Case Study

Medora Corporation

Recreational Lake & Raw Water Reservoir

USTXRW-LOC24.001

Topics: raw water, blue-green algae, cyanobacteria, taste & odor, treatment savings, water clarity

SolarBees being prepared for installation.

Contact: Information is available upon request from Medora Corporation. 866-437-8076 info@medoraco.com

Overview: This Lake serves as a recreational and raw water reservoir, providing about 30% of the total drinking water supply to a large city. The lake, constructed in 1954, is approximately 11,800 surface acres, with a maximum depth of 50 ft, an average depth of 11 ft, and a current capacity of about 130,000 acre-feet. The water intake pipe to the water purification plant is located 15 ft from the lake surface. The capacity of the water purification plant is 80 MGD, with an average daily flow rate of 60 MGD.

Conditions / Objectives: The water purification plant suffered from serious summer and winter taste and odor problems resulting from chronic blue-green algae (cyanobacteria) blooms producing MIB (2-methylisoboneol) and geosmin, and possible elevated manganese and sulfide levels in the reservoir's bottom waters.

Solution: Twenty (20) SB10000v12 units were deployed in approximately 650 acres of the lake near the intake of the water purification plant. This is a partial-lake approach was designed to provide at least a 20-day supply of good quality water ahead of the water purification plant intake. Deployment Date: April 2006

Results: As part of the city's evaluation, the U.S. Geological Survey (USGS) installed 3 real-time monitoring platforms in the lake in August 2006. These and other water quality data indicate that the SolarBees have kept the treated area of the lake well mixed and **free of blue-green algae blooms** since they were deployed. MIB and geosmin concentrations have been consistently less than 5 parts per trillion, and taste and odor complaints have essentially ceased. The more consistent, good quality water has made water treatment requirements more predictable. Furthermore, the reductions in MIB and geosmin have resulted in a 33% decrease in powdered activated carbon (PAC) use at the water purification plant, providing an initial annual cost savings of about $500,000. The city has been pleased with the water quality benefits and economic savings SolarBee circulation has provided. In fact, the city authored a paper and presentation for the state's annual AWWA meeting titled: "Solar-powered Circulators Improve Lake [City's Name]'s Water Quality".