

Surfs-up at the Ala Wai Golf Course: A New TDS Perspective for Reuse

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From Hawaii to California, Kennedy Jenks (KJ) presents a new perspective on the assessment of water quality for scalping plant systems for water reuse. Whether you play golf or have a course in your service area, you won't want to miss this presentation! The Ala Wai Golf Course, located in Waikiki, O'ahu, is irrigated with a mix of Honolulu Board of Water Supply (HBWS) potable water and brackish water from an onsite well.

The HBWS has a water conservation program that considers conversion of large potable water users to recycled wastewater as a conservation measure to preserve potable water for its highest use, where practical. Currently, in a typical month, approximately 5.5 million gallons of blended HBWS water and brackish water is used for irrigation of the golf course. HBWS funded a study for KJ to evaluate the technical feasibility of locating a 0.5 MGD MBR scalping facility at the Ala Wai Golf Course, with the goal of reducing the recycled water costs to below the current HBWS non-residential water rate of \$4.96/k-gal. The aim of the project was to identify wastewater flows within existing sewer lines in the proximity of the golf course storage pond that met the following criteria:

- Quantity - Average daily volume of 500,000 gal
- Quality - Chlorides less than 500 mg/l

The study included the use of deployable conductivity probes to determine which sewer lines had the best quality water to recycle for irrigation of the Bermudagrass on the course's fairway. Discrete sampling every 15 minutes revealed that the wastewater chlorides varied over a 24-hour period from a low of about 350 mg/l to a high of about 1100 mg/l coincident with the peak of the high tide. At the conclusion of the study, the KJ team determined that to meet the water quality and quantity objectives, the Ala Wai Golf Course MBR will source wastewater from two manholes while avoiding harvesting wastewater for a total of six hours during high tides.

Since the completion of this study, the project has moved into the design phase. Attendees of this presentation will hear about how the team correlated the wastewater quality with the tidal cycle, and control strategy considerations made during the design of the MBR scalping plant to provide a constant flow of source water despite not harvesting wastewater during high tides. This presentation will be a good opportunity to learn about how high tides impact the planning and design of scalping plants in coastal regions. The information presented will assist cities in learning and understanding the water quality challenges that need to be considered when planning and designing a scalping plant, especially near the California Coast!