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May 30, 2023

The Honorable Michael S. Regan
Administrator
U.S. Environmental Protection Agency
EPA Docket Center
Mail Code 2822IT
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Subject: PFAS National Primary Drinking Water Regulation Rulemaking Comments - Docket ID No. EPA-HQ-OW-2022-0114

Dear Mr. Regan,

Thank you for the opportunity to review this proposed rulemaking for regulating per- and polyfluoroalkyl substances (PFAS). The Washington State Department of Health (DOH) has reviewed the proposed PFAS National Primary Drinking Water Regulation in Federal Register Volume 88, No. 60, dated March 29, 2023. This letter represents DOH's general and detailed comments on the proposed PFAS drinking water standards.

DOH strongly supports the proposed PFAS drinking water standards. This represents an important step in reducing exposure to PFAS to consumers of drinking water supplied by public water systems. Based upon our implementation experience of state PFAS rules, we recommend clarification, additional information, and guidance as discussed in the attached general and detailed comments document and include the following important areas of the rule:

1. Hazard Index methodology
2. Data challenges for compliance
3. Implementation challenges
4. Laboratory capability and capacity
5. Monitoring waivers

In the absence of adopted National Primary Drinking Water Standards for PFAS, DOH developed State Action Levels (SALs) for PFAS in drinking water. The Washington State Board of Health adopted SALs for 5 PFAS analytes on January 1, 2022[1]. DOH also developed informational materials, publications, fact sheets, and a PFAS dashboard to educate and communicate key information to drinking water consumers, local health departments, and public water systems.

[1] PFAS in Drinking Water—Monitoring and Analysis | Washington State Department of Health

We also needed to develop informational resources including PFAS exposure routes, clinician resources, home treatment devices and filter options, and accredited laboratories to perform drinking water sample analysis. Informational materials to address general questions and concerns about potential health effects of exposure to PFAS from the drinking water pathway were developed and posted on our website[2].

Under Washington State's rule, Group A Community, Non-Transient Non-Community and some Transient Non-Community water systems are required to monitor for PFAS beginning in January 2023 through December 2025. Systems must collect samples at the entry point to the distribution system and have them analyzed by EPA method 531.7 or 533 by a laboratory accredited for these analytes in Washington State. DOH sponsored a PFAS sampling project starting in early 2022 to allow public water systems to have their PFAS samples analyzed at no cost, and results satisfied state requirements that began in 2023. A total of 698 systems so far have actively participated in the PFAS monitoring project and approximately 1,136 system sources were sampled for PFAS.

A critical component to successful implementation of the proposed PFAS drinking water standards depends upon EPA providing additional clarification, guidance, and direction in several areas that could represent significant implementation challenges. It is essential these resources are developed and made available prior to adoption of the rule.

The attached document contains comments grouped into two sections: (1) general comments, and (2) specific comments to questions posed in the proposed regulation.

Sincerely,

Lauren Jenks
Assistant Secretary, Environmental Public Health
Washington State Department of Health

[2] PFAS in Drinking Water—Monitoring and Analysis | Washington State Department of Health

(1) General Comments

The Washington DOH strongly supports the EPA proposed PFAS drinking water standards. This is an important step in reducing exposure to PFAS to consumers of drinking water supplied by public water systems. There are areas within the proposed rule we would like to see clarification, additional information, further evaluation, and more specific guidance to help support successful implementation of the proposed PFAS rule at the state and local level.

- DOH requests that EPA provide clear definitions of all PFAS terms, including how they relate to levels of PFAS in drinking water.

- DOH agrees that tier 2 public notification is appropriate as it is consistent with the current framework for minimum contaminant levels (MCLs) for contaminants with chronic effects. DOH asks that EPA clarifies language for health effects above the MCL and differentiates between health advisory language addressing potential health effects and lower PFAS levels.

- DOH requests that EPA develop tools to aid with implementing the Hazard Index (HI) calculations for different state data systems. Multiple calculations for determining a HI result introduce a level of complexity for our data system. Also, as additional PFAS substances are evaluated and potentially regulated, it is important to consider how this will impact the current proposed HI calculations and allow for provision of additional PFAS to the proposed HI methodology.

- Please consider short- and long-term solutions for insufficient laboratory capability and capacity. This rule could cause laboratories to be overburdened when the rule becomes effective and initial monitoring requirements trigger quarterly monitoring.

- Costs to public water systems including funding treatment design and installation, operation and maintenance, availability of certified operators for implementing treatment options, and potential treatment supply chain product availability represent challenges especially to small water systems.

