Case Study

Point Fortin, Trinidad BOO Contract

SEVEN SEAS WATER GROUP

Water-as-a-Service®

Project Details

Location: Point Fortin, Trinidad and Tobago

Customer: Water and Sewerage Authority of Trinidad and Tobago (WASA)

Technology: Seawater Reverse Osmosis (SWRO)

Capacity: 6.7 MGD (25,379 m^3/d)

Overview

The Caribbean Island of Trinidad has a tourist industry, but its oil and gas resources are the mainstays of the economy. While Trinidad has no shortage of fossil fuel, fresh water has historically been a problem.

In 2010, when the island was in the grip of a severe drought and drinking-water shortage, the Water and Sewerage Authority of Trinidad and Tobago (WASA) reached out to Seven Seas Water Group to fast-track delivery of fresh water to Point Fortin and nearby areas on the island of Trinidad.

Challenges

- Fast-tracking a 5.2 MGD (19,682 m^3/d) desalination plant, expandable to 7.2 MGD (27,252 m^3/d)
- Overcoming delays due to site issues, including the discovery of an onsite oil well
- Treating feed water, which is impacted by seasonal weather patterns and silt outflows from the Orinoco River
- Protecting a sensitive marine ecosystem

Residents of the Point Fortin area were only receiving water service one day a week, thus it was critically time-sensitive to execute the project and deliver reliable, 24/7 fresh water. However, this project had several challenges to overcome. The delicate marine ecosystem had to be left unharmed. The pretreatment process needed to be designed to accommodate large shifts in feed water quality throughout the seasons. Construction on the small, 1.2-acre site at an oil refinery had to be halted when an oil well was unexpectedly discovered, which took eight months to cap. Also, it was determined that existing interconnecting piping was unreliable, so new pipelines crossing active roadways were installed.

Solution

The project took advantage of a flexible build-own-operate (BOO) contract that required no initial investment. Even with significant obstacles, within 14 months residents of the Point Fortin area were receiving 24/7 water service compared to the rationed one day a week. This is the largest desalination project installed in Trinidad in the last two decades.

Additional Findings

Seven Seas also initiated an environmental management program to monitor effluent quality, which includes surveys to monitor the impact of reverse osmosis brine outfall on the surrounding marine ecosystem. Today, Seven Seas continues to work with two independent firms to ensure effluent quality standards and to protect the marine ecosystem.

According to the Harvard-Zofnass Program for Sustainable Infrastructure,

"[...] the project performs above the industry norm both in producing freshwater that is of exceptionally good quality and in monitoring its effluent into the sea. This project creates a clear net positive impact on the community, achieving water supply for 29,000 people."

Desalination plant delivers reliable fresh water to 29,000 long-underserved islanders

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