The Potomac Aquifer Recharge Oversight Committee
Meeting Minutes
February 13, 2023

In attendance: Whitney Katchmark (Committee Chair), Ken Bannister (remote), Erin Bereyso (remote), Charles Bott, Ryder Bunce, Curtis Consolvo (remote), Marcia Degen (remote), Greg Grootendorst (remote), Julie Henderson, Dan Holloway, Hadi Khatami (remote), Mark Kram (remote), Scott Kudlas, William Mann (remote), Jamie Mitchell (remote), Scott Morris, Bryant Mountjoy (remote), Mark Nelson (remote), Ivy Ozmon, Harry Post (remote), Doug Powell, Mike Rolband, Gary Schafran, Tony Singh, 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.

Dr. Widdowson (PARML) presented results from flow testing at the new full-scale recharge well (NP-MAR-01) at the SWIFT Research Center (SRC). He reviewed methods for calculating flow to/from the upper, middle and lower Potomac Aquifer. He would like to measure flow at each screen without using flowmeters. Flow distribution across the screens is not the same for pumping and injection. Dr. Widdowson summarized results from previous flow research on the pilot recharge well (TW-1) and findings from preliminary flow testing on NP_MAR-01. Pumping of NP_MAR-01 yields a greater proportion of water from the Lower Potomac Aquifer compared to TW-01. Dr. Widdowson attributed the increased yield from Lower Potomac Aquifer to differences in well construction and operation and maintenance histories between TW-1 and NP_MAR_01.

Dr. Schafran (PARML) provided an update on method development for measuring PFAS compounds in water. PARML has achieved data reproducibility for many poly-fluorinated compounds (PFCs), which is a prerequisite for regulatory approval of the new method. PFC data generated by PARML and HRSD were compared. PARML demonstrated the ability to accurately measure various PFAS compounds, including PFOA, relative to the approved method in use by HRSD's contract lab. Dr. Schafran described continued investigation of PFC dynamics in granular activated carbon (GAC) treatment. He presented PFC and PFOA results through treatment in two GAC contactors where one contactor was saturated with PFCs and the other was not. Removal of PFOA was observed in the unsaturated GAC contactor, but other PFC concentrations showed no substantial change. Dr. Schafran reviewed PARML progress toward differentiating between the various PFOA isomers using the PFC method in development. PARML will continue that work, and plans to investigate PFC removal and release from GAC under different scenarios. Lastly, Dr. Schafran is also investigating the cause of particle formation in the SWIFT process which can cause well screen clogging. PARML will continue to study changes in non-purgeable organic carbon before and after UV treatment to expand understanding of iron formation in the SWIFT process.

Dr. Bott presented HRSD research testing the removal of 1,4-Dioxane through biofiltration treatment. The compound is present in many common household products and has the potential to cause cancer, which is why 1,4-Dioxane is a drinking water concern. When biofilters are fed propane, removal of 1,4-Dioxane and tetrahydrofuran (another contaminant of concern) is enhanced. Preliminary results indicate N-Nitroso-dimethylamine (NDMA), another carcinogen,

may be removed with propane addition as well. Given the contaminant removal successes in investigations at the SRC, propane treatment was included in the basis of design report for the full-scale SWIFT facility at Nansemond Treatment Plant. Provisions for treatment with propane are included in the design for the full scale SWIFT facility at James River Treatment Plant as well. The only other effective treatment for the removal of 1,4-Dioxane (and other contaminants noted here) is the ultraviolet advanced oxidation process (UV AOP). UVAOP is currently in very high demand within the drinking water industry, is hard to get and expensive.

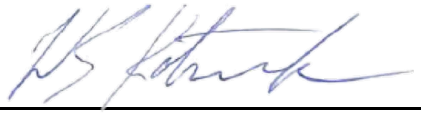
Ms. Katchmark led a discussion to define committee meeting documentation expectations. PAROC is a public meeting so minutes must be posted publicly. At various times, a video of the meeting and presentations have also been provided on the committee's website. Concerns around publishing academic research were discussed. The committee agreed to review documentation legal requirements in greater detail to determine the level at which PAROC meeting materials should be made available.

Ms. Katchmark shared that a panel discussion about this committee is on the schedule for this year's Environment Virginia Conference. Options for focused topics were discussed including land subsidence and flooding, impacts to economic development, cross agency collaboration, challenges of water injection, treatment challenges and solutions, GAC research and future plans to scale up.

There were no public comments.

The meeting adjourned at 1:30 p.m.

Approved: Date:



7/28/2023

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