Reduce Operational Inconsistencies by Leveraging Automation

The City of Oldsmar, Florida was looking for a way to reduce operational inconsistencies by leveraging automation. Although the City's reverse osmosis (RO) plant was already equipped with current SCADA technology that successfully monitored and controlled the facility, the City wanted to implement an automatic, user-friendly system to ensure all five operators would start up and shut down the RO plant with the same consistent procedure.

McKim & Creed worked with City staff to identify enhancements that would accomplish that goal. Upgrades included adding an automatic startup and shutdown feature, regulating the number of wells that run during startup, and reducing raw water usage.

The benefits of the plant automation had an immediate return on investment. The automated shutdown sequence prevented water hammer and helped reduce the stress on the membranes. By regulating the number of wells running during startup, the SCADA system automation reduced the feed pressure to the membranes as the system transitioned from pre-flush to startup. This regulation of the wells also improved the quality of the water by maintaining a level that kept sand from being introduced into the flow.

Also included in the automation was the addition of time-based flushing for the raw water line sequences. Prior to this enhancement, the operators turned on the flush cycle and ran the raw water until they determined the incoming 16-inch raw water feed line was clear of any sediment. If an operator was called away to address a different issue, the raw water flush sequence could remain running for much longer than necessary, wasting precious raw water. By using the SCADA system to monitor and control the flush cycle, the plant only performs the flush for the necessary time, thereby reducing the raw water usage.

Recognizing that even the best automation is not worth the investment if it isn't user friendly, McKim & Creed worked with the City to create an easy-to-use, single-button interface. This button resides on the SCADA screen in the control room and is also accessible through City iPads connected to the SCADA system. Operators can easily press the button to initiate automatic control regardless of their location, which is helpful in emergency situations and during routine site tours.

"This programming has allowed us to take the plant to the next level by alleviating stress on equipment and reducing wasted process water," said Chief Operator Sam Cruz