The State of Vermont Agency of Natural Resources and Department of Health is hereby submitting these comments to docket EPA-HQ-OW-2022-0114; Per- and polyfluoroalkyl substances (PFAS): Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) National Primary Drinking Water Regulation Rulemaking.

The State of Vermont is supportive of the EPA taking the lead and enacting federal nation-wide minimum standards for PFAS in drinking water; however, we have some specific concerns as identified below, based on our experience implementing our state specific MCL since 2019. We also have information to answer questions posed in the preamble of the proposed regulation which we provide below.

Based on our experience implementing a state PFAS regulation since 2019, Vermont is providing a broad range of comments, with specific recommendations on the following:

- Vermont requests that additional financial support and resources be provided to address impacts to water systems with a focus on small water systems.
- EPA should establish a dedicated funding source for O&M expenses for small water systems who are disproportionately impacted by PFAS contamination.
- Vermont is identifying laboratory capacity concerns, specifically for EPA to ensure that there is sufficient, reliable laboratory capacity nation-wide to support the proposed PQL of 4 parts per trillion (ppt).
- Vermont requests EPA accept existing data on-file by states with state programs if that data meets the current EPA Method 537.1 or 533.
- EPA must establish an equitable and health-protective sampling framework, accommodating the subtleties of PFAS regulation, and a post-treatment sampling framework due to the shortcomings of the use of the existing Synthetic Organic Chemical (SOC) sampling framework that is proposed to be applied.
- Vermont requests clarification of health effects as it relates to treatment design, treatment Operation & Maintenance, and messaging to system users.

Section III – Regulatory Determinations for Additional PFAS

1) What are the impacts on compliance from PFHxS/PFNA?

   In Vermont, we have been receiving water quality data under EPA Method 537.1 since July of 2019, with at least two samples per Non-Transient Non-Community (NTNC) and Community water systems. We regulate PFOA, PFOS, PFHxS, PFHpA and PFNA as a combination of compounds at 20 ppt. In our data, when compared with the proposed MCLs of 4.0 ppt for PFOA and PFOS, we did not have any systems with elevated PFHxS or PFNA (alone or combined) to the point where our MCL of 20 was exceeded and the PFOA and/or PFOS results were at or below 4 ppt each. This means that if there were elevated results sufficient to have high PFHxS or PFNA, there were much higher levels of either PFOA or PFOS so that those respective MCLs would have also been exceeded. We do not see elevated PFHxS or PFNA by themselves without the presence of PFOA or PFOS.

Based on our water quality results, relying often on a single sample and confirmation sample collected within 10 days (and not the Running Annual Average (RAA)), we did not have systems that exceeded the Hazard Index of 1.0 based on the respective proposed four compounds that would not have otherwise either exceeded the proposed PFOA or PFOS MCL respectively already.

Section V – Maximum Contaminant Level Goal

1) Significant figures: In the presentations/guidance to states and operators, when assessing compliance with the Hazard Index for PFHxS, PFNA, PFBS, and GenX the respective health-based water concentrations are 10 ppt, 2000 ppt, 10 ppt, and 9.0 ppt. This creates confusion and complexity due to rounding and whole vs. decimal numbers. It also does not accurately reflect the regulation in that there are no decimals provided in any of the health-based water concentrations. Reference to the standards needs to be precise and guidance on how to round based on decimals must be provided.

Section VI – Maximum Contaminant Level

1) Determination to set MCL at 4.0 ppt and whether 4.0 ppt is the lowest PQL that can be achieved by laboratories nation-wide.

   In Vermont's experience implementing our State MCL since 2019, the few laboratories that our systems have historically used can achieve a reporting level down to 2.0 ppt, we recognize, however, this reporting level is not currently consistently achieved by all laboratories across the country. Further, because this is a national standard, we have concerns about lab capacity moving forward, including the reliability and availability for laboratories to achieve even the proposed PQL of 4.0 ppt and meet the national demands for sample analysis. In other words, Vermont is concerned that we will have continued access to these established laboratories given the increased national demands. Vermont does not currently have in-state capacity for analysis as of the date of writing these comments.

   As stated in the preamble, the PQL is set at the level that 75% of the laboratories can achieve 95% confidence. That is to say that 25% of those laboratories cannot achieve a level of 4 ppt. Given the strain on laboratories and the difficulty in implementing new analysis for PFAS in a new lab, 1 in 4 labs will not be able to achieve the PQL of 4 ppt.