- While DOH agrees with EPA that source vulnerability should not allow a waiver for initial monitoring of PFAS, DOH supports the use of monitoring waivers if appropriate safeguards are in place for public water system sources. If both sampling history, source vulnerability, and geographic location indicate no historical PFAS detections, and there are no potential PFAS sources that could impact public water system sources. Allowing public water systems to apply for monitoring waivers is consistent with EPA's approach previously implemented for other drinking water contaminants.

- DOH supports using the EPA suggested alternative values of 2.0 ppt for PFOA and PFOS and 0.5 for the HI PFAS as the trigger level. This alternative trigger level is more consistent with trigger levels previously used in EPA's Standardized Monitoring Framework.

- DOH supports the ability of public water systems with sources reliably and consistently (R&C) below PFOA and PFOS trigger levels to qualify for reduced monitoring.

(2) Specific Comments

Page 18639. Executive Summary: EPA is proposing to use a Hazard Index (HI) approach to protecting public health from mixtures of four PFAS: PFHxS, HFPO-DA, PFNA and PFBS because of their known and additive toxic effects and occurrence and likely co-occurrence in drinking water.

- Effective implementation and data system support is needed to implement the HI.

Page 18667. Paragraph 2. Measuring PFOA and PFOS results below the PQLs may not be achievable from all laboratories and may not have the same precision as higher-level measurements, nor does EPA believe it is appropriate to make potentially costly compliance decisions based on such lower-level measurements". *Nonetheless, the ability to know that PFOA and PFOS may be present within a certain range at these low concentrations (i.e., below the PQLs) can be used to inform decisions for already installed treatment (e.g., a utility can evaluate when break though is most likely to occur or is imminent) and to judge appropriate monitoring frequency".*

- Not every laboratory applied to participate in UCMR5. Assuming 1.3 ppt is an achievable target nationwide may not be appropriate. Using an analytical result below the PQL only indicates that PFAS is present. Very little, if anything, is known about the actual concentration of PFAS in this instance. Relying upon low concentrations below the PQL for ongoing monitoring, reduced monitoring or compliance monitoring is not appropriate. Using a trigger level greater than or equal to 2.0 ppt for PFOS and PFOA would be preferred, as well as using 0.5 for the hazard index. This will allow laboratories flexibility, balance variability in the measurement, and allow for reduced monitoring for systems with sample results at or below 50% of the MCL.

Page 18683. IX. Monitoring and Compliance Requirements. E. Can primacy agencies grant monitoring waivers?

- DOH supports allowing for provisions for systems to apply for monitoring waivers based on source vulnerability combined with sampling results that show PFAS below trigger levels or non-detects. One sample per source is appropriate for source(s) in low-risk areas with a documented history of no PFAS detections.

Page 18729. Section III – Regulatory Determinations for Additional PFAS.

EPA requests comment on its preliminary regulatory determination for PFHxS and its evaluation of the statutory criteria that supports the finding. EPA also requests comment on if there are additional data or studies EPA should consider that support or do not support the Agency's preliminary regulatory determination for PFHxS, including additional health information and occurrence data.

- DOH supports the regulatory determination to regulate PFHxS. This PFAS co-occurs at very high levels with PFOS in drinking water supplies in Washington State. Impacted areas are mostly near fire training areas and military bases that used Aqueous Fire Fighting Foam (AFFF). The multistate ATSDR PFAS Exposure Assessment showed that a community in Washington State near Fairchild Airforce base had higher average serum levels of PFHxS than seven other sites included in the study. After PFOA and PFOS, PFHxS is the most common PFAS to occur above our state action levels in drinking water.

EPA requests comments on its preliminary regulatory determination for PFNA and its evaluation of the statutory criteria that support the finding. EPA also requests comment on if there are additional data or studies EPA should consider that support or do not support the Agency's preliminary regulatory determination for PFNA, including additional health information and occurrence data.

- DOH supports the regulatory determination to regulate PFNA and PFBS. Both occur in Washington State drinking water supplies. PFNA has been occasionally found at high levels in our state around firefighting facilities.

EPA requests comment on its preliminary regulatory determination for PFBS and its evaluation of the statutory criteria that supports the finding. EPA also requests comment on if there are additional data or studies EPA should consider that support or does not support the Agency's preliminary regulatory determination for PFBS, including additional health information and occurrence data.

- DOH supports the regulatory determination to regulate PFNA and PFBS. Both occur in Washington State drinking water supplies. PFNA has been occasionally found at high levels in our state around firefighting facilities.

