

**The Potomac Aquifer Recharge Oversight Committee**  
**Meeting Minutes**  
**May 14, 2024**

In attendance: Whitney Katchmark (Committee Chair), Mark Bennett, Jay Bernas, Charles Bott, Ryder Bunce (remote), Brian Campbell (remote), Weedon Cloe (remote), Curtis Consolvo (remote), Eva Doty, Jason Early (remote), Robert Edelman (remote), Dan Holloway, Seyyedhadi Khatami (remote), Preston Kirby, Mark Kram (remote), William Mann (remote), Liz McKercher (remote), Scott Morris (remote), Becky Nardacci (remote), Mark Nelson (remote), Ivy Ozmon, Jason Pope (remote), Doug Powell, Leila Rice (remote), Eric Seavey (remote), Gary Schafran, Charlie Westbrook (remote), Mark Widdowson, Beate Wright (remote).

Ms. Katchmark (HRPDC) called the meeting to order at 11:08 a.m.

The minutes of the previous meeting were approved as distributed.

Ms. Whitney Katchmark reviewed the background for the Regional Groundwater Mitigation Program. Virginia groundwater management regulations require groundwater permittees to develop mitigation processes to ensure that private well owners have recourse when they suspect that a permitted groundwater withdrawal has adversely affected their water supply. The HRPDC contracted the USGS to perform groundwater modeling analyses and develop a methodology for addressing potential mitigation claims for the municipal groundwater withdrawal permittees in Hampton Roads.

Mr. Jason Pope, USGS Hydrogeologist, reviewed groundwater dynamics in the Coastal Plain aquifer system and described the Virginia Coastal Plain Model (VCPM) used by the VADEQ to evaluate groundwater conditions before presenting the results of his analyses. He presented permitted well locations, the individual and cumulative reported withdrawals for municipal permittees within the HRPDC, and the simulated Potomac aquifer water level impacts from withdrawals across all permitted users in the Eastern Virginia Groundwater Management Area (EVGMA). Mr. Pope described using the geological principle of superposition to estimate the proportional contribution to aquifer water level drawdown at any location in the EVGMA, parsing impacts from individual permittees and the group of Hampton Roads municipal permittees. Six test locations were chosen for the mitigation analyses, one site each in James City County, Newport News, Isle of Wight County, Suffolk, Southampton County, and Chesapeake. Only results from the location in Suffolk were presented to illustrate the methodology for assessing a theoretical mitigation claim. The VADEQ defines groundwater drawdown area of impact as any location where aquifer water levels are drawn down one foot or more. Using that threshold, VCPM analyses can identify permittees contributing to drawdowns adversely affecting claimants and determine proportional damage reimbursement responsibilities. Only 11 of 20 HRPDC municipalities contributed to a foot of drawdown or more anywhere in the Potomac aquifer.

Mr. Pope presented several maps depicting the area of influence (AOI) of individual municipal withdrawals across the EVGMA using 2021 withdrawal conditions. Larger volume withdrawals have a larger AOI than smaller volume withdrawals. He also presented tabular data estimating proportional drawdown contributions of HRPDC municipal permit owners across the EVGMA. Most of the drawdown in the Potomac aquifer within Hampton Roads is not the result of HRPDC municipal withdrawals. Errors in mapping were low, -0.12 ft on average, and within 1%

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discrepancy overall, except around large industrial withdrawal centers and along the western edge of the EVGMA adjacent to the VCPM boundary. Errors are due to violations in model assumptions due to water tables that change over time, aquifer system compaction, and movement of the freshwater-saltwater interface.

Committee members asked whether the VCPM can model contaminant transport, how error was evaluated, whether model output was compared to observed groundwater level data, and whether the VCPM model version used for evaluations was the current version. Mr. Pope noted the VCPM is capable of modeling solute transport and is used to evaluate chloride and salinity conditions in groundwater. He used the most current VCPM version, which was last updated in 2021. Error was evaluated based on differences between individual permittees' sum of modeled drawdowns compared to the modeled cumulative drawdown overall. Model results were compared to observed water levels where nearby groundwater monitoring wells with continuous water level data were available, and trends agreed. The committee discussed others studying comparisons of observed water levels to VCPM model output. One of Dr. Widdowson's students is working on that now. Mr. Holloway noted that DEQ compares model output to observed data when recalibrating the VCPM and that this committee is interested in performing these comparisons to assess SWIFT impacts.

