36TH LEGISLATURE OF THE VIRGIN ISLANDS
COMMITTEE ON HEALTH, HOSPITALS AND HUMAN SERVICES

The Honorable Senator Ray Fonseca
Chair of Committee

Testimony Presented By
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Commissioner of Health

on

Public health and environmental impacts of raw sewage discharge onto our streets and roadways.

Good day, Honorable Senator Ray Fonseca, Chair of the Committee on Health, Hospitals and Human Services; Vice Chair Senator Hubert Fredericks; committee and non-committee members; and the viewing and listening public.

I am Justa Encarnacion, Commissioner of the Virgin Islands Department of Health. Also joining me today are Assistant Commissioners Dr. Nicole Craigwell-Syms and Reuben Molloy; Chief Legal Counsel Mackiesh Taylor-Jones; Territorial Epidemiologist Dr. Esther Ellis; and Director of Environmental Health Wanson Harris.

Thank you for the opportunity to address the critical public health and environmental hazards associated with the discharge of raw sewage onto our streets and roadways. Untreated sewage harbors bacteria, viruses, parasites, and fungi that pose immediate and long-term health threats if not monitored and treated effectively. Primary bacterial pathogens such as *Salmonella*, *Shigella*, *Campylobacter*, and *E. coli* can cause severe gastrointestinal illness. Viral contaminants, including Hepatitis A, Norovirus, and Rotavirus, spread easily and persist in the environment. Parasites like *Giardia* and *Cryptosporidium* are especially resilient and may remain active in contaminated areas for months.

Respiratory risks stem from inhalation of airborne particles and gases like hydrogen sulfide and ammonia, which can aggravate asthma and other respiratory conditions. Skin exposure to sewage may lead to infections, chemical burns, or serious complications if wounds are involved.

Vulnerable groups

The highly vulnerable population as children, the elderly, immunocompromised individuals, and pregnant women—are at greater risk for complications, including prolonged illness, fetal harm, and hospitalization. Our community's most vulnerable members face disproportionate risks from sewage exposure. Children are particularly susceptible due to their developing immune systems and increased likelihood of hand-to-mouth contact with contaminated surfaces. Elderly residents and individuals with compromised immune systems face higher rates of severe illness and complications. Pregnant women exposed to sewage pathogens risk adverse pregnancy outcomes, including preterm labor and fetal complications. Healthcare workers and emergency responders also face occupational exposure risks when responding to sewage-related incidents.

Public Health Impacts of Sewage Exposure

Disease Transmission Pathways

In areas with limited infrastructure or delayed mitigation, raw sewage introduces multiple transmission pathways that pose serious threats to community health. The presence of pathogens in untreated sewage creates an environment ripe for disease propagation, especially

- **Waterborne Transmission**: When sewage enters drinking water supplies or recreational water bodies, it introduces enteric pathogens such as *E. coli*, *Giardia*, and *Cryptosporidium*. Ingesting or encountering contaminated water can lead to severe gastrointestinal illness, hepatitis A, and parasitic infections. This risk is particularly high for children, who may unintentionally ingest contaminated water during play. Research shows that in developing environments and underserved communities, waterborne outbreaks have historically led to widespread illness and hospitalization.
- **Airborne Transmission**: Pathogens in sewage can become aerosolized during flow disruptions, mechanical pumping, or exposure to heat. Inhalation of these aerosols—especially those containing norovirus or other respiratory pathogens—can cause respiratory illnesses or systemic infections. In poorly ventilated areas or enclosed spaces where sewage is exposed, such as during maintenance or flooding events, due to rainy or hurricane seasons, this route can pose a heightened occupational hazard to sanitation workers, emergency responders, and residents.
- **Vector-Borne Transmission**: Rodents, flies, and cockroaches are commonly attracted to areas with exposed sewage. These vectors can carry pathogens from sewage to food, surfaces, and directly to humans. Diseases such as *leptospirosis* (from rat urine), *dysentery*, and *salmonellosis* have been linked to sewage-contaminated vector activity. Vector control remains a key aspect of our public health response following sewage overflows.
- **Foodborne Transmission**: When raw sewage contaminates agricultural lands, irrigation water, food preparation surfaces, or vendor stalls, it becomes a source of foodborne disease outbreaks. Pathogens can enter the food supply chain through produce irrigated with contaminated water or improperly sanitized equipment. This has implications for both

public health and food security, especially in communities reliant on local food systems or open-air markets such as ours.

