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OFFICE OF THE EXECUTIVE DIRECTOR

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TESTIMONY

I am Andrew L. Smith, Chief Executive Officer and Executive Director of the Virgin Islands Water and Power Authority, WAPA or the Authority. I would like to thank the Honorable Chair, Senator Francis, as well as other members of the Senate present for the opportunity to appear before you today. Good afternoon to you, my fellow testifiers, the listening and viewing audience, and the WAPA family.

I am here to provide an update on the active steps we are taking at the Authority to address the critical issue of elevated levels of lead and copper recently found in water at several locations on St. Croix. We apologize for the impact this emergency has caused the community, and we are intently focused on working with our local and federal partners to remedy this emergency as quickly as possible. As I will discuss further in my testimony, WAPA regularly tests its water to ensure regulatory compliance with EPA safe drinking water standards, so it was a surprise to all involved when results from some of the water tested for the purpose of investigating brown water on St. Croix were received and showed elevated levels of copper and lead.

My testimony is presented in two sections: Background and Facts Around the Sampling Program and its Results and Next Steps.

Background and Facts Around the Sampling Program and its Results

The Authority is committed to delivering safe and clean water to the community. To ensure this, we work closely with the Virgin Islands Department of Planning and Natural Resources (DPNR) and the U.S. Environmental Protection Agency (EPA) to adhere to their safe drinking water standards. WAPA, in coordination with DPNR routinely performs required compliance testing to ensure that its water meets required compliance standards.

Required Daily Water Compliance Testing

WAPA tests its water daily for EPA safe drinking water standards compliance. This frequent compliance testing focuses primarily on bacteriological agents such as E. coli and coliforms, which can cause illnesses similar to the stomach flu.

Lead and Copper Rule Testing Required Every Three Years

WAPA is also required to test once every three years for lead and copper to ensure compliance with EPA safe drinking water standards. WAPA originally was required to perform lead and copper compliance testing annually, but based on WAPA's track record of compliance, the required testing cycle was extended to once every three years.

To comply with the EPA's Lead and Copper rule, the EPA requires that 90% or more of the samples tested must meet safe drinking water standards. In each of WAPA's annual tests conducted in 2016, 2017, 2018, and 2019, when WAPA was required to test annually, over 90%

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of samples tested met safe drinking water standards, so WAPA was in compliance with the EPA's Lead and Copper rule.

This critical aspect of our water quality monitoring program for EPA compliance, currently on a three-year testing cycle, was conducted in September of this year. The EPA standards for metals testing require testing of 60 locations – 30 in the St. Thomas/St. John District and 30 in the St. Croix District. Two customers were identified whose water test results showed elevated levels, so fifty-eight out of sixty samples, or 97% of the samples collected, met safe drinking water standards so WAPA remains in compliance with the EPA's Lead and Copper Rule.

EPA compliance testing requires sampling at the customer's tap, which adds significantly more variables that could be the source of lead and copper in the sample, for example, the customer's plumbing or faucets in their home. This is important because prior to 1986, plumbing fixtures were deemed "lead free" when they contained less than 8% lead, and solders used in plumbing were deemed "lead-free" when they contained 50% or less lead. Accordingly, sampling for compliance with the EPA's Lead and Copper Rule includes the customer's plumbing and fixtures so there are many more potential sources of lead and copper in the water that could come from places other than the WAPA system. Thus, a higher potential that lead or copper could be in the water.

EPA Regulation of Lead in Water

The Safe Drinking Water Act requires EPA to determine the level of contaminants in drinking water at which no adverse health effects are likely to occur. These non-enforceable health goals, based solely on possible health risks are called maximum contaminant level goals (MCLGs). The MCLG for lead is zero. For most contaminants, EPA sets an enforceable regulation called a maximum contaminant level (MCL). MCLs are set as close to the MCLGs as possible, considering costs versus benefits and the ability of public water systems to detect and remove contaminants using suitable treatment technologies.

However, because lead contamination of drinking water often results from corrosion of the plumbing materials belonging to water system customers, EPA established a treatment technique rather than an MCL for lead. A treatment technique is an enforceable procedure or level of technological performance which water systems must follow to ensure control of a contaminant. In the case of lead, the performance of the water system focuses on the chemistry of the water.

