

Case Study

Emergency Response to Critical Water Shortages



SEVEN SEAS WATER GROUP
Water-as-a-Service®



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Project Details

Location: St. Thomas, U.S. Virgin Islands

Customer: Water & Power Authority (WAPA)

Technology: Seawater Reverse Osmosis

Capacity: 2.00 MGD (7,570 m³/d)

Market: Industrial / Power Generation /
Emergency / Quick Deploy Solutions

Water Production Handled by Water Professionals

With Water-as-a-Service®, Seven Seas takes on all the duties of water and wastewater treatment with no upfront investment, charging clients only for delivered water under performance-based contracts. We offer variable-year arrangements and can buy and upgrade existing infrastructure. Our modular equipment can be efficiently scaled up or down to meet changing demand.

Contact Seven Seas. Our water professionals are ready to share our many problem-solving options.

Overview

In November 2011, the Virgin Islands Water and Power Authority (WAPA) was experiencing critical water shortages at the Randolph E. Harley Power Plant on St. Thomas, impacting 5,500 residents, local businesses, and several hundred thousand visiting tourists. The shortages were caused by challenges WAPA faced in making much needed repairs to older thermal desalination equipment.

WAPA personnel worked diligently to repair the equipment, but with the plant experiencing significant downtime and no water available in storage, immediate assistance was accepted by the VI National Guard. The VI Guard brought in a total of eight 40,000 gallon per day (GPD) (151 m³/d) seawater reverse osmosis (SWRO) units. While the temporary supply offered some relief, it was not nearly enough capacity to meet the average daily demand of 1.8 million gallons per day (MGD) (6,813m³/d).

WAPA called on Seven Seas to provide an emergency supply of 2 MGD (7,570m³/d) in the shortest time frame possible. A fast-track solution was paramount to mitigating the economic and social impacts caused by the water shortage that was occurring during the peak tourist season.

Flexible Solutions

In mid 2011, Seven Seas agreed with WAPA to construct a state of the art permanent SWRO system to replace WAPA's aging thermal desalination equipment. In November 2011, while in the permitting process for the long term plant, the water emergency occurred on St. Thomas. Seven Seas was asked to respond immediately to provide a short-term solution until the long term permanent plant could be constructed.

A total of eight SWRO containerized units were shipped to St. Thomas in two phases. Eleven days from contract signing, three SWRO units arrived at the Randolph E. Harley Power Plant. The equipment was up and running a mere 29 days from contract signing, producing 750,000 GPD (2,838m³/d).

The second shipment of three units arrived 19 days from contract signing, while at the same time, two additional Seven Seas containerized units were sent to St. Thomas from the existing Seven Seas facility at the WAPA Richmond plant on St. Croix.

All the units were installed and operating, providing a total capacity of 2 MGD (7,570m³/d) within 46 days from contract signing. WAPA's water storage tanks, which were virtually empty, began to fill. All the permitting was approved for the installation of the permanent SWRO facility in mid-February 2012. During construction, the emergency containers continued to operate. Once the long term installation was producing water, the containers were removed and sent to another location. The new facility now produces all the drinking water in St. Thomas as well as the high purity process water required to operate their power plant.

No Capital Costs

With no up-front capital required from WAPA, Seven Seas quickly deployed the mobile SWRO units under a build-own-operate (BOO) arrangement. Seven Seas manages and operates the water facility daily, guaranteeing a reliable water source at a fixed cost per gallon over the entire term of the agreement.

PROJECT UPDATE:

Seven Seas owned and operated the emergency quick deploy SWRO system and delivered the quantity and quality of water required by the Virgin Islands Water & Power Authority until August 7, 2013. The plant was decommissioned shortly after a new 3.3 MGD (12,490m³/d) land based SWRO was constructed on site.

The new facility is also owned and operated by Seven Seas Water Group.

