



Potomac WFP Water Quality/PFAS Pilot Project

February 5, 2026

Housekeeping Items

- Please put phones on silent or vibrate mode.
- Any information provided today is not legally binding.
- WSSC Water reserves the right not answer questions asked and/or submitted.
- Audience introductions and questions will be after the presentation.
- To receive up-to-date contracting information, visit the Procurement Office's website at www.wsscwater.com/secondary-landing-page/procurement

Agenda

1. Team Introductions
2. Project Objectives
3. Project Overview
4. Keys to Success
5. Questions

Strategic Plan for Our **Smart One Water Future**



Vision

In every home, in every business, we make everything possible by ensuring access to dependable and safe water for everyday life.

Smart One Water Mission

WSSC Water ensures all communities thrive by ethically delivering safe, reliable and sustainable water and wastewater services.

Promise

Continue the legacy of treasuring our water, customers and employees through dedicated service for current and future generations.

Values

Just. Accountable. Caring. Community Focused. Excellent. Trustworthy.

Strategic Priorities



**Workforce
Development**



**Culture
Shift**



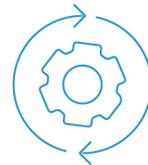
**Affordability &
Financial
Viability**



**Sustainability &
Resiliency**



**Asset
Management &
Infrastructure
Reliability**



**Optimizing
Operations**



**Customer
Engagement &
Partnerships**



**Digital
Transformation**



Team Introductions

Team Introductions

Engineering & Construction

Alan Wong, Chief Engineer

Caville Stanbury-Woolery, Deputy Chief Engineer

Operational Reliability and Resilience

Priscilla To, Director

Bob Buglass, Division Manager, Process and Systems Engineering

Facility Design & Construction Division

Theon Grojean, Division Manager

Mark Coughlin, Section Manager

Jessica Wright, Facility Construction Manager



Project Objectives

Project Objectives

Build and staff a self-contained treatment pilot facility at the Potomac Water Filtration Plant to determine the effectiveness of multiple treatment processes in treating water quality parameters including:

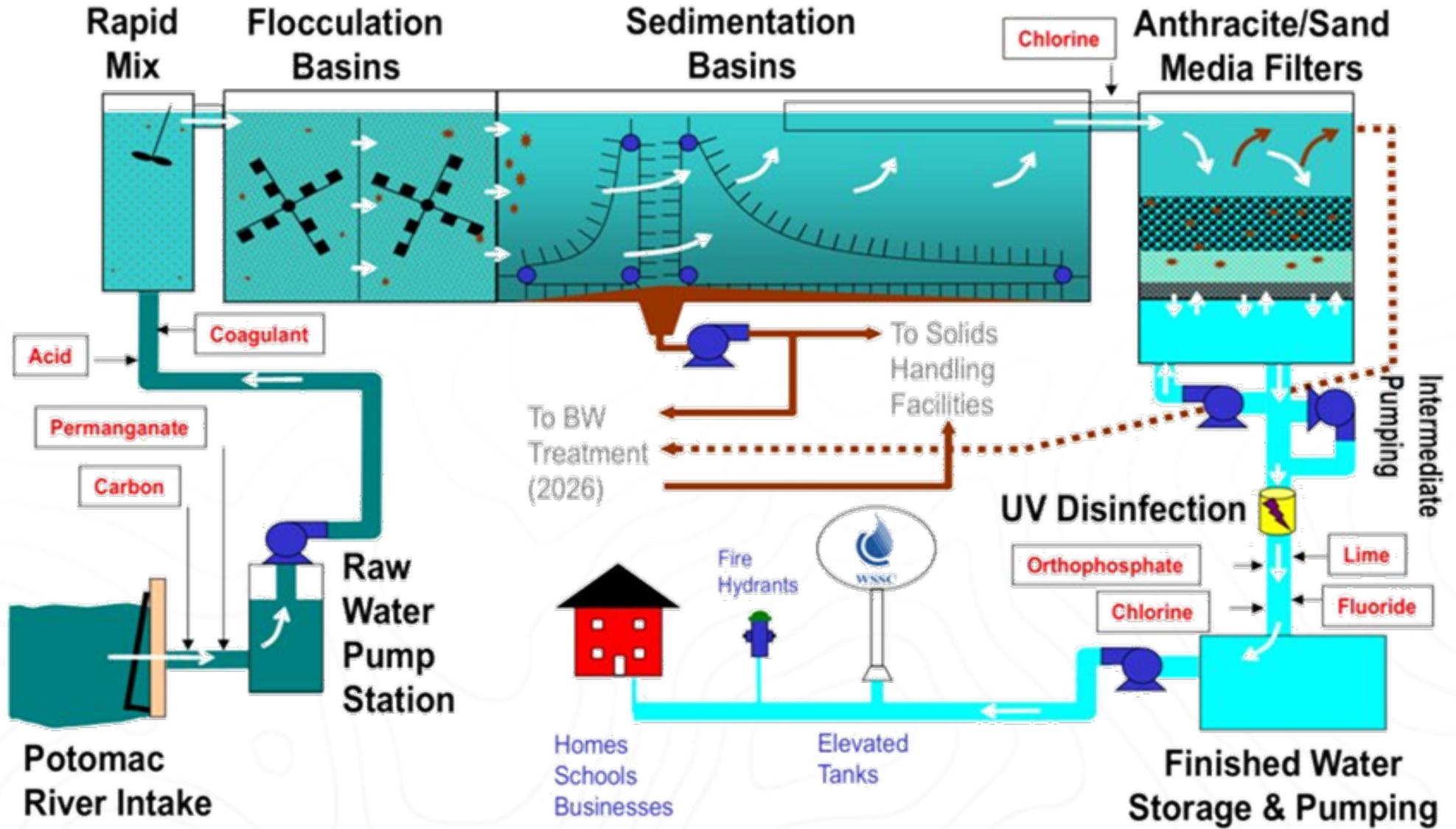
- Per- and Polyfluoroalkyl Substances (PFAS)
- Disinfection By-Products (DBPs)
- Total Organic Carbon (TOC)
- Manganese
- Taste and Odor
- Harmful Algal Blooms and their potential toxins
- Opportunistic Pathogens
- Unknown Spill Contaminants
- Salinity

