



The PFAS Challenge – February 2024

Monitoring and Planning for PFAS Treatment

Fairfax Water has been voluntarily monitoring for PFAS on a quarterly basis since 2021 and has posted its PFAS results on its website. Water treated from the Potomac River has so far tested below the proposed MCL's for PFOA and PFOS. Water from the Griffith plant slightly exceeds the proposed MCL's for PFOA and PFOS. Data from both plants is below the proposed HI.

Treatment Plant	PFOA Range (ppt)	PFOA Average (ppt)	PFOS Range (ppt)	PFOS Average (ppt)
Griffith (Occoquan Reservoir)	3.7 to 8.7	5.5	3.0 to 6.2	4.3
Corbalis (Potomac River)	ND to 3.2	1.0	ND to 3.4	1.2

The Griffith Water Treatment Plant (120 MGD) is sourced by the Occoquan Reservoir. A 2021 evaluation by engineering consultants determined that additional treatment trains are necessary to remove PFOA and PFOS to the proposed MCL. Construction cost estimates for GAC or Ion Exchange are initially estimated at between \$180 and \$250 million, with annual operating costs of between \$10 and \$45 million. A mid-range value of \$215 million (capital) represents a 21% increase in Fairfax Water's 10-year capital improvement program. A mid-range value of \$22.5 million for annual operating costs for PFAS at the Griffith treatment plant alone represents an increase of 20% in Fairfax Water's total annual operating budget.



The Corbalis Treatment Plant (225 MGD) is sourced by the Potomac River. Engineering consultants have determined that removal of PFOA and PFOS using membrane filtration would have a capital cost of \$1.2 to \$1.9 billion with annual operating costs of approximately \$55 million. A membrane filtration project at the Corbalis plant would exceed the current value of Fairfax Water's 10-year capital improvement program. The additional operations expenses would represent an increase of over 40% in Fairfax Water's total annual operating budget.

Estimated PFAS Treatment Costs

<u>Treatment Plant</u>	<u>Capacity</u>	<u>PFAS Treatment</u>	<u>Est. Capital Cost</u>	<u>Est. Annual O&M Cost</u>
Griffith	120 MGD	GAC	\$180 to \$250 Million	\$10 to \$45 Million
Corbalis	225 MGD	Membrane	\$1.2 to \$1.9 Billion	\$55 Million

Eliminating the Sources

Eliminating sources is the ultimate solution to removing PFAS from the environment. Providing time and a regulatory framework that supports the elimination of PFAS sources would place the cost for remediation where it belongs – on the polluter instead of the public. The Occoquan Reservoir is an indirect potable reuse system with some industrial discharges to the POTW. PFAS data collected by the state and others indicate opportunities to remove these PFAS sources from the water supply.

Significant Cost Increases for Current Operations

The potential increase in operating expenses for PFAS treatment comes at a time when utilities have seen double- and triple-digit percentage increases in essential supplies such as chemicals and ductile iron pipe. While Fairfax Water's production has been essentially flat, since January 2020, its chemical costs have increased over 52%. Costs for sodium hypochlorite (disinfectant) in that time have increased 175% and costs for poly-aluminum chloride (coagulant) have increased 67%. Costs for ductile iron pipe have on average increased between 54% and 128% (depending on size). Purchased power costs have increased 35% since July 2022. Costs for GAC have increased 17% in two years. The implementation of the PFAS rule will increase demand for GAC and costs for this material.

Time Required to Implement PFAS Treatment

The proposed rule provides only three years for compliance from final rulemaking. Realistically, 7 to 10 years is required to implement PFAS treatment. Fairfax Water, like many utilities, must go through several local government approval processes and permitting by its primacy agency before construction can proceed. Fairfax Water, like most public utilities, must also comply with public procurement laws that add time to the process to secure design and construction services. PFAS treatment will be a new train to an existing treatment plant. Properly sequenced construction that maintains plant operations and ensures an adequate supply of drinking water to the public is critical and will take longer than a "greenfield" construction project.

Activity	Duration
Develop Request for Proposals (RFP) for piloting and design, receive/review proposals, negotiate fee and award contract	6 to 9 months
Piloting (study design, equipment acquisition, review of results)	15 to 18 months
Local government land use approval process (zoning)	6 to 12 months
Development of detailed design and specifications (bid package)	12 to 18 months
Local government site plan and building permit approvals; construction permit from Virginia Department of Health	6 to 12 months
Invitation for bids, award of contract, construction, commissioning	36 to 48 months
Total Project Duration	81 to 117 months or 7 to 10 years