

**The Potomac Aquifer Recharge Oversight Committee**  
**Meeting Minutes**  
**August 21, 2023**

In attendance: Whitney Katchmark (Committee Chair), Mark Bennett, Jay Bernas, Charles Bott, Ryder Bunce, Chris Burbage, Bryan Campbell (remote), Curtis Consolvo (remote), Eva Doty (remote), Jason Early (remote), Julie Henderson, Dan Holloway, Seyyedhadi Khatami (remote), Vernon Land (remote), Mark Kram (remote), Eduardo Mendez (remote), William Mann, Jamie Mitchell, Scott Morris, Bryant Mountjoy (remote), Ivy Ozmon, Charlie Paullin, Harold Post, Doug Powell, Mike Rolband, Gary Schafran (remote), Mark Widdowson, Lauren Zuravnsky (remote).

Ms. Katchmark (HRPDC) called the meeting to order at 11:30 a.m.

The minutes of the previous meeting were approved as distributed.

Dr. Chris Burbage (HRSD) provided an update on ongoing microplastics research at HRSD. He reviewed the status of national regulations for microplastics in water, the human health risks associated with microplastics, and analytical methods used to measure microplastics. Dr. Burbage described the preliminary testing of microplastics at the SWIFT Research Center (SRC), where the presence of microplastics was determined for various sampling points in the treatment process. The need for a robust study was noted, including the collection of samples for standard quality controls and assurance checks because of the high risk of sample contamination. Dr. Burbage reviewed HRSD's plans to implement a study to investigate the fate of microplastics throughout the SWIFT treatment process that will include quality checks. The study will include two sampling events. Microplastics samples will be collected at each process unit's influent and/or effluent in the SWIFT treatment train from start to finish.

Dr. Charles Bott (HRSD) updated the committee on studies at the SRC investigating treatment techniques for removing PFAS compounds. First, he reviewed the results of continued investigations into the operation of granular activated carbon (GAC) contactors to understand optimization for PFAS removal better. Results of experiments conducted at full scale were presented to illustrate the change in PFOA concentrations in the GAC contactor effluent under various operating conditions. Plans for future studies of PFAS dynamics in GAC treatment at full scale were also reviewed. Dr. Bott also covered plans for pilot-scale studies at the SRC investigating the impacts of backwashing and upstream treatment on PFAS removal with GAC. HRSD also plans to evaluate PFAS removal using ion exchange resins and novel adsorbents in pilot-scale studies. Dr. Bott concluded with an update on HRSD's plan to expand their analytical capabilities to include PFAS. HRSD will hire a full-time chemist and procure analytical instrumentation to enable in-house, certified analyses of PFAS samples. Staff in HRSD's Central Environmental Lab (CEL) are also working with chemists from PARML to develop and use the PARML analytical method for perfluorinated compound (PFC) measurements in-house.

Mr. Bernas (HRSD) provided an update on HRSD's Integrated Plan (IP). He reviewed the history of developments with the EPA Consent Decree for Sanitary Sewer Overflows (SSOs) up to EPA approval of the Integrated Plan in February 2022. The IP uses adaptive management principles, implementing high-priority wastewater system projects in two phases to reduce 47% of SSOs by 2030 and 69% by 2040, respectively. This ensures that funding is available to implement HRSD's SWIFT projects. The projects outlined by the IP simultaneously benefit public health,

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environmental protection, and water supply. The IP saves locality stormwater program funding by using the nutrient reduction credits generated by HRSD instead of implementing costly stormwater treatment retrofits to comply with MS4 TMDLs. HRSD ratepayer investment supports the generation of nutrient reduction credits, so HRSD provides credits to local government entities in Hampton Roads at no cost. Mr. Bernas presented preliminary groundwater modeling results showing substantial increases in 2070 projected groundwater levels from groundwater recharge operations at three SWIFT plants. SWIFT groundwater recharge is also expected to mitigate land subsidence. HRSD estimates that implementing the IP saves the region \$5B compared to the traditional approach to complying with the Clean Water Act and Chesapeake Bay TMDL requirements. Mr. Bernas also highlighted the implementation of a biological nutrient removal process called partial denitrification anammox (PdNA) in operation at the HRSD York River wastewater treatment facility. York River is the first plant in the world to implement the technology at full scale. The PdNA treatment process will enable HRSD to meet nutrient reduction targets required by 2032 while achieving significant capital, chemical, and power savings. In closing, Mr. Bernas provided compliance deadlines for completing the IP elements and other required nutrient reductions.

