Project Experience

Water Treatment Plant Upgrades • Superpulsator® Building and Foundations

- City of Augusta, KS
- Owner Contact: Wes Starnes, City of Augusta, KS 67101
  tel. 316.775.4515
- Firm's Role: Designer – Builder
- Project Delivery: Design-Bid-Build
- Contract Value: GMP of $4,000,000

MKEC designed upgrades to expand the Augusta Water Treatment Plant from a design capacity of 2.3 MGD to 5.76 MGD. The expansion included a new process basin (Superpulsator®), new chemical feed building and chemical equipment, new motor control center, new control system, upgraded filter units, new filter gallery piping and upgrades to existing filter and administration buildings. The Superpulsator® is a high-rate clarifier that combines clarification and flocculation within the same treatment unit.

Filters were upgraded by replacing the media, installing air-scour backwash, and new piping and valves. By reusing the existing filter building and filters, millions of dollars were saved for the City of Augusta. Two filters remained in service at all times during the construction period. The expansion included three 100 HP, 6 MGD, variable speed low service pumps.

MKEC developed a centralized supervisory control and data acquisition (SCADA) system that provides control and monitoring of the water treatment processes and also monitors by radio link the two elevated tanks and booster pumps in the distribution system.

The SCADA system monitors raw water flow rates and turbidity, as well as turbidity from the Superpulsator® and from the filters. The turbidity from each of the four filters is monitored along with the turbidity from the combined filters. The residual chlorine from the clearwell is also monitored. Chemical feed rates are paced from the raw water flows. The system calls for operator initiated filter backwashes upon elapsed times or high head loss. The SCADA system controls the three 6 MGD low service pumps so as to maintain a constant clear well level.

The SCADA system historizes all operating information including turbidities, flow rates, backwash events, clearwell level, pumping run times and rates and tower levels. Information from the SCADA system is used to assist in the preparation of monthly reports that are submitted to the Kansas Department of Health and Environment.