

REPORT OF THE

STATE WATER COMMISSION

**TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA**



COMMONWEALTH OF VIRGINIA

RICHMOND

2024

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Delegate R. Lee Ware, Vice-Chairman

Senator Lynwood W. Lewis, Jr.
Senator T. Montgomery "Monty" Mason
Senator J. Chapman Petersen
Senator Frank M. Ruff Jr.

Delegate Robert S. Bloxom, Jr.
Delegate David L. Bulova
Delegate Ellen H. Campbell
Delegate M. Keith Hodges
Delegate Paul E. Krizek
Delegate Michael J. Webert
Delegate Thomas C. Wright, Jr.

Mr. Brian Bayford
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STATE WATER COMMISSION EXECUTIVE SUMMARY

The following executive summary serves as the 2024 Report of the State Water Commission.

I. Background and Deliberations

The State Water Commission (the Commission) is a 15-member legislative body established by statute that is charged with (i) studying all aspects of water supply and allocation problems in the Commonwealth, (ii) coordinating the legislative recommendations of all state entities that have responsibilities with respect to water supply and allocation issues, and (iii) annually reporting its findings and recommendations to the General Assembly and the Governor. In 2023, the Commission met two times and received testimony regarding several topics, including per- and polyfluoroalkyl substances (PFAS) in drinking water; grant funding and implementation issues related to the federal American Rescue Plan Act of 2021 (ARPA); wastewater facility staffing needs; harmful algal blooms; the Sustainable Water Initiative for Tomorrow (SWIFT) project at the Hampton Roads Sanitation District; Water Quality Improvement Fund methodology and effectiveness; combined sewer overflow system improvements in the City of Alexandria; and the U.S. Environmental Protection Agency's Lead and Copper Rule.

1. Meeting Proceedings, August 8, 2023

The Commission met in Richmond with Delegate David L. Bulova, outgoing chairman, presiding. The meeting began with introductions and opening remarks followed by presentations and discussion and the election of the offices of chair and vice-chair.

Jason Spicer, Wastewater Treatment Operations Specialist for the Department of Environmental Quality (DEQ), provided an overview of the Operator Training Program at DEQ, which develops and provides instruction for wastewater operator training programs and provides one-on-one assistance to treatment facilities throughout the Commonwealth. Mr. Spicer explained that one particular difficulty relating to the lack of sufficient licensed wastewater operators was the significant drop in wastewater licensure exam pass rates since 2017, as such exams, which were once open-book, have been closed-book since 2017. DEQ holds workshops designed to assist license candidates in preparing for these exams several times throughout the year across the Commonwealth and also online through webinars. Mr. Spicer detailed several factors that may help to improve licensure test scores and to increase the number of licensed operators, including the creation of the Department of Professional and Occupational Regulation's (DPOR) License Task Force, the recent increase by DPOR of the license application time from 12 months to 18 months, and the recent enactment of SB 999/HB 1940 (Mason, Runion, 2023), which allows wastewater operators who are licensed in other states to work in Virginia without additional examinations.

Delegate Bulova asked Mr. Spicer if DEQ has the resources necessary to improve the staffing shortage among wastewater operators. Mr. Spicer responded by stating that while DEQ's efforts are on track to increase the number of new wastewater operators, the staffing issue has also been difficult due to large numbers of licensed professionals who have recently retired.

Delegate Bulova also asked if the license reciprocity enabled by SB 999/HB 1940 would lead to an increase in licensed professionals, or if it was possible it would have little to no impact. Mr. Spicer replied that the reciprocity improves the ability of managers and superintendents to find qualified professionals and that the pay and benefits in Virginia for such professionals are very competitive.

Eric Seavey, Water Withdrawal Permitting Manager for DEQ, provided an overview of SB 1291 (Mason, 2021), which requires that any application for a permit to withdraw surface water or groundwater include a water auditing plan and a leak detection and repair plan, and he stated that the bill is in executive review and has not yet been executed. He also provided an overview of the four meetings of the Eastern Virginia Groundwater Management Advisory Committee (the Committee) during fiscal year 2022–2023.

