. For the purposes of this subsection, "witness" means observe or listen....

Discussion...

Nelson Daniel

nelson.daniel@vdh.virginia.gov

804-864 7210 / 804-382-9594 (m)

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
EVALUATION REPORT
ON THE
DELAWARE RIVERKEEPER NETWORK PETITION FOR
RULEMAKING
TO SET AN MCL FOR PFOA

April 16, 2021

TABLE OF CONTENTS

Page

A. DESCRIPTION OF THE PETITION FOR RULEMAKING PROCEDURE1

B. DESCRIPTION OF THE DELAWARE RIVERKEEPER NETWORK PETITION3

 1. Procedural Description.....3

 2. Petition Description3

C. DEPARTMENT RESPONSE TO THE PETITION5

 1. PFOA5

 2. Status of an MCL for PFOA6

 3. Department Actions to Address PFOA.....7

 a. Actions to Implement EPA’s HAL as an Interim Measure7

 b. Toxicology Services Contract.....10

 c. PFAS Sampling Plan14

 d. BOL PFAS Analytical Capabilities17

D. DEPARTMENT ANALYSIS OF THE PETITION FOR RULEMAKING18

 1. The Petition Contends that an MCL Should Be Set for PFOA Not to Exceed 6 ppt.....18

 2. Recommendation18

E. CONCLUSION.....22

F. APPENDIX.....23

List of Figures

Figure 1. Public water system sources identified for sampling	15
Figure 2. Potential sources of PFAS contamination (PSOC)	16

List of Tables

Table 1. The Drexel PFAS Advisory Group’s development of the
Non-Cancer MCLG for PFOA.....13

Table 2. Summary of PFOA sample results to date17

A. DESCRIPTION OF THE PETITION FOR RULEMAKING PROCEDURE

Any person may petition the Environmental Quality Board (“EQB”) to initiate a rulemaking proceeding for the issuance, amendment, or repeal of a regulation administered and enforced by the Pennsylvania Department of Environmental Protection (“Department”). 71 P.S. § 510-20(h). The EQB has developed a policy for processing petitions for rulemaking. *See* 25 Pa. Code Chapter 23 (relating to Policy for Processing Petitions – Statement of Policy). Among other things, a petition for rulemaking must contain the following information: (1) the petitioner’s name, address, and telephone number; (2) a description of the action requested including suggested regulatory language if the petition requests the EQB to adopt or amend regulations; (3) the reason the petitioner is requesting the action from the EQB; and (4) the types of persons, businesses, and organizations likely to be impacted by the proposal. 25 Pa. Code § 23.1 (relating to Petitions).

When a petition for rulemaking is submitted, the Department examines the petition before it is submitted to the EQB to determine if it meets the following conditions: (1) the petition is complete as required by § 23.1; (2) the petition requests an action that can be taken by the EQB; and (3) the requested action does not conflict with Federal law. 25 Pa. Code § 23.2 (relating to Departmental review).

The Department then notifies the EQB and the petitioner of its determination. If the Department determines that the petition is not appropriate, the notification will state why and give the petitioner 30 days to modify the request. 25 Pa. Code § 23.3 (relating to Notification).

Where the Department determines that a petition is appropriate, the petitioner may make a five-minute presentation to the EQB and the Department will also make a recommendation as to whether to accept the petition. 25 Pa. Code § 23.4 (relating to Oral presentation).

The EQB may refuse to accept a petition if: (1) the EQB has within the past two years considered the issue addressed in the petition; (2) the action requested by the petitioner is currently under litigation; (3) the requested action is inappropriate for policy or regulatory considerations; or (4) the petition involves an issue previously considered by the EQB, and it does not contain information that is new or sufficiently different to warrant reconsideration of that issue. 25 Pa. Code § 23.5 (relating to Board determination).

If the EQB accepts the petition, a notice of acceptance will be published in the *Pennsylvania Bulletin* and a report will be prepared. 25 Pa. Code § 23.6 (relating to Notice of acceptance and Department report).

Once the report is completed, the Department will send a copy of it to the petitioner who may then submit to the Department a written response to the report within 30 days of the mailing of the report. 25 Pa. Code § 23.7 (relating to Response to report).

