

Location: New Caledonia



AMI desalination system enhances power generation at one of the world's largest mining operations

High quality water is essential for cooling systems, boiler feedwater, and other critical power generation equipment and processes.

Challenge

A global leader in specialized energy solutions executes energy technology projects across the world. Their solutions span a wide portfolio of offerings including gas turbines, solar hybrid, turnkey power plants and more.

Their client is one of the world's largest mining companies and producers of nickel. The mine suffered from a breakdown of combustion turbine generation system and lost its backup power source. This led to production delays, increased downtime, and financial losses.

The client needed new equipment on an urgent basis. This included a demineralization water treatment solution critical for their new power plant. The water treatment solution would be used to remove minerals and salts from water, prolong power generation equipment lifespan, and produce high-purity water for power generation processes.

Feedwater originated from several sources including pretreated dechlorinated groundwater, well water, and seawater with varying TDS levels and high salinity.

With a very limited footprint for equipment at the mine, the energy company requested support from Applied Membranes Inc.

Solution

Applied Membranes designed, built, and shipped a robust, durable two-pass membrane desalination system for power generation application, producing **200 GPM (1200 m3/d)**.

The fully containerized system includes double-pass RO systems with electrodeionization (RO-RO-EDI) to treat high salinity water with desalination and EDI and produce high-quality water.

Two containers were supplied including a 20-foot pretreatment container and 40-foot RO-RO-EDI container – both containers are climatized and completely prewired, pre-piped, pre-assembled, and factory tested at Applied Membranes ISO:9001 facility prior to shipment.

Key Components:

- Antiscalant
- Chemical injection system
- Prefiltration system to 5 microns
- Programmable Logic Controller (PLC)

Results

AMI water treatment solution produces high quality demineralized water for power generation application.

Permeate quality from AMI water treatment solution measures **< 0.10 EC**. The containerized systems fit within the challenging space constraints at the mine site and were delivered within the required 6-month timeframe.

