



Water & Process Solutions

LENNTECH

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Integration of Dow Components Enables High-Purity Water Production for the Power Industry in Egypt (El Shabab)



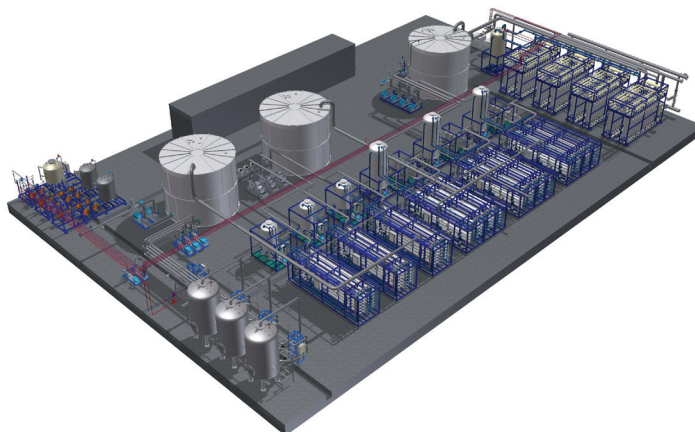
DOW™ Ultrafiltration modules, DOW FILMTEC™ Reverse Osmosis elements and DOWEX™ Ion Exchange Resins are installed to produce more than 6,000 m³/day of high-purity water for El Shabab Power Plant.

Fast Facts

Location:	El Shabab, Egypt
Construction:	PROTECNO Srl (Italy) and EMIT SpA (Italy)
End-user:	Cogeneration Power Plant
Purpose:	Feed for NO _x Removal system and feed for Evaporative Air Cooler system
Water Source:	Well Water
Installed Capacity:	7,500 + 3,750 m ³ /day RO permeate flow 6,200 + 3,100 m ³ /day Mixed Bed product flow
Start-Up Date:	July 2011

Raw Water Quality and Specified Product Water Quality

Parameter	Unit	Raw Water	Required Demi Water
Temperature	°C	18 – 25	18 – 25
Conductivity	µS/cm	3,800	< 0.1
Silica SiO ₂	mg/L	25	< 0.01
Sodium	mg/L	998	< 0.05
Turbidity	NTU	< 25	—
TSS	mg/L	< 15	—



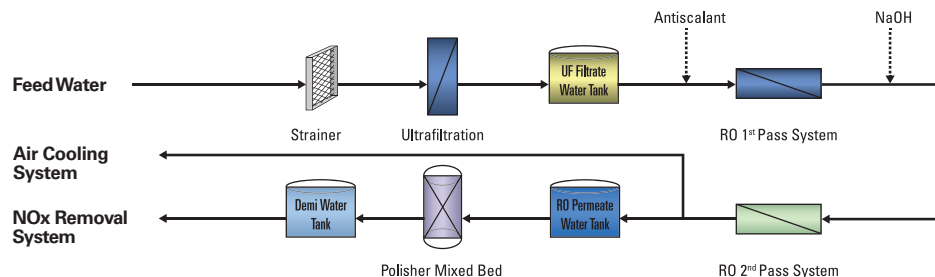
3D Layout of the UF + RO + MB System in El Shabab power station.

**System Information**

Unit	Design Flux (lmh)	Design Recovery (%)	Number of Trains	Product Installed	Total Number of Modules
UF	47 ^a	91 ^b	3+1 standby	DOW™ UF SFP-2880	192
RO 1 st Pass	24	75	2+1 standby	DOW FILMTEC™ BW30HR-440i	360
				DOW FILMTEC™ HRLE-440i	180
RO 2 nd Pass	30.5	89	2+1 standby	DOW FILMTEC™ XLE-440	378

^aUF operating flux of all three UF trains on duty: Instantaneous filtrate flow (L/h) / total active area (m²)^bUF recovery (related to UF feed) % of all three UF trains on duty: UF filtrate net flow / UF feed flow • 100

Unit	Trains	Product Installed	Regenerant	Total Volume (L)
Mixed Bed Polisher	2 + 1 standby	DOWEX MARATHON™ C	H ₂ SO ₄	6,000 (H ⁺ form)
		DOWEX MARATHON™ A	NaOH	10,800 (OH ⁻ form)

Flow Diagram of the Plant**LENNTECH**

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