Plant Achieves High Water Purity with Mee
Compact Skid Mounted RO-EDI Facilitates Rapid Deployment

THE BENEFITS
• Produces 0.1 us/cm high purity water for use for GT fog cooling, boiler make up water and similar industrial applications
• Continuous and chemical free regeneration of ion exchange resins using electrodeionization (EDI) technology
• Dual Pass RO Skids with integrated EDI module using only 1 RO pressure pump reduces equipment footprint and cost

CHALLENGE
A Middle Eastern power plant had an urgent need for a water system that could fit within space constraints and provide high-purity water. The only available water supply, the Euphrates river water had large annual fluctuations in water quality.

SOLUTION
Two Dual-Pass RO-EDI skids, each with integrated EDI modules, a pre-treatment filtration system and booster pump units all manufactured to be suitable for airfreight.

Power Plant
Middle East

A power plant in the Middle East needed a supply of high purity water for their newly purchased GT Inlet Fog Cooling skids. The existing water system did not provide water quality sufficient to meet the turbine manufacturer specifications for prevention of fouling and possible damage to the compressor blades.

REQUIREMENTS
The plant needed an immediate solution in order to take advantage of the fogging with the warm weather fast approaching. The only available source of raw water was from the Euphrates river which can have a wide fluctuation in water quality due to various factors including industrial and agricultural run-off.
High Levels of suspended solids, iron and iron bacteria where detected in the raw feed water supply to the plant. These required pre-treatment in order prevent quick fouling of the RO membranes. Additional limitations on transport and installation space meant the entire water treatment solution needed to be compact.

**MEE INDUSTRIES’ SOLUTION**

Mee Industries designed and manufactured two, Dual-Pass RO skids each with an integrated EDI module to polish the water to meet the above specifications. An inline pre-filtration system with feed water booster pumps and chemical feed systems was provided to remove the contaminants detected in the raw water supply prior to entering the RO membrane units.

Without the luxury of space and time Mee Industries skid design allowed each unit to fit into containers suitable for transport by air. Integrating the EDI unit with the RO skid saves the space of an additional skid and also eliminates the need for a break tank and booster pump unit to re-pressurize the RO permeate water through the EDI unit.

A programmable logic controller with a 12” color touch screen user interface display provides instant visual feedback on system flow and water quality performance. The system starts and stops automatically based on the level of water in the demineralized water storage tank.

Due to the distance between the fog skids, the water treatment units and demineralized water storage tank, the booster pump for feeding the fog skids are controlled by the PLC’s of the RO/EDI skid units. Here the information already being shared between the Meefog cooling skid and the RO/EDI unit via the central control room allow for the booster pump to automatically start and stop and also adjust flow rates and pressure all based on cooling water demand. This eliminates expensive installation costs for long distance cables and additional controllers.

The power plant found the water to be of such high purity < 0.1 us/cm that they chose to use this new water to supply make up water for their boilers and also as the new water source for compressor washing.