Senator Scott A. Surovell asked Mr. Seavey if the Committee had any members from Northern Virginia and Mr. Seavey said he would follow up with an answer. Senator T. Montgomery "Monty" Mason asked Mr. Seavey to further explain when SB 1291 would take effect. Mr. Seavey responded that the regulations enforcing the bill are at day 160 of executive review and he did not have an exact effective date, but the executive review process was the last step before the regulations go into effect. Delegate Bulova asked if SB 1291 required water audits merely for informative purposes, or if the law required action if certain leaks were detected. Mr. Seavey responded that he was unaware of any certain levels of leaks that required action, but if DEQ is aware of leak levels of 50 percent, for example, the agency will work with a system to find ways to address the leaks.

Delegate Bulova also asked Mr. Seavey if the SWIFT Project in the Hampton Roads area was still in the pilot stage or if enough information has been gathered as to its success and potential replicability elsewhere. Mike Rolband, Director of DEQ, replied that the project is still in the pilot stage but has been very successful thus far and shows signs that it could be replicated across the Commonwealth. Delegate Paul E. Krizek asked if the aquifer in Northern Virginia is more challenging because it is narrower and shallower than other aquifers; Mr. Rolband said that was correct. Delegate Krizek asked if DEQ was concerned with commercial withdrawals from such aquifer, and Mr. Seavey replied that it was difficult to determine the areas of impact for that region. Delegate Krizek asked if treated water that is returned to an aquifer for replenishment could have potential unintended consequences for existing water in the aquifer. Mr. Seavey responded that there is always a risk with aquifer replenishment, but water is continuously tested and monitored.

Weedon Cloe, Office of Water Supply Manager for DEQ, provided highlights of the Virginia Annual Water Resources Report that details, among other items, statistics related to annual water withdrawal amounts across the Commonwealth. Since 2013, public water supply use has increased nearly every year as the population has grown. Mr. Cloe discussed DEQ's efforts relating to groundwater, which include numerous projects funded by special appropriation from the General Assembly for fiscal years 2022–2024, as well as DEQ's ongoing monitoring of groundwater levels and technical support and assistance for groundwater withdrawal permittees. Mr. Cloe described some of DEQ's 2023 water resources priorities, including the agency's Permitting Enhancement & Evaluation Platform (PEEP), addressing unreported water use, ongoing efforts in the Eastern Virginia and Eastern Shore Groundwater Management Areas, and studies evaluating impacts to aquatic life from surface water withdrawals. One particular

challenge is the task of migrating DEQ data from the older VAHydro platform to the newer Comprehensive Environmental Data System.

Mr. Cloe stated that amendments to the local and regional water source planning regulations in response to HB 542 (Carr, 2020) and HB 1297 (Webert, 2022) are currently in the public comment review period, after which such regulations will be sent to the State Water Control Board for final regulatory consideration later this fall.

Senator Surovell asked if DEQ has performed any assessments or developed comprehensive plans relating to long-term groundwater and surface water amounts given the ongoing impacts of climate change. Mr. Cloe said that DEQ is always cognizant of climate change and that the new proposed regional planning areas help address potential water shortages. Senator Surovell requested that DEQ send water-related reports to members of the Commission via email, and Mr. Rolband responded that DEQ will do so going forward. Senator Mason asked why the review process for amendments to administrative regulations takes so much time, and Mr. Rolband responded by stating his similar frustrations with process delays. Delegate Krizek asked if any specific areas of manufacturing are responsible for larger percentages of water withdrawals annually, and Mr. Cloe stated that he did not know and that the annual water report groups all types of manufacturing together into one category rather than specifying any subcategories.

