

PLC and SCADA Upgrades Bring Peace of Mind to the City of Vancouver

The City of Vancouver, Washington has two wastewater treatment/water reclamation facilities operated by Veolia Water North America. One of these facilities, first constructed in the 1950s, implemented its first PLC (Programmable Logic Controller) in 1986.

This first PLC system was replaced in 1993 and the plant and process controls have undergone significant expansion during the last 15 years. These expansion projects and supplemental upgrades have, over time, created a system that experienced much higher networking and communications loading than the system was originally designed to handle. This often led to control system anomalies and failures that were difficult to troubleshoot and, at times, required manual intervention to prevent improper discharge of wastewater.

A Communications Challenge

Network traffic consisted of PLC peer-to-peer control system interlocks, as well as data-intensive SCADA (Supervisory Control and Data Acquisition) stations that provided a graphical representation of plant performance and data collection functions for regulatory reporting purposes. The amount of data collected has grown ten-fold since the first SCADA station was implemented. At present, over 15,000 data tags are reported to the SCADA and SQL database systems.

The City of Vancouver sought a local company with PLC and data management expertise to assist in retrofitting the PLC/Network/SCADA system. AMS was awarded the contract to plan and implement an upgrade of the entire control system. An Allen-Bradley ControlLogix PLC platform with enhanced communications via Ethernet provided the needed data throughput with bandwidth to spare. This upgrade increases the processing power and speed by an order of magnitude, while increasing the communications bandwidth by a factor of over 1000.

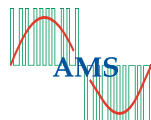
This upgrade required continuous operation of the facility and as such the installation was planned in stages, allowing a phased transition from the old to the new system. AMS upgraded eight processors over the course of 12 months. By doing so, AMS and the City of Vancouver were able to ensure that each upgrade was successfully implemented and fully tested before moving on to the next phase.

Each phase of the project required converting PLC ladder logic, upgrading the SCADA application for the new processor and communications structure, and refining the data collection functions.

During the course of each upgrade, operations staff manually operated the portions of the process affected by the current upgrade to ensure the integrity of the process during conversion. Each of the upgrades were implemented within a single day.

This upgrade extended the life of the plant's control system for an additional 10-15 years by relying on careful planning, coordination with operations staff, and updated technology.

AMS thrives on developing solutions that solve process and production challenges. What can we do for you?



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