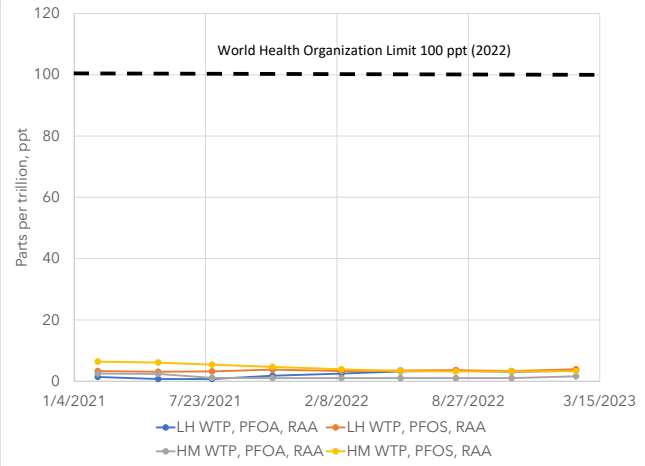
26 FEB 2024

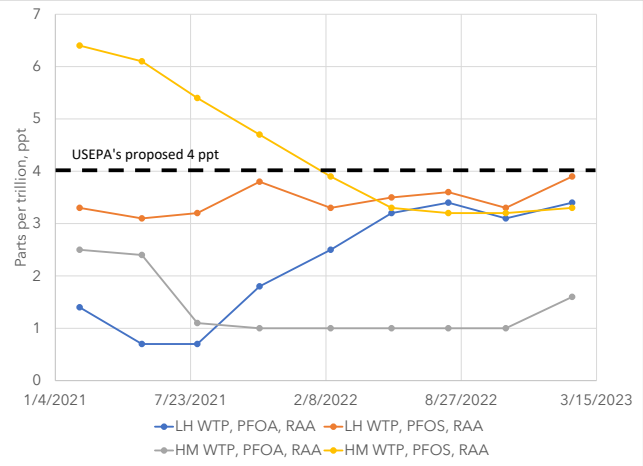
PFAS Compliance Challenges

Newport News Waterworks (NNWW) is the public drinking water system serving 410,000 residents, military bases (e.g., Ft Eustis, Yorktown Naval Weapons Station), flagship industries (e.g., Newport News Shipyard) and institutions (e.g., NASA Langley Research Center) in Newport News, Hampton, Poquoson, York County, and part of James City County (southeastern Virginia). NNWW has served the Virginia Peninsula for **135 years without any drinking water quality violation** and has always strived to do better than federal and state standards.

NNWW supports regulations based on scientific evidence that protects human health. As a water utility providing safe and affordable public service to ratepayers, NNWW is concerned that USEPA's proposed rule on per- and polyfluoroalkyl substances (PFAS) appears 1) far out of step with measures taken by prominent health agencies around the world (e.g., World Health Organization) and 2) cost-prohibitive and compliance-infeasible within anticipated timeframe and targets.

NNWW has been screening proactively for PFOA and PFOS in drinking water for several years, and overall PFAS monitoring was expanded in compliance with the federal Unregulated Contaminant Monitoring Rule 5 (UCMR). The running annual averages (RAA) for PFOA and PFOS in the drinking water produced by both treatment plants confirm that PFOS levels hover around the proposed compliance target (see recent data in graph below). At such small concentrations (1 ppt is equivalent to 1 teaspoon in 2,500 Olympic-sized swimming pools), minute variations in sampling results could decide between costly treatment technology or no action.





COSTS

To reliably and consistently achieve non-detect levels of PFAS in drinking water from the borderline results will require a massive capital investment in PFAS-removing technology (e.g., granular activated carbon, GAC) at a staggering cost to remove a very small amount of PFAS: **$160 million in capital cost for GAC facilities and then ongoing $20 million per year in operating and maintenance costs**. These numbers represent respectively, the equivalent of the entire typical 5-year capital program of the utility, and 20% of the annual operating cost. The cost estimates for NNWW are recent (DEC 2023), whereas USEPA's cost estimates in the draft rule are pre-pandemic, pre-inflation, pre-labor shortages, and pre-supply chain issues. The cost-benefit ratio in the rule was already susceptible to shift in the other direction simply on a change of a few percentage points in interest rate; **recent cost estimates upend the cost-benefit ratio**.

Sufficient federal funds are unavailable, and the costs will be transferred to ratepayers, who will have a hard time affording them. Concurrently, the same ratepayers will also be asked to continue to foot the bill for the continued renewal of the aging infrastructure that delivers water to them, and the compliance with other rules contemplated within the same timeframe by USEPA (e.g., Lead and Copper Rule Improvements).

SCHEDULE

Delivering water treatment-related infrastructure projects requires extensive testing and design to ensure the full spectrum of variations in source water and treatment processes are considered prior to bidding and construction. Equipment installation must be staggered and scheduled during low demand seasons to maintain 24/7/365 continuity of operations of treatment plants. With multiple water utilities undergoing PFAS projects simultaneously, delays in the review and approval by the Virginia Department of Health (VDH) could be substantial. The chart below provides a general estimate for a medium-sized municipal water utility with 2 treatment facilities, limited staff, and a fully engaged primacy agency (VDH). **Testing, design, bidding, construction, start up, and permitted operations of the new facilities will take close to 5 years** from the establishment of the final rule.

	Task	Months																			
		3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
1	Scope, compete, and select engineering support																				
2	Perform study/evaluation, Conduct pilot study, Develop design criteria																				
3	Prepare PER, Complete final design in conjunction with VDH permitting (2 WTPs)																				
4	Prepare IFB, Bid construction contracts, and Bid (2 WTPs)																				
5	Secure funding from local government/grants if available																				
6	Award and construct improvements to both WTP's																				
7	Construction contingency																				
8	Final testing, Startup, VDH CTO																				
	**this schedule excludes supply chain issues/equiptment lead times, lab services , contractor availability, etc.*																				

HEALTH IMPACT

USEPA's own perspective is that 20% of the exposure comes from drinking water; the evidence directly linking the health effects of trace PFAS levels in the drinking water, particularly in relation to cancer rate, has yet to be demonstrated. In addition, **when levels are already very low, how would further reductions of a few parts per trillion going to influence total exposure intake** (e.g., dietary pathways contribute for most of the exposure: fish, meat, cookware, fast-food wrappers…)? EPA should develop a rule based on a PFAS concentration that directly leads to harmful blood serum levels, instead of analytical detection limits in drinking water.

Data from CDC show declining trend lines for blood PFOA and PFOS levels over 20 years after these chemicals were phased out by manufacturers. Therefore, **identifying PFAS sources and limiting their discharges would be more cost-effective** than water utilities having to clean it up downstream.