EPA requests comment on whether there are other peer-reviewed health or toxicity assessments for other PFAS the Agency should consider as a part of this action.

- PFBA has a completed toxicity value. EPA should consider adding it to the HI approach or as an individual MCL. This action should consider whether sufficient laboratory capacity is available since establishing an MCL for PFBA would force water systems to use test method 533. Method 531.7 does not measure PFBA.

Page 18729. Section V – Maximum Contaminant Level Goal.

EPA requests comment on the derivation of the proposed MCLG for PFOA and its determination that PFOA is Likely to be Carcinogenic to Humans and whether the proposed MCLG is set at the level at which there are no adverse effects to the health of persons, and which provides an adequate margin of safety. EPA is also seeking comment on its assessment of the noncancer effects associated with exposure to PFOA and the toxicity values described in the support document on the proposed MCLG for PFOA.

- DOH appreciates that EPA updated the literature review and added a systematic review of study quality for their determination of the PFOA and PFOS MCLGs. DOH also appreciate that EPA added the modified Verner model to account for transplacental and trans-lactational exposure in developing children.

EPA requests comment on the derivation of the proposed MCLG for PFOS, its determination that PFOS is likely to be Carcinogenic to Humans and whether the proposed MCLG is set at the level at which there are no adverse effects to the health of persons, and which provides an adequate margin of safety. EPA is also seeking comment on its assessment of the noncancer effects associated with exposure to PFOS and the toxicity values described in the support document on the proposed MCLG for PFOS.

- DOH appreciates that EPA updated the literature review and added a systematic review of study quality for their determination of the PFOA and PFOS MCLGs. DOH also appreciate that EPA

added the modified Verner model to account for transplacental and trans-lactational exposure in developing children.

- While there is solid evidence that PFOS is a rodent carcinogen, there is currently only weak and inconsistent epidemiological evidence that PFOS has caused cancer in humans. EPA classification of PFOS as a likely human carcinogen is reasonably supported by mechanistic data showing PFOS to have several characteristics of carcinogens, structural similarity to PFOA, and functional similarity to PFOA on other health endpoints.

EPA requests comment on the general HI approach for the mixture of four PFAS.

- DOH supports the HI approach.

EPA requests comments on the merits and drawbacks of the target- specific HI or RPF approach.

- DOH supports the HI approach.

Page 18730. Section V – Maximum Contaminant Level Goal.

EPA requests comment on significant figure use when calculating both the HI MCLG and the MCL. EPA has set the HI MCLG and MCL using two significant figures (i.e., 1.0). EPA requests comment on the proposed use of two significant figures for the MCLG when considering underlying health information and for the MCL when considering the precision of the analytical methods.

- DOH supports using all digits of precision in calculations, but rounding to two significant figures for the final reported value. Using the significant figure only changes how we round before an HI MCL is reached. A system would exceed the MCL with a RAA of 1.05 instead of 1.5 ppt.

EPA requests comment on the derivation of the HBWCs for each of the four PFAS considered as part of the HI.

PFBS

- DOH concurs with the RfD, but request EPA consider infants when selecting the drinking water intake rate for the PFBS Health-Based Water Concentration. Infants should be considered a sensitive life stage since neonatal thyroid function also supports infant growth and neurodevelopment.[3] [4] [5] Thyroid tissue stores of T4 are low in newborn children making them less able than adults to compensate for reductions in T4.[6] Washington State included infants as a sensitive group for this endpoint and used the 95th percentile water intake rates for infants (birth to <1 year old) to protect the developing child (see Table below). Michigan and California risk assessors also used infant drinking water intake rates to derive their state regulations for PFBS in drinking water based on this same endpoint.

[3] Miller, M.D., et al., *Thyroid-disrupting chemicals: interpreting upstream biomarkers of adverse outcomes*. Environ Health Perspect, 2009. 117(7): p. 1033-41.
[4] Coperchini, F., et al., *Thyroid Disrupting Effects of Old and New Generation PFAS*. 2021. 11(1077). 228.
[5] Min, H., et al., *Maternal Hypothyroxinemia-Induced Neurodevelopmental Impairments in the Progeny*. Mol Neurobiol, 2016. 53(3): p. 1613-1624.
[6] Van den Hove, M.F., et al., *Hormone synthesis and storage in the thyroid of human preterm and term newborns: effect of thyroxine treatment*. Biochimie, 1999. 81(5): p. 563-70.