Decommission and Demolition of pilot facility



Project Overview

Potomac Water Filtration Plant



Project Overview

This will be a Progressive Design-Build-Operate collaborative delivery to perform a water quality pilot project at the Potomac Water Filtration Plant involving:

Preliminary Stage

- Study and Report services
- Drafting preliminary technical documents
- Construction planning services (including preparation of proposed completion stage price)
- Operation and maintenance plans (including staffing and early estimates)

Construction and Commission Stage Services

- Providing materials and equipment to construct pilot plant

Project Overview

Operation Services

- Manpower and materials necessary to operate pilot
- Laboratory testing of water samples to determine treatment performance
- Data collection of testing and performance data
- Written report on effectiveness of piloted treatment processes

Maintenance

- Services to maintain pilot facility
- Potential replacement of one-time process trains within pilot facility

Demolition

- Demolish and remove all or part of pilot facility, as determine during operations stage

Restoration

- Restore original plant facilities to working order (electric, process water, asphalt, etc.)

Proposal Package

- Project Approach
- Organization Experience
- Key Personnel
- Design-Build Collaborative Delivery Experience
- Price of Preliminary Stage Services

During the Preliminary Stage, the Team is expected to apply technical experience and expertise to recommend the testing required to meet simultaneous water quality objectives. The pilot trains proposed are presented as a starting point, but teams are to collaborate with WSSC Water staff to refine the treatment combinations to be tested by bench-, pilot- or full-scale, periodic or continuous testing, the sequence and duration of testing, adsorbent selection, and the number and configuration of treatment trains.

Proposed Pilot Trains

Pilot Train	Pretreatment	Coagulation/ Flocculation (2)	Sedimentation	Filtration	Post-filtration Polish	Disinfection
Existing Treatment	Permanganate (1,2) PAC (2,3)	Sulfuric acid PACI Ferric sulfate	Conventional	Pre-filter chlorine(1) Anthracite 25" (1) over Sand 12"	---	UV/Chlorine
New process enhancements are to be tested as additional and/or in substitution to existing processes						
Train 1 Post-filtration Enhancement					GAC (2,3) or IEX (2,3) or GAC/IEX (2,3) or Novel Adsorbents (3) or NF (2,3,4)	Chloramines (2)
Train 2 Full-train Enhancement	Ozone (1,2)		Ozone (1,2)	Biological filtration (1,2)	GAC (2,3) or IEX (2,3) or GAC/IEX (2,3) or Novel Adsorbents (3) or NF (2,3,4)	Chloramines (2)
Train 3 Interim Retrofit	Chlorine Dioxide (1,2)			GAC 25" (2,3) over Sand 12"		Chloramines (2)
Train 4 Intensification Retrofit	Chlorine Dioxide (1,2) Ozone (1,2)		Reduced settling time Ozone (1,2)	Ceramic UF	GAC 37" (2,3)	Chloramines (2)

Note 1: Targeting Manganese

Note 2: Targeting DBPs, Taste and Odor, Algal Toxins, and Chlorine residual management

Note 3: Target PFAS

Note 4: NF highest potential recovery; Includes pilot of NF reject treatment

Proposed Treatment Trains

Pilot Train 1 Post-filtration Enhancements

- incorporates existing pretreatment chemicals, enhanced coagulation, flocculation, sedimentation, filtration, disinfection
- with post-filtration polishing (granular activated carbon (GAC), ion exchange (IEX), combined GAC/IEX, novel absorbents, or nanofiltration (NF) including treatment of reject stream, and chloramine disinfection.

