

Gainesville Regional Utilities Turbine Operates Consistently & Cleanly with GE RO/EDI

Gainesville Regional Utilities (GRU) in Gainesville, Florida is a city owned utility, which operates the city's water supply, wastewater treatment, power, natural gas and fiber optic Internet services.

GRU wanted to upgrade one of their two facilities with a re-powering project to install a combined cycle, 75 Mega Watt GE Frame 7 Turbine. The project requires DI quality water at 50 gpm be used with their Heat Recovery Steam Generator (HRSG). Using a typical mixed bed DI system would require using acid and caustic for regeneration. Eliminating the dependence on chemicals, which are hazardous to handle and store, caused GRU to look for other options. They decided to purchase an RO/EDI system from GE Infrastructure Water & Process Technologies (previously Osmonics) for installation in 2000.

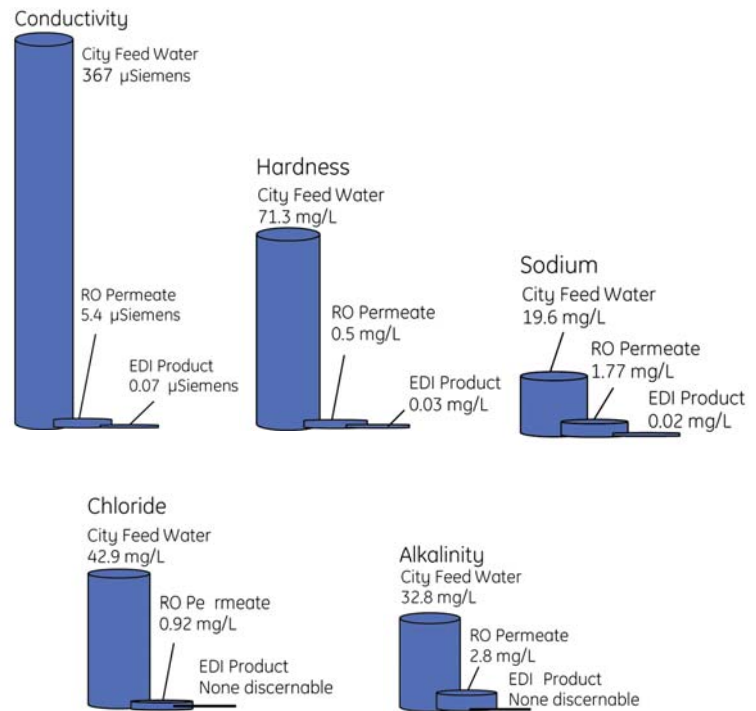
GE provided a complete water treatment system for the project. The water system begins with duplexed sand filters followed by two chemical injection systems. First sodium sulfite is injected for chlorine removal. Then, an antiscalant is injected to prevent mineral scale on the RO unit. The RO purifies the water with Thin Film Composite (TFC) membrane elements to achieve 98-99% mineral rejection. A water softener further polishes the RO permeate to remove trace hardness prior to the electro-deionization (EDI) unit. The EDI, using GE E-Cell technology, produces 15 MegOhm water continuously.

Due to the low amount of hardness in the RO product water, the softener needs regeneration only once per quarter during scheduled RO maintenance for cleaning.

RO/EDI Delivers Results

The GE RO/EDI system provides continuous DI quality water for the HRSG and has for over two years. Only one water treatment train is required due to

the continuous RO/EDI operations. GRU is extremely satisfied and now has no requirement for on-site bulk chemicals (acid & caustic). The RO/EDI system provides a dramatic reduction of water impurities in the City Feed Water as illustrated below. The EDI provides resistivity levels of 15 MegOhm. The system has provided significant cost savings by minimizing chemical costs, labor required and allowing for a single train equipment installation.



Silica
City Feed Water = 25.0 mg/L
RO & EDI Permeate – not available
Typical Results:
RO rejection = 99%.
EDI Units Produce silica levels of <20ppb w/ feed levels of ≤ 0.5 ppm



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Global Headquarters
Trevose, PA
215-355-3300

Americas
Minnetonka, MN
952-933-2277

Europe/Middle East/Africa
Heverlee, Belgium
32-16-40-20-00

Asia/Pacific
Shanghai, China
86-21-5298-4573