Table 10: PFBS SAL calculations for four potentially sensitive populations/life stages

Sensitive population	RfD[a] (mg/kg-day)	Drinking water Intake rate (L/kg-day)[b]	Relative Source contribution or RSC (%)	Candidate SALs (mg/L)
Infants (<1 year)	0.0003	0.174 (95th)	20	0.000345
Pregnant women	0.0003	0.038 (95th)	20	0.001579
Lactating women	0.0003	0.047 (95th)	20	0.001277
Women of reproductive age (15-44 y/o)	0.0003	0.035 (90th)	20	0.001714

[a]*RfD = chronic oral Reference Dose for PFBS (EPA 2021).*

[b]*Intake rates from 2019 EPA Exposure Factors Handbook Chapter 3 (based on consumers only population and two-day average consumption).*

PFHxS

- WA concurred with state health risk assessors in Michigan in selecting Minnesota Department of Health's RfD of 9.7 ng/kg-day for PFHxS as the base for our state action on PFHxS. We think this is a better basis for the HBWC than the ATSDR MRL.

- The Minnesota Department of Health derived their RfD from a study by the National Toxicology Program (NTP) 2019. Specifically, a 28-day oral gavage study in adult male and female Harlan Sprague Dawley rats. The study measured growth and gross behavior, serum hormone levels, and evaluated all organs for gross and histopathological findings at the end of 28 days. Serum measurements of PFHxS were collected for assessment of internal dose at the end of the experiment. There was a dose-dependent decrease in serum thyroid hormone levels in both sexes with more marked reductions in T3, fT4 and tT4 in male[7].

- These study results were supported by *Ramhøj et al.* 2018 experiments in pregnant Wistar rats. Oral administration of PFHxS produced marked, dose-dependent reductions in serum total T4 in pregnant and lactating dams and in pups[8].

- WA also considered infants a sensitive group for thyroid hormone reduction (see reasons above under PFBS) and we encourage EPA to pair this lower RfD with a translactational exposure model that accounts for higher exposures of breastfed infants. In our model based on Goeden et al. 2019, infants had more than twice the PFHxS serum concentration of their mothers after breast-feeding exclusively for 6 months and then tapering their breastmilk consumption while introducing foods over the following 6 months.

PFNA

- Consider amending the ATSDR MRL to account for a more recent estimate of serum half-life published after the ATSDR MRL: Yu, C.H., et al., *Biomonitoring: A tool to assess PFNA body burdens and evaluate the effectiveness of drinking water intervention for communities in New Jersey*, Int J Hyg Environ Health, 2021. 235: p. 113757. Yu et al. 2021 published a three-year biomonitoring study in a New Jersey community exposed to elevated PFNA in their drinking water. The geometric mean of the study group was five times higher than the mean PFNA levels

[7] *National Toxicology Program, NTP Technical Report on the Toxicity Studies of Perfluoroalkyl Sulfonates (Perfluorobutane Sulfonic Acid, Perfluorohexane Sulfonate Potassium Salt, and Perfluorooctane Sulfonic Acid) Administered by Gavage to Sprague Dawley Rats 2019*, U.S. Department of Health and Human Services: Research Triangle Park, NC

[8] Ramhøj, L., et al., *Perfluorohexane Sulfonate (PFHxS) and a Mixture of Endocrine Disrupters Reduce Thyroxine Levels and Cause Antiandrogenic Effects in* Rats. Toxicol Sci, 2018. 163(2): p. 579-591.

in U.S. adults as measured in 2015-2016 by the CDC. The study collected three blood samples one year apart in 99 participants from 2017 to 2020. Residents ranged in age between 20 – 74 years old and were 68 percent female. Half-life estimates of PFNA in serum were 3.52 years for the 68 most highly exposed participants. DOH suggest that EPA consider the PFNA serum half-life in the more highly exposed members to minimize bias from ongoing background exposure to PFNA. Modifying the ATSDR MRL with the new half-life estimate of 3.52 years (1,285 days) from Yu et al. 2021, would result in:

- MRL (mg/kg-day) = POD (mg/L) x DAF (L/Kg-day) ÷ UF
  - POD = 6.8 mg/L PFNA in serum
  - DAF = Vd x (Ln(2)/T1/2) = 0.2 L/kg x (Ln(2)/1,285 days) =1.08 x 10-4 L/kg – day.
  - UF = 300
- MRL = = 6.8 mg/L x 1.08 x 10-4 L/kg – day ÷ 300 = 2.45 x10-6 mg/kg-day (or 2.5 ng/kg-day)

Page 18730. EPA requests comment on its proposed determination to set MCLs at 4.0 ppt for PFOA and PFOS and whether 4.0 ppt is the lowest PQL that can be achieved by laboratories nationwide.

