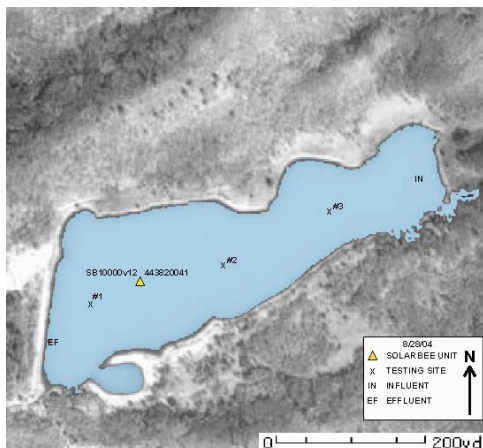


**Key Words:** RW reservoir, blue-green algae, hypolimnetic oxygenation, dissolved oxygen, taste & odor, manganese, treatment savings



**Photos:** First photo is an aerial shot of Reservoir #2 showing the location of the SolarBee near the dam; the second photo shows the SolarBee maintaining an opening around the unit in several feet of winter ice.

**Reservoir or Lake Use:** Reservoir #2 is a raw water storage reservoir for a city. The reservoir is located at an elevation of 10,500 feet above sea level.

**System Overview and Reservoir:** Reservoir #2 has a surface area of 16.4 acres, with a maximum depth of 23 feet, an average depth of 14, and maximum volume of 74.7 MG.

**Reported Problem Before SolarBee Installation:** The reservoir had a history of high manganese (Mn) concentrations, particularly during the winter when the lake is thermally stratified under the ice. The specific objectives for installing the SolarBee are to increase dissolved oxygen levels in bottom waters to keep Mn (as well as iron, hydrogen sulfide and phosphorus) from being released from the sediments, to prevent blue-green algae blooms potentially responsible for taste and odor problems, eliminate the need to treat the lake with copper sulfate, and improve water quality and consistency of water entering the WTP.

**SolarBee Installation:** Date: August 2004, installed one (1) SB10000v12 in the reservoir near the water intake to the water treatment plant. The SolarBee hose was set below the WTP intake pipe to keep waters entering the WTP sufficiently oxygenated to prevent soluble Mn from entering the WTP.

**Results:** The SolarBee has achieved the city's desired goals, with dissolved oxygen concentrations maintained sufficiently high to keep Mn concentrations reduced so that Mn is no longer a problem during the winter months. Before the SolarBee, winter Mn concentrations were typically 0.3 - 0.7 mg/L; after the SolarBee installation Mn concentrations have reached 0.04 mg/L, but are usually 0.01 mg/L or less. There have not been any blue-green algae blooms, thus eliminating the need to add chemical algacides. The city has not experienced taste and odor problems since the SolarBee was installed, and are very pleased with the SolarBee and the realized ecological and economic benefits from solar-powered circulation.

*Last updated: 1-10-07*