

**The Potomac Aquifer Recharge Oversight Committee**  
**Final Meeting Minutes**  
**December 12, 2022**

In attendance: Whitney Katchmark (Committee Chair), Mark Bennett, Jay Bernas, Erin Bereyso (remote), Ryder Bunce, Marcia Degen (remote), Julie Henderson (remote), Dan Holloway, Hadi Khatami (remote), Scott Kudlas, William Mann, Jamie Mitchell, Scott Morris, Harry Post, Doug Powell, Gary Schafran, Tony Singh (remote), Mark Widdowson, Lauren Zuravnsky (remote).

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

The minutes of the previous meeting were approved as distributed.

Mr. Holloway (HRSD) presented an update on the full-scale managed aquifer recharge well (NP\_MAR\_01) at the SWIFT Research Center (SRC). Tests were conducted on the completed well to quantify specific injectivity, which will be monitored over time to indicate when well maintenance or rehabilitation is needed. Performance of NP\_MAR\_01 is almost double that of the original pilot injection well (TW-1) under the same operating conditions. Differences were attributed to improvements in well construction from lessons learned with TW-1. NP\_MAR\_01 is equipped with a bag filter used to capture particulate material prior to injection. Material on filter bags will be analyzed to better identify agents that potentially clogged TW-1. HRSD will work to identify the source of clogging materials and adjust operations to mitigate. Group discussion comparing the underlying causes for differences in performance of the two wells followed, including how future SWIFT facilities intend to address clogging issues identified at the SRC.

Dr. Bott (HRSD) presented an update on operational controls and monitoring for PFOA and PFOS at the SRC. He reviewed specifications for the granular activated carbon (GAC) treatment process and provided background on how organic contaminants are removed in GAC contactors. Determining GAC utilization rates was a major goal of the work at the SRC. Contaminant breakthrough curves were developed for PFOA and PFOS during two separate GAC test runs. Bed volumes treated and total organic carbon (TOC) removed were identified as surrogates for PFOA/PFOS removal during the first test run. HRSD lowered their TOC target for SWIFT water in an effort to sufficiently treat water to meet lower health advisory levels released by EPA in July 2022. GAC effluent PFOA and PFOS were higher than expected in the second run. Dr. Bott hypothesized elevated concentrations in run two are primarily due to differences in GAC age. Run two treated the same number of bed volumes as run one but over a much longer time. Subsequent tests involved splitting flow between GAC contactors in an effort to determine if those changes could reduce PFOA/PFOS in GAC effluent to levels observed during run one. PFAS sampling frequency was increased and HRSD awaits laboratory results for the latest process change. Dr. Bott closed with a review of research needed to achieve treatment targets and described an ongoing HRSD commissioned study to evaluate feasibility of constructing a regional GAC reactivation facility. When asked if PFAS analyses would be taken on by HRSD, Dr. Bott and Ms. Mitchell (HRSD) indicated in-house method development for PFAS and many emerging contaminants will begin once construction of the new HRSD Central Environmental Laboratory is complete, expected sometime in 2026.

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Ms. Mitchell (HRSD) presented PFOA results from the ongoing evaluation of soil-aquifer treatment (SAT) occurring between the SWIFT water injection site and Potomac Aquifer groundwater monitoring wells located a few hundred feet from TW-1. PFOA was first detected over 4 ng/L in SWIFT water in the first quarter of 2020. PFOA concentrations in the upper Potomac Aquifer monitoring well (MW-UPA) were below detection limits (2 ng/L) from the start of monitoring in November 2019 through March 2022 but monitoring results from April to September 2022 showed an increasing PFOA concentration. Ms. Mitchell indicated the lag in PFOA detection at MW-UPA compared to SWIFT water is due to the time it takes for groundwater to travel from the injection site to MW-UPA. Investigation of SAT removal of PFAS compounds continues. HRSD increased the frequency of sample collection from SWIFT water and monitoring wells to better understand PFOA SAT. Ms. Mitchell shared that PFAS compounds have not been detected at the USGS monitoring wells adjacent to the site of the extensometer at Nansemond Plant.

Dr. Widdowson (PARML) reviewed a research proposal submitted by PARML to EPA seeking a \$2M STAR grant to complete a risk and performance evaluation of enhanced aquifer recharge (EAR) in the Coastal Plain. Award announcements are expected in April 2023 and projects must be completed in three years. The PARML proposal addressed all research areas identified in the EPA's request for applications and committee members submitted letters of support. The proposed research at the SRC would inform and improve understanding of EAR operations in Coastal Plain aquifers, which occur from Texas to Long Island, NY. One outcome of the proposed PARML research would be to develop a web-based tool to support risk evaluation and implementation of EAR in other coastal plain aquifers. Dr. Widdowson shared the risk and performance factors to be evaluated, study plans, and intended outcomes and outputs included in the proposal. The group discussed how best to collaborate on potential future PARML proposals.

Dr. Schafran (PARML) presented progress on PFAS perfluorocarboxylic acid (PFC) method development for measuring selected PFAS compounds in water. Preliminary PARML results showed reliable measurement of PFCs and potential use of the method as a screening level tool. The PARML method is capable of generating same day analytical results, a much shorter data turnaround time compared to existing approved methods, EPA 533 and 537.1. By comparison, the PARML PFC method requires less sample volume and allows for simultaneous measurement of haloacetic acids (HAAs). Eleven PFAS compounds, including PFOA, are measured by the PARML method at a detection limit of 2ng/L. PARML data presented for samples collected 11/29 were in range of PFAS concentrations reported by Eurofins for previous samples and followed the trend of increasing PFOA concentrations in groundwater as reported by HRSD. PFAS data generated by PARML and Eurofins will be compared as available. PARML is also working on method development for halomethanes and the sulfonated PFAS compounds not measured by PARML's existing method. Dr. Khatami (PARML) answered technical questions about the method. Group discussion followed on potential experiments for improving understanding of GAC treatment and analytical costs compared to EPA methods.

Ms. Katchmark revisited the idea of developing a strategic plan for PARML. Dr. Widdowson indicated PARML will work on the strategic plan in the new year with the help of a facilitator who

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remains to be identified. PARML is also exploring the potential to become a service center for researchers studying PFAS and other contaminants of emerging concern as a cost saving measure compared to continued use of contract labs. Ms. Katchmark asked about endorsing the idea and the PAROC agreed she could provide a letter of support for the proposed service center as committee chair. The group discussed a variety of considerations that must be made as the analytical capacity of PARML is explored.

There were no public comments.

The meeting adjourned at 1:45 p.m.

Approved:

Date:

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Committee Chair

Committee Members:

- Mike Rolband, Director of Virginia DEQ
- Dr. Colin Greene, Virginia State Health Commissioner
- Dr. William Mann, Governor Appointee
- Doug Powell, Governor Appointee
- Whitney Katchmark, HRPDC
- Dr. Stanley Grant, Director 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