- DOH cannot provide meaningful comment without reviewing the MDL/MRL studies used to determine the PQL.

Page 18730. Section VI – Maximum Contaminant Level

Page 18730. EPA requests comment on the underlying assumptions that sufficient laboratory capacity will be available with the proposed MCLs; that demand will be sufficiently distributed during rule implementation to allow for laboratory capacity; and on the cost estimates related to these assumptions.

- The 4.0 ng/L MCL/PQL should be high enough not to affect laboratory capacity. These proposed monitoring requirements and those already implemented by some states have helped create a new market for laboratories. In the proposed regulations, the overwhelming majority of UCMR 5 laboratory applicants had limits of quantitation (LOQ's) that were lower than 4.0 ng/L.

- The volume of samples required for quarterly monitoring may create laboratory capacity issues even as more laboratories are accredited for PFAS analysis. The preliminary testing in Washington has shown approximately 20 percent of sources have detections above 5 ppt. Using 1.3 ppt as the trigger will likely increase the number of water systems with detections required to monitor quarterly with no reduced monitoring options. Laboratories are already experiencing problems hiring and maintaining qualified staff.

Page 18730. EPA requests comment on its proposal of using an HI approach for PFHxS, HFPO–DA, PFNA, and PFBS, including whether it can be clearly implemented and achieves the goal of protecting against dose additive noncancer health effects.

- The HI approach is reasonable for regulating PFAS with additive toxicity. This will be challenging to implement as proposed due to the tracking of multiple compounds and automating this into existing data systems. DOH has limited IT resources to prepare for migration to SDWIS state. Timing will be a key consideration for successful implementation of this area of the

proposed PFAS rule. As written, this approach will have a considerable resource impact on compliance activities.

Page 18730. EPA requests comment on its proposed decision to establish stand- alone MCLs for PFOA and PFOS in lieu of including them in the HI approach.

- DOH supports this approach to compliance in the PFAS rule. Establishing MCLs is consistent with the current nationwide Standard Monitoring Framework implementation.

- EPA has set the MCLs for PFOS and PFOA at what the Agency determined are the PQLs for these compounds. Given that, it doesn't make sense to consider an approach where lower concentrations would contribute to the HI of a mixture.

Page 18730. EPA requests comment on whether establishing a traditional MCLG and MCL for PFHxS, HFPO–DA, PFNA, and PFBS instead of, or in addition to, the HI approach would change public health protection, improve clarity of the rule, or change costs.

- DOH supports using both the traditional and HI approach for MCLs.

- These chemicals frequently occur in mixtures. When two or more are present, the HI approach effectively lowers the acceptable limit for each. Since PFAS health impacts are likely additive, a combined standard is appropriate.

Page 18730. Section VII – Occurrence

Page 18730. EPA requests comment on the number of systems estimated to solely exceed the HI (but not the PFOA or PFOS MCLs) according to the approach outlined in USEPA (2023e).

- Based on an initial and limited review of Washington water systems, a very small percentage of systems exceed the HI but not the PFOA or PFOS MCLs. Most systems with high levels of the other PFAS also have PFOA or PFOS as the drivers.

Page 18730. Section IX – Monitoring and Compliance Requirements.

EPA requests comment on the proposed monitoring flexibility for groundwater systems serving 10,000 or fewer to only collect two samples at each EPTDS to satisfy initial monitoring requirements.

- In Washington State, there are more detections in groundwater than in surface water. Detections are generally consistent over time with little seasonal variability.

EPA requests comment on monitoring-related flexibilities that should be considered to further reduce burden while also maintaining public health protection including a rule trigger level at different values than the currently proposed values of 1.3 ppt for PFOA and PFOS and 0.33 for the HI PFAS (PFHxS, HFPO–DA, PFNA, and PFBS), specifically alternative values of 2.0 ppt for PFOA and PFOS and 0.50 for the HI PFAS. EPA also requests comments on other monitoring flexibilities identified by commenters.

- A trigger for PFOA and PFOS of 2 ppt would place less burden on labs and PWSs while still allowing for public health protection. Since all results below the PQL for the HI PFAS are calculated as zero, it might make sense to use 0.5 as the trigger. Increasing these triggers would allow for some reduction in monitoring for sources that don't exceed the slightly higher trigger but are below the MCL. To ensure public health protection, EPA could also assign two years of annual monitoring or an R&C annual for sources with detections consistently below the MCL instead of having them remain on quarterly.