2) Feasibility on the proposal including analytical measurement, treatment capability, as well as reasonable costs.
   a. Small system perspective/feasibility:
      EPA should ensure that there is sufficient funding in the programs that the EPA has established for funding response to PFAS contamination at public drinking water systems with an emphasis on small systems and on-going Operations and Maintenance expenses. Vermont is comprised of many small water systems. Of the 592 Community and NTNC systems subject to the proposed regulation, 34 of them serve a population of 3,300 or greater, only 7 of them serving a population of over 10,000 with the biggest single system serving a population of 42,000 individuals. The proposed MCLs would likely impact 25 additional public water systems, based on analysis from single sample(s) and not a running

annual average. This is in addition to the 16 systems in Vermont that have already exceeded the state MCL. All of the systems that are expected to exceed the proposed MCL serve a population less than 3,300. The preliminary estimate of capital costs associated with the installation of PFAS treatment for the 25 impacted systems to comply with EPA's draft MCL for Vermont is more than $200,000,000. This does not include on-going Operation and Maintenance (O&M) costs, as discussed below in these comments.

Adequate Technical Managerial and Financial capacity is always a concern with new regulations, especially pertaining to small systems. Experience in Vermont has shown that small systems often lack the resources necessary to respond to and properly maintain any required treatment when PFAS contamination is in the community. The impact of treatment and O&M expense is often amplified in small water systems where costs are borne by a smaller user base and are unable to be spread across tens of thousands of users.

Providing support and oversight to small systems across the state is a very time-intensive endeavor and is extremely demanding on state resources for a small state such as Vermont.

Reliance on Point of Use (POU) treatment, while well-intentioned may not always be small system friendly, especially for systems near the 3,300 population "cut-off" identified in the proposed regulation. We support the consideration of POU treatment in the right application, however, it is necessary that EPA provide additional information about how to establish representative sampling protocols following POU installation and guardrails on how to implement a POU program. The existing POU guidance from EPA predates PFAS and does not provide adequate support to states weighing their options; it also provides broad authority pertaining to creating "representative" sampling protocols post-POU installation. Given that there are no or limited NSF/ANSI standards for the reduction of PFAS, either that certification will need to happen, or EPA will need to provide treatment specifications to ensure it truly is Best Available Technology (BAT). We are concerned that lower income citizens are unable to afford to replace their own filters when needed and would otherwise be at the mercy of the water system to provide replacement filters/cartridges based on, at times, an assumption that the treatment has worked effectively up to the point of replacement.

EPA should consider limiting the POU aspect of the rule to NTNC systems and limited community systems. There are concerns with the regulation as currently drafted whereby it would mean a water system would be attempting to manage upwards of 1,000 tap filters which may not be achievable. The post-installation framework must be set in regulation and be uniform. The regulation needs to actively and thoughtfully guard against a scenario where a system installs treatment, demonstrates PFAS reduction, transitions to 3-year monitoring, to find out 2.5 years later that they are breaking through and exceeding the Heath Advisory, MCLG, and MCL based on unmaintained POU devices.

The proposed sampling framework as established is confusing and burdensome on both water system and state resources. The routine sampling framework needs a step between

quarterly and 3-year sampling, Vermont would support an annual sampling requirement for those systems with triggers/detections but below 4 ppt. In a situation where a system under 3,300 in population has consistent results of around 3.0 ppt for PFOA (a level to down to which Vermont receives data and have received data for nearly 4 years), the system would exceed the trigger of 1.3 ppt and be placed on quarterly monitoring. Then, after 4 quarters, the RAA would be 0 based on the calculation of (0 + 0 + 0 + 0)/4 = 0 since the results are below the PQL. So, the system could then transition to 3-year monitoring. There is no guidance or statement about how soon after the last quarterly sample was taken the next 3-year sample must be collected (for example, the Lead and Copper Rule sets the timeline by which the next sample must be collected when the sampling frequency changes). So, because of this, the logical thing to do would be to put the system on 3-year monitoring either immediately or sampling the next calendar year from the last quarterly sample. Alternatively, it could be a year from the last sample, but change would be made knowing what would happen next: the system will then have a result around 3.0 ppt and would be bumped back to quarterly monitoring for at least 4 quarters at which point this cycle would continue. We have approximately 30 systems that would be "stuck" in the unending loop, creating frustration, irregular sampling frequencies, and considerable manual oversight by the state. It would lead to non-compliance and missed samples. For watching results under 4, we would suggest doing so via annual monitoring to avoid confusion of the quarterly-to-3-year monitoring and/or longer timelines between samples when on 3-year monitoring.

