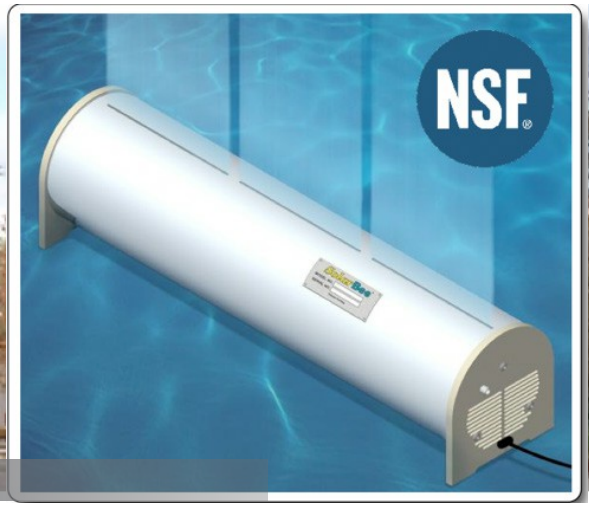
Case Study

Medora Corporation

Potable Tank Reservoirs 6, 8, & 15

USORPW-LOC867.001-3

Topics: potable, THM removal, TTHM, stratification/water age, short-circuiting, chlorine



The city's water treatment plant & GridBee® GS-12

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

Overview: The water treatment system includes three potable water storage reservoirs (Reservoirs 6, 8 and 15) where chlorine boosting occurs before water is distributed to the community. Reservoir 6 is a 3.5 MG concrete storage tank with a height of 30 feet, a diameter of 143 feet, and a maximum daily flow of 90,000 gpd. Reservoir 8 is a 2 MG concrete ground storage tank with a height of 30 feet, a diameter of 108 feet, and a daily flow of 34,000 gpd. Reservoir 15 is a 1.2 MG concrete ground storage tank with a height of 31 feet, a diameter of 83 feet, and an estimated daily flow of 400,000 gpd. Reservoirs 6 and 8 are single inlet/outlet tanks, whereas Reservoir 15 has a separate inlet and outlet, although they are in fairly close proximity. Treated water goes from Reservoir 6 to 8 to 15 before being distributed. The disinfectant utilized in these systems is chlorine.

Conditions / Objectives: There had been a history of high trihalomethane (THM) levels in the finished water. Winter months were worse when lower water consumption created water age issues. Objectives for this installation are to reduce THM concentrations by providing complete mixing throughout the reservoirs in order to reduce stratification and short-circuiting that resulted in inconsistent water age in the tanks, requiring higher chlorine additions that also facilitated THM production.

Solution: The customer deployed three (3) GridBee® GS12 48v submersible mixers, one in each of Reservoirs 6, 8, and 15. Since the original installation the customer has updated the low voltage GS-12's to the GridBee® version of the GS-12. Deployment Date: September 2011

Results: Since the GridBees® were installed, stratification, short-circuiting and associated water age issues have been resolved in all three reservoirs. Furthermore, routine THM measurements made on water samples collected approximately 3.5 miles downstream from Reservoir 15, or about 8.5 miles from the water treatment plant, have shown significant reductions since the installations. From January 2008 through September 2011 (n=40) total THM concentrations averaged 78.9 µg/L, of which 72.4 µg/L was chloroform and 6.3 µg/L bromodichloromethane. From October 2011 through August 2012 (n=18) total THM concentrations averaged 52.9 µg/L, or a 33.0% average reduction. Chloroform averaged 47.2 µg/L or a 34.8% reduction, while bromodichloromethane averaged 5.1 µg/L representing an 18.8% reduction. The city is very pleased with the water quality benefits enhanced mixing with GridBees® has provided.