The Department will prepare a recommendation to the EQB based on the report and comments received from the petitioner. If regulatory amendments are recommended, the Department will develop a proposed rulemaking for EQB consideration within 6 months after the Department mailed its report to the petitioner. If regulatory amendments are not recommended, the Department will present its recommendation and basis to the EQB at the first meeting occurring at least 45 days after the Department mailed its report to the petitioner. 25 Pa. Code § 23.8 (relating to Board consideration).

B. DESCRIPTION OF THE DELAWARE RIVERKEEPER NETWORK PETITION

1. Procedural Description

On May 8, 2017, the EQB received a petition to promulgate a rule to set a drinking water maximum contaminant level (MCL) for perfluorooctanoic acid (PFOA) not to exceed 6 parts per trillion (ppt or nanograms per liter (ng/L)).

The petition was submitted by Tracy Carluccio, Deputy Director on behalf of the Delaware Riverkeeper Network (DRN), 925 Canal Street, Suite 3701, Bristol, PA 19007.

On June 22, 2017, the Department sent a letter to Ms. Carluccio that notified DRN that the petition met the established criteria in Section 23.2 of the EQB's petition policy. The letter also set August 15, 2017 as the date the EQB would consider the petition.

At the August 15, 2017 EQB meeting, Ms. Carluccio, on behalf of DRN, made a brief presentation as to why the EQB should accept the petition for further study. The Department recommended that the EQB accept the petition for further study. The EQB voted unanimously to accept the petition for further study.

On August 26, 2017, the Department published a notice of acceptance of the petition in the *Pennsylvania Bulletin*. See 47 Pa.B. 4986 (August 26, 2017).

2. Petition Description

The petition asserts that the EQB should promulgate a rule “to set an MCL for PFOA not to exceed 6 ppt.” In support of this petition, Ms. Carluccio, on behalf of DRN, cites PFOA monitoring data from the U.S. Environmental Protection Agency's (EPA) Unregulated Contaminant Monitoring Rule 3 (UCMR 3), 77 FR 26072 (May 2, 2012), information and data from several contamination sites in Bucks and Montgomery counties and other sites across the

state, and scientific studies and reports to support the conclusions that PFOA is in many public water systems in Pennsylvania, that the EPA's Health Advisory Level (HAL) of 70 ppt is ineffective at protecting public health, and that a more protective standard not to exceed 6 ppt should be set for PFOA to protect Pennsylvania citizens. *See* Petition, p. 15. *Please Note: No suggested regulatory language was provided by DRN.*

C. DEPARTMENT RESPONSE TO THE PETITION

1. PFOA

PFOA is a man-made chemical in a large family of chemicals called per- and poly-fluoroalkyl substances (PFAS), which are used to make products more resistant to stains, grease, and water. Major U.S. manufacturers voluntarily agreed to phase out production of PFOA by the end of 2015. However, exposure remains possible due to its widespread use and legacy in the environment from former manufacturing sites and sites where PFOA was used. PFOA has been found in both groundwater and surface water in Pennsylvania and across the country. PFOA is a concern because it readily dissolves in water, bioaccumulates, and is persistent in the environment.

The Department became aware of PFOA detections in public water systems as a result of EPA's UCMR 3 rule. The Federal Safe Drinking Water Act (Federal SDWA) requires EPA to establish criteria for a program to monitor not more than 30 unregulated contaminants every 5 years. The purpose of the rule is to gather occurrence data and refine analytical methods in order to inform a regulatory determination. Monitoring for 28 chemicals and two viruses was conducted by select public water systems (those serving greater than 10,000 people and a random selection of smaller systems) from January 2013 through December 2015. This included 175 public water systems in Pennsylvania. The UCMR rules are direct implementation rules with EPA as the lead agency and states providing assistance. Six (6) out of 175 public water systems had detections for PFOA:

- Warminster Municipal Authority
- Warrington Township Water & Sewer Department
- Horsham Water & Sewer Authority
- United Water -- Harrisburg (now Suez)