b. Separation of Monitoring Schedules:
The water quality data in Vermont does not support the breaking out of separate monitoring schedules between surface water and groundwater or system size. There is no justification provided in the preamble as to why systems over 3,300 and surface water systems are treated the way they are with respect to PFAS vulnerability. The desire to slot PFAS into an existing framework makes sense on its face, but not in reality/practice. It would be perfectly understandable to create a PFAS-specific sampling framework outside of that of SOCs. PFAS are regulated to lower standards and have different responses than traditional SOCs, why would they be sampled under the same framework? Additionally, SOCs are easier to identify the source and have a solid regulatory framework and history under TSCA. This difference has not been taken into account and the clear differences between SOCs and PFAS are not considered. Under EPA method 537.1 - in Vermont, out of the approximately 615 systems having collected samples, we have had detections of any of the 18 compounds reported at 107 systems. Six of those systems are surface water sources, the rest are groundwater. And of those six surface water systems, we have a total of 8 detections, with only one for PFOA and two for PFBS (the rest are for non-regulated compounds).

c. Water System Size and PFAS detections:
There also does not appear to be correlation between water system size and PFAS prevalence, in fact quite the opposite, where small schools and locations may have impacts

from on-site septic or land use outside of the area of control, where many larger systems have better land use and source protection area regulations surrounding their sources.

d. Enforcement/Compliance/Health-based violations:
Another concern is about how violations are logged, accrued, and reported given the focus on health-based violations. Given the current framework under management of the Enforcement Targeting Tool, systems would become a priority for enforcement before they are able to adequately address the PFAS contamination. In our experience in Vermont, enforcing against a system that is actively working to install treatment only serves as a distraction and delay to get to the end result of compliance. Therefore, information about expectations on how to enforce against systems with PFAS MCL exceedances is required and/or data management instructions are critical for us to know how to log, "count", and follow-up on respective violations. It is presumed that if a system has results for PFOA, PFOS, PFNA, PFBS and/or PFHxS that they could exceed the PFOA MCL, the PFOS MCL, and the Hazard Index MCL. This would be 3 MCL exceedances.

In Vermont, even with our existing Do Not Drink notice requirement following our State MCL exceedance and provision of some state grant money created to address PFAS upon implementation of our MCL, the average number of days to reach completion of design, permitting, installation, and sampling to confirm treatment/well modification/new well efficacy is 613 days. While this has largely been due to many systems waiting to conduct a site investigation for the source of contamination before implementing a final remedy, it also is dictated by consulting engineer availability and to a lesser extent to State staff time and capacity. Additionally, being in a northern climate, work to install treatment or build associated buildings, where needed, cannot occur year-round. In Vermont we have had 16 systems exceed our MCL in the last 4 years, which has led to considerable reprioritization and workload changes; having 20-30+ systems immediately exceed the new MCL upon promulgation will create incredible demands on consulting engineers and state resources. In a framework under which we are regulating to the reporting level, we cannot rush the process to assess site information and characterization since installing a new well has far lower on-going operation and maintenance costs.

e. SRF eligibility for O&M expenses:
While there is funding currently available it does not cover all needs, all possible systems, and does not cover Operation and Maintenance (O&M) expenses. Initial designing, permitting, and construction is just the beginning, the on-going expenses are crippling and require the user base to cover increasingly expensive costs of disposal and replacement of media. Without loan or grant eligibility or other funding, these systems may become financially unstable. Additionally, there may be private schools or other for-profit Non-Community drinking water systems that are not eligible for funding but may have considerable expenses incurred.

EPA should establish a dedicated funding source for O&M expenses for small water systems who are disproportionately impacted by PFAS contamination.

f. Unknown determination on PFAS-waste and hazard distinction, associated costs; going into this not knowing future costs:
There have been discussions about exempting water treatment residuals from the various hazard determinations with respect to PFAS as it is treated more broadly. We need a clear understanding of the residuals and how they will be managed and the associated costs.

g. Monitoring framework with treatment:
Because the proposed regulation does not speak to the topic, the final regulation must include a minimum on-going sampling requirement for when systems install treatment that is protective of public health. It cannot be reduced to once every 3-year monitoring under the proposed framework. What happens if there is treatment breakthrough in year 2? How will we know when the media is "spent"? It can be theorized but without individual piloting, at an added cost and increased timeline, we won't know how the GAC responds to other materials in the water and what the longevity of the filters will be. There need to be clear sampling protocols, be it at mid-point locations that will signal vessel changeout, or more frequently in the finished water/effluent. It is not protective of public health to require 3-year sampling based on the proposed regulation for a filter that actually requires annual re-bedding. Leaving it up to the States will create disparity and added regulatory processes in state rules. Creating some other arbitrary calendar-based filter changeout regime would place an undue burden on the small systems, especially those with varied seasonal flow, who would not load the filters to the extent other systems might. Our experience to date can give us a sense of how long filters can last, but that is when systems are removing 20+ppt of PFAS. The longevity of a filter removing, for example, 4 ppt is untested in our state and many others. Since the proposed regulation essentially regulates to the reporting level, there will be no allowable amount of "breakthrough" with the public and user base, many of whom will see their regular water bills increase due to the need to pay for the treatment and on-going expenses. It will also erode consumer confidence in the Water System to have levels up and down and not caught before levels approach the MCL(s). This is why the regulation must have a sampling protocol to assess efficacy and longevity of the filter vessels/media and not to leave it up to the standard framework or State-specific regulations.