EPA requests comment on the proposed allowance of a water system to potentially have each EPTDS on a different compliance monitoring schedule based on specific entry point sampling results (i.e., some EPTDS being sampled quarterly and other EPTDS sampled only once or twice during each three-year compliance period), or if compliance monitoring frequency should be consistent across all the system's sampling points.

- While PFAS contaminant plumes can be extensive, they likely follow groundwater flow directions in such a way that timing monitoring in sources in distinctly different areas would be more burdensome than helpful. This is especially true for water systems where sources are spread across a wide area. For those systems which have been collecting quarterly samples there have not been significant differences in the concentrations temporally. Impacts were identified to surrounding/downgradient source concentrations when a large producing source was taken offline due to high PFAS detections while the PWS installed treatment. Systems assigned quarterly monitoring will likely collect samples at sources in a similar area at the same time to save on labor and shipping costs. DOH have also had multiple issues with lab analysis, which has required repeat samples be taken from sources; this could negate any timing attempts. This level of timing would only serve to make the rule more complex. Please ensure states continue to have the authority to increase monitoring as needed.

EPA requests comments on whether water systems should be permitted to apply to the primacy agency for monitoring waivers. Specifically, EPA is requesting comment on the allowance of monitoring waivers of up to nine years if after at least one year of sampling results are below the proposed rule trigger level. Similarly, EPA also requests comment on whether allowance of monitoring waivers of up to nine years should be permitted based on previously acquired monitoring data results that are below the proposed rule trigger level. Additionally, EPA is also requesting comment on the identification of possible alternatives to traditional vulnerability assessments that should be considered to identify systems as low risk and potentially eligible for monitoring waivers.

- EPA and states have provided waiver opportunities for other contaminants as well and still provide public health protection. States can develop a waiver model that allows sources that are less vulnerable and susceptible, and have non-detect PFAS, can reduce monitoring to a 6 or 9-year schedule while still providing public health protection. Our current waiver model allows us to rescind waivers if conditions change. Please allow states the flexibility to develop and provide waivers.

EPA requests comment on its proposal to allow the use of previously acquired monitoring data to satisfy initial monitoring requirements including the data collection timeframe requirements and if other QA requirements should be considered.

- DOH supports the use of previously acquired monitoring data to satisfy initial monitoring requirements. In Washington State, approximately 698 public water systems participated in a PFAS sampling pilot project in 2022 and approximately 1,136 sources were sampled for PFAS. Under Washington's current regulation all community and non-transient non-communities must complete initial PFAS monitoring by December 31, 2025.

EPA requests comment on whether EPA should consider an alternative approach to what is currently proposed when calculating compliance with proposed MCLs. Specifically, in the case where a regulated PFAS is detected but below its proposed PQL, rather than using zero for the measurement value of the specific PFAS in the running annual average compliance calculation, that the proposed rule trigger levels (1.3 ppt for PFOA and PFOS and 0.33 of each of the HI PFAS PQLs (i.e., PFHxS=1.0, HFPO–DA=1.7, PFNA=1.3, and PFBS=1.0)) be used as the values in calculating the running annual average for compliance purposes.

- DOH is concerned with the concept of using estimated data to impact so significantly a utilities action and a laboratories ability to analyze at the proposed triggers. If a PFAS is detected above the MDL but below the PQL, then it would bias the running annual average downwards to tally as a zero. It appears that anything below the PQL is considered as an estimate, but that depends on where the laboratory MDL and LOQ are in relation the PQL. It is unclear whether laboratories can analyze with accuracy or precision at the triggers set in the proposed rule, especially for PFHxS and PFBS.

Page 18730. Section IX-Monitoring and Compliance Requirements Continued.

EPA requests comment on other monitoring related considerations including laboratory capacity and QA/ QC of drinking water sampling.

- Increased emphasis on meeting all method required QC would help ensure consistent data quality and aid state Primacy agencies.

- Given turnaround times for laboratories and lack of certified laboratories in Washington state, we are concerned that laboratory capacity may not match demand after implementation of this rule.

EPA seeks comment on the Agency's proposed initial monitoring timeframe, particularly for NTNCWS or all systems serving 3,300 or fewer.

- The initial monitoring of 2 samples in 90 days is acceptable.