- Doylestown Township Municipal Authority
- Aqua PA – Bristol

2. Status of an MCL for PFOA

The Department is authorized to administer and enforce environmental regulations under the Pennsylvania Safe Drinking Water Act (Pennsylvania SDWA), 35 P.S. § 721.5. The EQB is authorized to adopt such rules and regulations, governing the provision of drinking water to the public, as it deems necessary for the implementation of the Pennsylvania SDWA, 35 P.S. § 721.4. Under the SDWA, an MCL is defined as the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

The Federal SDWA authorizes EPA to set national health-based standards to protect against contaminants that may be found in drinking water, 42 U.S.C. § 300g-1. Under the Federal SDWA, EPA promulgates primary MCLs, which are enforceable standards. EPA may also publish health advisories, which are non-enforceable and non-regulatory, for contaminants not subject to any national primary drinking water regulation. The Federal SDWA grants States primary enforcement responsibility (primacy) for public water systems when EPA determines that a State meets certain requirements, including adopting drinking water regulations that are no less stringent than the national primary drinking water regulations promulgated by EPA, 42 U.S.C. § 300g-2.

The Pennsylvania SDWA was enacted in 1984. The Pennsylvania SDWA imposed a mandatory duty upon the Department to adopt a public water supply program that includes certain program elements necessary to assume primacy under the Federal SDWA, including MCLs. The Department established a public water supply program that met the criteria and was granted primacy by EPA on November 30, 1984. 50 FR 342 (January 3, 1985).

The Pennsylvania SDWA provides direction regarding how MCLs are to be developed, 35 P.S. § 721.4(a). Under the Pennsylvania SDWA, the EQB *shall* adopt MCLs no less stringent than those promulgated under the Federal SDWA for all contaminants regulated under the national primary drinking water regulations. In addition, the EQB *may* adopt MCLs for any contaminant that an MCL has not been promulgated. EPA has not promulgated an MCL for PFOA under the national primary drinking water regulations. EPA has published a health advisory for PFOA, which established a combined lifetime HAL of 70 ppt for PFOA and perfluorooctanesulfonic acid (PFOS). 81 FR 33250 (May 25, 2016).

As referenced above, the Petition for Rulemaking was presented at the August 15, 2017 EQB meeting, at which the Department recommended that the EQB accept the petition for further evaluation to help inform whether additional measures are needed to protect public health. During the meeting, the Department stated that it had never in its history set an MCL and would require toxicology expertise to evaluate the rulemaking petition and prepare the report. It was expected that this would require independent work, research, and review. The Department provided updates to the EQB on June 19, 2018 and June 18, 2019, where the Department expressed the need for more time and provided a summary of the challenges and actions taken to secure the necessary expertise to evaluate the rulemaking petition and prepare this report. These and other actions taken by the Department to address PFOA are described below in Section 3.

3. Department actions to address PFOA

a. Actions to implement EPA's HAL as an interim measure

Following EPA's publication in May 2016 of the final HAL of 70 ppt for the combined concentration of PFOA and PFOS, the Department developed its strategy in July 2016 for

addressing PFOA and PFOS levels in public water systems that exceed the HAL. The Department's strategy is based on existing authority and long-standing policies and procedures for implementing HALs. The Department's authority to address unregulated contaminants includes the following:

- Pennsylvania SDWA, Section 10. Emergencies and imminent hazards.

(b) Department may order temporary emergency actions.—The department, upon receipt of information that a contaminant which is present in or is likely to enter a public water system may present an imminent and substantial risk to the health of persons, may take or order a public water system to take such temporary emergency actions as it deems necessary in order to protect the health of such persons. The department may assess the responsible water supplier with costs of temporary actions taken by the department, except where such action is in the normal course of its duties.

(c) Department may implement emergency measures.—The department shall be authorized to implement whatever measures may be necessary and appropriate to notify the public of an emergency or imminent hazard and to assess costs of notification on the responsible water supplier.

- Title 25 Pa. Code § 109.4. General requirements.

Public water suppliers shall:

- (1) Protect the water sources under the supplier's control.*
- (2) Provide treatment adequate to assure that the public health is protected.*
- (3) Provide and effectively operate and maintain public water system facilities.*

(4) Take whatever investigative or corrective action is necessary to assure that safe and potable water is continuously supplied to the users.