3) Implementation Challenges and Considerations for Setting MCL at PQL

While the proposed MCLs for PFOA and PFOS would increase public health protection, there is concern with setting a standard at a PQL which will be changing over time.

4) EPA requests comment on its proposed decision to establish stand-alone MCLs for PFOA and PFOS in lieu of including them in the Hazard Index approach:

If EPA were to add PFOA and PFOS to the existing Hazard Index would be challenging and require additional supporting data and information due to the impact any reported level will have when

compared with the respective health advisory number. Adjustment to the Hazard Index standard of 1.0 would need to be justified.

5) Laboratory Capacity

In 2019 when Vermont was implementing its legislation and requiring systems to sample, other neighboring states were doing the same thing. We were required to reject multiple samples due to exceeded hold times at the laboratory. Unfortunately, many of the reports came to us with what appeared to be valid results, despite missing the respective hold time or both hold times for sample preservation or method run times, so it was up to program staff to wade through all reports (each 30-70 pages in length) prior to accepting the data. This was with just 3-4 local states vying for the same laboratories. While the number of available labs has grown, given national pressure, it is still unlikely that there are sufficient labs to perform the analysis. With additional resources to procure and retrofit analytic equipment and provide necessary training for analysts this could be more feasible. As discussed above, when considering the aspect of the need for well-trained, experienced analysts running the sample analysis, it will take time to grow that capacity to report out below 4 ppt. Also, regulating to the PQL is problematic for 25% of the labs in the country, as is discussed in the preamble where 75% of the labs can achieve 95% confidence; that means that 25% cannot.

Under 537.1 a field reagent blank is required for quality control. In Vermont we have required this blank. In our experience with busy labs and limited equipment, it can be difficult to meet hold times. Labs initially had intended to wait to analyze the field reagent blank until after the compliance sample was analyzed and then run the blank if there was a need from a quality control standpoint. The problem with this is that they were barely making hold times for the compliance sample, and once it went through validation/QC itself, it was too late to run the field reagent blank. To address this, the labs started analyzing the field reagent blanks at the same time as the compliance samples, doubling the cost to the water system. So, either the lab doubles the cost to the water system or they produce invalid samples, neither is system-friendly. As the need for samples goes up nationwide, it would be expected that the labs simply cannot accommodate the needs. The $1 million needed to get, retrofit, and implement equipment and then several month timeframe, at least, for procurement, installation, training and validating of equipment does not mean that a lab can simply add new staff and be able to accommodate more analysis. There need to be more laboratories and resources to provide this analysis nation-wide.

When applying for primacy, it states in 142.16 (i) that the initial monitoring plan must describe how systems will be scheduled during the initial monitoring period and demonstrate that the analytical workload on certified laboratories has been taken into account. In Vermont this would mean one staff tasked with the “Phase II/V” regulations would need to drop everything else to set schedules for nearly 600 systems, who already have at least 2 data points, if not 3 based on state-required sampling, and re-set monitoring schedules. This is a very large burden and would require additional state resources. There are no labs within Vermont at this time who can perform PFAS analysis, so any assessment on lab capacity and lab feasibility is outside of our control and would be difficult to provide to EPA as part of the primacy application. If there were in-state capacity, it would be easier to forecast, but there would not be a mandate that systems would need to use the State lab, and for

any one of several reasons, such as cost or logistics, systems may elect to not use the State laboratory.

Section VII - Occurrence

Based on the data from 2019 to date in Vermont we would not have a system exceed the MCL based on the Hazard Index calculation that would not already exceed the MCL for either PFOA, PFOS or both. Note that we calculate compliance based on an initial sample and confirmation sample, not the running annual average, however, assuming the results remain consistent, the data available are a good indicator for how the draft rule would play out in the State.

Section IX -Monitoring and Compliance Requirements

1) Proposed monitoring flexibility of GW <10,000 to only collect two Entry Point to Distribution System (EPTDS) samples to satisfy initial monitoring requirements.

   While 10,000 is often a clear "line" to draw to separate systems, the data in Vermont do not support this distinction as having systems above that population or with a surface water source as having more vulnerability to PFAS contamination. There should be an initial framework by which the system needs to collect 1 or 2 samples which then drives the future sampling, with options for quarterly, annual, and triennial sampling.

   The proposed regulation of accepting UCMR 5 data is inequitable for those systems required to sample and pay for the sampling out of their own budgets. EPA should accept valid data from certified laboratories on-file with states to meet the demands of the initial sampling requirements with pre-2023 data or otherwise provide an equitable path forward where some systems' samples are not subsidized.

