

Key Words: Union Point, GA, RW reservoir, blue-green algae, manganese, iron, THM/HAA, taste and odor, hypolimnetic oxygenation, treatment savings

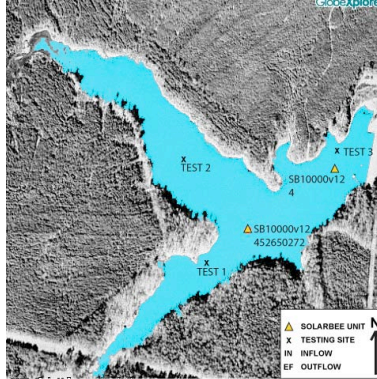


Photo: Photo shows placement of the two SolarBees in Sherrill's Creek Reservoir.

Reservoir or Lake Use: Sherrill's Creek Reservoir is the raw water supply reservoir for the city of Union Point, with a water treatment plant (WTP) situated adjacent to the lake. Outflow to the plant is approximately 0.2 MGD, and the reservoir has a hydraulic detention time of about 774 days.

System Overview and Reservoir: This man-made reservoir has a surface area of about 48 acres, with an average depth of 10 ft and a maximum depth of 14 ft near the dam.

Reported Problem Before SolarBee Installation: The reservoir had a history of blue-green algae blooms, as well as high manganese and iron concentrations, both of which caused taste and odor problems. The WTP reported levels of manganese entering the plant during the summer typically around 7 mg/L, and as high as 20 mg/L. The objectives for installing SolarBees in the reservoir are to reduce levels of iron and manganese entering the treatment plant, eliminate the need for chemical treatments to control algal blooms, and improve digestion of organics in the reservoir for long-term improvement in levels of THMs (trihalomethane) and HAAs (haloacetic acid).

SolarBee Installation: Date: June 2005, installed two (2) SB10000v12 units – one unit placed in the center for algae control with intake set above the thermocline, and the second unit deployed near the water intake to the WTP with the intake set deep for keeping water entering the WTP oxic for manganese control.

Results: During the first summer, manganese concentrations coming in to the WTP dropped from approximately 3 mg/L to about 0.3 mg/L. After fine-tuning intake hose depths, manganese concentrations dropped even further to < 0.1 mg/L, eliminating the need to add potassium permanganate for mitigation. In the 20 years the superintendent has been at the WTP, he has never seen manganese concentrations in the raw water entering the plant so low. Blue-green algae bloom control has also been achieved with excellent results, including the absence of taste and odor complaints since installations and eliminating the need for costly toxic chemicals applications or grid-powered aeration. The City is very satisfied with their investment in SolarBees, and the superintendent appreciates very much the improved water quality and more stable consistency of raw water entering the WTP.

Last updated: 4-21-08