- Title 25 Pa. Code § 109.302. Special monitoring requirements.

(b) The Department may require a public water supplier to conduct additional monitoring to provide information on contamination of the water supply where a potential health hazard may exist in the water supply and monitoring required under § 109.301 may not be adequate to protect the public health.

(c) The Department may require a public water supplier to conduct special monitoring for an unregulated contaminant if the Department has reason to believe the contaminant is present in the public water system and creates a health risk to the users of the public water system.

The Department's long-standing risk management strategy for unregulated contaminants can be found in the following guidance: *Health Effects and Risk Management Guidance* ([383-0400-104](#)).

As per the guidance and long-standing protocols, when levels exceed a lifetime HAL, a Tier 2 situation has occurred. Water supplier follow-up actions may include:

- One-hour reporting of sample results to the Department (25 Pa. Code § 109.701(a)(3)) to ensure the Department is immediately alerted to the situation and can provide the necessary oversight regarding investigative and corrective actions
- Collection of confirmation samples (25 Pa. Code § 109.302(c))
- Issuance of Tier 2 Public Notification (PN) within 30 days of receipt of sample results exceeding the HAL (25 Pa. Code § 109.409)
- Quarterly monitoring at each entry point (EP) to the distribution system that exceeded the HAL (25 Pa. Code § 109.302(d)) to continue to track contaminant levels

- If levels continue to exceed the HAL, additional actions may be needed to reduce levels to below the HAL (taking contaminated sources off-line, blending, installing treatment, etc.) (25 Pa. Code § 109.4)

Taken together, these actions implemented EPA's HAL prior to submission of the petition, and served as an interim measure while the Department evaluated whether the HAL is sufficiently protective.

b. Toxicology services contract

At the time of submission of the petition, neither the Department nor the Pennsylvania Department of Health (DOH) employed a full-time toxicologist. The DOH had access to a retired toxicologist on a very limited basis (90 days per year) as an annuitant. The DOH recognized the need to hire one or more full time toxicologists and initiated the hiring process in late 2017. The DOH began interviewing candidates in January of 2018, but had difficulty filling the position for various reasons. The DOH was finally able to fill the toxicologist position in July of 2019.

While the DOH was working to fill the toxicologist position, the Department moved forward in early 2019 with plans to secure additional toxicology resources to assist in evaluating the petition. The Department developed a scope of work and began soliciting interest in a toxicology services contract in May of 2019. The Department reviewed the submitted quotes for services in July of 2019 and awarded the contract to Drexel University. The contract was finalized and executed in December of 2019. The contract was for a one-year period and included: (1) a review and analysis of work by other states and federal agencies that had developed PFAS action levels and MCLs; and (2) an independent review of the data, science, and studies, and development of recommended maximum contaminant level goals (MCLG) for select PFAS. MCLGs are non-

enforceable as they are developed solely based on health effects and do not take into consideration other factors, such as limitations with analytical methods and available treatment technologies and cost. MCLGs are the starting point for determining MCLs. Please refer to Section D.2. for more information about MCLGs and the process to set MCLs.

The scope of work included the review of several PFAS in addition to PFOA to provide the Department with more complete health effects information for additional PFAS of concern, to better position the Department to address co-occurring PFAS, to align with state sampling efforts, and to create efficiencies in evaluating multiple PFAS simultaneously. The additional PFAS include PFOS, perfluorobutane sulfonic acid (PFBS), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), and perfluoroheptanoic acid (PFHpA). The contract continued throughout 2020, with Drexel providing updates to Department and DOH staff every few months. The project experienced some delays due to the COVID-19 pandemic. The project deliverables were completed and submitted to the Department at the end of January 2021. The deliverables include the “Drexel PFAS Workbook”, which contains the review and analysis of work by other states and federal agencies, and the “MCLG Drinking Water Recommendations for PFAS in the Commonwealth of Pennsylvania” report. These documents are included in the Appendix to this report. Here is a brief summary of Drexel’s report.

