

**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**EASTERN VIRGINIA GROUNDWATER  
MANAGEMENT ADVISORY COMMITTEE 2024  
ANNUAL REPORT**

**TO THE HONORABLE GLENN YOUNGKIN,  
GOVERNOR, THE GENERAL ASSEMBLY, AND THE  
STATE WATER COMMISSION**

**NOVEMBER 2024**

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## EXECUTIVE SUMMARY

The Eastern Virginia Groundwater Management Advisory Committee (EVGMAC) was reestablished effective July 1, 2020 pursuant to legislation enacted following the 2020 Virginia General Assembly session.<sup>1</sup> The Director of the Department of Environmental Quality (DEQ) appoints members of the EVGMAC. DEQ convenes the EVGMAC at least four times each fiscal year, and during each meeting DEQ updates the EVGMAC on activities related to groundwater management in the Eastern Virginia Groundwater Management Area and solicits EVGMAC members to present topics and analysis at future meetings. DEQ prepares and submits this report of the EVGMAC's examinations to the Governor, the General Assembly, and the State Water Commission by November 1 of each year pursuant to § 62.1-256.2 of the Code of Virginia.

## INTRODUCTION

The Eastern Virginia Groundwater Management Advisory Committee (EVGMAC) was reestablished effective July 1, 2020 pursuant to legislation enacted following the 2020 Virginia General Assembly session.<sup>2</sup> The purpose of the EVGMAC is to serve “as an advisory committee to assist the State Water Commission and the Department [of Environmental Quality (DEQ)] in the management of groundwater in the Eastern Virginia Groundwater Management Area.”<sup>3</sup> The Eastern Virginia Groundwater Management Area includes all of the Commonwealth east of Interstate 95, except for the Eastern Shore, which is a separate groundwater management area.<sup>4</sup>

The first iteration of the EVGMAC was established pursuant to legislation adopted by the 2015 General Assembly.<sup>5</sup> Pursuant to the 2015 legislation, the first iteration of the EVGMAC completed its activities in 2017 and the committee's enabling legislation expired on January 1, 2018. The final report submitted by the first iteration of the EVGMAC is available on [DEQ's Eastern Virginia Groundwater Management Advisory Committee website](#).

## MEMBERSHIP

Members of the Eastern Virginia Groundwater Management Advisory Committee (EVGMAC) are appointed by the Director of the Department of Environmental Quality (DEQ) pursuant to § 62.1-

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<sup>1</sup> 2020 Va. Acts Ch. 805.

<sup>2</sup> *Id.*

<sup>3</sup> Va. Code Ann. § 62.1-256.2.

<sup>4</sup> 9VAC25-600-20 A (“The board hereby orders the declaration of the eastern part of Virginia as a groundwater management area. This area shall be known as the Eastern Virginia Groundwater Management Area. This area encompasses the counties of Charles City, Essex, Gloucester, Isle of Wight, James City, King George, King and Queen, King William, Lancaster, Mathews, Middlesex, New Kent, Northumberland, Prince George, Richmond, Southampton, Surry, Sussex, Westmoreland, and York; the areas of Caroline, Chesterfield, Fairfax, Hanover, Henrico, Prince William, Spotsylvania, and Stafford counties east of Interstate 95; and the cities of Chesapeake, Franklin, Hampton, Hopewell, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg.”).

<sup>5</sup> 2015 Va. Acts Chs. 262 and 613.

256.2 of the Code of Virginia. Membership of the EVGMAC is to “be composed of nonlegislative citizen members consisting of representatives of industrial and municipal water users; representatives of public and private water providers; developers and representatives from the economic development community; representatives of agricultural, conservation, and environmental organizations; state and federal agency officials; and university faculty and citizens with expertise in water resources-related issues.”<sup>6</sup>

Pursuant to § 62.1-256.2 of the Code of Virginia in September 2020 the DEQ Director appointed individuals and organization representatives to serve as members of the EVGMAC. See Appendix B for the 2020 Membership. In September 2024, the DEQ Director appointed the following revised roster of members and alternates to address changes and gaps in representation that had transpired since 2020.

