



REPORT

FOR WATER AND WASTEWATER TREATMENT PROFESSIONALS

Arkansas Water Utility Successfully Switches to Dry Calcium Hypochlorite Feeding System

For Robert Stout, general manager of Mid-Arkansas Utilities (MAU), the primary water provider for a three-county rural area spanning 2,220 square miles, the reason to switch to a dry calcium hypochlorite feeding system was simple, "using chlorine gas was not only dangerous for us, it was a big hassle and time-consuming."

With its service area so vast and hilly, MAU operates an extensive infrastructure to deliver some 720 million gallons of water a year to residential and business customers in its service area with a population of 11,100. The system comprises 10 water towers, 10 pressure plants, and eight pump houses. All are networked via a SCADA system to a central control center at MAU's main offices 30 miles north of Little Rock.

MAU buys its water from the Lonoke White Public Water Authority (LWPWA), a state-sanctioned agency that also serves seven other state water utilities. The LWPWA's water enters MAU's system at metered connections in three

of MAU's eight pumping stations. Stout explains, "Once we get our water, we need to boost it with chlorine, because our service area is so spread out."

Stout emphasizes that the safety of his 11 employees, especially the field technicians involved, was a top priority for seeking an alternative to chlorine gas and the inherent dangers of gas cylinders. "I've seen a chlorine leak in the lines eat right through a concrete block wall," he says.

At the same time, Stout recalls how much of a bother the gas chlorination method was. "Our guys would have to go out sometimes in the middle of the night or on weekends to check chlorine levels," he says.

When he first heard about dry calcium hypochlorite technology as an alternative to chlorine gas disinfection, Stout was quick to learn more. The LWPWA's consulting engineers put him and the other LWPWA member utilities in touch with a local distributor, Shupe & Associates.

Tony Benton, a Shupe &



Associates consultant, explains that the LWPWA's distribution main trunk line runs approximately 45 miles, serving multiple entities like the MAU along the way. "The purpose of Arch Chemical's MC4-50 units is to boost the chlorine residual of the water from the treatment facility, if needed, to each entity's preference," he says. "Simply stated, if the water needs more chlorination, the MC4-50 energizes and boosts the level to the desired setting, then shuts

off automatically when that level is reached."

For Stout, the **Constant Chlor™ Plus MC4-50** Dry Calcium Hypochlorite Feeding System was an ideal size for MAU's operations, although larger models (MC4-150 and MC4-400) were also available.

"We started with one MC4-50 on a pilot basis, and it worked so well that we've installed three more since," he says.

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The **Constant Chlor™** Plus MC4-50 dry calcium hypochlorite feeding system works by preparing and automatically delivering a consistently accurate dose of available chlorine (Av. Cl.) to sanitize MAU's water supply. The **Constant Chlor™** Plus feed system is different from erosion feeders on the market today. Using **Constant Chlor™** patented spray technology, it injects supply water into the unit by spraying upward into a packed bed of calcium hypochlorite briquettes.

Specifically designed for use in the **Constant Chlor™** Plus feed systems, the calcium hypochlorite briquettes containing a scale inhibitor are pillow-shaped, allowing for optimal arrangement in the spray bed.

The MC4-50 has a briquette storage hopper that is sized to hold up to 50 lbs. of Av. Cl. (73 lbs. of briquettes). When using a 1.2% Av. Cl. solution, the MC4-50 can provide up to 115 lbs. of Av. Cl. per day as long as the hopper is filled with briquettes three times a day.

Although the MAU has installed the MC4-50 as a stand-alone unit, it can be integrated with other process and control equipment in custom configurations. The **Constant Chlor™** MC-4 series systems and the **Constant Chlor®** Plus dry calcium hypochlorite briquettes are NSF Standard 60 and 61-listed, respectively.

"Now our techs only have to ensure the MC4-50's briquette reservoir stays filled," he says. "The system has a highly accurate, positive-displacement chemical pump that injects just the right amount

of chlorine into our water system."

Installation was surprisingly simple, Stout says. "The feeder system is about the size of a washer-dryer combo in the home. We set it up next to a 120-volt outlet in our pump house, plugging it in after making two simple plumbing connections. Took us about a half hour for each installation."

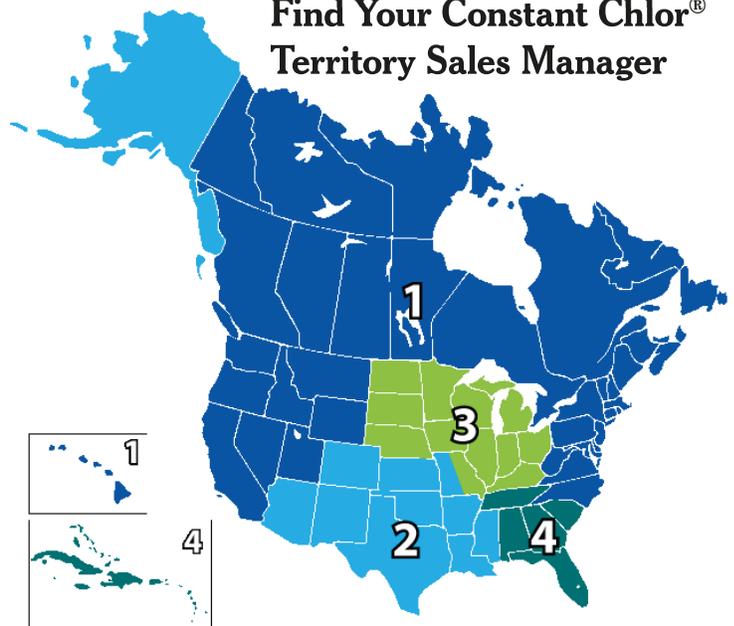
He also connected the units to the MAU's SCADA network, which helps monitor hundreds of data points. For the MC4-50 feeder units, the system monitors the weight of the pellets, so it can tell when the reservoirs need refilling, as well as the residual chlorine it's providing. "Our guys use to have to check for levels and leaks every day," Stout says. "And that'd mean driving as far as 30 miles to get there. Now we can check it all on our smartphones or laptops. The MC4-50 has been a huge time-saver."

In fact, Stout estimates that the **Constant**

Chlor™ Plus MC4-50 feed system saves MAU more than 500 hours of payroll — about \$15,000 a year — by eliminating manual water treatment using chlorine gas. In addition, he says the briquettes cost no more than the amounts of chlorine gas they were using.

"But, you know, while the time-savings have been great, the biggest benefit is still the peace of mind for our community and employees."

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