2) Monitoring-related flexibilities to reduce burden while protecting public health.

   As discussed previously in these comments, there needs to be another sampling frequency in between quarterly or every 3-years and therefore graduated "tiers" of attention. It will place a considerable burden on the system and state staff to adhere to the draft provisions. There has been no discussion of the added workload, in fact the preamble incorrectly assumes that the states can accommodate this workload without an increase in hours or staffing. Our experience implementing our regulation in 2019 required 3 staff full-time for a year to train, set up SDWIS, work with labs, review data and get the program implemented. In a small state with a limited staff, this meant the majority of the compliance-related staff otherwise tasked with other responsibilities.

   As it is written in the draft regulation, the sampling framework is too specific. The sampling frequency states "at least 90 days apart" when samples are to be collected under initial monitoring. Systems will not understand this very specific requirement, as they are only accustomed to sampling on a quarterly frequency, meaning anytime in a 3-month window. This same "flexibility" must be applied, otherwise systems and states would need to manage down to the specific DAY that the samples are required for subsequent samples. It is not likely that this was EPA's intent, so that must be remedied. Perhaps state that the samples must be collected in each respective calendar quarter, no less than 30 days between samples, that allows freedom to sample within the calendar quarter

and will prevent someone sampling on the last day of quarter 1 and the first day of quarter 2, if that sampling behavior was sought to be eliminated by the "at least 90 days apart". Alternatively, perhaps the information should instead state "at most 90 days apart" which would then fall into more conventional quarterly monitoring.

3) EPTDS on its own schedule

   Each respective entry point to the distribution should have its own schedule, it should not be regulated system wide. In Vermont we have small systems and there still may be multiple entry points many miles apart from one another. It does not make sense from a source contamination or source protection approach to "lump" all of the entry points in with one another. In Vermont our data indicate that PFAS exposure is quite localized, so systems with multiple wells in the same basic vicinity of one another may have one well with PFAS and one without. To say that 8 miles away a different entry point needs to sample more frequently does not make sense and will place a considerable undue burden on the water system.

4) Monitoring waivers – up to 9 years if initial monitoring is below the trigger level.

   The standard SOC monitoring framework proposed by EPA does not seem to be a good fit for PFAS as discussed above. A protective framework should be part of the final regulation.

5) 3-year sampling if initial monitoring was non-detect?

   Vermont has at least two rounds of PFAS sampling at all PCWS and NTNC water systems, meaning systems have established a PFAS sampling history. Vermont is supportive of a system being placed into 3-year monitoring if the initial or state accepted existing sampling results are non-detect as discussed below. Given the importance of PFAS regulation, EPA should establish a health protective and unique monitoring framework for PFAS.

6) Use of previously acquired data to satisfy initial monitoring requirements including timeframe and other QA considerations:

   Existing pre-2023 data should be accepted if the data was through a certified laboratory, using approved EPA methods 537.1 or 533, and the data were accepted by the State. Drawing the arbitrary line of "pre-2023" does not make sense when in fact all of our data in Vermont since 2019 has met the same "current" standard. Either reliance on certification of the EPA Method or data collected under a state framework that is at least as stringent as the existing requirements. The need to have a PQL of 1.3 for data prior to 2023 is arbitrary and not based in science or supported by the data present. Existing data, regardless of when it was collected and how close the samples were collected, such as 2 calendar quarters from the same calendar year, must be allowed. Requiring 2 samples in a 12-month period is arbitrary and may not capture potential seasonal variability in the sample results the way annual sampling would. State data received according to an EPA method should be allowed to "count" for the initial monitoring requirements. Many systems in Vermont have extensive data that would not qualify for consideration as initial sampling because they were not taken within one calendar year. To reduce the burdens on states and water systems, existing data following EPA methods documenting low/reduced risk should count toward the initial

sampling requirements of the proposed regulation. Drawing the line at January 1, 2023 is arbitrary and our data is the same quality from 2019 – 2023 as it will be beyond 2023.

7) Way to calculate compliance, <PQL = 0

States should not use qualified/"j" flagged data to calculate compliance with the MCL because these results are estimates. Use of the Running Annual Average when results are quantified above the PQL to calculate compliance with the MCL makes sense if the health effects of PFAS are consistent with other primary drinking water contaminants with chronic health effects. However, using the trigger level of an estimated value to assess compliance does not make sense. It is more likely that labs can achieve actual, verified concentrations down to 2 ppt, which would be half of the respective MCL for PFOA or PFOS, not 1.3 ppt which may be "j" flagged or qualified data as the result of an estimated concentration. Use of estimates in a regulatory framework is not an established practice under the Safe Drinking Water Act. These estimates would then be reported in CCRs and available to system users upon request, which would then require explanation of why 2.3 ppt is not "really" a number despite very much appearing to be a valid number. In our experience with our regulation since 2019, water system professionals have a difficult time understanding the difference between detection levels and reporting levels and now adding the practical quantification level into the mix, it will be increasingly difficult to convey information to users about water quality results, validity of samples, and comparison with the health advisories/MCLGs.

