

Key words: Conyers, GA, RW reservoir, iron, manganese, dissolved oxygen, short-circuiting, chemical savings



Photos: Top photo shows one of two SolarBees in the plant's pretreatment reservoir; second photo shows placement of both units in the reservoir.

Owner: Rockdale Water Resources, Conyers, GA; Lee Pope, Manager, Tel.: 770-785-6803.

Reservoir or Lake Use: Man-made lined storage reservoir which receives water from Black Shoals Lake. This reservoir serves as a raw water source for the city of Conyers, GA.

System Overview and Reservoir Data: Surface area is 6 acres; volume is 20 MG and maximum depth is 15 ft. when full. Design flow to water treatment plant is 22 MGD.

Reported Problem Before SolarBee Installation: High levels of iron (Fe) and manganese (Mn) entering the treatment plant, short-circuiting, low levels of dissolved oxygen (DO).

SolarBee Installation: Date: November 2002; installed two (2) SB10000 units with 24-hour kits; a chemical injection kit was also installed on one SolarBee.

Results: Soon after installation, the manager reported DO levels at near saturation and significant reductions in Mn concentrations. Testing in 2003 and 2004 indicated relatively high levels of Fe and Mn coming from the feeder lake (i.e., Black Shoals Lake). From fall through spring (when Black Shoals Lake is naturally mixed and oxygenated), influent concentrations averaged 1.2 mg/L Fe and 0.2 mg/L Mn. During summer stratification of Black Shoals Lake, influent concentrations averaged 1.8 mg/L Fe and 0.35 mg/L Mn. Although testing showed large amounts of Mn entering the reservoir, concentrations entering the water treatment plant were significantly reduced. As influent water goes through the SolarBee pond, with a 1-2 day detention time, there was about a 20% average reduction in Fe and a 50% average reduction in Mn. The use of chemicals for precipitating these metals has been minimized. The manager is very pleased with both the significant improvements in water quality as well as the customer service PSI has provided him.

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