- DOH has time and cost concerns over the impact from increased quarterly monitoring for detected results below the PQL, and the challenge in computing HI for PWS that have detections of other PFAS with MCLs.

Page 18731. Section X – Safe Drinking Water Right to Know

EPA requests comment on its proposal to designate violations of the proposed MCLs as Tier 2.

- This is consistent with how EPA addresses 2,3,7,8-TCDD (dioxin), which is also a bioaccumulating contaminant that that poses immune, developmental and cancer risks.

EPA requests comment on what may be needed for water systems to effectively communicate information about the PFAS NPDWR to the public.

- Please provide guidance for electronic delivery for public notice (PN), and include different methods of communication in consideration of cost reductions for regular PN. Alternating methods of communication in addition to providing language translation allows for a broader reach to diverse audiences. Electronic delivery is allowed for CCRs, for which EPA has provided guidelines, but not for tier 2 PN.

- Be transparent in communication related to what is known and understood. This allows public water systems to communicate to their consumers with facts and resources when a PN is issued. DOH developed a historical PFAS timeline highlighting milestones from when PFAS substances were invented in 1938-present.[9] Informational materials to address general questions and concerns about potential health effects of exposure to PFAS via the drinking water pathway were developed and made available on our website.[10]

Page 18731. Section XI – Treatment Technologies

This section combines treatment technologies with generation and disposal of PFAS waste. Recommend further separation of these two topics to further clarify and address each topic in greater detail.

- DOH does not have enough data to provide meaningful comments on treatment technologies for PFAS in drinking water.

EPA requests comment on the estimates for disposing of drinking water treatment residuals or regenerating drinking water treatment media including assumptions related to the transport distance to disposal sites and other costs that arise out of disposal of PFAS contaminated drinking water treatment residuals.

- This response was prepared by the Washington State Department of Ecology. In Washington State, water treatment residuals might be designated as Washington State Only Dangerous Waste if the concentration of persistent PFAS compounds exceeds state only designation criteria. If it does, then that waste stream must be diverted to a Subtitle C landfill designed to manage PFAS waste. All subtitle C landfills are out of state (closest are in Idaho and Oregon), making transportation and treatment costs high.

- This response was prepared by the Washington State Department of Ecology. PFAS waste disposal in Washington State is governed by Washington Administrative Code 173-303. Appropriate disposal of PFAS waste generated from removal from drinking water depends upon the specific waste category designation. Thresholds have been established by the Washington State Department of Ecology that designate appropriate disposal approaches and locations depending upon concentrations of PFAS within environmental media.

[5] 334-488 PFAS Timeline (wa.gov)
[6] Local Health Jurisdiction PFAS Resources | Washington State Department of Health

EPA requests comments on the availability of facilities to dispose of or regenerate drinking water treatment media that contains PFAS. EPA requests comment on whether there will be sufficient capacity to address the increased demand for disposal of drinking water treatment residuals or to regenerate media for reuse by drinking water treatment facilities.

- This response was prepared by the Washington State Department of Ecology. Currently, waste disposal facilities are not engineered to manage PFAS waste streams. There are questions around how effective and appropriate disposal methods are in either destroying PFAS or storing it indefinitely in a landfill. Although most landfills take this waste currently (e.g., there are a lot of available landfills to send this waste too), that is only because it is not regulated.

- This response was prepared by the Washington State Department of Ecology. Washington State Department of Ecology is currently developing an EIS to research and determine the least impactful disposal method. A draft EIS is due later the summer of 2023.

EPA requests comment on the impacts that the disposal of PFAS contaminated treatment residuals may have in communities adjacent to the disposal facilities.

- This response was prepared by the Washington State Department of Ecology. With regards to Subtitle D landfills, impacts to adjacent communities would be minor as long as non-dangerous PFAS waste goes to a modern-day lined landfill. Many solid waste landfills capture leachate in lined leachate lagoons that do not discharge. Many also discharge to wastewater treatment plants, which is where any impact would occur in terms of their discharge of treated wastewater or management of biosolids.

- This response was prepared by the Washington State Department of Ecology. Regarding disposal options for high concentration PFAS dangerous waste, there are unknowns on how they could affect adjacent communities. Permitted Subtitle C landfills are preferred if they are designed to manage PFAS. Incineration has shown to destroy the PFAS molecule at prescribed temperature and residence time, but Ecology has not come across environmental data to show no PFAS is being emitted. PFAS would also likely outlive the life of a Subtitle C landfill in the future, so we hesitate to recommend this option for high concentration PFAS wastes because we do not fully understand the effect it could have on adjacent communities.