Together, these transmission pathways significantly increase the risk of infectious disease outbreaks. The likelihood of rapid spread is compounded by gaps in public awareness, insufficient sanitation infrastructure, and delayed emergency response. From a public health perspective, preventing exposure through early detection, environmental monitoring, rapid containment, and public education is critical to minimizing disease burden, safeguarding vulnerable populations, and maintaining the integrity of health systems.

To avoid those truths from becoming a reality in our beautiful Virgin Islands, our Divisions of Epidemiology and Environmental Health work side by side with our colleagues at the Virgin Islands Waste Management Authority to test, record, and report results of potential hazards to our community members.

Since 2014, we have operated the National Electronic Disease Surveillance System (NEDSS) in the Virgin Islands. We maintain a public health data dashboard and operate a foodborne illness complaint hotline to track illness patterns and respond quickly when problems arise.

In partnership with VI Waste Management Authority and Biobot Analytics, we conduct weekly testing of wastewater samples from five major treatment plants across St. Thomas, St. Croix, and St. John. This monitoring program enables early detection of diseases such as COVID-19 and its variants—often before widespread outbreaks occur. We also screen for Flu A, Flu B, RSV, and substances including Methamphetamine, Fentanyl, Cocaine, Xylazine, and Nicotine. Combined with the Department of Planning and Natural Resources' biennial comprehensive water quality reports, our wastewater surveillance system positions the territory among the most advanced in environmental health monitoring. In discussion with the Honorable Commissioner Jean-Pierre Oriol and as written in the letter addressed to this body,
"DPNR's Division of Environmental Protection samples 33 of the most commonly used beaches in the Territory every Monday and releases the results of the sampling every Friday. he goes on to say, "Over the last year, there has only been two instances where elevated readings for bacteria

were reported, and those instances were days after heavy rainfall events during the previous weekend."

The Division of Environmental Health maintains a collaborative, solutions-oriented approach to environmental health challenges. We work closely with affected establishments to help mitigate problems and provide professional guidance that enables continued safe operation.

This collaborative approach recognizes that businesses are often victims of infrastructure failures rather than the source of environmental problems. By providing technical assistance and working partnerships, we help maintain economic stability while protecting public health.

In the Virgin Islands, sewage incidents are most often the result of equipment failures within the jurisdiction of the VI Waste Management Authority. These infrastructure breakdowns can quickly escalate into public health emergencies, necessitating a rapid, coordinated response from multiple government entities.

To effectively address these situations, the Division of Environmental Health collaborates closely with Waste Management Authority, the VI Fire and Emergency Services, and the Virgin Islands Territorial Emergency Management Agency (VITEMA). Together, these agencies work to contain sewage flow, protect public health, and provide timely remediation in affected areas, including public roadways and commercial establishments.

This multi-agency response framework is critical to ensuring an effective and coordinated approach during sewage emergencies. Each participating agency contributes specialized expertise and resources that, together, support a swift and thorough resolution:

- **The Division of Environmental Health** leads public health protection by providing technical guidance, conducting health risk assessments, and overseeing environmental monitoring to ensure long-term safety and compliance.

- **The VI Fire and Emergency Medical Services** is responsible for frontline emergency response, including the management of hazardous materials and coordination of public safety measures during active sewage incidents.

