

## Summarized Case Study (RW)

**Key words:** RW reservoir, blue-green algae, taste & odor, stratification, dissolved oxygen, impaired fishery



**Photo:** First photo shows the reservoir just prior to SolarBee installation; second photo shows the placement of all three SolarBees in the reservoir

**Reservoir or Lake Use:** This is a raw water storage reservoir in front of a potable water treatment plant.

**System Overview and Reservoir Data:** Originally, surface area was 23 acres; maximum depth at full volume is 33 ft; minimum depth is 22 ft; average depth is 28 ft; volume is 600 acre feet, or 195 MG. Average withdrawal rate is 1 MGD, so hydraulic residence time is 195 days. District withdraws water at about 23 feet deep. In 2005, the reservoir was enlarged to 62 surface acres in size.

**Reported Problem Before SolarBee Installation:** Taste, odor, blue-green algae blooms and stratification were major concerns. Actinomycetes bacteria associated with blue-green algae may have also contributed to their taste and odor problems.

**Installation:** March 2001, installed two (2) units each equal to a SB2500\*. Intake hose initially set at about 23 feet initially and then lowered to 27 feet the following year. June 2006, installed one (1) SB10000v12 after reservoir was enlarged in 2005.

**Results:** Reservoir destratified within one month after installation, maintaining good dissolved oxygen (DO) throughout the water column. There were no taste and odor complaints in 2001, the first year in the last four without reported customer complaints. At that time (2001) management felt that they had found a solution to their problems without having to use potassium permanganate, and that assessment has not changed since. The SolarBee added in 2006 provided continuous control of blue-green algae and associated taste and odor problems following reservoir expansion in 2005. They also report that fishing has noticeably improved since the SolarBees were installed. The owner is very happy with the consistently good water quality solar-powered circulation has provided since 2001.

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\* SolarBee, Inc. (formerly a division of Pump Systems, Inc.) developed, manufactured, and installed this equipment, and adopted the name "SolarBee" for this technology in Sept, 2001).