Drexel’s MCLG Drinking Water Recommendations for PFAS Report: The report was developed by the Drexel PFAS Advisory Group (DPAG), which is a unique multidisciplinary team consisting of experts in the fields of medical toxicology, epidemiology, environmental toxicology, drinking water standards, and risk assessment. The DPAG evaluated existing and proposed standards from across the country. The DPAG was also charged with developing recommended

MCLGs. In order to do this, the DPAG reviewed the pertinent literature and work done across the country, and independently developed recommended MCLGs.

As mentioned previously and as further discussed in the report, MCLGs are non-enforceable as they are developed solely based on health effects and do not take into consideration other factors, such as limitations with analytical methods and available treatment technologies and cost. MCLGs are the starting point for determining MCLs. The DPAG's recommended MCLG for PFOA is 8 ppt. The DPAG conducted a literature search and review of the available evidence and recommendations from various agencies and developed an MCLG recommendation based on Non-Cancer endpoints. The report includes a discussion of the relevant inputs. The DPAG selected Koskela (2016) and Onishchenko (2011) as the critical studies. Table 1 below represents DPAG's development of the Non-Cancer MCLG for PFOA.

Table 1. The Drexel PFAS Advisory Group’s development of the Non-Cancer MCLG for PFOA

PFOA	
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 0.000825175 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. Figure 2

c. PFAS sampling plan

During this same time period, the Department announced it would begin sampling for PFAS at public water systems across the state. The PFAS Sampling Plan was developed in early 2019 and the final plan was posted to the Department's [PFAS webpage](#) in April of 2019.

The PFAS Sampling Plan is intended to prioritize sites for PFAS sampling and generate statewide occurrence data. Several factors were considered in developing the plan including:

- Location of potential sources of PFAS contamination (PSOC)
- Known locations of PFAS contamination
- Relative risk to users of nearby public water system sources of drinking water
- Selection of public water system sources to serve as a control group
- Available funds - \$500,000

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 public water system 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
- HSCA sites
- Superfund sites

- Manufacturing facilities:
 - Apparel and other products made from fabrics
 - Chemicals
 - Electronic and electrical equipment
 - Fabricated metal products
 - Paper products
 - Plastic products
 - Textile and leather products
 - Upholstered furniture

Based on the compilation of PSOCs, the information was used to select public water system sources that are located within ½ mile of a PSOC. The targeted sample pool included approximately 493 public water system sources. A second query was performed to identify baseline sources to serve as a control group. 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. Figure 1 is a map of the pool of public water system sources for sampling.

