XiO

LOCATION
Southern California

APPLICATION
Collection System
and Lift Stations

INSTALLATION
Feb 2018

PRODUCT
LSCS-500

XIO CLOUD SCADA® CONTROL SYSTEM REDUCES OVERTIME CALLOUTS WHILE PROVIDING VISIBILITY INTO COLLECTION SYSTEM INFRASTRUCTURE

CHALLENGE

Improve alarm reliability with remote monitoring and control

A community services district in Southern California provides water, wastewater, and garbage services to over 2,200 service connections. The district's service area surrounds an inland harbor with a densely populated waterfront resort that is a popular destination for swimming and boating. The harbor is a highly visible and sensitive marine environment connected to the Pacific Ocean.

The community services district collects wastewater from seven lift stations surrounding the harbor and pumps it to a nearby city for treatment. Collecting and moving wastewater at sea level, surrounded by aquatic ecosystems, leaves little room for error. As regulatory frameworks become more stringent, collection agencies must do more with aging infrastructure and limited staff to ensure they maintain compliance.

The district experienced two overflow event close calls with its aging lift station SCADA alarm technology. The technology was over 20 years old and involved a processor that alerted a third-party service which, in turn,

called the operator on duty by phone to report an alarm. The system was not capable of remote monitoring or control. Each time an alarm went off, operations staff had to travel to the site (regardless of time of day, evening, or weekend) to inspect the lift station and turn off the alarm. Over the years, false alarm frequency increased significantly, causing overtime costs to rise dramatically and impacting the small operations staff.

In an effort to gain more control over their system and reduce overtime costs, the district pursued a multi-pronged approach to upgrade their SCADA technology. The first phase involved installing ultrasonic level sensors on numerous manhole covers to monitor flows through the underground pipes. The second phase involved installation of XiO's Cloud SCADA® Lift Station Control System LSCS-500 at one of their lift stations.

The system included a Field Installable Unit (FIU) with a patented Soft I/O® Control Module, a wastewater level sensor, cellular communications modem, and an

uninterruptable power supply. The system components were preconfigured and shipped ready to be installed by a licensed electrician. On-site installation took less than one day to mount the equipment, connect the wires, calibrate the sensor, and establish cellular communication.

Once the system was up-and-running, district staff were able to view numerous system parameters via the private web-based user portal. From a computer or cell phone, operators can view wet well levels, see if a pump is ragged up, and turn pumps on and off. **The system allows operators to receive alarms on their cell phones and see enough relevant information to know if the alarm is valid or not.** Using the data collected across the system, XiO's system shows the total volume pumped from each wet well, as well as the entire system.

XiO's new SCADA system produced an immediate reduction in the number of false alarms. The district continued with the third phase of the project and installed Lift Station Control Systems at their remaining six lift stations. Viewing the system analytics, operators began to notice a trend of increased pump run time during and following wet weather events. As they tracked the pump run time trends it became clear that their system was more strongly impacted by infiltration and inflow (I/I) than previously understood. The inflow from groundwater and stormwater led to increased pump run times and filled the lift stations during storms, leaving the district vulnerable to overflows. Based on the insights gained from the XiO

Cloud SCADA® System, the district embarked on a full inspection of their collection system and developed a capital improvement project (CIP) to fund repairs to their pipeline infrastructure.

Since upgrading to the XiO Cloud SCADA® System, the district reduced overtime call out costs by 75%. XiO's easy-to-use web-based system and 24/7 technical support eliminates the need for SCADA programming experts, who are in-demand and costly for small districts. In addition, the system's communication protocol with encrypted handshakes reduced the district's risk from cyber attacks. As management of collection systems becomes more complicated, XiO's Cloud SCADA® System has proven to be a reliable tool, providing accurate monitoring, control, and system insight.

- **Accurate Alarms**
- **Total Volume Pumped**
- **Pump Ragged Up Status**
- **Inflow & Infiltration Monitoring**

> **Since upgrading to the XiO Cloud SCADA® System the district has reduced overtime call out costs by 75%. The built-in authentication protocols provide the district with greater protections from cyber threats.**

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