SDWIS is currently not set up to accommodate and accept both a method reporting level and estimated/qualified values pertaining to data to be used in screening. It is unrealistic for EPA to expect implementation of the MCLs without adequate tools to do so, because no other contaminant is managed the way EPA is proposing states manage PFAS yet it is expected to fit into an existing framework which is not a good fit.

Additionally, reporting of results below the respective reporting limits or PQLs sets a challenging precedent moving forward. Will this be expected of all compounds/chemicals reported? If so, has there been consideration as to how that is reported to the general public and/or included in CCRs? Opening the door to estimated values for compliance monitoring data reporting risks degrading the viability and the states' regulatory authority of every other established MCL. There are significant data management concerns and the inability to manage these consistently across the program and across states. If the number reported is below the reporting limit, then it should not be quantified, therefore whatever estimated result is reported should not be reflected as a number. While qualified data provides useful information including for the presence or absence of PFAS, there are challenges to using it in the regulatory compliance context as discussed here. Would SDWIS be built out to flag samples with qualifiers, or are states expected to manage the estimated results themselves without this capability being in SDWIS? This is a particularly urgent need for states that are already receiving compliance monitoring data for PFAS with the intent of using it to satisfy initial monitoring requirements. We cannot wait a year or more following the final PFAS regulation to receive the data management instructions. This needs to be sorted out before the final regulation is promulgated. If UCMR5 data can be used to count toward initial sampling, will the results be reported to the detection limit or reporting limit, and will they be "J" flagged?

8) Monitoring related concerns including lab capacity and Qa/Qc of sample results

As has been discussed elsewhere in these comments, we have significant concerns about lab capacity. Vermont does not have a lab capable of providing PFAS analysis within the state, so samples must be sent out for analysis and thereby compete with neighboring states or nation-wide for laboratory capacity. When many New England states were implementing PFAS standards several years ago, there were several issues with laboratories not being able to meet hold times. Additionally, the equipment is so specialized and expensive that they often do not have redundancy or backup; if the sole piece of equipment goes down, it could seriously impact hold times and sample analysis. As we attempt to get analytic equipment and personnel in-state to perform the analysis, the time it takes to retrofit equipment, train staff, and receive necessary accreditation is not insignificant. We experienced situations where slight differences in the volume of water provided in the sample bottle dictated changes in the method reporting level, making it possible to drive up the reporting level by insufficiently filling the bottle.

Section X – Safe Drinking Water Right to Know

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

   Vermont would support EPA's decision to utilize Tier 2 public notification (PN) for the PFAS NPDWR, if the health effects of PFAS are consistent with other chemical MCLs with chronic health effects. However, the proposed health effects language is confusing and would benefit from further clarification. EPA has included both acute and chronic, or at least sub-chronic, effects in the Public Notice (PN) language. Additionally, this PN language is inconsistent with the language the Agency used for the previous health advisories. The PN language discusses PFAS levels in excess of the MCL being of concern, while the health advisory language discusses health impacts at much lower levels. This will create additional confusion with the public regarding the safety of their water. The language within the rule also loses the focus on sensitive sub-populations and only refers to "children." This should be clarified by the EPA to include "pregnant individuals and infants."

2) What is needed to effectively communicate information about PFAS to the public?

   The monitoring burdens through the sampling framework identified will require additional staffing. The proposed regulation will require considerable additional staffing by the primacy agency from administrative support to receive and process data, to compliance analysts to review and respond to the data, to engineering resources to review and approve treatment designs. It is estimated that a minimum of 4 additional staff would be needed in a state like Vermont. There will also be considerable demands on the external partners such as consulting engineers to ensure treatment meets all necessary standards prior to being placed into service.

   Discussion/information pertaining to "Safety" of the water – consistent and clear messaging are needed. PFOA and PFOS are identified in the proposed regulation as having a cancer endpoint, however PFAS is the only contaminant whereby the messaging around the MCL and health advisory is discussed as being "safe" or "not safe" or "*no* risk". MCLs for chronic contaminants are often set based on risk of 1 in some number of the population (such as 1 in 100,000 or 1 in 1,000,000), however, all the messaging and discussion to date regarding PFAS is "lowest point at which there are no health risks". This has created a difficult task for States to discuss and apply the MCLs. It is to

the point where no one wants PFAS in their water due to any risk. While this sentiment is justified, it is not how the regulatory program has functioned historically.

Section XI – Treatment Technologies

1) Cost-effective compliance for GAC – additional guidance on applicable circumstances for GAC is needed.

