

WFI Cartridges Manufacturer Uses GE Solution to Protect the Environment and Save Money

Background

In 2006, a Chicago area manufacturer of WFI cartridges for respirator airline humidifiers was facing a challenge: A decades-old, non-validated, resin deionizer was consuming too much acid and caustic. More importantly, the technology was a drain on valuable maintenance resources and the overall plant budget. Routine shutdowns were costing the plant valuable operation time, corroded component failures were taking the maintenance department away from critical PM schedules, and the multi-effect stills were losing efficiency from hardness incursions. Unable to secure capital allowance, this plant incurred an operational cost of about US\$150,000 per year in order to produce 24 GPM of DI water to feed the WFI stills. (The majority of the costs were from renting exchange DI bottles, while their own system was often down for repair and maintenance.) With plans for expansion, this manufacturer purchased additional distillation equipment to increase WFI production by 50%. However, the equipment sat idle since DI production capacity was severely limited.

Challenge

The manufacturer was clear about their requirements for their ideal system, if a project could be initiated:

- A fully validatable USP Purified Water generation system, with state of the art controls and automation
- Increased purified water production from 24-GPM to 36-GPM
- Reduction in operation cost by 25% minimum
- No capital outlay, but instead a plan that would allow them to work within budget constraints
- Any installation activities would have to be completed over a 48-hours weekend period
- Minimum 90% reduction in chemical usage
- Condensed foot-print to fit inside a 10'X12' area of an already-crowded utility room

Solution

Partnering with this customer from the very beginning, GE Water & Process Technologies suggested a PHARM Series fully validatable Purified Water System. The solution included the Reverse Osmosis and Electrodeionization (RO-EDI) system on one preassembled skid, in addition to a second skid with the necessary pretreatment (softeners, filtration and a recirculation break-CIP tank.) The skidded design was key to quick and easy field installation. To complete the package, GE Capital financed the project, and GE Water & Process Technologies supplied a service contract that included all the consumables, routine site visits, on-site cleaning, chemicals and filters, spare parts and membranes for 5-years. The resulting total scope of the project represented a yearly outlay of US\$95,000 (down from US\$150,000 per year), with the added benefit that the customer will fully own the equipment after 60-months. After the initial contract period, the cost of operation would drop by an additional 50%.

Results

After a routine factory acceptance test (witnessed by the customer), the system was shipped and the challenge of installation was at hand. The customer removed their old resin tanks and corroded chemical pipes, and, with the assistance of the on-site GE Project Manager, dropped in the GE skids and made the necessary water and electrical connections within the allotted time frame. The following day, the system was making 36-GPM of 18-MO Ω m water, and, within days, IQ and OQ were completed. It was then production better than usual, as the customer was finally able to realize increased production of WFI cartridges for export all over the world.

For additional information, please visit www.gewater.com/highpurity



Find a contact near you by
visiting ge.com/water or
e-mailing custhelp@ge.com.

Global Headquarters
Trevose, PA
+1-215-355-3300

Americas
Watertown, MA
+1-617-926-2500

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

Asia/Pacific
Shanghai, China
+86 (0) 411-8366-6489