

Increased Reliability and Reduced Costs Result in Savings of \$1 Million for ALCOSAN

RESULTS

- \$1 million saved by implementing a cost-effective migration path
- 25% reduction in chemical costs
- 40% reduction in process air demands
- Increased reliability has allowed continuous operation since 1992
- Streamlined data management provides paperless report sharing
- Improved monitoring of remote interceptor pumping stations



APPLICATION

Control and monitoring of a 200 million gallons per day (MGD) wastewater treatment plant servicing the city of Pittsburgh and 82 neighboring municipalities

CUSTOMER

Allegheny County Sanitary Authority (ALCOSAN) Wastewater Treatment Plant, located in Allegheny County, Pittsburgh, Pennsylvania

CHALLENGE

The Pennsylvania Department of Environmental Protection (PADEP) required ALCOSAN to prepare a comprehensive plan in accordance with requirements of the Act 537 Comprehensive Sewage Facilities Plan. Act 537 defines improvements to the treatment plant and sewers that will be needed in the future and presents a logical, stepwise approach for implementing a long-range master plan. Continuous modernization of the plant's control system was an important part of meeting Act 537. ALCOSAN needed to establish an agreement with a vendor that understood their needs and could quickly respond with the right solution. The challenge was to standardize with a control system vendor that had the right technology to economically grow with the plant and accommodate operational needs.

“Emerson has been part of our control system team since the installation of a WDPF system in 1992. Since then, we have periodically modernized our system to meet state regulations. The most recent was a full migration to Ovation in 2005, which has already resulted in a savings of \$1 million. Working with Emerson has allowed ALCOSAN to operate the plant more efficiently and do our jobs better.”

Douglas Jackson, P.E.

Manager, Electrical and Control Systems
Engineering
Allegheny County Sanitary Authority
(ALCOSAN)



SOLUTION

ALCOSAN partnered with Emerson to standardize a control system platform that could easily and economically change with conditions of the plant throughout the long-term modernization plan. In 1992, a WDPF distributed control system replaced a 1957-vintage manual system, thus automating control and monitoring of the new fluidized bed incineration process and the headworks pumping station. Through the years, the treatment plant and subsequently the control system transformed to meet Act 537 requirements such as greater hydraulic capacity, extensive odor control, improved dewatering, and a new sodium hypochlorite facility. The new millennium marked the time for migrating control equipment to Emerson's Ovation® expert technology in order to fulfill the requirements of ALCOSAN's ACT 537 plan and supplement newly installed processes. ALCOSAN's modernization to Ovation has resulted in increased reliability and major cost savings that is approaching \$1 million.

Continuous operation without delayed treatment is not an option, but an absolute must, for ALCOSAN. Since the installation of WDPF and subsequent system improvements, which included several software and firmware upgrades and a complete system migration to Ovation in 2005, the ALCOSAN plant has remained in constant operation, 24 hours a day, seven days a week. Increased control system reliability with every technology enhancement enabled ALCOSAN to successfully reach this goal.

Modernizing to Ovation provided a cost-effective path to the latest in DCS technology. Emerson's field-tested migration allowed ALCOSAN to retain previous investments in I/O hardware and system infrastructure, thus eliminating costly and time-consuming field labor. In addition, retention of existing graphics and control functionality limited software re-engineering and eliminated operator re-training. Plant operators immediately benefited from the Ovation system through easier system navigation, enhanced data trending, and improved inter-control room communication. Streamlined plant data management reduced the collection and assembly process from two weeks to four hours. WAVE Web Viewer software allows plant management to oversee plant operations from the convenience of their desktops. A SCADA system now connects unmanned interceptor pumping stations to the main control room, enhancing monitoring and partial control of these stations in abnormal conditions. Daily field trips have been eliminated, reducing inoperability time from days or hours to minutes.

As required by ALCOSAN's ACT 537 plan, modernization of the remaining manually operated plant processes resulted in a 25% reduction in chemical costs and a 40% reduction in process air demands. Ovation has helped decrease chemical costs by automating the disinfection process and use of sodium hypochlorite, providing real-time control of the new dewatering centrifuges and polymer use, and optimizing chemical usage in the three odor control scrubber facilities. Automation of the dissolved oxygen control in the secondary aeration basins led to over 40% air demand reductions.

“Emerson’s field engineers were extremely accommodating and very knowledgeable. Everything was done with our schedules in mind, thus affording us the time to do what was required to keep the plant operating efficiently 24 hours a day, seven days a week.”

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