

Minimal Liquid Discharge and Water Treatment for Power Generation

FTS H2O Supports Uzbekistan's Talimarjan Thermal Power Expansion

FTS H2O, an Aquatech company, was selected to deploy high-recovery reverse osmosis (RO) technology as part of a Minimal Liquid Discharge (MLD) system supporting the 2 × 450 MW expansion of the Talimarjan Thermal Power Plant in Uzbekistan. The project forms a critical element of Uzbekistan's Power Generation Efficiency Improvement Project, advancing energy efficiency, reducing emissions, and strengthening the long-term reliability of the country's national power supply.

At A Glance

	Location:	Republic of Uzbekistan
	Industry:	Power Generation
	Solution:	MLD
	End-User:	Talimarjan Thermal Power

Challenge

During the expansion of the Talimarjan Thermal Power Plant, the facility faced typical power-sector water treatment challenges, including fluctuating feed water conditions, low-TDS requirements (≤ 150 ppm), and a wide range of ambient operating temperatures. Aquatech, FTS H2O's parent company, was selected as the water treatment partner for the expansion, providing engineering, procurement, and commissioning oversight for the plant's water treatment systems. Aquatech applied FTS H2O's RecovOAR™ solution due to its ability to produce recovered water while optimizing thermal energy use. Drawing on extensive experience delivering water treatment solutions for large-scale power generation facilities, Aquatech applied proven design and operational insight to address the site's complex requirements. As a result, energy consumption was optimized, robust materials of construction were selected, and engineered systems were delivered to reliably manage variable feedwater quality and harsh operating conditions.

Product Water: Raw Water Treatment Plant

Parameter	Unit	Value
Treated water flow rate OP-1	m ³ /hr	760
Treated water design flow rate OP-8	m ³ /hr	1200
Total suspended solids	ppm	< 10
Turbidity	NTU	< 20
pH	SU	8 - 8.8

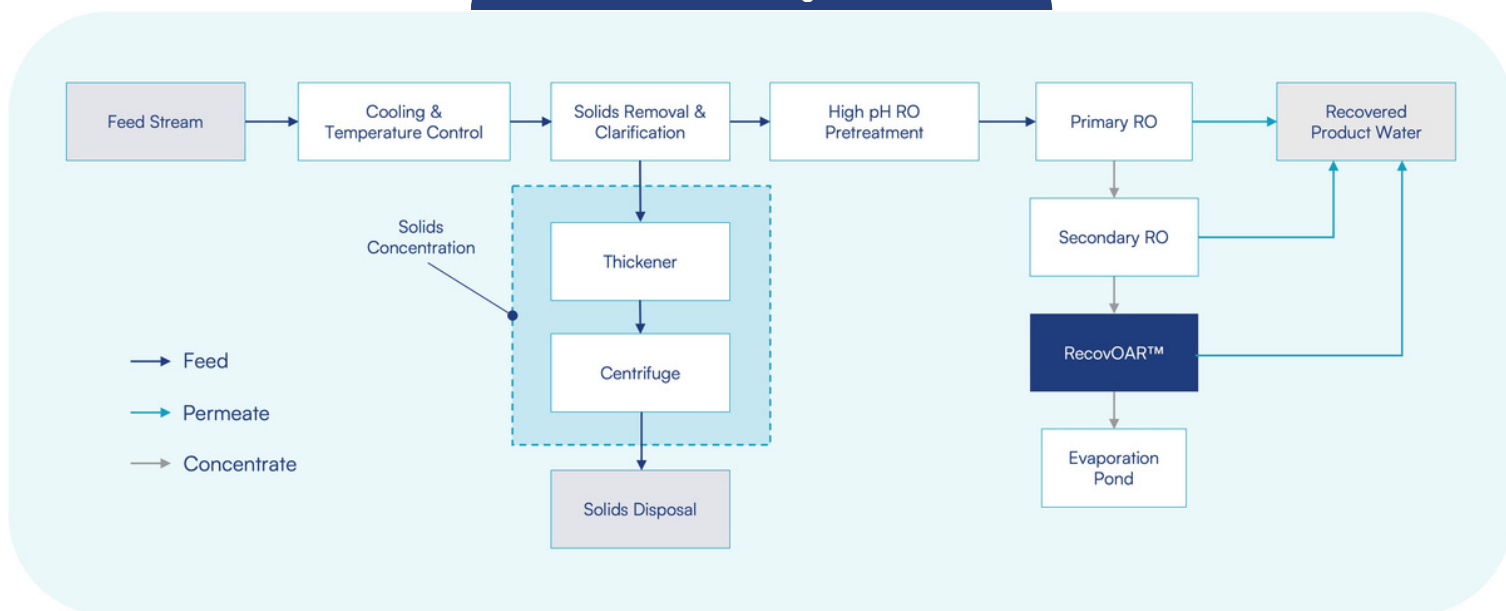
Product Water: MLD Plant

Parameter	Unit	Value
Total dissolved solids	ppm	≤ 150
Total suspended solids	ppm	< 1
pH	SU	8 to 9
Chloride	SU	< 55
Silica	ppm	< 1
Hardness as CaCO ₃	ppm	< 1

Solution

Aquatech, the parent company of FTS H2O, delivered a fully integrated water management solution for the Talimarjan Thermal Power Plant expansion. This included engineering and supply of a 305 m³/hr MLD system, an Oil-Water Separator (OWS), and a 1,608 m³/hr water pre-treatment plant, followed by FTS H2O's innovative membrane-based high-recovery RO technology. Designed to operate reliably under extreme scaling and organic fouling conditions, the RO system achieves industry-leading reject concentrations of 200-250 g/L and enables reject concentration above 20% when integrated with upstream RO, without the need for energy-intensive thermal brine concentration. By optimizing the thermal step, FTS H2O's high-recovery technology transforms the future of brine concentration by reducing power consumption, minimizing capital equipment requirements, and delivers more than 96% overall water recovery.

Process Flow Diagram MLD



Result

By combining Aquatech's end-to-end process expertise with FTS H2O's high-recovery RO technology, the Talimarjan Thermal Power Plant was able to significantly reduce its water footprint while maintaining full compliance with Uzbekistan's stringent MLD regulations. The project reflects both Aquatech's and FTS H2O's commitment to advancing sustainable water management practices that support Uzbekistan's goals for reduced freshwater consumption and greener energy production. Through innovative system design and high-efficiency performance, Aquatech's FTS H2O RecovOAR™ solution continues to drive more cost-effective and sustainable solutions for MLD and ZLD applications.