Lead in Water is a Known Nationwide Problem in Aging Infrastructure

The Biden administration also recognizes lead in drinking water is a known problem that plagues aging water infrastructure as is overall water quality, so the Biden administration appropriated \$50 billion in the Infrastructure Bill to address water quality and lead in drinking water.

Instances of Brown Water on St. Croix Increased this Summer

As I have described in previous testimony brown water on St. Croix increased this past summer. The increase in instances of brown water was due to very low WAPA water inventories that

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occurred earlier this year primarily due to the severe drought that contributed to a low water flow. Low inventories contribute to low water flow, and when the water flow slows down, the clarity of the water gets worse.

Supplemental Sampling to Investigate Brown Water on St. Croix

When the instances of brown water increased over the summer, WAPA, DPNR, and the EPA coordinated a testing program to evaluate the brown water. The sampling and associated testing to investigate brown water was concentrated in areas that experience elevated levels of brown water, which are in parts of WAPA's water system that have low water flow. Sixty-six locations were sampled. Key steps in the sampling include:

1. Water lines were not flushed prior to taking samples.
2. Samples were collected at the WAPA meter or at other points of WAPA's infrastructure.
3. Two samples were collected, one after a short period of flushing for approximately one minute and a second after a longer period of flushing for approximately five minutes.
4. Samples were collected in 250 ml bottles.

There are some key points to be noted about two of the sampling steps.

Step One: water lines were not flushed prior to taking samples.

Low water flow impacts water quality. In this case lead and copper being absorbed by water. Stagnant water in lines for long periods keeps that water in contact with materials that may contain copper and lead. Some fittings in the plumbing system may contain copper and lead because regulatory requirements do not mandate "zero-lead" content in fittings and fixtures. The areas sampled had low water flow located at the sample sites. For example, one sample site had not registered any water flow since 2021. In another example, the meter registered only approximately 3 gallons of water flow per day over the previous 90 days – likely indicative of a small leak.

Step Four: samples were collected in 250 ml bottles.

Protocol for sampling for compliance with the EPA's Copper and Lead Rule stipulates that samples are to be collected in 1,000 ml (or one liter) sample bottles. WAPA does not keep an inventory of one liter sample bottles because its Lead and Copper Rule compliance is only required to be performed once every three years. However, because the supplemental sampling was not for compliance but rather to investigate the source of brown water, WAPA in coordination with DPNR and EPA, used 250 ml bottles that were available to collect the supplemental samples. The size of the sample bottles can impact concentrations of metal and other materials in the sample. Think about a packet of Kool Aid along with a 16-ounce bottle of water and a one-gallon jug of water. Pouring a packet of Kool Aid into a 16-ounce bottle of water is going to result in a stronger, more concentrated mixture of Kool Aid versus pouring that same packet of Kool Aid into a one-gallon jug of water.

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Samples Exceeded Lead and Copper Action Levels

Outlining the facts behind the first round of sampling is important, but those facts do not change the test results. Thirty-one of the sixty-six samples collected contained levels of lead and/or copper that were below EPA's action levels, but thirty-five samples contained levels of lead and/or copper that were above EPA's action levels. The thirty-five samples with exceedances were samples that were drawn first at each site. After the water had been run for approximately five minutes, sixty-four of the sixty-six samples contained levels of lead and/or copper that were below EPA's action levels.

As I discussed, WAPA meets its EPA compliance requirements for safe drinking water standards, including compliance with the EPA's Copper and Lead rule, so WAPA and DPNR were surprised by the unexpected test results in the supplemental sampling, especially after having just completed the required sampling and testing to comply with the EPA's Copper and Lead rule less than two months earlier.

Public Notification of the Supplemental Sampling Results

The testing performed was not compliance testing; however, receipt of the test results triggered an obligation under the Water Infrastructure Improvements for the Nation (or WIIN) Act that requires public notification within 24 hours of receiving the test results. The test results were received on October 13th, and WAPA, DPNR, and EPA coordinated a press release that was released to the public the next day.