   GAC is the likely most cost-effective option, especially for small water systems. And as the preamble discusses, the Bipartisan Infrastructure Law provides considerable funding for the installation of treatment. However, it does not cover on-going costs, which are expected to be significant and likely increase in the next several years as the demand increases nationally nor does it cover compliance sampling costs. In Vermont our traditional approach is not to permit a new well if it has a human-introduced contaminant such as SOCs or VOCs, so there are very few sources that have treatment for these compounds in the state. However, given the emerging nature of PFAS, we do have contaminated sources, which increasingly require treatment. Often many small systems do not have access to other locations to develop a new source in an area outside of contamination, which would be the preferred option, however, many times it is not feasible. Additionally, we are very rural so connecting to a "nearby" system is likely to be incredibly cost prohibitive. That means treatment is a necessity. Based on our experience with PFAS to date, a community system serving approximately 400 individuals would spend approximately $30,000 per year on on-going treatment-related expenses including media disposal and replacement. These are expenses that are not "covered" by the traditional SRF program and would be borne by the system for potentially many years to work through the process of recovering costs from responsible parties. This will cripple the water system's user base due to the economy of scale.

   As discussed previously in these comments, EPA needs to establish a post-treatment sampling framework.

2) Assistance to help small systems ID labs, evaluate treatment, and determine best ways to dispose of residuals.

   As identified above, small systems need detailed information about where, when and why to sample and what those results mean when compared with the MCL. No information is provided and the 3-year sampling that will ensue following treatment installation is not sufficient.

3) The National-level analysis of affordability of SSCTs and specifically on the potential methodologies presented:

   We have seen costs for a small TNC system significantly higher than what we see in table 22 and 23. At least one small TNC treating PFAS with GAC is quoted to cost much more, $25,000 for the replacement of 4 x 10-inch diameter by 54-inch-tall filters (permitted to treat 5gpm). Vermont has NTNC systems that would need treatment systems of the same or similar scale (5gpm); therefore, they would be likely burdened with the same costs. It appears that the costs in table 22/23 are more applicable to community systems. A non-community system will not have multiple "households" to carry the cost. Different tables for community systems and non-community systems may be more accurate than going purely by size. Cost per household makes sense for community systems. Perhaps the cost should be per gallon or per system or some other unit than cost/household.

a. GAC/RO/IX may require additional pre-treatment. That should be included in the cost estimates. We have experience in Vermont where a system treating for PFAS has GAC filters that get approximately 1/3 to 1/2 of its expected PFAS-treatment life (on paper) due to removal of other contaminants. More guidance about pre-treatment standards should be developed as part of an implementation or treatment optimization guideline so that systems are investing money wisely in treatment and will not have to bear undue costs in the future.
b. For RO, the permeate will need to be re-mineralized post RO treatment. This should also be included in the cost estimate.

4) Are there additional technologies which are viable for PFAS removal to the proposed MCLs as well as any additional costs which may be associated with non-treatment options such as water rights procurement:
    a. Foam fractionation: We would appreciate an evaluation of foam fractionation - is this actually feasible and it is a viable option?
    b. Alternatives such as drilling a new well and installing it should be evaluated from a cost perspective. In Vermont, the cost per source is ~$100,000-200,000 assuming you own the property, and the well is not very deep. The yield of the source will influence the unit (cost/household).
    c. The feasibility of POU filters should be considered for non-community systems as discussed elsewhere in these comments.

5) Benefits from using treatment technologies (such as reverse osmosis and GAC) that have been demonstrated to co-remove other types of contaminants found in drinking water and whether employing these treatment technologies are sound strategies to address PFAS and other regulated or unregulated contaminants that may co-occur in drinking water:
    a. Radon is currently not included under EPAs National Primary Drinking Water Regulations. GAC treatment would co-treat radon, which could affect disposal costs of spent carbon. Constituents that can currently be discharged to a drywell (or other onsite disposal or discharged to municipal sanitary sewer), such as those exempt from Underground Injection Control Rules, could not be discharged into a dry well if co-treated with PFAS, which may reduce the lifespan of the treatment and increase the complexity of the treatment, counteracting any benefit gained from co-treatment.
    b. Vermont does not currently have any surface water system treatment plants treating PFAS; however, the costs associated with disposal of media used to treat PFAS would counteract any benefit gained by co-treating non-hazardous constituents, such as DBPs.

