VIRGIN ISLANDS
WATER AND POWER AUTHORITY

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July 3, 2024

The Honorable
Ray Fonseca
Capitol Building, Charlotte Amalie
P.O. Box 1690
St. Thomas, VI 00804

Dear Chairman Fonseca:

I would like to inform you that Mr. Don Gregoire. Interim Chief Operating Officer of Water, will be presenting on behalf of the Virgin Islands Water and Power Authority regarding the operations of the reverse osmosis plants and the management of brine discharge in the U.S. Virgin Islands.

COO Gregoire brings extensive experience in water production systems and will provide a comprehensive overview of our current practices, environmental safeguards, and ongoing efforts to maintain compliance with all regulatory standards. His presentation will also and outline the Authority and our partners' dedication to responsible, sustainable water production for our territory.

We appreciate the opportunity to engage in this important discussion as we continue working to improve the services we provide to the people of the Virgin Islands.

Respectfully,
Karl Knight
Chief Executive Officer/Executive Director
Virgin Islands Water and Power Authority

CC: Don Gregoire, Interim Chief Operating Officer of Water

Testimony to the 36th Legislature | Committee on Health, Hospitals & Human Services

Good morning, Honorable Chairman, Senator Ray Fonseca, as well as other esteemed members of the Senate present, testifiers, the listening and viewing audience, and the WAPA family. I am Don Gregoire, interim Chief Operating Officer of Water Distribution. On behalf of the Virgin Islands Water and Power Authority, often referred to as "WAPA" or "the Authority", thank you for the opportunity to provide testimony and explain our operational practices and environmental stewardship concerning brine discharge from the water production facilities on the islands of St. Thomas and St. Croix.

I respectfully recognize the Chair and each member of this committee for your continued interest in ensuring that essential services such as potable water production are managed responsibly, with due regard to the health/wellbeing of our marine ecosystems and to the safety of the community.

Overview of Water Operations

WAPA owns and operates the potable water distribution systems serving approximately 7,100 active customer accounts on St. Croix and 6,900 on St. Thomas / St. John. The reverse osmosis (RO) water treatment facilities themselves are owned and operated by Seven Seas Water Group under a long-standing public-private partnership with the Authority. This arrangement leverages specialized expertise while ensuring EPA and DPNR oversight and accountability.

Since the introduction of reverse osmosis technology in the territory over 30 years ago, the Authority has not experienced any exceedances related to brine discharge operations. Both plants operate under strict environmental permits issued by the Virgin Islands Territorial Pollutant Discharge Elimination System (VITPDES) program, overseen by the Department of Planning and Natural Resources (DPNR) and the U.S. Environmental Protection Agency (EPA).

Brine Discharge Characteristics and Environmental Safeguards

To address the concern at hand — brine is the concentrated saltwater byproduct remaining after freshwater extraction through reverse osmosis membranes. The Seven Seas RO plants operate at a recovery rate of approximately 40%, meaning that for every 100 gallons of seawater processed, 40 gallons become potable water, and 60 gallons are discharged back into the ocean as brine.

The daily brine discharge is carefully monitored and managed:

- St. Croix: Capacity to produce 3.7 million gallons per day (mgd) with peak consumption around 2.7 mgd.
- St. Thomas: Capacity to produce 3.3 mgd with peak consumption near 2.9 mgd.
- Each facility generates roughly 1.0 million gallons per day of brine concentrate, consistent with industry norms for seawater desalination in tropical climates.

The brine disposal occurs through submarine outfall pipes extending from the coastal plants into deeper, open waters:

- In St. Croix: The discharge line runs beneath the Richmond fuel dock into the Richmond channel.

- In St. Thomas: The discharge occurs via an outfall at Lindbergh Bay.

Importantly, the outfalls are strategically placed in locations where ocean currents and water depth allow for natural mixing and dilution. Notably, the discharge passes underneath infrastructure like the Richmond dock, which allows for additional cooling before entering the marine environment, keeping discharge temperatures closer to natural ambient levels — an important ecological safeguard.

Regulatory Compliance, Monitoring, and Reporting

Each brine discharge operation is governed by comprehensive permits detailing limits for:

- Flow rate
- Temperature
- Salinity concentration
- Monitoring frequency
- Byproduct management

To date, the only violations have been due to late submission of reporting. There have been no adverse environmental findings reported by either DPNR or EPA regarding brine discharge from these facilities.
Seven Seas Water Group conducts continuous monitoring through automated flow meters and water quality sensors at designated points, reporting data on parameters such as salinity, temperature, and total dissolved solids. In addition, periodic biological assessments and visual inspections are performed to evaluate ecological conditions within discharge zones. The Authority also conducts daily conductivity, ph, and temperature at the discharge sites. Copies of the permits for both districts will be provided to this committee, including the respective permit numbers.

EPA and DPNR inspectors conduct regular site visits and audits to verify compliance, and both agencies have affirmed that there are no observable adverse impacts within the brine discharge areas.
In fact, both agencies and independent observations note thriving marine life within proximity of the discharge points, including healthy marine life.

Historic and Technological Context

For historical context, the water production facilities at Estate Richmond date back to 1967, originally utilizing thermal desalination systems. These older systems consumed more energy and produced higher-salinity and higher-temperature discharges — typically exceeding natural seawater temperatures by over 10°C, with greater ecological risk.

The transition to reverse osmosis technology represents a significant environmental improvement:

- Lower energy consumption
- Discharges at ambient or near-ambient temperatures
- Reduced chemical usage
- Modernized monitoring systems

This shift underscores our dedication to both operational efficiency and environmental responsibility.

Environmental Risks and Mitigation

While brine disposal carries potential risks — such as elevated salinity impacting coral reefs, seagrass meadows, and marine species — WAPA and its contractor have implemented best practices to mitigate these concerns, including:

- Careful outfall placement
- Continuous automated monitoring
- Regular reporting to regulatory agencies
- Rapid-response protocols in case of exceedances (though no such incidents have occurred)

WAPA remains vigilant, particularly in light of climate change and increased development pressures, and is committed to ongoing collaboration with EPA, DPNR, and other stakeholders to protect our marine ecosystems while maintaining essential services.

Conclusion

In closing, I wish to reaffirm that there have been no environmental violations, no adverse documented impacts, and no disruption to marine ecosystems as a result of brine discharge from WAPA's contracted reverse osmosis operations in over 30 years of operation.

The Authority will continue to uphold strict environmental standards and will work closely with regulatory bodies to ensure sustainable water production practices that protect our community's health and the natural resources of these beautiful islands.

Thank you, Chairman, and honorable Senators, for your attention and for the opportunity to address this matter. To the incredible men and women of our WAPA family — your grit, heart and dedication power more than just our facilities; you fuel this entire community. Thank you for showing up, standing tall, and making it happen. The WAPA team is here and ready to answer any questions you may have.