The Virgin Islands Territorial Emergency Management Agency, or VITEMA, was notified of the test results and the Unified Command and Joint Information Center were activated.

WAPA also began flushing its system in the affected areas.

Additional Testing of Critical Infrastructure in Affected Areas

WAPA, DPNR, the EPA and the Unified Command quickly agreed that additional testing needed to be performed, and WAPA ordered additional test kits because as mentioned, limited inventory of Copper and Lead Rule testing materials were available on island. In coordination with the Unified Command, it was decided to use the limited inventory of available test kits to sample schools and a housing community in the affected area as well as the water at WAPA's source at the Richmond Power Plant while awaiting delivery of the additional sampling kits. The facilities tested were Alfredo Andrews school, John Woodson school, Educational Complex, and Mount Pleasant Housing Community. The results of the ten samples tested were all good, with no elevated levels of copper or lead.

Retesting of First Round Results

In a second round of broader sampling that commenced after additional sampling kits were received, samples were collected from thirty-five locations that tested above EPA Action Levels in the first round of sampling. All thirty-five of the first draw samples in this repeat round of testing contained levels of lead above EPA's Action Level for lead. However, at lower

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concentration levels than the first round of testing, likely due to the flushing program that WAPA implemented after the first round of sample test results were received. However, when testing the second draw for each of the samples, the results were favorable, because none of the second samples contained elevated levels of lead or copper. The important distinction between the two samples is that the second sample was collected after the water had been run.

Source Water Contains Lead and Copper Levels Below EPA Action Level

Potable water is produced for WAPA by Seven Seas Water at its reverse osmosis facility on St. Croix under a Water-as-a-Service contact. The results tell us that our source water contains levels of lead and copper that are below EPA's Action Levels for lead and copper, supported by several datapoints:

1. Water was tested at "entry" at the Richmond Pump Station. This is where water produced by Seven Seas Water's reverse osmosis plant is pumped into the community. It is also where water haulers load their trucks at the standpipe. The water sampled at the entry contained 80% less lead and 98% less copper than the EPA Action Level stipulates.
2. In the first round of samples collected, approximately 50% had levels of lead and copper that were below EPA's Action Level. If the source water produced by Seven Seas contained levels of lead and copper that exceeded EPA's Action Level, then the samples would not return results that were below EPA's Action Level.
3. In the first round of sampling, after letting the water run for several minutes 97% of the second samples had levels of copper and lead that were below EPA Action Levels. Running the water before collecting the second sample runs stagnant water out of the service line that leads to the meter and draws water into the service line from the mainline. Water in the mainlines moves and does not sit stagnant. If the source water contained elevated levels of lead and copper, then water drawn from the second sample, i.e. water from the mainline, would also contain elevated levels of lead and copper.
4. Water sampled at the schools and housing community contained levels of copper and lead that were below EPA's Action Level, but this would not be the case if the source water contained elevated levels of lead and copper.
5. In the second round of sampling the sites with elevated levels of copper and lead, all samples contained levels of copper and lead that were below EPA Action Levels after the water was run for a period of time. As just described, running the water draws water from the mainline. Again, if the source water contained elevated levels of lead and copper, then the second sample, i.e. water from the mainline, would contain levels of lead and copper that exceed EPA's Action Levels.

Stagnant Water Likely Contributing to Elevated Levels of Lead and Copper

The results also tell us that stagnant water is a likely factor contributing to elevated levels of lead and copper. This is evidenced by the drop in levels of lead and copper in the second draw samples versus the first draw samples. As described, the second draw sample pulls water from the mainline, which has a good rate of water flow, and contains levels of lead and copper that are

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below EPA Action Levels. This indicates that the lead and copper is being picked up when water sits stagnant in the customer's service line.

Many customers connected to WAPA's municipal water rely on cisterns as a primary source of water, and only rely on WAPA's water to supplement their cistern when needed. For example, over the past 90 days, 29% of WAPA's water meters on St. Croix had zero consumption, and 38% of WAPA's water meters had zero consumption or daily consumption of five gallons per day or less, which is typically indicative of a small leak. The large number of zero or low consumption customers contributes to the instances of stagnant water.

