

CITY OF KILGORE SCADA SYSTEM IMPROVEMENTS

Kilgore, TX

Services Provided

Electrical Engineering

BLOC Contact

Chase Frazier, Principal-in-Charge / Project Manager

Owner

City of Kilgore

Design

Start: June 2016

End: October 2016

Construction

Cost: \$ 328,750

Start: November 2016

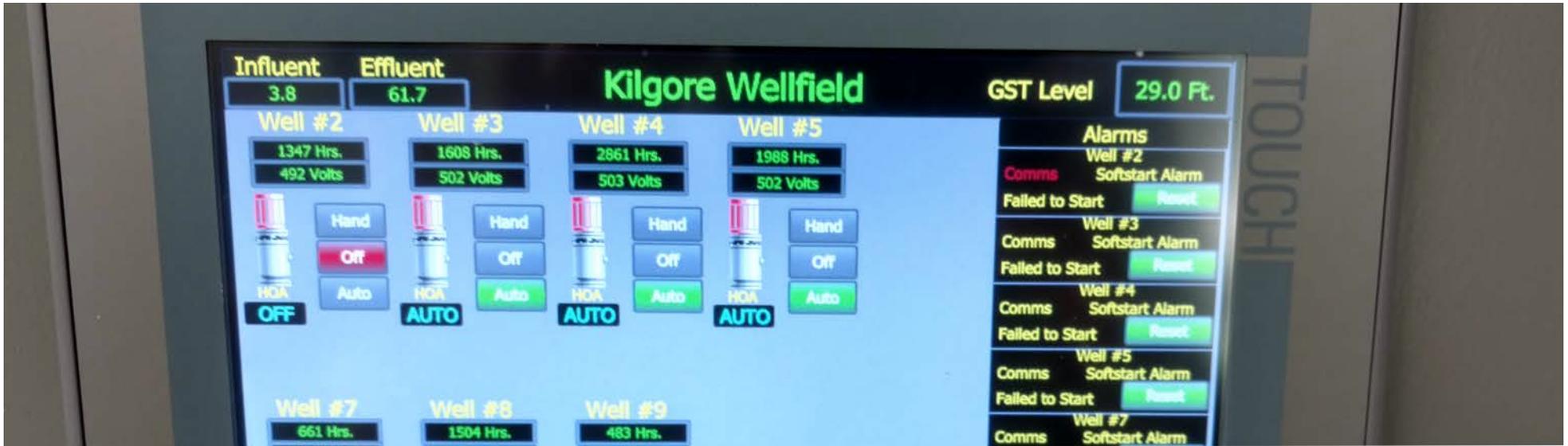
End: January 2018

Project Size

SCADA system improvements for 2 MGD (millions of gallons per day) of fresh water



BLOC
DESIGN BUILD



The City of Kilgore's SCADA system was designed to manage the distribution of water and the collection and processing of wastewater. It was programmed to automatically maintain water levels in storage tanks by turning wells and transfer pumps on and off based on set points. Over time, the city's SCADA system had become outdated and unreliable. Communication loss and hardware failure were issues the city dealt with routinely. Because of our understanding of these issues, coupled with years of experience mitigating them, BLOC was selected to update the SCADA system and integrate it throughout the city.

A Phased Approach

In conjunction with the city's immediate needs and input, BLOC decided to break the project into three phases. During the first phase, the city's current SCADA system was replaced at seven well sites and the well field collection site. In the early stages of design, however, additional problems were discovered with the city's existing well motor panels, electrical services at several sites were undersized, and several antenna towers were either damaged, or missing altogether. During the second phase of the project, we replaced the SCADA systems at three elevated storage tanks, a pump station, the high service pump station, and the raw water intake station. For phase three, the SCADA systems at the city's eight wastewater lift stations were replaced.

A Thoughtful Installation Process

To start, we built new SCADA-integrated motor control panels for each well site. Using soft starters for the well motors allowed us to monitor the electrical conditions and get running motor data that can be used to identify utility power problems and when maintenance is necessary. We rebuilt the undersized electrical services and repaired and erected new antenna towers as needed to ensure excellent communication.

To minimize downtime at each well, we installed one SCADA system at a time. We tied the old SCADA system into our new panels to temporarily maintain remote operations during the installation of the new SCADA system. Once all the well sites were installed, we replaced the SCADA panel at the well field collection site, and set up the new computer human machine interface (HMI) software at the central site. We were then able to test the new SCADA system while the old system maintained service to residences and businesses. Once testing was complete at each site, we simply turned off the old system and turned on the new one. By replacing each system one at a time, each site only had to endure a few hours of downtime.

We replaced an old, damaged level controller with a programmable logic controller (PLC) for roughly half the cost! In addition to being a cost-effective solution, PLCs are also easily reprogrammed and expanded for future tasks and growth.

Conclusion

Overall, BLOC's focus was to provide a reliable, robust, and economical system. The City of Kilgore's expectations were exceeded not only because they have a system that is functional, but also because it gives them remote control, the ability to monitor levels and usage, and the ability to collect large amounts of data that can be used for predictive maintenance and reports. They are thrilled by the system's speed and capabilities. Because of the success of this project, the City of Kilgore selected BLOC as their Electrical Engineer of Record for all future projects!