Medora Corporation

Raw Water Reservoir
USGARW-LOC46.001

Topics: blue-green algae, taste & odor, THM removal, TTHM, hypolimnetic oxygenation, MN and FE control, treatment savings

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

Overview: This reservoir is the raw water supply reservoir for a city, with the water treatment plant (WTP) situated adjacent to the lake. 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. Outflow to the plant is approximately 0.2 MGD, and the reservoir has a hydraulic detention time of about 774 days.

Conditions / Objectives: The reservoir had a history of blue-green algae (cyanobacteria) blooms, as well as high manganese (Mn) and iron (Fe) concentrations, both of which caused taste and odor problems. The WTP reported levels of Mn entering the plant during the summer typically around 7 mg/L, and as high as 20 mg/L. The objectives for installing SolarBees are to reduce levels of Fe and Mn 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).

Solution: 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 SolarBee intake set deep for keeping water entering the WTP oxic for Mn control.

Date: June 2005

Results: During the first summer, Mn concentrations coming in to the WTP dropped from approximately 3 mg/L to about 0.3 mg/L. After fine-tuning intake hose depths, Mn 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 Mn concentrations so low in the raw water entering the plant. Blue-green algae bloom control has also been achieved with excellent results, including the absence of taste and odor complaints as well as eliminating the need for costly toxic chemical 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.

One of two SolarBees operating in the reservoir

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