Customer Success Story

Location: United States

Applied Membranes transforms power plant's existing system from underperforming to highly efficient and reliable.

Suboptimal installations can result in compromised water quality, increased operational costs, and increased risks to equipment integrity and longevity.

Challenge

One of the largest electric utilities and power generation plants in the USA was facing problems with its existing 2 million gallon per day (MGD) (315 m3/h) ultrafiltration (UF) system.

Another company had previously supplied and installed the system, but its performance fell short of expectations, prompting the need for major improvements. Media filters did not provide effective pretreatment (RO cartridge filters were being replaced 1-2x per day).

Source water to the UF System is used/recycled water (COD exceeding 100 mg/L and fluctuating TDS exceeding 5,000 mg/L). The existing system treats wastewater from the facility, prior to brackish water RO desalination.

The facility is configured in four treatment trains, each producing approximately 0.5 MGD (80 m3/h). End use is for Power Generation; demineralized water for power augmentation.

The client contacted AMI for engineering support, hands-on engineering services, and operational support.

Solution

Applied Membranes initially performed consulting engineering services to evaluate the existing UF installation. After thorough analysis, AMI provided recommendations to improve the facility.

The client requested AMI to proceed with implementing improvements so the system would perform as expected.

The system improvements included significant PLC program changes, a larger backwash pump with duplex/CD4 construction, revised CEB operation and more conservative flux rates.

Once the fundamental improvements were completed at the PowerGen plant, AMI replaced all the UF membranes. This included retrofitting the existing T-Rack with a newer module and replacing galvanized grooved couplings with corrosion resistant flex-type non-metallic couplings. All piping, prefiltration system, and touchscreen controller were assembled on a single skid.

The UF treatment was pilot tested and then implemented to replace other media filters that did not provide effective pretreatment.

Results

This project highlights Applied Membranes' ability to improve installations from other companies and take a holistic approach to engineering and operations.

Enhanced water quality: The UF system now consistently produces high-quality water. Upgraded design and revised protocols have significantly enhanced system reliability and minimized downtime.

Operational efficiency: PLC program adjustments and new modules significantly enhance system performance, reduce energy consumption and operational costs.

Client satisfaction: The client now benefits from a fully functional water treatment system, delivering optimal performance and reliability, due to AMI's comprehensive improvements and engineering expertise.

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