

Improved Treatment In A Facultative Lagoon System

Better mixing throughout their lagoon system helped achieve water quality goals.

Topics: wastewater, facultative, lagoon, pond, DO distribution, odor mitigation, SolarBee® floating wastewater mixers



Location & Contact Information:

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System Overview: Wastewater influent to this system consists of ~50% municipal from the City and ~50% industrial from a local candy manufacturer.

This is a 3-cell facultative lagoon system covering a total of 102 surface acres. Water enters the system at Cell 1 then flowing sequentially into Cells 2 and 3 before being discharged. It has an operating volume of 151 million gallons and an average operating depth of ~5 feet.

Pre-Deployment Conditions: This system had serious issues with short-circuiting and poor dissolved oxygen distribution. This caused uneven total suspended solid (TSS) buildup, inefficient treatment & sludge digestion, and noxious odors in the spring.

In 2007- 2008, the City did a complete retrofit of this lagoon system which included SolarBee® floating wastewater mixers. They added an equalization basin forcing diffused air into the system and modified system piping to help improve flow patterns.

Project Objectives: Improve hydraulic circulation and mixing, reduce short-circuiting and improve distribution of dissolved oxygen within the lagoon volume. Enhance suspended solids distribution and assist in sludge/slurry digestion.

Solution: A total of eleven (11) SolarBee® SB10000v12-DM floating wastewater mixers were deployed in May 2007.

Cell 1: Six (6) units.

Cell 2: Three (3) units.

Cell 3: Two (2) units.

Results: Since deployment, they have not had any problems meeting their TSS and BOD discharge limits of 80 mg/L and 30 mg/L respectively even with high BOD loading from the candy manufacturing plant.

Enhanced circulation & mixing have also significantly increased dissolved oxygen distribution and short-circuiting is no longer a problem. Spring odor problems have been resolved.

The City is very pleased with the sustainable water quality benefits their SolarBee® floating wastewater mixers have provided. They also appreciate the high-quality customer service & technical support they have received throughout the continuing life-cycle of their Medora Corporation equipment.