

CASE STUDY

Malibu Civic Center MBR Plant

Project Type: Municipality, Water Reuse

Location: Malibu, California

HIGHLIGHTS

Delivered the complete electrical scope necessary for plant operation on the complex MBR facility.

Designed for an initial flow of up to 188K GPD, with the capability to expand to 376K GPD.

Capacity to produce disinfected tertiary recycled water meeting the strict Title 22 requirements.

IWS COMPLETES MBR PLANT, PRODUCING TITLE 22 RECYCLED WATER

Integrated Water Services, Inc. (IWS) was a key team member on the \$24 million Malibu Civic Center recycled wastewater plant project for the City of Malibu Public Works Dept. The project's goal was to construct a state-of-the-art Membrane Bioreactor (MBR) treatment facility to service commercial businesses in the Civic Center area of Malibu, CA, and produce high-quality recycled water.

CHALLENGES FACED

- **Complex Scope of Work:** The project required the construction of a comprehensive wastewater plant featuring numerous components, including influent pump stations, headworks, bioreactors, membrane reactors, chemical feed systems, UV disinfection, and multiple specialized buildings (Headworks, Solids, Operations, etc.).
- **Need for Stringent Water Quality:** The facility had to be designed to meet Title 22 requirements for Disinfected Tertiary Recycled Water.
- **Extensive Electrical and Control Systems:** The electrical installation was massive, requiring over 33,000 linear feet of conduit and 60,000 linear feet of wire, along with a sophisticated control system to manage all plant functions and communicate with offsite lift stations.



SOLUTIONS IMPLEMENTED

- **Integrated MBR Treatment System:** A MBR system utilizing a hollow fiber configuration was selected to perform biological treatment and membrane separation to meet regulatory standards. The system was built with two process trains to handle current flow and provisions for two future trains to expand capacity to 376,000 GPD.
- **Comprehensive I&C Management:** IWS executed the complete electrical scope for the project, installing a standby diesel generator, transformer, motor control centers, distribution panels, and all related equipment. This included 200yd³ of duct bank encasement.
- **Advanced Control System Integration:** The control system involved PLCs, an operator Interface hardware/software package, a dedicated membrane control system software package, and fiber optic patch panels and system for communication with offsite lift stations.



OUTCOME AND IMPACT

- **Production of High-Quality Recycled Water:** The MBR plant was completed and designed for an initial flow of up to 188,000 GPD, successfully meeting Title 22 requirements for disinfected tertiary recycled water that can be used to irrigate the property.
- **Efficient Effluent Management:** All excess clean treated effluent not reused in irrigation is directed to a deep well injection site where it will be safely dispersed into the Pacific Ocean.
- **Full Operational Readiness:** IWS's work included the full start-up of the electrical and I&C systems, ensuring the complex plant—including everything from headworks to UV disinfection and odor control was fully operational.

IWS successfully delivered the comprehensive electrical and control systems for the Malibu Civic Center MBR plant. The facility's design and construction allow for reliable, high-volume production of recycled water, ensuring compliance with strict environmental regulations for the benefit of commercial businesses in the area.



DOWNLOAD