Dr. Tony Singh, Deputy Director of the Office of Drinking Water at the Virginia Department of Health (VDH), provided an overview of the Office of Drinking Water's activities relating to PFAS in Virginia's drinking water that include occurrence and health risk assessments, stakeholder listening sessions, and promulgation of regulations related to legislative mandates. Dr. Singh provided recommendations from the PFAS work group as well as results from the PFAS sampling efforts across the Commonwealth as mandated by HB 586 (Guzman, 2020). Of the 63 sampling locations in Phase 1 of the PFAS study, PFAS were detected at 15 locations. Phase 2 sampling of the PFAS study will conclude in August 2023 and results will be released in October 2023.

Kelly Smalling, Research Hydrologist at the United States Geological Survey, provided an overview of PFAS chemicals and described the United States Geological Survey's (USGS) large-scale national survey of PFAS in tap water that revealed an estimated 45 percent of U.S tap water contains at least one PFAS chemical. PFAS were more likely to be detected in larger urban centers than rural areas, and there was no difference in exposure between private wells and public water supplies. The United States Environmental Protection Agency (EPA) has proposed maximum contaminant levels (MCLs) and proposed maximum contaminant level goals (MCLGs) for six PFAS chemicals. The USGS survey showed that when PFAS chemicals were detected in drinking water, more often than not the chemical exposure was greater than the EPA's proposed MCLs.

Mike McEvoy, Executive Director of the Western Virginia Water Authority, provided an update on the remediation of one PFAS chemical, HFPO-DA (also called Gen X), at the Spring Hollow Reservoir following detection of the chemical at high levels in the Roanoke River. VDH and DEQ have worked collaboratively to find the source of the pollutant, to remove much of the chemical from public waters through a granular activated carbon filtration system, and to keep the public informed of continued monitoring in the region. Delegate Bulova asked Mr. McEvoy if the cost of remediation efforts for pollutants is passed on to consumers, and Mr. McEvoy replied that yes, such costs are paid by ratepayers. In response to a question from Senator

Surovell, Mr. McEvoy said that the concentration of Gen X in the region's waters is steadily decreasing as water is treated and released, but the efforts to remove Gen X from such waters is expected to continue for approximately five additional years.

Chris Pomeroy, President of AquaLaw, provided an overview of the EPA's proposed regulations for six PFAS chemicals. Such regulations will require monitoring in public water systems as well as public notification and a reduction in PFAS levels if an exceedance is observed. He stated that these proposed regulations will likely be the most costly regulatory action relating to water in history and that the EPA's proposed three-year schedule for compliance is not feasible. Mr. Pomeroy noted that the Virginia Municipal Drinking Water Association (VMDWA) has suggested improvements for the EPA's proposed regulations, including a multi-phase approach to reduce the highest levels of PFAS first and also a five-year deadline for each phase. In response to a question from Senator Surovell about testing affordability for smaller water providers, Mr. Pomeroy estimated that lab tests could range from \$1,000 to \$2,000.

Senator Mason inquired as to why only six PFAS chemicals may be regulated by the EPA when there are thousands of PFAS chemicals in existence, and Mr. Pomeroy replied that the six chemicals are those of highest importance at this time. In response to a question from Delegate Michael J. Webert, Mr. Pomeroy confirmed that much of the burdensome costs to water systems related to PFAS remediation will be as a result of new filtration systems that will need to be constructed. In response to a question from Senator Surovell, Mr. Pomeroy confirmed that all sources of water (groundwater, surface water, etc.) intended for human consumption will need to be tested.

Jamie Bain Hedges, General Manager of Fairfax Water, provided an overview of Fairfax Water, which is the Commonwealth's largest drinking water utility and serves over two million residents in Northern Virginia. PFAS monitoring in recent years has revealed that two of the six PFAS the EPA has chosen to monitor, PFOS and PFOA, were found at levels higher than the EPA's proposed MCLs in the Occoquan Reservoir, a situation that would require action if such proposed MCLs are adopted. Ms. Hedges stated that a granular activated carbon filtration system to bring these chemical levels into compliance would require estimated capital costs of between \$225 million and \$250 million, all of which would be passed directly to ratepayers. She also stated that the proposed EPA regulations have an unfeasible timeframe for compliance and actions necessary for mitigation would realistically take, at a minimum, seven years. In response to a question from Delegate Webert, Ms. Hedges said that capital costs, while passed directly to ratepayers, would be spread over the course of about 20 years.