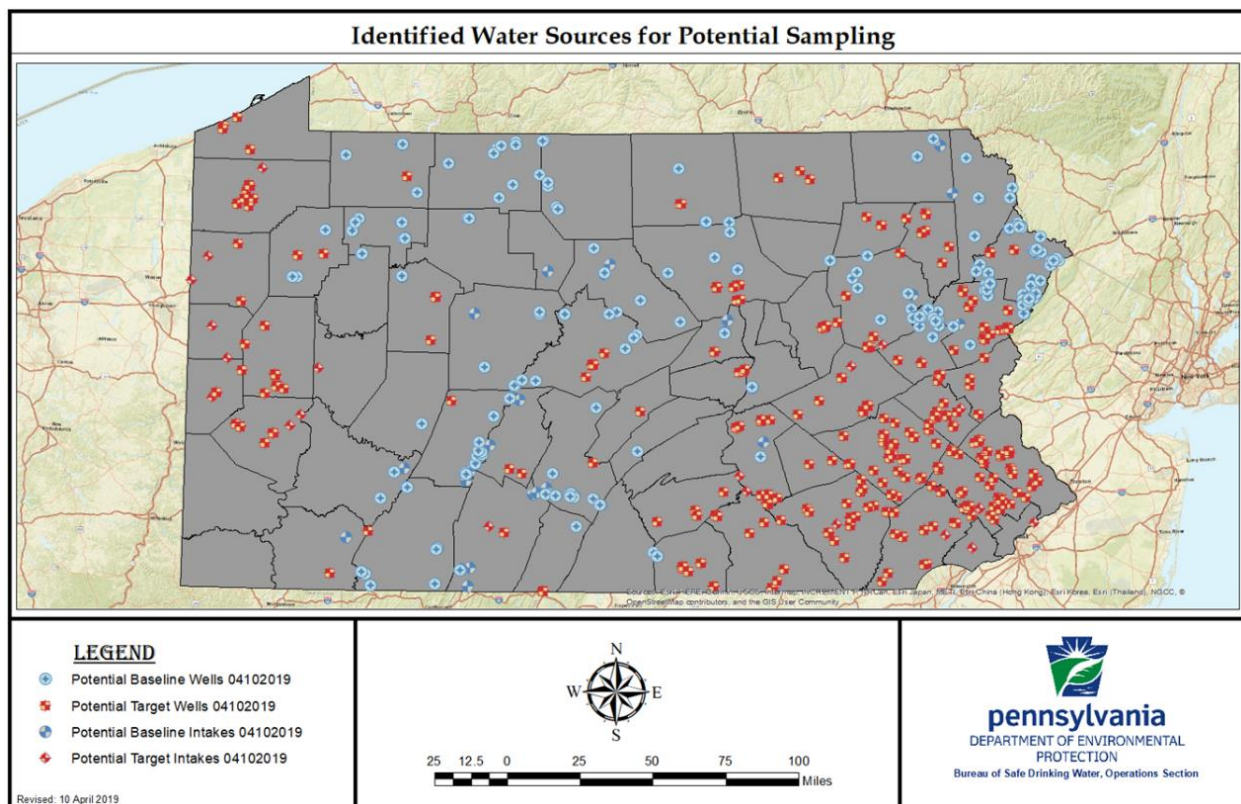


Figure 1. Public water system sources identified for sampling.

The Sampling Plan also includes maps of the various GIS data layers of PSOCs. Figure 2 is an example of the map of industrial sites.

