



**EnviQ[®] XL MBR Solution for
High COD & BOD Pharmaceutical
Wastewater Treatment**



Client: Leading Pharmaceutical Manufacturer

Plant Capacity: 5.58 m³/hr (140 KLD)

A leading pharmaceutical manufacturer operates a facility for production of injectables, inhalation agents for anesthesia, and multiple dosage forms including sublingual tablets. The pharmaceutical manufacturing process generates complex effluents containing high organic load and variable characteristics, requiring a reliable and advanced treatment solution to meet stringent discharge and reuse norms.

Challenges:

The client's manufacturing unit generates high-strength pharmaceutical effluents characterized by fluctuating COD and BOD levels, making treatment particularly challenging. The facility needed a robust solution that could consistently meet stringent discharge standards while ensuring reliable treated water quality suitable for recycling back into operations. In addition, the project demanded a compact, space-efficient system that could be seamlessly integrated within the existing site constraints without compromising on performance or compliance.

QUA's Solution:

To treat its complex pharmaceutical effluent, customer implemented a comprehensive treatment scheme comprised of equalization, preliminary treatment, settling, and biological treatment, followed by QUA's EnviQ[®] XL 440 MBR module. The EnviQ[®] XL integrates advanced biological processing with membrane separation, eliminating the need for secondary clarification and tertiary filtration while ensuring consistent treated water quality. Designed to handle 140 KLD of effluent, the system operates at an aeration tank MLSS concentration of about 2000 ppm, enabling robust biological performance even under fluctuating load conditions. With its compact footprint and reliable operation, the solution not only meets stringent discharge standards but also supports efficient water recycling through downstream RO, reducing freshwater dependency and enhancing sustainability at the facility.



Scheme Offered



Results

The EnviQ[®] XL MBR has enabled this leading Pharma company to consistently achieve high-quality permeate with COD < 50 ppm, BOD < 20 ppm, turbidity up to 1 NTU, and TSS-free water. With further polishing through ETP RO, the treated water is reliably recycled within the facility, reducing dependence on fresh water. This solution ensures consistent compliance with stringent discharge norms, provides operational ease with a compact design, lowers maintenance needs, and supports companies long-term sustainability and cost optimization goals.