



Power Plant, Oman

FEDI Model: FEDI-2 SV 30X

No. of Streams: 3 x 100m³/hr (2 working, 1 standby)

No. of Stacks: 90

Silica as SiO₂: < 0.02

Conductivity: < 0.1

QUA Solution

QUA provided its Fractional Electrodeionization (FEDI) technology for the RO permeate polishing and demineralization component of this project.

The FEDI system is designed to treat three streams of 100 m³/hr of double pass RO feed water, to be used in the power plant process as high pressure boiler feed. Each skid consists of 30 FEDI stacks in a 3-tier arrangement. Each row has 10 FEDI stacks in parallel.

Project Background

The client, a natural gas based power plant in Oman, required demineralized water for its boiler application. Demineralized water will be used for high pressure boilers. The feed water source is seawater that undergoes pretreatment that includes sea water reverse osmosis followed by brackish water reverse osmosis, followed by EDI for the demineralization component of this project.

Client's specific requirement was for produced water with conductivity less than 0.1 and silica less than 0.02. The OEM, well-known in UAE, chose Electrodeionization as the most viable option for the polishing step of the process, and selected QUA's FEDI-2 SV stacks for their capability of delivering high quality product water on a consistent basis.

Electrodeionization (EDI) was preferred as the final polishing process instead of a mixed bed exchanger to reduce costs associated with regeneration, wastewater treatment and disposal. Selecting EDI also avoids the handling of corrosive chemicals.

FEDI® Electrodeionization

Fractional Electrodeionization (FEDI) is an advanced EDI technology that was developed to address the limitations of conventional EDI. FEDI is a patented two-stage process that operates in a dual voltage configuration to reduce hardness scaling that may occur in conventional EDI.

FEDI's unique design maintains an acidic condition in the first stage and basic condition in the second stage of the electrodeionization concentrate chamber. This patented design reduces mineral scaling in the first stage and enhances silica removal in the second stage.

About QUA

QUA is an innovator of advanced membrane technologies that manufactures and provides filtration products to address the most demanding water challenges.



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