In response to a question from Senator Mason regarding the infeasibility of three years to comply with the EPA's proposed regulations, Ms. Hedges said that there may be the potential for some water providers to secure an additional two years to comply through VDH. Delegate Webert inquired how smaller water providers will be able to comply with EPA regulations in such a short timeframe, and Dr. Singh noted that grant funds are available through VDH for some smaller, disadvantaged community water systems and that the six regional VDH field offices provide technical assistance for water providers as needed. Delegate Bulova inquired about the expected costs of compliance for water providers across the Commonwealth and if the General Assembly should expect to provide more funding assistance in this area. Mr. Pomeroy responded that the VMDWA does not have any cost estimates for potential grant funding needs at this time as the EPA regulations have not been finalized. In response to a question from Delegate Bulova, Dr. Singh confirmed that VDH would continue regular monitoring of PFAS to help identify

pollution sources in a timely manner so that water systems can stay under the EPA's proposed MCLs. Mr. Rolband stated that DEQ has also increased its fish tissue testing program to help identify potential pollution hotspots.

Matthew Link, Project Officer for DEQ, provided an overview of DEQ's projects that are utilizing ARPA funds, including the following: the Sewer Collection System program, the Septic Local Partner Program, the Combined Sewer Overflow program, the Enhanced Nutrient Removal Certainty program in the Town of Pound and the City of Petersburg, and other projects relating to 2022 appropriations. All of DEQ's ARPA funds have been allotted and authorized as of June 30, 2023, and all grant agreements for funded projects will be executed by December 31, 2024. Despite receiving ARPA funds for this purpose, DEQ still has \$561 million in unfunded needs for Sewer Collection System projects.

Dr. Singh provided an overview of VDH's 41 projects that are utilizing approximately \$99 million from ARPA, 15 of which are in the construction phase and two of which have already closed. He stated that while VDH is using ARPA funds for a variety of drinking water infrastructure improvement projects, VDH has a separate program for the replacement of lead drinking water service lines.

2. Meeting Proceedings, December 15, 2023

The Commission met in Richmond with Senator Scott A. Surovell, chair, presiding. The meeting began with introductions and opening remarks followed by adoption of an electronic meetings policy, presentations, and discussion.

Senator Adam Ebbin provided an overview of 2017 legislation from that required the City of Alexandria to make certain improvements to its combined sewer overflow (CSO) system by July 1, 2025.

Justin Carl, General Manager and CEO of AlexRenew, provided an update on the Alexandria CSO project, which has cost approximately \$388 million to date, and has the following project components currently under construction: the waterfront tunnel and diversion facilities, pumping stations and superstructure, and the Hooffs Run Interceptor. Mr. Carl estimated that the project is 65 percent complete and stated that uncontrollable events like the COVID-19 pandemic and the invasion of Ukraine have impacted the project's ability to comply with the statutory deadline of July 1, 2025. Mr. Carl stated his support for legislation that will be introduced in the 2024 Regular Session of the General Assembly that will extend the project's statutory deadline by one year to July 1, 2025.

When Senator Surovell asked what happens to the dirt displaced from the tunnel boring project, Mr. Carl responded that the dirt is hauled to a landfill in Maryland to be used as daily cover. Senator Surovell asked what impact the Alexandria CSO project would have on ratepayers, and Mr. Carl responded that the average user using 4,000 gallons of water per month could expect to pay an additional \$17 per month. In response to a question from Delegate R. Lee Ware, Mr. Carl stated that despite currently being only 90 days behind schedule, the project is anticipated to have additional delays due to uncontrollable events that will likely require the statutory deadline to be extended by one year. In response to a question from Delegate M. Keith Hodges, Mr. Carl stated that if AlexRenew were to fail to complete its CSO project on time, the organization could be subject to financial damages for not meeting the project completion date in its state

wastewater permits. Delegate Bulova commented that the penalty for such permit violations can be very high, but it is unlikely that DEQ would impose such a penalty.

