



QUA's EnviQ® Enables Reliable Wastewater Reuse and Future Expansion at a Major Mexican Airport



Client: A Major Mexican Airport
Wastewater Treatment Capacity: 64.4 m³/hr

A major international airport in Mexico was expanding with new terminals, putting additional pressure on its existing wastewater treatment infrastructure. The airport needed a solution that could reliably meet Mexican environmental regulation NOM-001-SEMARNAT-2021 discharge requirements while also supporting water reuse goals for sanitary and irrigation applications.

Challenges:

The existing treatment plant was no longer able to consistently handle increasing wastewater loads while maintaining the required effluent quality. The airport needed stable membrane performance under varying operating conditions without increasing maintenance complexity or operational downtime.

Limited available space made system footprint a critical factor in technology selection. The customer was looking for a compact, scalable, and operationally reliable MBR solution that could support both current demand and future airport expansion plans. As part of its ongoing expansion plans, the airport intends to increase its wastewater treatment capacity by adding two new treatment streams of 18 LPS and 30 LPS, in addition to the existing 18 LPS system, representing a total future treatment potential of 172.2 m³/hr.

QUA's Solution:

QUA's EnviQ® RF 1900 submerged ultrafiltration membrane modules were selected for their compact design, fouling resistance, and stable long-term performance in demanding MBR applications. EnviQ® replaced Mitsubishi membrane modules due to available space constraints. The system combined biological treatment, ultrafiltration, and disinfection to produce high-quality treated water suitable for sanitary reuse and irrigation.

EnviQ® maintained consistently low TMP during operation, helping reduce membrane stress, cleaning frequency, and operational interruptions. Its ability to support higher MLSS operation also helped maximize treatment capacity within the available footprint. Backed by strong engineering and OEM support, EnviQ® provided the airport with a scalable and reliable wastewater reuse solution.

Process Diagram



Results

Previously, wastewater was discharged directly into the drain. With EnviQ® RF 1900, the airport now treats and reuses this water while meeting Mexico's NOM-001-SEMARNAT-2021 discharge requirements. The project significantly reduced freshwater consumption for sanitary and irrigation needs, supporting both sustainability and regulatory compliance.

EnviQ® consistently delivers high-quality treated water with low TSS (<10 mg/L), COD (<30 mg/L), SDI below 3, turbidity (<1 NTU), and stable membrane performance. Its compact MBR design increased treatment capacity without major infrastructure expansion, while simplifying operations and providing a scalable solution for future airport growth.