Mr. Pope also noted ongoing updates to studies of private domestic groundwater withdrawals, which account for one-third of the total aquifer system use in the EVGMA.

The committee discussed the drivers behind expanding the DEQ groundwater monitoring network. Additional monitoring wells are planned to collect data to fill gaps in understanding trends in the saltwater-freshwater interface where saltwater intrusion is occurring and climate responses of fractured bedrock aquifer systems outside of the Coastal Plain. DEQ expressed interest in receiving input from the committee on suggestions for new monitoring locations to consider.

Dr. Widdowson and Dr. Schafran presented the draft Strategic Plan for The Potomac Aquifer Recharge Monitoring Lab (PARML), which will cover operations over the next three years. Ms. Beate Wright facilitated the PARML planning process, and Ms. Katchmark and Mr. Powell contributed input. The plan is framed around the PARML promise to provide effective monitoring of SWIFT and assessment of its impacts on the Potomac Aquifer. Mr. Schafran detailed PARML's driving principles: duty to the Commonwealth, stewardship, integrity, discovery, and professionalism. Four priorities were defined: producing impactful output and outcomes that inform decisions and communications, recruiting talent and building infrastructure to ensure responsible aquifer stewardship, providing service and outreach to community stakeholders, and attaining financial resources to fulfill their mission.

Dr. Widdowson detailed strategies to meet the PARML planning goals: monitoring and research, scaling up operations, and sharing research findings. He shared plans for enhancing research synergies in coordination with PAROC members and other stakeholders by participating in state and regional meetings where the SWIFT and PARML research agendas and needs will be discussed. Scaling up operations will require assessments of equipment, personnel, research

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infrastructure, and the financial resources necessary to meet the critical needs of PARML and PAROC as managed aquifer recharge expands in Eastern Virginia. Various actions were proposed to define the scope, schedule, and cost of needs, to strengthen funding resiliency, and to develop a pipeline of PARML research talent. Dr. Schafran described plans for communicating PARML research findings, including developing a communications protocol in partnership with HRSD.

The PARML Directors asked the committee for feedback on the draft strategic plan and requested suggestions for additional considerations. They acknowledged that careful thought was given to PARML capacity because of the organization's small size. Committee members shared ideas for building steady funding from the State and Federal government sources. Highlighting aquifer recharge impacts on land subsidence was discussed as an important messaging strategy to encourage financial support. HRSD and committee members shared many ideas for future research areas that should be coordinated with PARML. Ms. Katchmark encouraged discussion about the communications protocol to be developed by PARML and HRSD. She asked where PARML needs help planning or implementing the actions proposed for the various plan strategies. Dr. Widdowson noted that PARML will lean on various partners for help. Mr. Bernas suggested performing gap analyses as the next step toward finalizing and implementing the strategic plan.

The committee discussed the need to expand the state groundwater monitoring and land elevation monitoring networks to collect representative data that enables the assessment of measurable aquifer recharge impacts compared to model outputs. Members discussed the addition of continuous water level data recorders in existing groundwater monitoring wells and the installation of new DEQ or USGS monitoring wells to improve groundwater monitoring. Mr. Campbell expressed DEQ's interest in hearing the committee's requests for siting and monitoring network expansion efforts. Ms. Katchmark suggested coordinating a workshop to discuss monitoring network sites and gaps with the committee and other groundwater and land subsidence stakeholders.

PARML Directors asked committee members to send feedback on the draft strategic plan in writing so they can work to finalize the plan.

There were no public comments.

The meeting adjourned at 1:28 p.m.

Approved:

Date:



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Committee Chair

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8/29/24

Committee Members:

- Mike Rolband, Director of Virginia DEQ

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- 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