Jay Bernas, General Manager of the Hampton Roads Sanitation District (HRSD), provided an overview of HRSD, which serves 1.9 million people across 20 cities and counties in eastern Virginia. This area faces two key environmental regulatory pressures: restoration of the Chesapeake Bay via nutrient reduction goals and total maximum daily load (TMDL) goals, and issues related to groundwater supply in the Potomac Aquifer. Mr. Bernas provided an overview of the SWIFT project, which takes highly treated effluent that was previously discharged to the Chesapeake Bay and pumps it back into the Potomac Aquifer. Mr. Bernas stated that HRSD is aggressively implementing statutorily required nutrient reductions on short deadlines and projected that from 2021 to 2028 the estimated total nitrogen discharged to the Lower James River Basin will decrease by 73 percent and the estimated total phosphorus discharged will decrease by 53 percent. Mr. Bernas stated that, while total project costs for SWIFT are approximately \$2.2 billion, the project replenishes an aquifer that does not naturally replenish and reverses decades of declines to aquifer levels. Mr. Bernas noted that as the Potomac Aquifer has been depleted, the clay layers have compacted and caused the entire region to slowly sink, but recharging the aquifer through the SWIFT project has the potential to slow such land subsidence. The SWIFT project also prevents saltwater intrusion into the Potomac Aquifer.

Mr. Bernas provided an update on the James River Plant portion of the SWIFT project, which is scheduled to be completed in April 2026; the Boat Harbor Diversion to Nansemond, which is scheduled to be completed in July 2026; and the Nansemond Plant portion of the project, which is scheduled to be completed in October 2028.

In response to a question from Senator Surovell, Mr. Bernas stated that HRSD received about \$30 million in ARPA funds through DEQ. In response to a question from Delegate Hodges about land subsidence, Mr. Bernas replied that there is a strong correlation between ground levels and water levels in aquifers. In response to a question from Delegate Ware about the water treatment process, Mr. Bernas stated that there are five treatment systems in the SWIFT project that have each existed for many years, but the project is novel in how these treatment systems are sequenced. Other systems may have one or a combination of a few of the treatment systems, but SWIFT has five, which is unique. Mr. Bernas stated that the project also has an oversight committee to ensure that the project is operated appropriately.

Mr. Bernas responded to a question from Delegate Bulova about the ground subsidence impact of the SWIFT project by stating that further research by the U.S. Geological Survey would be required to better estimate such impact. In response to a question from Brian Bayford, Mr. Bernas stated that HRSD is studying the long term impacts of removing toxic materials such as PFAS chemicals from treated water.

Mr. Rolband replied to a question from Senator Surovell about the replicability of projects similar to SWIFT elsewhere in the Commonwealth by stating that while research is being undertaken, a full-scale study would be required to fully determine where similar projects could successfully be established. In response to a question from Senator Mason, Mr. Bernas stated that the cost to set up an extensometer is approximately \$1 million.

Mr. Rolband provided an overview of the Water Quality Improvement Fund (WQIF), which is the funding mechanism for public wastewater treatment plants to upgrade treatment processes pursuant to the 2000 Chesapeake Bay Agreement in order to reduce nutrients discharged to the

Chesapeake Bay. The WQIF is currently being used to fund nine active agreements and has a fund balance of \$313 million and a two-year cash flow need of approximately \$170 million. In response to a question from Senator Surovell about the objectives of the nine active agreements, Mr. Rolband confirmed that removal of nitrogen and phosphorus from wastewater was the primary objective.