Nina-Mary Butler – WestRock (Alternate: Jim Taylor)	Jason Early - Stantec
Dan Holloway – Hampton Roads Sanitation District (HRSD) (Alternate: Jenny Reitz)	Whitney Katchmark – Hampton Roads Planning District Commission (Alternate: Ivy Ozmon)
Stewart Leeth – Smithfield Foods, Inc.	Kellan Singleton – Accomack-Northampton Planning District Commission
Andrea W. Wortzel – Mission H2O (Alternate: Shannon Varner)	Mike Gerel – Chesapeake Bay Foundation (Alternate: Patrick Fanning)
Cathy Binder - King George Service Authority	Robert Pickett – VA Association of Soil & Water Conservation Districts – Northern Neck SWCD (Alternate: Kathy Clarke)
John Aulbach – Aqua Virginia (Alternate: Devon Ann Scallan)	Jake Tabor – Virginia Farm Bureau Federation (Alternate: Martha Moore)
Joey Hiner – Southeast Rural Community Assistance Project, Inc. (SERCAP) (Alternate: Hope Cupit)	Nathan Thomson – James River Association (Alternate: Tom Dunlap)
Bob Carteris - City of Norfolk (Alternate - Vicki Smith)	Dana Adkins, Environmental Director – Chickahominy Tribe
David Jurgens – City of Chesapeake Utilities (Alternate: Erin Trimyer)	Mark Bennett – USGS (Alternate: Doug Moyer)
Paul Retel – City of Suffolk & Western Tidewater Water Authority (Alternate: Chris Pomeroy)	Jonathan Rak – Virginia Department of Environmental Quality (Alternate: Alex Samms)
John O’Dell – Virginia Well Drillers Association	Dr. Karen Shelton – Virginia Department of Health (Alternate: Anthony Creech)

<sup>6</sup> Va. Code Ann. § 62.1-256.2.

<sup>7</sup> *Id.*

<sup>8</sup> *Id.*

Doug Powell – James City County Service Authority (Alternate: Mike Youshock)	Dr. Kevin McGuire – Virginia Water Resources Research Center (Alternate: Daniel McLaughlin)
Ethan Betterton – Virginia Chamber of Commerce (Alternate: Keith Martin)	Robert Wayland – Citizen-at-Large
Andrew Clark – Home Builders Association of Virginia (Alternate: Craig Toalson)	

## MEETINGS

The Department of Environmental Quality (DEQ) is to convene meetings of the Eastern Virginia Groundwater Management Committee (EVGMAC) at least four times each fiscal year.<sup>7</sup> During each meeting, DEQ is required to “(i) update the [EVGMAC] on activities pertaining to groundwater management in the Eastern Virginia Groundwater Management Area and (ii) [to] solicit members to present topics and analysis for examination at future meetings.<sup>8</sup> The first meeting of the EVGMAC in the fiscal year covered by this report took place on November 28, 2023 with additional meetings held on February 29, 2024, April 23, 2024, and June 26, 2024.

### FY24 Meeting #1:

The November 28, 2023, meeting was attended by eight (8) members of the EVGMAC. Mr. Todd Wood with Aquaveo presented an overview of the 2022-2023 Annual Simulation of Reported Use and Total Permitted Groundwater Levels report to the committee virtually from Utah. He provided the committee with a status of their efforts updating the Coastal Plain and Eastern Shore Groundwater Models. The Aquaveo presentation included general information about the groundwater models; what the models are, where they are located, and how they are constructed. There was also discussion about the reported versus total permitted use, what those terms mean, and what are considered “critical cells”.

Questions raised by the committee members resulted in further discussions on “hot spots” and “critical cells”, clarification of “increases in withdrawal amounts”, “historic” and “natural critical cells”, the status of withdrawals in the region, and potential “recharge” scenarios. In addition, a future discussion about the concept of aquifer overallocation that was raised during 2017 was suggested with the possibility of using “heat maps” from that period to help identify areas of potential improvement in groundwater levels over time.

### FY24 Meeting #2:

The February 29, 2024, meeting was attended by 11 members of the EVGMAC. DEQ staff informed the committee members present that due to substantial changes in organization representation from the list of members approved in 2017, an accurate count of members and any potential alternates

would be required so membership of the EVGMAC could be reaffirmed and reappointed by the Director.

Dr. Gregory T. Connock and Mr. Samuel H. Caldwell from the United States Geologic Survey (USGS) Virginia-West Virginia Water Science Center gave a presentation entitled “Towards a better understanding of the Virginia Coastal Plain (VACP) North of Fredericksburg”. The presentation included work that the USGS has done with Virginia DEQ to evaluate what data exists about the Virginia Coastal Plain North of Fredericksburg. It was noted that the area is less understood than other parts of the VACP as there is limited hydrogeologic data and groundwater withdrawal information. As a result, there is a need for an improved understanding of the hydrogeology of the VACP in order to facilitate future withdrawal decisions. Dr. Connock and Mr. Caldwell discussed the existing data for this area and provided suggested avenues for further investigations to better understand and characterize the hydrogeology of the area. Among these suggestions were inventorying existing wells for possible inclusion the State Observation Well Network, the use of passive seismic methods to determine aquifer depth, age dating of aquifer water to determine origin, and the drilling/installation of new groundwater observation monitoring wells.

