Sir Shadi Lal Distillery, UP, India

UA

Model: Q-SEP[®] 8012 Q-SEP Membranes: 25 numbers Permeate Flow: 92m³ /hr (405 gpm) Application: ETP Wastewater Recycle Commissioning: October 2020

Project Background

A distillery focused on the production of rectified spirits, denatured spirits, special denatured spirits, anhydrous alcohol and extra neutral alcohol required a water treatment system to meet their environmental sustainability goals. To recycle and reuse the effluent from the plant, the client decided to install an effluent treatment plant (ETP).

The ETP has a conventional biological treatment followed by a tertiary treatment system. The distillery planned to recycle the ETP treated water using reverse osmosis for their process and utility use such as cooling tower makeup water and bottle washing.

To ensure high quality permeate, the distillery decided to select ultrafiltration (UF) as an additional filtration step to get the required turbidity and ensures consistent product water quality suitable as feed for the downstream reverse osmosis (RO) process required for reuse. The parameters

required for the RO feed water are SDI <3, Turbidity <0.2 NTU.

Since a high feed turbidity of up to 50 NTU was anticipated in the feed to the ultrafiltration system, the client decided to select PVDF-based outside-in UF membranes due to their capability to filter water with a high feed turbidity. The distillery evaluated various outside-in UF membrane options; the evaluation was based on the membrane surface area, the ability to withstand higher feed water turbidity and amount of waste generation. The system integrator finally selected Q-SEP 8012 UF membrane modules because of the following advantages they offer:

- 1. High membrane area of 80 m², requiring a lower number of membrane modules and footprint, resulting in capex savings for the distillery.
- 2. The ability to withstand feed turbidity up to 100 NTU on a continuous basis.



3. Higher product recoveries due to a lower amount of UF filtrate used for maintenance cleaning.

QUA Solution

QUA has supplied 25 Q-SEP[®] 8012 modules which are installed after the distillery's tertiary treatment system as a pretreatment to the reverse osmosis system.

The performance of Q-SEP PVDF outside in membranes on the distillery effluent has been very encouraging. The ultrafiltration system was commissioned in October 2020, and has been delivering consistent product flow and water quality since then. The product water turbidity has been consistently less than 0.2 NTU and Silt Density Index has been less than 3. Q-SEP UF membranes thus provided a consistent, durable solution for the distillery's process water needs.

About QUA

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

Q-SEP® Hollow Fiber Membranes

QUA Q-SEP[®] UF membranes incorporate high-strength, hollow fibers that deliver superior performance without the risk of fiber breaks. Q-SEP[®] UF membranes are available in inside-out and outside-in flow configuration. Both types of membranes have excellent low fouling characteristics. These hollow fiber membranes operate under a pressurized flow configuration for superior performance. Applications of Q-SEP UF include pretreatment to RO systems (brackish and seawater applications), purification of surface and well water for potable applications, filtration of industrial water, and wastewater recycle and reuse.



www.quagroup.com