Page 18731. Section XIII – HRRCA

EPA requests comment generally on its estimation of sampling costs. The Agency is also specifically requesting comment on the ability of systems to demonstrate they are reliably and consistently below 1.3 ppt for PFOA and PFOS and 0.33 ppt for PFAS regulated by the HI to qualify for reduced monitoring.

- EPAs use of trigger levels set at 1/3 the PQL increase the estimated cost of sampling while increasing variability in sampling data. Setting the trigger at ½ the PQL would increase the number of laboratories that can meet QA/QC levels bringing down the cost of sampling and provide better data for decision making. Washington supports using the EPA's suggested alternative trigger level of ½ the PQL. Currently laboratories are charging for both the PWS sample, and if there are detections, for testing the field reagent blank, effectively doubling the cost for PWSs with detections. It is unclear if EPA considered this in their cost estimates.

EPA requests comment on the costs associated with the storage, transportation and underground injection of the brine concentrate residuals from the RO/NF process.

- This response was prepared by the Washington State Department of Ecology. Ecology does not have readily available cost data for storage, transport and underground injection of brine concentrate residuals from the RO/NF process.

EPA requests comment on the discussion of estimated PN costs provided in the proposed rule.

- Currently, PN can run from $50,000 – 100,000 per quarter for a larger PWS. It would be beneficial if EPA published some options for electronic delivery methods for tier 2 PN. Consider that different types of communication methods may reach different audiences. Such options could require a balance of methods to both save on costs for repeat PN while attempting to ensure more customers maintain awareness.

- Environmental Justice should be considered and addressed using language translation and accessibility tools in all PN resources.

EPA requests comment on whether factors such as anticipated Federal funding, the structure of PWSs relative to private enterprises, or the nature of the public health benefits should be further explored in the final rule analysis, including as it relates to the estimated range of impacts under the applied discount rates.

- Increased tracking for HI MCL calculations, increased compliance, and increased planning and project reviews for potentially 20% of PWSs will require significant resources to successfully implement. It is unclear if these costs were considered in the cost estimates of the PFAS rule.

Page 18732. Section XV – Statutory and Executive Order Reviews

EPA requests comment on all aspects of its EJ analysis, particularly its choice of comparison groups to determine potential demographic disparities in anticipated PFAS exposure and its use of thresholds against which to examine anticipated exposures. For more information, please see section XV.J of this preamble.

Page 18735 says this EJ evaluation was "based on availability of PFAS occurrence data."

- PFAS occurrence data is still fairly limited since public water systems are just now discovering their sources are contaminated with PFAS. Data EPA is using is likely biased, highlighting systems able to test for PFAS and have access to the right information and resources. EPA should consider re-evaluating the EJ impact once more PFAS occurrence data is available.

- More investigation is needed into the smaller, lower income systems that have not yet discovered PFAS contamination. These systems may experience detections of PFAS but may not have the means to install, monitor and maintain ongoing treatment.

- PFAS treatment is expensive, and installation will likely involve pilot studies, which are essential to understanding the effectiveness of treatment, but will increase overall costs. BIL funding is available, but there are barriers to this funding.

- This rule does not explicitly consider costs associated with long-term operation and maintenance of treatment. Promising treatment methods require continual monitoring to assess the effectiveness of PFAS removal. This will potentially require additional operators and frequent replacement of filter media, which will be costly.

- Drinking Water Operators with appropriate and adequate training and certification are challenging to locate and maintain for smaller water systems as there is a qualified labor shortage within the water industry. Therefore, the cost of keeping treatment in perpetuity represents a considerable cost to water delivery.

New treatment and source relocation are potential responses to the new PFAS rule, but the rule must consider cumulative impacts of multiple forms of drinking water contaminants. Cost and compliance with this rule must be structured to ensure compliance for PFAS without interfering with other contaminant treatment or compliance.

Page 18752, Table 2 to Paragraph (b)(2)(i)

- It is unclear what "except as otherwise provided by the State" means in the context of compliance monitoring and Table 2 to Paragraph (b)(2)(i). Does this mean States have the option to devise a different monitoring scheme? Please clarify.

- Using PFAS sample results below the PQL is not appropriate for calculating a running annual average. This approach seems to conflict with Table 1 to Paragraph (f)(1)(iii).

Page 18752, 141.XX Monitoring Requirements (iv)

- States may delete results of obvious sampling errors from this calculation. DOH requests the ability to delete sample results that have obvious laboratory errors.