

Medora Corporation

Chloraminated Potable Water Tank

USCAPW-LOC11.003

Topics: Potable, stratification, nitrification, breakpoint chlorination, chloramine



Meeting with city officials, SolarBee® positioned for hatch entry, and solar panels on the tank exterior.

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

Overview: This reservoir is an enclosed water storage facility for potable chloraminated water, and is the largest reservoir in their system. Surface area is 11.0 surface acres and maximum depth is 30 feet when full; operating volume is 90 million gallons. There are 1000 roof support columns in the reservoir. The system converted to chloramines in February 2004.

Conditions / Objectives: This reservoir had a history of stratification problems, short-circuiting, high water age, and dead zones that lead to high nitrification potential. Primary goal was to provide complete mixing in order to reduce water age and prevent nitrification.

Solution: Two (2) SB10000-PW 10,000 gpm circulators with 24-hour electric kits, and with horizontal intake plates set at one foot off the reservoir floor August 2002. In May 2005, both units were upgraded to the SB10000v12-PW model. At the same time, an injection manifold was mounted on the outside of each dish to facilitate even dispersal for chlorine boosting and breakpoint chlorination (if needed) after system converted to chloramine. May 2005: ten (10) additional SB10000v12-PW units for five other potable water reservoirs. Total SolarBees® to date: twelve (12) units in six reservoirs (2 units per reservoir).

Results: In August 2002, the utilities commission and a leading drinking water consultant began an extensive, 18-month study on the effects of operating just one SolarBee® SB10000-PW in the reservoir. The reservoir was allowed to stratify without either SolarBee® operating, chlorine was injected into the reservoir, and then one SolarBee® was turned on. Data from chlorine and temperature probes located at various depths throughout the reservoir showed that just one SolarBee® was sufficient to eliminate stratification, boost chlorine, and accomplish breakpoint chlorination. SolarBee® circulation was visibly evident to divers even into the far corners of the reservoir.

By May 2005, the utilities commission had purchased the two (2) test machines, as well as ten (10) additional units for five other potable water reservoirs in their system. At the AWWA national show in June 2005, the utilities commission gave a presentation on why they selected SolarBees® for mixing in their large tanks. The utilities commission gave SolarBee® 4 out of 5 stars in mixer ranking, stating "SolarBee® units were identified as the best mixing alternative for large utilities commission Reservoirs". Since the SolarBees® were installed, prior problems associated with unwanted stratification and nitrification have been minimized. The utilities commission has been very happy with the water quality benefits SolarBee® circulation has provided.