Questions raised by the committee resulted in additional discussions on possible well locations, domestic use, unpermitted withdrawals, and future USGS/DEQ collaboration. Committee members noted that when the EVGMAC was first formed, it went through a series of analyses and made recommendations that went forward to legislation or actions towards providing funding for studies. The EVGMAC suggested lobbying as a stakeholder group to the legislature if future funding is needed to help make a difference in the VACP North of Fredericksburg.

### FY24 Meeting #3:

The April 23, 2024, meeting of the EVGMAC was attended by 15 members of the committee. It was noted that the purpose of the advisory group is to assist the State Water Commission and the Department in the management of groundwater in the Eastern Virginia Groundwater Management Area and that the Committee may develop specific statutory, budgetary, and regulatory recommendations, as necessary, to enhance the effectiveness of groundwater management in the Eastern Virginia Groundwater Management Area. A brief discussion of the EVGMAC’s membership was conducted to include progress on DEQ’s reaffirmation of the committee’s roster and representation.

Mr. Jason Early and Mr. Bryant Mountjoy (Stantec) provided the committee with a presentation entitled “Aquifer Recharge in the Coastal Plain; Considerations for Groundwater Trading”. The presentation outlined the hydrogeologic complexities that would need to be overcome if a groundwater trading program were to be implemented in the Eastern Virginia Groundwater Management Area. Among the topics addressed were groundwater movement, DEQ’s groundwater withdrawal program, the Hampton Roads Sanitation District’s Sustainable Water Initiative for Tomorrow (SWIFT) project, model-simulated recharge recovery zones and aquifer benefits, and available withdrawal rates. The presentation concluded with suggested topics for

future discussion to include the pros and cons of a trading program versus a banking strategy, how to define and regulate recovery zones, and ways to manage a potential program.

Questions raised by the committee resulted in further discussion to include, among other topics, the movement of injected water within the aquifer and its interaction with existing water, the lingering effects from the injection process when the injection stops, and sources of recharge water. The committee members provided the following motion recommending the committee “reenergize the conversations about the possibility of Groundwater Trading using as a basis the modeling that was presented today that has more capability than models that were available previously because it appears that there may be some scientific supportable mechanism at some point to support the concept of trading.”

#### FY24 Meeting #4:

The June 26, 2024, meeting was attended by 15 members of the EVGMAC with two presentations from DEQ included on the meeting agenda. Mr. Eric Seavey, DEQ’s Office of Water Withdrawal Permitting Manager, provided the committee with “Updates to the Groundwater Withdrawal Permitting Process” which took the committee through the steps in the permit application process. Mr. Seavey discussed the importance of the pre-application meeting, the process of developing and reviewing technical evaluations to determine areas of impact and possible intersections with critical cells, and the drafting of the actual permit. Administrative components were noted such as cost constraints, public comment periods, and the integration of comments into the final issued permit. Several recent innovations in the process were also mentioned, including the development of an application checklist, the submission of needed documentation through forms, and the consideration of future changes and challenges.

The second presentation was given by Mr. Brian Campbell, DEQ’s Groundwater Characterization and Monitoring Program Manager, who provided an overview of the “State Observation Well Abandonment Process”. Mr. Campbell began the presentation with a brief discussion of the goals and operations of the groundwater program, explaining how the 290 State Observation Wells (SOWs) support understanding of water levels and water quality. The life cycle of SOWs was outlined and included the stages of a) drilling and construction; b) development and performance testing; c) regular operation and maintenance; d) representative operation and maintenance; e) diagnosis and repair; and f) abandonment – permanent sealing and decommissioning. Mr. Campbell concluded with noting the importance of the well abandonment process, as properly closing a well, under Virginia Department of Health’s Private Well regulations, ensures the ultimate quality of the state’s data set.

Questions raised following the presentation resulted in further discussions on DEQ’s plans and schedules for installing additional monitoring wells North of Fredericksburg, specifically the collection of preliminary data from those new monitoring wells, criteria for the selection of well locations, and planning needed to determine the depth of bedrock wells. The committee also requested an update on the next iteration of the model and noted that at the previous meeting there was a motion to reenergize the conversation around groundwater trading. There was a

request for either a work group to be formed or work session at the next meeting to put together a work plan to implement that prior motion. The committee also asked for an update on the newly passed legislation (SJR25) requiring DEQ to complete a groundwater management study in the Virginia Coastal Plain.