- **VITEMA** plays a leading role in orchestrating the territory's emergency response, ensuring efficient resource allocation, maintaining situational awareness, and facilitating communication between agencies.

- **The VI Waste Management Authority** is tasked with addressing the root cause by conducting infrastructure assessments, performing necessary repairs, replacing malfunctioning equipment, and restoring wastewater system functionality.

To effectively address the ongoing challenges posed by raw sewage discharge and protect the health of Virgin Islands residents, we must enhance infrastructure, build institutional capacity, and foster sustained interagency collaboration, particularly with VIWMA, our central partner in wastewater operations. A modern, resilient wastewater system is foundational to safeguarding public health. As a partner, ensuring timely completion of the St. Croix Wastewater Replacement Project is critical. This project is a cornerstone to public health infrastructure and must be seen through to completion to begin moving the needle.

The VI Department of Health understands that illicit dumping and unauthorized discharges are major contributors to environmental contamination. Our intention is to strengthen enforcement mechanisms and provide technical assistance and education to property owners, which will significantly help to ensure compliance regarding connection requirements and permit conditions.

Further, protecting public health requires seamless collaboration across agencies responsible for sanitation, health, safety, and infrastructure. The VI Department of Health will continue to coordinate seamlessly and effectively with VI Waste Management Authority, and the departments of Planning and Natural Resources and Public Works to ensure prompt testing, data collection and initiating preventive measures to protect our community. This team along with VI Fire and Emergency Services and VITEMA are designed to lead comprehensive sewage emergency management planning, incident response, and risk communication, while providing guidance on best practices and promoting transparency and accountability.

The VI Department of Health is committed to increasing surveillance throughout the territory with VI Waste Management Authority to expand the Wastewater Surveillance System. As explained earlier, wastewater monitoring occurs at five treatment facilities, to fully leverage the benefits of early detection and environmental health monitoring, the system must be extended to all treatment plants and strategically located lift stations.

Expanding surveillance will support the timely identification of emerging health threats, from enteric disease outbreaks to drug exposure trends. We are also committed to increasing our public education campaigns launched territory-wide to inform residents about the health risks of sewage exposure, proper reporting procedures, and how they can protect themselves and their families during a sewage event. Public participation assists agencies in locating incidents sooner and builds a culture of shared responsibility.

The ongoing sewage discharge incidents across our community pose a serious and immediate threat to public health if there are poor or no responses. We have witnessed immediate response times by the Waste Management Authority, thus decreasing the risks to our community. Without this response, there would be an increase in the number of associated health risks that are substantial, the potential for disease outbreaks, and the impact on residents and the environment would escalate. However, while our inter-agency response system has proven effective in managing individual incidents through collaboration, it cannot fully resolve the underlying issues without systemic infrastructure improvements. Addressing aging and failing wastewater systems requires not only coordinated action but also sustained investment and legislative support.

The Division of Environmental Health remains dedicated to working alongside affected businesses, property owners, and community members to ensure that public health protections remain in place, even in the face of infrastructure challenges. We emphasize support, not punishment, for those impacted by failures beyond their control.

In closing I would like to not only recognize the full team of dedicated workers in the Virgin Islands Department of Health, but to provide full support and commendation to the staff in the Divisions of Epidemiology and Environmental Health for consistently facing the public sometimes under exceedingly difficult circumstances to protect our community and businesses. The Virgin

Islands Department of Health is fully committed to being a proactive and reliable partner in this effort. We want to thank the Honorable Governor Albert Bryan, Jr. And Honorable Tregenza Roach, Esq. for their continued support. Finally, the Department of Health is prepared to work together with the Legislature and our partner agencies to build upon the progress made, strengthen our systems, and ensure that all residents live in a safe, sanitary, and healthy environment.

Mr. Chair, committee and non-committee members, thank you for your time, attention, and unwavering commitment to the health and well-being of our community. We welcome your questions and remain available to provide any additional information or support as needed.