WAPA has identified four components of its system that potentially may be sources of the contamination.

1. Service lines installed prior to 1994 are generally copper, which may contain copper and lead. As stated earlier, materials installed prior to 1984 were allowed to include higher levels of lead than materials installed after 1984, which may also be a source of lead.
2. Older meters in WAPA's system contain parts that may contain copper and lead.
3. Curbstops (also called shutoff valves) installed post-1994 are metal despite the pipe being plastic.
4. The fitting that connects the service line to the main line, called a "corporation" valve is also metal.

Next Steps

These test results have raised concerns, and rightfully so. We understand the importance of providing safe drinking water, and we take this matter seriously. WAPA is taking several steps to address this emergency and continues to coordinate with EPA and DPNR on its action plan. Coordination with EPA is critical because other water systems throughout the country are aging and experience similar problems, so EPA has expertise with remediating these problems and we will work to leverage EPA's expertise to address this emergency. WAPA's action steps are focused on protecting our customers and prioritizing their well-being. Our efforts are tracking on two parallel paths: additional sampling to pinpoint the source of the contamination and changes to operations and infrastructure to reduce the amounts of lead and copper to below EPA action levels.

WAPA and DPNR have a good foundation to address this emergency and are not starting from a standstill. It is known that the aging water infrastructure in the Territory hurts service quality, for example causing low water pressure and brown water. In response to the age of the system, DPNR has been supporting WAPA through federal grants with upgrading sections of the water system. Since 2017, that effort has been focused on St. Croix, and \$25.5 million has been invested in upgrading St. Croix infrastructure. Most recently, \$11.7 million was invested in the Campo Rico and Clifton Hill projects that were completed this year. An additional \$3.3 million

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is planned to be invested in the Hannah's Rest upgrade. Materials are on order, and that project is scheduled to start early next year.

WAPA has received \$30 million of funding to map its infrastructure, which is critical, because records from prior to Hurricane Hugo, which impacted the territory in 1989, are incomplete or in many cases non-existent. This project will help WAPA further identify its infrastructure. The Government of the Virgin Islands has allocated additional funding to address this emergency.

Recognizing the age and performance of the St. Croix water system, WAPA pursued, and received a FEMA Prudent Replacement Grant that is expected to total about \$1.2 billion, that will replace the entire St. Croix water system and upgrade the system to best-in-class standards. The final engineering work on the projects is nearing completion.

We want to express our sincere thanks to both our local and federal partners for this significant support.

Additional Sampling to Pinpoint the Source of the Contamination

The additional sampling that WAPA is undertaking is in coordination with DPNR and EPA and is designed to collect multiple samples to isolate the source of the contamination. This is called sequential sampling and involves collecting multiple samples starting at the meter and working back to the mainline. This program is expected to start next week. Sampling is also being expanded to additional sampling points on St. Croix as well as on St. Thomas and St. John.

Changes to Operations and Infrastructure to Reduce the Levels of Lead and Copper

The actions WAPA are taking to remedy this emergency are focused on modifying our water treatment program as well as identifying portions of our infrastructure that are older and are constructed with copper lines and/or materials installed before 1986 because as I described earlier, allowable levels of lead in water infrastructure materials were higher prior to 1986. The actions that I will describe below may change, because the operational response to address this emergency will likely evolve as more sampling is completed and more information is gathered.

Modifying Water Treatment

WAPA currently treats its water with chemicals in a process called post treatment. This treatment is applied to the water after it leaves the reverse osmosis production facility.

I want to clarify one point regarding WAPA's current water post treatment program. The water for both the St. Thomas/St. John District and the St. Croix District receives post-treatment. That post-treatment consists of treating the water for corrosion control and with chlorine and calcium carbonate. I have heard some misunderstanding in the public that St. Croix water was not being treated with post treatment. That is not correct. What is correct is that the corrosion control post treatment is being treated with different chemicals for the St. Thomas/St. John District versus the chemicals being used for the St. Croix District. Why this is the case stems back many years.