Mr. Rolband stated that in addition to the nine active agreements to utilize WQIF funds, there are 10 potential agreements that would require a two-year cash flow need of roughly \$380 million, which would result in a WQIF balance deficit of \$238 million. Since its inception, approximately \$1 billion has been appropriated from the WQIF and has resulted in a point-source delivered total phosphorus load reduction of nearly 70 percent. Mr. Rolband responded to a question from Senator Surovell by confirming that WQIF funds can only be spent on nutrient reduction in the Chesapeake Bay, rather than statewide, until federally mandated nutrient reductions goals in the Bay are met. In response to a question from Delegate Bulova about the sources of funding for the WQIF, Mike Crocker, DEQ, stated that funding sources include budget appropriations through general funds or bond authorizations, penalties associated with WQIF grants, and occasional budget surpluses where there is a mandated deposit. In response to a question from Delegate Ware about significant nutrient reductions in 2011, Mr. Rolband responded that the reduction was partly due to a newly completed project that began treating wastewater that year. Mr. Rolband concluded his presentation by reminding the Commission that WQIF projects can be approved and initiated even if there are insufficient funds in the WQIF, and that the law was intentionally written as such to force the General Assembly to appropriate funds for such projects.

Dwayne Roadcap, Director of the Office of Drinking Water (ODW) at VDH, provided an overview of the ODW and the EPA's proposed maximum contaminant limits (MCLs) for PFAS chemicals. Robert Edelman, P.E., Director of the Division of Technical Services within the ODW, noted that the proposed MCLs are for six types of PFAS and the finalized rule is expected by early 2024. Mr. Roadcap stated that over the past three years, VDH has been conducting phased sampling of waterworks to determine how prevalent PFAS are in the Commonwealth's drinking water sources. Mr. Edelman noted that the EPA's economic analyses for the proposed PFAS MCLs estimate that mean annual costs per household to mitigate MCL exceedances could range anywhere from \$30 for larger public water systems with a surface water source to nearly \$700 for small, private systems with a groundwater source. In response to a question from Senator Mason regarding the proposed MCLs for only six PFAS chemicals when there are thousands of other known PFAS chemicals, Mr. Roadcap responded by stating that many of the other PFAS chemicals will also be removed during the treatment process to capture the six major PFAS chemicals.

Keri Green, Lake Quality Council Chair at the Smith Mountain Lake Association (SMLA) provided an overview of Smith Mountain Lake's history, SMLA, and the challenges the lake faced over the summer of 2023. Ms. Green described the spread of harmful algal blooms (HABs) at Smith Mountain Lake, which are caused by overgrowth of cyanobacteria and can produce toxins in the water. SMLA monitored the spread of the HABs and communicated often with DEQ and VDH, but Ms. Green stated that there were delays in response times and testing results, and funding for HAB response and research is nonexistent for inland waters. Ms. Green noted various economic and safety impacts of the HABs at Smith Mountain Lake, as well as known causes of HABs including excess nutrients, erosion and sediment, and increased water

temperatures. Ms. Green stated that because no HAB research or response work occurs at Smith Mountain Lake, SMLA is fundraising and allocating its funds to assist with monitoring and investigating HABs as well as communicating with the surrounding communities. Ms. Green asked the General Assembly to provide funding to conduct HAB research at Smith Mountain Lake, as well as a comprehensive work plan to address the spread of HABs in the Commonwealth.

In response to a question from Senator Surovell regarding the amount of funding required to address HABs at Smith Mountain Lake, Ms. Green stated that while similar projects at Lake Anna to study HABs have cost roughly \$4.5 million, SMLA can begin with desktop analyses, data reviews, and storm water inventories for \$150,000.

Conclusion

The Commission voted unanimously to formally recommend to the General Assembly legislation proposed by Senator Ebbin and Delegate Bulova to extend the City of Alexandria's combined sewer overflow project deadline by one year to July 1, 2026.

Additional information about the State Water Commission's activities is available through its website at <http://dls.virginia.gov/commissions/swc.htm>.

Respectfully submitted,

Senator Scott A. Surovell, Chairman

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