## GROUNDWATER TRADING

In response to the Committee's motion to reenergize the conversation of groundwater trading, DEQ staff reviewed the recommendations of the Groundwater Trading Work Group, which was created by HB 1036 (Hodges, 2018). DEQ staff will include topics at future meetings to explore technical aspects of the recommendations of the work group. For example, presentations covered the complexities of operating groundwater wells by Mr. Campbell and the resource and technical constraints of operating the current groundwater permitting program by Mr. Seavey.

HB 1036 required DEQ to convene a work group and to report its recommendations to the State Water Commission (SWC) no later than July 1, 2020.<sup>7</sup> When the work group conclusions were presented to the SWC, a need for further study was identified and the following cautionary points were provided:

- There are temporal and spatial limits to the benefits of "credits" that may be generated, and without appropriate controls may lead to negative local impacts.
- Trading program may be too limited to be economically attractive to potential participants.
- Increased monitoring would be needed, and current monitoring network is likely insufficient to provide reasonable protections.
- Current predictive modeling tools may be insufficient for the increase in complexity resulting from a trading program.
- Fiscal impacts and uncertainty in cost of developing and implementing a trading program.

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<sup>7</sup> <https://rga.lis.virginia.gov/Published/2021/RD169/PDF>



## APPENDIX A - § 62.1-256.2 OF THE CODE OF VIRGINIA

§ 62.1-256.2. (Expires July 1, 2025) Eastern Virginia Groundwater Management Advisory Committee established; sunset.

A. The Department of Environmental Quality (the Department) shall establish the Eastern Virginia Groundwater Management Advisory Committee (the Committee) as an advisory committee to assist the State Water Commission and the Department in the management of groundwater in the Eastern Virginia Groundwater Management Area. Members of the Committee shall be appointed by the Director of the Department and shall be composed of nonlegislative citizen members consisting of representatives of industrial and municipal water users; representatives of public and private water providers; developers and representatives from the economic development community; representatives of agricultural, conservation, and environmental organizations; state and federal agency officials; and university faculty and citizens with expertise in water resources-related issues. The Department shall convene the Committee at least four times each fiscal year. Members of the Committee shall receive no compensation for their service and shall not be entitled to reimbursement for expenses incurred in the performance of their duties.

B. During each meeting of the Committee, the Department shall (i) update the Committee on activities pertaining to groundwater management in the Eastern Virginia Groundwater Management Area and (ii) solicit members to present topics and analysis for examination at future meetings. The Committee may develop specific statutory, budgetary, and regulatory recommendations, as necessary, to enhance the effectiveness of groundwater management in the Eastern Virginia Groundwater Management Area.

C. The Department shall annually report the results of the Committee's examinations and related recommendations, and any responses from the Department, to the State Water Commission, the Governor, and the General Assembly no later than November 1 of each year.

D. The provisions of this section shall expire on July 1, 2025.

APPENDIX B MEMBERSHIP OF THE EVGWMAC AS APPOINTED BY THE DEQ DIRECTOR IN SEPTEMBER 2020\*

Chief Stephen Adkins – Chickahominy Tribe	Christopher Miller – King George County
John Aulbach – Aqua Virginia	Al Moor – Western Tidewater Water Authority
Mark Bennett – U.S. Geological Survey (USGS)	Martha Moore – Farm Bureau
Jay Bernas – Hampton Roads Sanitation District (HRSD)	John O’Dell – Virginia Water Well Association
Nina Butler – WestRock Company	Robert Pickett – Virginia Association of Soil and Water Conservation Districts
Commissioner or Designee – Virginia Department of Health (VDH)	Doug Powell – James City Service Authority
Hope Cupit – Southeast Rural Community Assistance Project, Inc.	Peggy Sanner – Chesapeake Bay Foundation
David Jurgens – City of Chesapeake	Stephen Schoenholtz – Virginia Water Resources Research Center
Anna Killius – James River Association	Kellan Singleton – Accomack-Northampton Planning District Commission
Stewart Leeth – Smithfield Foods, Inc.	Kurt Stephenson – Virginia Tech
John Loftus – Virginia Economic Development Partnership (VEDP)	Robert Wayland – Citizen at large
Keith Martin – Virginia Chamber of Commerce	Andrea Wortzel – Mission H2O

\*The membership was revised in August of 2024.