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Corrosion control treatment was introduced into the WAPA system around 2013 when WAPA transitioned to reverse osmosis for water production from desalination because the water quality of reverse osmosis water is different than water produced by desalination. However, at that time, the two District's water systems were being managed independently by two Directors, and each Director was applying post treatment as they saw fit. The water utility's operations were consolidated Territory-wide under unified leadership when WAPA created the role of Chief Operating Officer of Water in 2019. One might ask why, after Territory-wide responsibility was established, was the water post treatment not modified to be uniform across the Territory? Based on the compliance testing that has been described throughout this testimony, WAPA's water complies with EPA requirements, including for Copper and Lead. Accordingly, there was no indication that any change in post treatment was warranted.

Post treatment is designed to achieve two things. One is to improve the taste and mineral profile of the water for consumers and the second is to adjust the water chemistry. The chemistry profile of reverse osmosis water can lead to corrosion and other impacts on pipes, meters, etc. If the chemistry of the water is modified, this can reduce the amount of lead and copper that can leach out of valves and fittings when stagnant water is in contact with the materials.

Infrastructure Replacement

As discussed, WAPA has already been investing in upgrading its St. Croix water infrastructure. In response to this emergency, WAPA is currently identifying sections of its infrastructure that were installed prior to 1994 and 1986, the dates when WAPA switched to installing plastic pipes and the regulatory allowed amount of lead in pipes and fittings was lowered, respectively. Approximately 50% of the samples collected and tested contained levels of lead and copper that were below EPA's Action Level, so we are focusing on those areas of St. Croix that received test results that exceeded EPA Action Levels for lead and copper. WAPA will then develop a program to replace this infrastructure. As discussed, a program is already underway to replace the entire St. Croix water system under a Prudent Replacement grant from FEMA, so much of the engineering work for this effort has already been completed.

Key variables that will impact the timeline for this work are availability and amount of funding, available workforce, and lead time on materials. The lead time on materials may be able to be shortened by sourcing inventory on hand from other municipal water systems because lead times on new materials are running several months. Funding will also impact the timeline because the funding will determine the amounts of materials that can be ordered, and thus the pace at which the work can proceed. The funding will also impact the timeline because WAPA will need to engage third-party contractors to expedite the work. With more, or less funding, WAPA will be able to engage more, or less, third-party contractor assistance.

In-Home Water Filtration to be Provided to Customers

DPNR is coordinating with WAPA on providing in-home filters to customers. Affected customers will receive one filter with replacement cartridges to cover one year of use. As I

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described earlier, changes to water treatment chemistry are expected to lower the levels of lead and copper in the water in affected areas, but filtration is being provided as an interim solution.

Customer Bill Credits

WAPA is partnering with Government House to implement a program to provide a credit to affected customers on their water bills. The coordination with Government House is critical because WAPA is a 100% cost pass-through business and does not earn a profit like a conventional business. WAPA must pay Seven Seas for any water that Seven Seas produces that a customer uses, so financial support for the customer credits will be needed.

WAPA is currently working with Government House on the logistics of implementing a bill credit and how that will be processed through WAPA's billing system. Credits will be retroactive to October, when the initial press release announcing the elevated levels of copper in lead in some of the water testing on St. Croix was released. The amount of the credit will also be refined based on the guidance for how long customers are directed to flush their systems.

The intent is to design a program that can be implemented quickly to provide relief to affected customers.

Conclusion

In conclusion, our primary goal is to safeguard public health and ensure that our community does not drink water that could be harmful. We ask that customers continue to follow the guidance provided by public health authorities and adopt any changes to that guidance as that guidance may change over time.

Rest assured we are doing everything in our power to protect the public. We are committed to transparency, and as the situation evolves, we will continue to provide more information alongside DPNR, EPA, and the Joint Information Center.

This concludes my testimony. Thank you to the Senate and the public for the opportunity to discuss the Water and Power Authority's water system on St. Croix. We are committed to resolving the challenges we face and thank you for your trust and support as we work to deliver safe and clean water to all members of our community. Thank you as well to our local and federal partners, and I would also like to thank the hardworking WAPA family. I, and other members of the Authority's team are available for any questions.