

SUEZ technology turns salt water into drinking water for sandals royal bahamian resort

challenge

The island of New Providence in the Bahamas is booming with residential and hotel development. While great for the local economy, this influx has increased the demand for fresh water, challenging the island's limited available supply.

Sandals Resorts International, a well-known, family-owned resort chain, operates the Sandals Royal Bahamian in Nassau on New Providence. The spa and resort turned to SUEZ Water Technologies & Solutions for an on-site solution that could provide the resort with fresh, potable water. The system would need to fit the existing footprint and require minimal capital investment and maintenance, as to allow Sandals to continue focusing on growing its business.

solution

SUEZ Water Technologies & Solutions designed and installed a 216,000 gallon per day desalination plant for Sandals Royal Bahamian that utilizes reverse osmosis (RO) technology to turn readily available salt water into fresh, potable water. Figures 1 & 2 show the installed product.

Pre-treatment for suspended solids includes both multi-media filtration and cartridge filtration. The RO was designed to achieve high recovery and minimize overall plant energy. It includes an energy recovery device (ERD). The compact design and configuration of the system's major components enabled simplicity of installation and eases access for maintenance purposes.

The facility is integrated with a programmable logic controller (PLC) together with a remote monitoring function. The PLC is a very hardy piece of equipment that can withstand the noise levels, vibration, and salty, seaside environment. Operating pressures approach 900 psi.



Figure 1: SUEZ's RO solution at Sandals Royal Bahamian in Nassau on New Providence.

The typical RO desalination process incorporates a high pressure pump that forces water through vessels/membranes. About half of the incoming seawater is desalinated as it passes through the RO membranes. The other half, slightly concentrated, is directed to the ERD, which then imparts its energy to "assist" the incoming feedwater, thus reducing the power required by the high pressure pump initially. A power savings of 30 to 40% is typical using this method.

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The project commenced with Sandals Resorts providing SUEZ with its water and overall system requirements. The scope included the provision of all process equipment, while seawater intake and outfall systems were modified to accommodate Sandals' existing system. SUEZ was given the available footprint to work within, and designed a plant to fit. The location of the new plant required some modernization of the existing building as well as a delicate balance between engineering requirements and accessibility.

SUEZ's 10-year contract with Sandals Royal Bahamian combines SUEZ equipment, chemical treatment products, consumables, maintenance, and service offerings. The Build, Own & Operate (BOO) solution provides peace of mind by transferring the desalination details to SUEZ and minimizing Sandals' capital investment and predictable cash outflow.

A performance-based service contact helps ensure business objectives are met and allows Sandals to benefit from long-term reliability, predictable economics and an optimized water treatment system for years to come.



Figure 2: SUEZ's RO solution at Sandals Royal Bahamian in Nassau on New Providence.

results

While still in the early stages of this relationship, Sandals is already experiencing the benefits of a comprehensive equipment and service contract with SUEZ.

The resort no longer has to source parts for basic maintenance or emergency repairs, saving both time and money, and helping the RO plant avoid downtime.

By utilizing SUEZ to operate and maintain the equipment within their scope, Sandals Resorts has freed up personnel to work in other areas of the hotel. In addition, SUEZ has recommended and offered training to Sandals' maintenance department, so there is knowledge and understanding for monitoring and safety purposes.

The performance-based contract guarantees water quality and quantity production, and a pre-determined water tariff enables Sandals to budget accordingly without "what if" scenarios.