Delivering results and reducing operating expenses by 50%

In 2009, Seven Seas Water was awarded a contract to supply 500,000 gallons per day (GPD) (1,892m³/d) of fresh water to the VI Water and Power Authority (WAPA) on the island of St. Croix. This would be a temporary supply, during a time frame while the Authority’s thermal desalination equipment was being refurbished. When WAPA concluded that Seven Seas Water’s solution, utilizing state-of-the-art reverse osmosis technology, could produce highly reliable quantities of water at a measurably lower cost than originally estimated, Seven Seas Water was asked to expand the scope of supply to 1.5MGD (5,677m³/d). A contract was signed and in 97 days, Seven Seas Water was delivering the contracted quantity and quality of water on the island of St. Croix. The Company installed mobile seawater reverse osmosis (SWRO) units that not only satisfied the immediate needs in the shortest time frame possible, but also provided sufficient additional benefits that warranted pursuing a longer term; permanent SWRO solution.

In early 2011, after a rigorous bidding process, Seven Seas Water was awarded another contract by the Authority; this time tasked with the responsibility to replace all of WAPA’s thermal production of potable water with SWRO, and to supply all the fresh water for WAPA to distribute, territory wide. This would include two new land based facilities, a 2.2 MGD facility on St. Croix, with the existing 1.5MGD (5,677m³/d) to remain in place, and a 3.3 MGD (12,490m³/d) plant on St. Thomas.

In November 2011, while in the permitting process for the land based projects on St. Croix and St. Thomas, WAPA’s thermal desalination equipment on St. Thomas was failing to keep up with demand, and the island faced critical water shortages. The Authority requested an emergency supply of 2MGD (7,570m³/d) of potable water from Seven Seas Water. As they had previously done on St. Croix, Seven Seas Water responded in record time, delivering eight mobile SWRO units to the Randolph E. Harley Power Plant. Within 29 days, the Company was delivering 500k GPD (1,892m³/d) to the Authority’s tanks, and only 46 days from signing the emergency contract, the entire 2MGD (7,570m³/d) was being delivered to WAPA’s tanks.

With temporary units in place both on St. Croix and St. Thomas, WAPA and Seven Seas Water began coordinating efforts to build the permanent facilities on both islands. On St. Thomas, construction began on the Harley Seawater Reverse Osmosis Facility in July 2011 and was commissioned in June 2013. Seven Seas Water is now delivering 3.3MGD (12,490m³/d) to the Authority’s tanks. The temporary units were phased out, and have been shipped to another Seven Seas Water project location. The permanent facility on St. Croix was commissioned in November of 2013 and delivers 2.2 MGD (8,327m³/d) of fresh water per day to the Authority. The 1.5 MGD containerized SWRO system on St. Croix also continues to operate.

During the construction of the SWRO projects, WAPA asked Seven Seas Water to build two additional water plants on each island that would provide ultra-pure water to meet power generation demands and meet EPA mandates on St. Thomas and St. Croix. These facilities produce 850k GPD (3,217m³/d) of ultra-pure water per day combined.

**NO CAPITAL COSTS**

With no up-front capital required from WAPA, Seven Seas Water quickly responded to WAPA’s requirements under a build-own-operate (BOO) arrangement. Seven Seas manages and operates the water facilities daily, guaranteeing a reliable water source at a fixed cost per gallon over the entire term of the agreement.

“It was a great effort between us and the team at the VI Water & Power Authority to get this project done. We were able to bring solutions in quickly, that ultimately drove down the operating costs for WAPA by 50%. This was a success for both of us and a result of a great PARTNERSHIP.”

David Starman, Regional Manager USVI
“There are a few hurdles to deal with when making the transition from thermal to reverse osmosis, like negotiating contracts, modifying existing permits, rebalancing power, and redistributing manpower. However, the benefits of reduced costs, a consistent and quality water supply and a guaranteed water production price, far outweigh those hurdles.”

Tom Williams, Sr. Project Engineer

DID YOU KNOW?

In addition to the benefit of reduced costs in operating a seawater reverse osmosis system vs. a thermal plant, the average area per unit of capacity is greatly reduced for a seawater reverse osmosis desalination facility, which frees up valuable real estate.

For this project, the average area per unit of capacity for the thermal facility was 7.31 ft² per thousand gallons of produced water per day. The average area per unit of capacity for the seawater reverse osmosis system is 3.99 ft² per thousand gallons of produced water per day.