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## Engineering Excellence Award Honors Russellville Treatment Facility Garver designs new water treatment plant disinfection system

RUSSELLVILLE—April 6, 2010—The new sodium hypochlorite facility in Russellville, Ark. has received state recognition for engineering excellence in water and wastewater design. The American Council of Engineering Companies of Arkansas presented the award to engineering firm Garver on March 25 at its annual banquet.

Garver designed a bulk sodium hypochlorite feed facility to address an increasing demand on the disinfection system at the Russellville City Corporation Water Treatment Plant and to avoid many of the hazards and risks inherent to chlorine gas. Rather than expanding the plant's chlorine gas feed capacity to disinfect drinking water, Garver designed a sodium hypochlorite system that delivers a chlorine dose in liquid form, reducing the risk of exposing gaseous chlorine to plant operators and local residents.

"Disinfection of drinking water is a requirement for all water utilities, and this change to a liquid form of disinfectant gives Russellville the ability to safely meet that requirement and reduce risk from the standpoint of their Risk Management Plan and Vulnerability Assessment requirements," said Garver Vice President Kirby Rowland, PE.

Very few water treatment plants nationwide currently use sodium hypochlorite in their disinfection processes, and the new Russellville facility is a model example of this emerging technology. Garver's design gave special attention to the facility's building material. Non-corrosive materials are used in the chemical storage area. In addition, the programmable logic controllers and other electrical control

equipment are centralized in a separate control room to minimize staff exposure to the chemical storage and feed area.

Garver's design also made the facility's equipment accessible for maintenance and repair. The pumps and equipment are installed on a concrete bench directly below the associated day tanks. This places the equipment at ideal working height and eliminates tripping hazards. To protect plant staff from chemical spills, chlorine sensors are linked with the mechanical ventilation system, and any concentrated vapors are pushed out to the exterior atmosphere and quickly diluted.

The facility features state-of-the-art technology and integrates a high level of automation, a sodium hypochlorite bleach dilution system, and degassing valves to depressurize areas in the piping system. Although the budgeted cost for the new facility was \$3.06 million, its completion came in 16 percent below the estimate at \$2.58 million.

Garver provided project surveys, conceptual and final design, integration services, and construction observation.

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