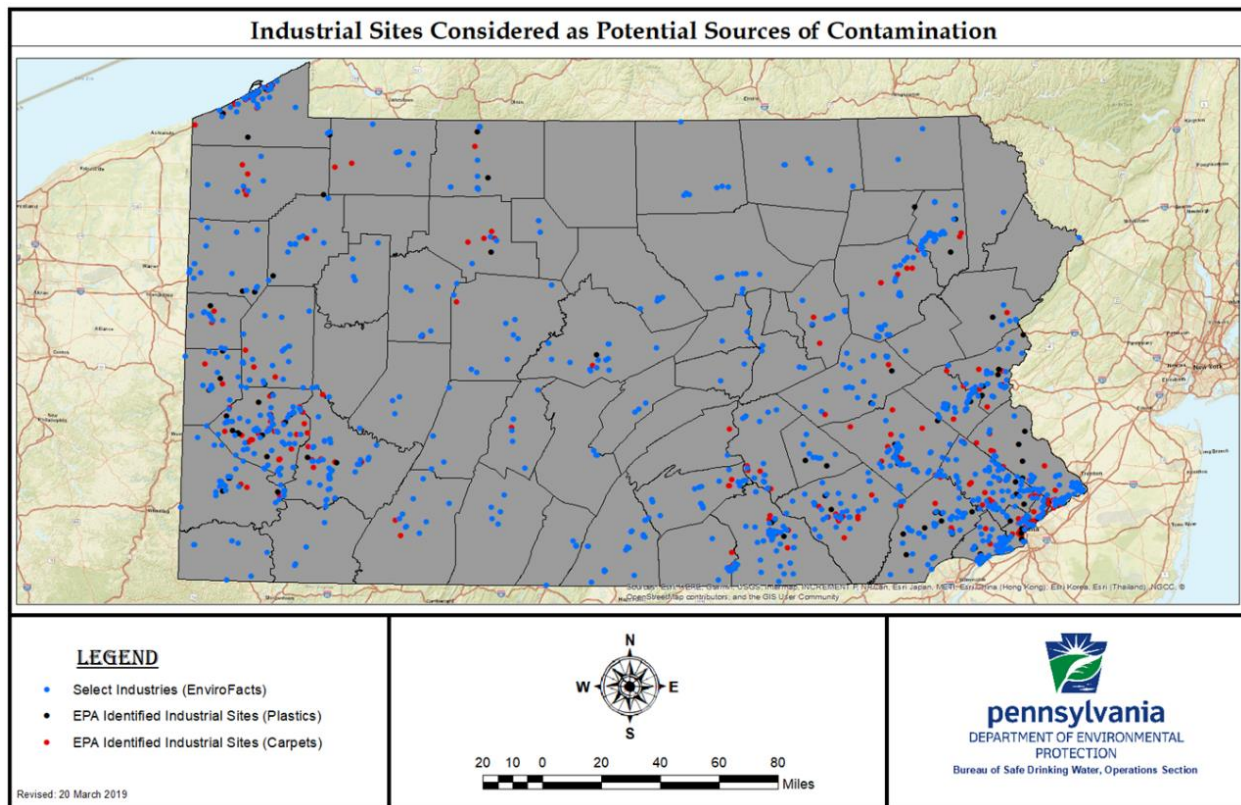


Figure 2. Potential sources of PFAS contamination (PSOC).

The final plan included the collection of samples from 360 targeted public water system sources and 40 baseline sources for a total of 400 samples. Sampling began in June of 2019 and included analysis of six (6) PFAS (PFOS, PFOA, PFNA, PFHxS, PFHpA, and PFBS) to be consistent with EPA’s UCMR 3. However, the Department had the opportunity in 2020 to expand the sampling to 18 PFAS by using EPA Method 537.1. Sampling was repeated for the public water systems that were sampled in 2019, and sampling continued for the remainder of the water systems throughout 2020. Note that sampling was halted in March of 2020 due to the pandemic and stay-at-home orders. Sampling resumed in August of 2020 under an approved return to work plan with

appropriate health and safety measures. The first release of 2020 sample results was posted to the Department’s PFAS webpage on March 12, 2021 and included 114 samples collected from February through September 2020. Here is the link: [Statewide Sampling Plan 2020 Results](#).

Sampling was completed by the end of March 2021. However, results for approximately 20 samples are still pending, and the review of quality assurance data for other recently reported results is ongoing. Table 2 presents a brief summary of the PFOA sample results to date (Note: The Department anticipates that all results will be received and confirmed in time to include a complete summary of PFOA samples in the final report presented to the EQB):

Table 2. Summary of PFOA sample results to date

	PFOA	Units
Average	3.2	ng/l
Median	ND	ng/l
Minimum	ND	ng/l
Maximum	59.6	ng/l
# Detects		
	40	
Average Detect Value	9.0	ng/l
Median Detect Value	6.5	ng/l
Min Detect Value	4.0	ng/l
Max Detect Value	59.6	ng/l

d. BOL PFAS analytical capabilities

The Department’s Bureau of Laboratories (BOL) also worked to purchase and install lab equipment to conduct PFAS testing. BOL was able to achieve proficiency for EPA Method 537.1 and received accreditation from New Jersey in December of 2019. BOL was instrumental in assisting with completing the work under the PFAS Sampling Plan.

D. DEPARTMENT ANALYSIS OF THE PETITION FOR RULEMAKING

1. The Petition Contends that an MCL should be set for PFOA not to exceed 6 ppt

DRN contends that EPA's HAL of 70 ppt has been shown to be ineffective at protecting the public health. Petition p. 2. DRN references two studies and reports to support this: the New Jersey Drinking Water Quality Institute (NJDWQI) report and the Cambridge Environmental Consulting (CEC) study. Petition p. 15.

According to DRN, the NJDWQI transmitted to the New Jersey Department of Environmental Protection its recommendation of an MCL for PFOA of 14 ppt. And while DRN referenced the NJDWQI work as supportive of its conclusion, it also stated that NJDWQI's recommendation may not be protective enough.

DRN also referenced a report prepared by CEC of an evaluation of the NJDWQI work. The CEC study disagreed with several of NJDWQI's findings and concluded that the proposed drinking water MCL for PFOA of 14 ppt is not adequately protective of all population segments. Instead, the CEC study recommended that the proposed MCL for PFOA should be lowered to 1 ppt, or alternatively, should be no higher than 6 ppt. Petition p. 19.

