ROVISYS®
Automation & Information Solutions

CASE STUDY

AVEVA ENDORSED System Integrator

Endorsed Operate

# TAKING WASTE OUT OF THE SYSTEM: A MASTER PLAN FOR 'ELITE' AUTOMATION

*The largest wastewater-treatment provider in the State of Ohio needed a streamlined process-control system to improve efficiency, reduce engineering costs, and simplify training.*

**The Northeast Ohio Regional Sewer District (NEORSD) treats about 90 billion gallons of wastewater a year, providing service to 62 communities and approximately 1 million residents. As part of a multiyear automation master plan, the NEORSD budgeted millions of dollars for upgraded automation technology, to support its overarching mission of providing "progressive regional management of sewage and stormwater that protects the environment and serves our community."**

**To execute the NEORSD's vision to create "elite" automated treatment facilities, they would need a modern software solution that addresses short-term automation and information goals while having the capability to expand and integrate cloud, AI, the Industrial Internet of Things, and other advanced technologies.**

## THE PROBLEM

For public utilities like the NEORSD, failure isn't an option. Their services are critical to public health and environmental protection, and treatment facilities are expected to run 24/7. Together, three facilities treat about 200 million gallons of water every day.

One of the District's publicly stated core values is "balanced and informed decision-making," based on objective metrics, systems analysis, and other inputs. Before RoviSys engagement, the process control and information systems lacked the data collection and reporting capabilities that could provide the insights needed to help drive strategic operational decisions.

In addition, the majority of the in-plant control systems still utilized vintage Allen-Bradley PLC-5 controllers, and the treatment facilities were operating with two different HMI platforms – all connected by fiber-optic cabling. The District's collection systems used a mix of PLC-5s and Micro-Logix PLCs, and operators relied on radios and telephones for communication. Accurate documentation was hard to come by.

Like other utilities, staffing shortages and workforce turnover are an ongoing challenge for the Sewer District. The hodge-podge of control platforms added to the challenge, and the process of training employees on disparate control systems installed by multiple vendors was cumbersome and time-consuming.

Across the District's infrastructure, aging hardware and software and a lack of standardization presented significant barriers to operational excellence, straining the utility's limited in-house engineering and maintenance resources. The Sewer District recognized the need to develop a new process control architecture built on consistent specifications, functionality and communications, leveraging modern hardware and software solutions that are reliable, flexible, scalable, secure, and optimized.

## THE SOLUTION

The AVEVA System Plarform was a cornerstone of the Sewer District's master plan to transform its process control architecture.

Implemented enterprise-wide, the AVEVA System Platform solution puts real-time operational data (such as water quantities, channel flows and pH levels) in the hands of the right personnel, so they can make timely, fully informed decisions to optimize collection and treatment processes. Operational data collected from System Platform was also integrated into AVEVA Historian and OSIsoft data repository. Operational and performance data collected connected NEORSD's operations, maintenance, and the enterprise – providing a standardized, secure, data-centric source of truth for operators, managers, engineers, maintenance staff, and other personnel.

Among the most powerful features for the Sewer District are the application templates, which allow engineers to design new HMI applications from a base template instead of starting from scratch – saving hours of work. InTouch offers the ability to use vector graphics, bitmap graphics, library symbols, .NET controls, and legacy ActiveX controls. The solution and standards RoviSys designed enables rapid deployment of future projects.

Thanks to dynamic resolution conversion, users can view InTouch applications on a variety of screen resolutions without having to modify the application. With this kind of operational agility, NEORSD personnel can build, run, and display operations and quality information from anywhere in the facility.

## ROVISYS

As an independent political subdivision of the State of Ohio, NEORSD must follow a regimented public process to solicit, review, and award bids for contracting work over a certain dollar amount. In this case, NEORSD engaged RoviSys as it submitted the highest-ranked proposal, and RoviSys has demonstrated expertise in the design and deployment of smart automation solutions utilizing the AVEVA software suite.

Working in close coordination with the general contractor, RoviSys proved to be a vital asset to the execution of this project. The project kicked off in 2015, and over the next 5+ years, RoviSys dedicated 10 engineers to provide support and project management. One of the team's most valuable contributions came early on, when RoviSys spearheaded a forward-thinking design approach to leverage AVEVA System Platform's reusable templates, saving significant time and effort over the course of the project.

RoviSys brought its unique set of capabilities and expertise in the utilities industry, and a deep understanding of continuous process control, instrumentation, information management, SCADA, and cybersecurity. As an AVEVA-endorsed operate systems integrator, and a preferred service provider for the NEORSD, RoviSys was able to leverage proven experience integrating and AVEVA System Platform, AVEVA Historian, and AVEVA OSIsoft to solve operations and reporting challenges that enabled standardized business processes.

## THE RESULT

Standardizing on the AVEVA software suite (System Platform, Historian, OSIsoft) and Rockwell Automation PLC/PAC hardware has made the NEORSD more efficient and productive on a number of fronts.

Operators are using System Platform to visualize and control vital plant processes in real time. An intuitive, user-friendly interface – standardized across the district's three plants – has improved operator engagement, simplified training and onboarding, and made it easier to shift personnel between plants to resolve short-staffing situations.

The enterprise-wide solution also maximizes the District's maintenance resources. Maintenance personnel are using AVEVA Historian and Alarm Adviser to monitor and analyze critical equipment and proactively issuing works orders to repair and address issues that could lead to unplanned downtime.

The NEORSD's decision to leverage the AVEVA Software suite has positioned them to expand to other advanced technologies including Predictive Analytics, AI, and the Industrial Internet of Things in the future.