> Pilot Train 1 closely replicates the existing plant processes, provides post-filtration polishing for both PFAS and DBP precursors, and includes testing of chloramines for DBP control.

Proposed Treatment Trains

Pilot Train 2 Full-train Enhancement

- Pilot Train 2 provides PFAS and DBP polishing by the same methods as Pilot Train 1, and includes testing of chloramines for DBP control.
 - > *Pilot Train 2 builds upon Train 1 by adding ozonation and biologically active carbon filters to improve removal of organic compounds that form DBPs. This train also enhances removal of taste and odor compounds, and potentially manganese.*

Proposed Treatment Trains

Pilot Train 3 Interim Retrofit

- incorporates existing pretreatment chemicals, enhanced coagulation, flocculation, sedimentation,
- the replacement of anthracite with GAC in the existing filters, and disinfection with either chlorine or chloramines.

> *The purpose of Pilot Train 3 is to be able to take immediate action if needed, via potential interim solution by replacing anthracite in one to all existing filters with GAC for both filtration and PFAS adsorption.*

1. Pilot:

- Assess impact of limited Empty Bed Contact Time (EBCT) and regular backwashing on GAC performance
- Assess chlorine dioxide for enhanced manganese removal in place of chlorine on anthracite filter

2. Full Scale Demonstration:

- WSSC Water might consider retrofitting one or two existing filters with GAC/sand media to establish a baseline and as a proactive step prior to implementing in 50 to 100 percent of all filters. Filters would be monitored for turbidity, head loss development, PFAS, TOC, manganese, and other parameters. During the design phase, it will be decided whether retrofit of filter GAC/sand media will be done by WSSC Water Filtration Plant personnel or the Team. However, the Team would be responsible for monitoring the filter performance.

3. PAC tests:

- for removal of PFAS is included as another potential interim solution.

Proposed Treatment Trains

Pilot Train 4 - Intensification Retrofit

- incorporates existing pretreatment chemicals, enhanced coagulation, flocculation, reduced sedimentation,
 - the installation of submerged ceramic filters in part of the existing sedimentation basins for filtration, replacement of existing filter media with GAC, and disinfection with either chlorine or chloramines.
 - includes a pre-oxidant for manganese control and replicates existing flocculation/sedimentation followed by immersed ceramic membrane filters (a.k.a. ultrafiltration) and conversion of existing filter boxes to post-filtration GAC contactors.
- > The purpose of Pilot Train 4 is to assess a permanent replacement within the existing plant footprint by adding ceramic membranes immersed in the sedimentation basins and repurposing existing anthracite/sand filters as GAC contactors.



Keys to Success

Keys to Success

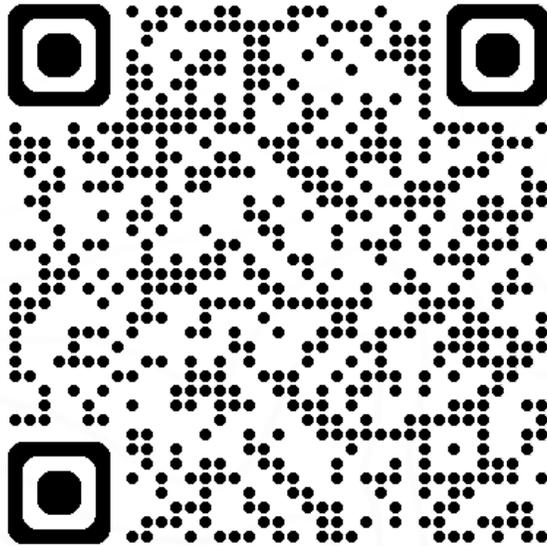
- Cohesiveness of progressive Design-Build-Operate team
- Collaboration and communication with the WSSC Water team
- Familiarity with water quality processes
- Experience with operation, data gathering and reporting on previous water quality pilots



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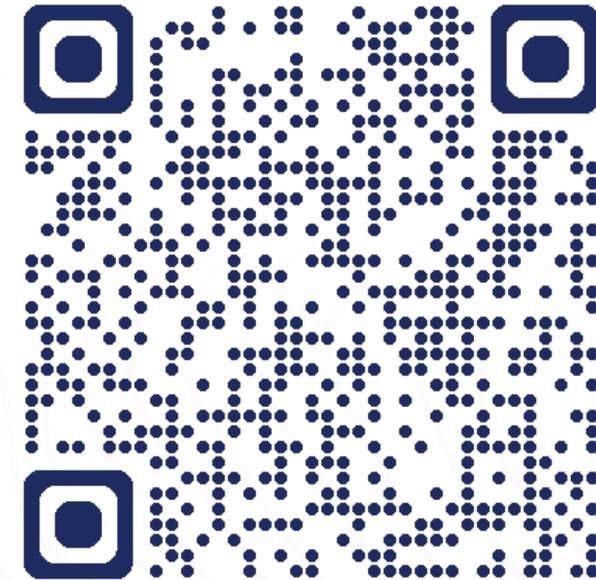


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