Dr. Widdowson (PARML) provided status updates on the PARML strategic plan and the EPA Star grant, and he reviewed the Groundwater Basin Storage Tracking (GBST) tool for modeling groundwater levels over space and time. PARML is in the selection process for a contractor to oversee the development of the strategic plan and expects the contract period to begin in the next month. PARML aims to complete the strategic plan by January 2024 and intends to use the plan to guide decision-making on staffing, scope, and scale of the lab. The 36-month EPA star grant period began in June, and a Quality Assurance Project Plan is due to the EPA by the end of October. Dr. Widdowson introduced the GBST as a groundwater monitoring tool developed in collaboration with Groundswell Technologies, LLC. The web-based tool uses the USGS groundwater monitoring network data for modeling input. Preliminary evaluation of modeling results around the James River SWIFT facility appear helpful for monitoring changes in the Potomac Aquifer System with the full-scale implementation of SWIFT's managed aquifer recharge operations. The GBST uses finer-scale modeling grids to evaluate groundwater dynamics in real-time, compare modeled data to historical observations, and plot groundwater levels over time for individual wells relative to the critical surface in that location. The tool enables evaluations of specific local objectives compared to the regional groundwater models used in groundwater permitting evaluations. Storage volumes of groundwater above the critical surface can also be determined with the GBST monitoring tool. The committee was encouraged to see the tool's capabilities and asked many questions, including information on when the tool may be publicly available. The GBST will undergo further testing to vet results before publishing the research in academic journals, with the release for public use after that.

Dr. Schafran (PARML) updated the committee on the progress of PFC analytical development and lab-scale testing of PFAS removal via GAC adsorption. PARML staff have begun work with lab staff in the HRSD CEL to enable in-house HRSD analyses of PFCs using the PARML method. PARML chemists have successfully measured N-Nitrosodimethylamine (NDMA), 1, 4-Dioxane, and haloacetic acid disinfection byproduct contaminants in the same analytical run used to quantify PFCs and GenX. PARML chemists are working to establish measurement limits for the additional

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compounds, and they recently began working to measure other iodinated disinfection products. These iodo-compounds are of concern because they are expected to have higher toxicity levels than other disinfection byproducts. PARML has also worked toward developing in-house rapid small-scale column testing (RSSCT) capabilities that allow for GAC PFAS removal assessments at lab bench scale, which require far less time to complete than pilot-scale and full-scale experiments. The RSSCT experiments are conducted to understand the relationship between PFOA and total organic carbon (TOC) adsorption dynamics in GAC treatment. TOC characterization will be investigated by PARML as well.

There were no public comments.

The meeting adjourned at 1:20 p.m.

Approved:

Date:



11/20/2023

Committee Chair

Committee Members:

- Mike Rolband, Director of Virginia DEQ
- Dr. Karen Shelton, Virginia State Health Commissioner
- Dr. William Mann, Governor Appointee
- Doug Powell, Governor Appointee
- Whitney Katchmark, HRPDC
- Dr. Stanley Grant, Director of Occoquan Watershed Monitoring Laboratory
- Dr. Mark Widdowson, Co-Director of the Potomac Aquifer Recharge Monitoring Lab
- Dr. Gary Schafran, Co-Director of the Potomac Aquifer Recharge Monitoring Lab

Non-voting members:

- Mark Bennett, Director of Virginia and West Virginia Water Science Center, USGS
- Leslie Gillespie-Marthaler, Deputy Director Water Division, US EPA Region 3