6) Residual disposal: There are challenges with current available options to manage spent PFAS treatment media, such as disposal at certified disposal facilities or regeneration. With the likely increase in treatment with the proposed MCL, it is likely that the cost of managing or disposing spent treatment media will increase.
    a. If EPA wants to include membrane technologies as a solution, there needs to be more discussions and consideration about advanced treatment of the concentrate and how it will be managed or disposed. Disposal into surface water or sanitary sewers is not a solution in many states, including Vermont. Disposing of RO/NF membrane concentrate into a surface water or sanitary sewer should not be considered an acceptable standard.
    b. Regeneration of pretreatment (e.g., softening) would need to be treated water because PFAS can't be discharged into the sewer. This may add more costs to systems that would

need to add or modify treatment or storage facilities. This cost was not identified in the analysis.

7) EPA requests comment on whether PWSs can feasibly treat to 4.0 ppt or below.

   This can be accomplished with a lead/lag treatment configuration and midpoint sampling to measure breakthrough of one treatment device before the PFAS reaches finished water. While this increases the cost of treatment, it is feasible as long as there are available methods to detect PFAS at these concentrations. As discussed above, a clear post-treatment sampling protocol needs to be established in the regulation. The mid-point sampling is industry norm, but many small systems cannot afford to pay the $525+ per sample cost (the current rate available to many Vermont water systems) twice per quarter or monitoring period – once for treatment efficacy and the other for compliance. Since the mid-point sampling will not "count" for compliance, which is defined as being at the entry point to distribution, this would require multiple samples per quarter, at a cost of nearly $4,000/year on top of the treatment and disposal costs.

8) 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.

   Costs may rise as a result of this change, as more Water Systems will be looking to dispose of spent GAC and some disposal facilities will have limited capacity to take PFAS-heavy filter media. The likelihood is that certain states with the capacity to accept this waste will become targets of public scrutiny and be seen as taking "other states' waste" which could limit small states like Vermont, with only a single in-state landfill, from being able to responsibly dispose of the media.

9) EPA requests comment 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.

   As stated in previous comments, availability is limited, some wastewater facilities will not accept PFAS in backwash disposal if another solution exists.

Comments on EPA PFAS MCL by the Vermont Department of Health concerning Toxicity Assessment and Proposed Maximum Contaminant Level Goal for Perfluorooctanoic Acid (PFOA) in Drinking Water (referred to as "document").

Comment: The Department of Health suggests that EPA provide a regulatory approach that is consistent with short-term exposures during pregnancy. Please explain how a regulation based on running annual average is protective of the developing fetus.

Explanation: The document describes the concerning developmental toxicity outcome of low birth weight, based on human studies. The points of departure from these studies are environmentally

relevant serum levels, and as appropriate for human studies, the uncertainty factor used for reference dose derivation is 10.

EPA states the PFOA reference dose is applicable to both short-term and chronic risk assessment scenarios. This is at odds with the decision to regulate PFOA based on a running annual average. Doing so would expose a person who is pregnant during their entire gestation period. As pregnancy would be considered a short-term, rather than chronic situation, the decision to allow exposure throughout the pregnancy is not consistent with the agency's conclusion that the reference dose is applicable to short-term assessments. developing fetus.

Comment: The Department of Health suggests that EPA provide clear and health-protective advice on PFOA and PFOS in drinking water above the reporting level and below 4 ppt that align with the severity of noncancer health effects described in the document. Please explain how discounting any detections of PFOA or PFOS below 4 ppt aligns with the severity of noncancer health effects. Please explain how states should message reliable detections of PFOA and PFOS less than 4 ppt.

Explanation: In Vermont, the reporting level for PFAS in drinking water is almost always lower than 4 ppt. The reporting level is typically 2 ppt for public drinking water sampled between 2019 and 2023. While additional monitoring is required in the draft framework above the trigger level, the messaging to the public is unclear. It appears that valid detections of either PFOA or PFOS below 4 ppt would be messaged to the public as "not detected." Detections below 4 ppt would be entered into the running annual average calculation as "0". The public, including sensitive populations, would continue to drink the water containing PFAS between 2 ppt and 4 ppt, and these reliable detections would not contribute to the running annual average. This seems at odds with the severity of the noncancer health effects described in the draft document.

Comment: Please explain how states can account for PFAS other than the four PFAS included in the Hazard Index equation.

Explanation: While the Department appreciates EPA's cumulative approach to four PFAS, the Hazard Index approach is not adequate to protect health. The Hazard Index approach does not offer a path to add additional PFAS. For example, the EPA IRIS program published final toxicity values for PFHxA on April 10, 2023. The EPA IRIS program has several additional PFAS toxicity values in development. Yet the Hazard Index equation does not offer flexibility to include additional PFAS as toxicity values become available. In addition, the Hazard Index equation does not adequately address PFAS as a class. As EPA methods for PFAS analysis improve and additional PFAS are included, we gain more and more information on our exposures to PFAS. Yet the Hazard Index equation does not include additional PFAS either with or without final toxicity values. This sends the message that other PFAS are not of public health concern. Given what we know of PFAS, including those under assessment by IRIS, this is not a health-protective assumption.