SEA WATER RO

Ritz Carlton – Molasses Reef

newterra Brings Self-Contained Infrastructure to Up-Scale Resort and Island's Residential Population

Challenge

The Ritz Carlton – Molasses Reef is an upscale luxury vacation destination on the once uninhabited and undeveloped West Caicos Island in the Turks & Caicos. It is composed of 200+ private suites and resort villas, as well as several five-star restaurants, a full service spa, natural wildlife sanctuary and two national parks.

As West Caicos was previously undeveloped, there was the need to build infrastructure and establish needed utilities such as clean, reliable potable water. **newterra** was chosen to build the first permanent desalination systems on West Caicos to provide water for the entire island. The first system, a 40,000 GPD system was installed in 2006, the second, a 150,000 GPD system was installed in 2007.

Solution

Two 40' air-conditioned containerized custom water systems containing:

- 190,000 GPD Seawater RO System with energy recovery turbine (ERT), PLC control and touch screen HMI
- Triplex Multimedia System for RO Pretreatment

Seawater is pumped up from a well and is fed through multimedia filters to remove suspended solids. Next, this water is dosed with anti-scalant to substantially reduce membrane scale. The water then enters the RO systems which remove 99% of the total dissolved solids (TDS), producing 132 GPM of water less than 250 PPM. Finally a pH adjustment is made and chlorine is dosed for disinfection to provide clean potable water. This water is fed into a large storage tank and then distributed throughout the island as needed.

Results

The **newterra** desalination system brought potable water to an entire island where fresh water was previously unavailable. Remote monitoring and a yearly service contract with **newterra** insures that Ritz Carlton management has more time to focus on guest requirements without having to worry about water.

One of two 40' containers providing a turn-key solution for the Ritz Carlton