Medora
Corporation

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Known for “healing waters,” Pagosa Springs restores potable water system with help from SolarBee® mixers

Pagosa Springs, Colo. – Located in the high desert plateau of southwestern Colorado, Pagosa Springs is famous for its geothermal hot springs, which draw visitors worldwide to soak in the mineral-rich water. The Utes called the sulfur springs “Pah-gosah,” meaning “healing waters.” You might say the town’s potable water system is healed now as well.

After first combating blue-green algae in the raw water reservoir and then thermal stratification in the storage tanks, Art Holloman, water superintendent for the Pagosa Area Water and Sanitation District (PAWSD), learned that SolarBee® mixers, with their long-distance circulation technology, solve both types of problems. This solution helped PAWSD reduce operating costs, restore water quality and easily obtain accurate water sampling data.

First problem solved: high cost of copper sulfate in reservoir

The Sanitation District relies on a series of raw water reservoirs for its potable water. One of them, 130-acre Hatcher Reservoir, had a history of blue-green algae (BGA, or cyanobacteria) blooms, which caused taste and odor problems. The unsightly BGA also cost “a fortune” in copper sulfate and activated carbon filters, according to Holloman. After learning about SolarBee mixers and consulting with Medora Corporation’s engineers and limnologists, PAWSD installed two SolarBee 10000v12 solar-powered units near the water treatment plant intake for partial-lake treatment. The blooms soon disappeared, as did concentrations of source water total organic carbon (TOC). To clear up the entire lake, PAWSD added three more SolarBee units. “We have reduced copper sulfate treatments by 70 percent, and the taste and odor problems have disappeared,” said Holloman. In addition, TOC levels have decreased by about one to two mg/L. Based on this success, SolarBee units are now installed in four more lakes in the supply system.

Second problem solved: thermal stratification in storage tanks

PAWSD serves 12,000 residents via an 11-tank potable water storage and distribution system over 76 square miles. Typical of unmixed tanks, thermal stratification and uneven water age made

representative sampling unreliable for total chlorine monitoring. Holloman concentrated his resources and efforts on three tanks: Snowball, Stevens and Meadows. Stratification had created variable water age problems, including an increased risk of disinfection by-product (DBP) violations.

The SolarBee mixers installed in each tank eliminated stratification. The Snowball tank was so successful it enabled the district to acquire contact time (CT) credits from the Colorado State Health Department to meet the Microscopic Particulate Analysis (MPA) requirement. The other two tanks have shown consistent chlorine residuals and lower DBP (i.e., THM) concentrations.

Long-distance mixing: why it solves both problems

Medora Corporation's long-distance circulation and mixing technology pulls dense water from the level of the intake (typically near the thermocline in an open reservoir, or at the floor in a potable storage tank), transports it upward and then sends it out across the surface in thin, horizontal layers. In raw water reservoirs, the constant horizontal and vertical movement sufficiently disrupts large-celled blue-green algae and allows "good" small-celled algae to predominate, restoring the food chain and returning the reservoir to a healthy state. In potable water storage tanks, the unique flow pattern in effect scrubs the floor and sides of the entire tank, constantly replacing disinfectant and killing the bacteria in the most critical parts of the tank.

For Pagosa Springs, healing its potable water system required a simple, single technology. Long-distance circulation and mixing provides a sustainable and cost-effective solution to blue-green algae in the reservoirs and essentially eliminates problems of thermal stratification and inconsistent chlorine residuals in the potable water storage tanks. Today, a total of 20 mixers in the lakes and tanks ensure the district's water quality. As a result, "Our lakes are clear and our tanks are clean," said Holloman.

About Medora Corporation

Medora Corporation, Dickinson, N.D., whose brands include GridBee® and SolarBee®, provides solutions for difficult water quality problems. Medora's award-winning and patented long-distance circulation technology can prevent and control blue-green algae in lakes, raw water reservoirs and stormwater ponds; provide energy savings, process improvement and odor control in wastewater; and completely mix potable water tanks, eliminating stratification. For more information, call 866-437-8076 or visit www.medoraco.com.

SolarBee® mixers from Medora help reduce the cost of chemically treating the lake and solve thermal stratification problems in the tanks.

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