2. Recommendation

The Petition for Rulemaking recommends that the EQB should promulgate a rule to set an MCL for PFOA not to exceed 6 ppt. Petition p. 18. However, DRN fails to recognize the process that the Department must follow when setting an MCL. Specifically, the Department must consider other factors in addition to health effects when proposing an MCL as required by the Federal SDWA and Pennsylvania's Regulatory Review Act (RRA), 71 P.S. §§ 745.1—745.15.

Among other things, the Department must consider technical limitations such as available analytical methods and detection and reporting limits, treatability of the contaminant and available treatment technologies, and costs. 71 P.S. § 745.5b.

In addition to state requirements, the Department needs to consult the Federal SDWA and its implementing regulations. *See* 42 U.S.C. §§ 300f—300j-9; *see also* 40 CFR Parts 141, 142, and 143. For example, within the definitions in the Federal SDWA:

- “MCLG” means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons served would occur, and which allows an adequate margin of safety. MCLGs are non-enforceable health goals.
- “MCL” means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

EPA further explains the difference between MCLGs and MCLs and how the agency sets standards at the following link: www.epa.gov/sdwa/how-epa-regulates-drinking-water-contaminants. In establishing an MCL, the Department would also be informed by EPA’s procedure to establish an MCL as detailed below. It is important to understand the process of setting an MCL because similar criteria are required of the Department under the RRA. In addition, in order to retain primacy, the Department’s standard setting process would need to be 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 technological 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. This is defined by the Federal SDWA as the level that may be achieved with:

- use of the best available technology or treatment approaches
- other means which EPA finds are available (after examination for efficiency under field conditions, not solely under laboratory conditions)

As a part of the rule analysis, the Federal SDWA also 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 certain increased costs that will result from the proposed drinking water standard. In addition, EPA must consider:

- Incremental costs and benefits associated with the proposed and alternative MCL values
- The contaminant's adverse health effects on the general population and sensitive subpopulations
- Any increased health risk to the general population that may occur as a result of the new MCL
- Other relevant factors such as data quality and the nature of the risks

Where the benefits of a new MCL do not justify the costs, EPA may adjust the MCL for a particular class or group of systems to a level that maximizes health risk reduction benefits at a cost that is justified by the benefits.

The setting of an MCL is not as simple as just picking a number. MCL rules must include the necessary provisions to define applicability, the means to comply, and how compliance will be determined. For example, which water systems must comply with the MCL, what are the approved analytical methods, which treatment technologies are approved, how will systems monitor for the contaminant, and how will compliance be determined? All of these details are missing from the Petition for Rulemaking, so it is unclear how the recommended MCL would apply or be implemented.

In analyzing the Petition for Rulemaking, the Department has determined that DRN did not consider all of the relevant factors when recommending the MCL for PFOA not to exceed 6 ppt. As a result, it is recommended that the number advocated for in the Petition for Rulemaking not be the basis for a proposed rulemaking to establish an MCL for PFOA.

E. CONCLUSION

The Department has implemented a number of actions to address PFOA and protect public health. As a result of the work done by Drexel University on behalf of the Department and the occurrence data generated from the PFAS Sampling Plan, the Department believes that additional measures are needed to further protect the public. However, DRN did not include all of the relevant factors that the Department must consider when proposing an MCL. As a result, it is recommended that the number advocated for in the Petition for Rulemaking not be the basis for a proposed rulemaking to establish an MCL for PFOA. While the Department agrees that it should move forward with a proposed rulemaking to set an MCL for PFOA, it does not believe that DRN's proposed MCL was developed appropriately. The Department's proposed rulemaking should be based on available data, studies, and science, and should consider all factors such as health effects, technical limitations, and cost as required under the Federal SDWA and RRA. As a result, the Department recommends that the EQB move forward with a proposed rulemaking to establish an MCL for PFOA. The Department anticipates that it will have a proposed rulemaking developed by the fourth quarter of 2021.

F. APPENDIX

1. Maximum Contaminant Level Goal Drinking Water Recommendations for Per- and Polyfluoroalkyl Substances (PFAS) in the Commonwealth of Pennsylvania, The Drexel PFAS Advisory Board, January 2021.
2. Drexel PFAS Workbook, June 2020.