



PLC provides new technology upgrade to water treatment plant

Introduction

Piedmont Automation, Inc. is a systems integration company located in Winston-Salem, North Carolina. As automation specialists, they are constantly evaluating new technology products and looking for ways to use them to meet their customers' needs. Since 1985, their staff of engineers and designers have provided system solutions in many industries which has given them the experience necessary to implement intuitive systems that are easy to operate and easy to maintain.

Graybar Electric and Piedmont Automation have worked together on various jobs in a variety of industries, such as textile, water, and wastewater treatment for several years. This municipal project gave the two companies an opportunity to promote the Modicon TSX Premium line of PLCs.

Application

This application is for a municipal water/wastewater treatment plant upgrade in the southeastern United States. It entails upgrades to 4 existing lift stations and the main plant that controlled these stations. Each lift station had remote I/O that received instructions from the main plant. The current set up used an old Telemetry system with I/O. There is also a competitor's PLC located at the main plant. This PLC was used to control the 4 lift stations. The existing system was old, obsolete and not very reliable. To compound the problem there was no local control. All instruction originated from the main plant. When instruction was sent from the main plant there was no way to ensure the receipt of that instruction at the lift station. The only means of confirmation was to get in the car and physically drive to that location to confirm. Lift station 1 and 2 were located 20 to 25 miles away (these 2 lift stations back each other up) while lift station 3 and 4 were about 5 miles away (these 2 lift stations backed each other up as well). Round trip distance was about a 50 miles and took about 2 to complete the process.

Objective

- Upgrade to a more reliable system by replacing current PLC and Eniven system.
- Provide local control to each lift station.

INDUSTRY

Water/Wastewater

OBJECTIVE

Upgrade to a more reliable system and provide local control to each lift station

SOLUTION

Modicon® TSX Premium™ PLC

BENEFIT

- Reliable system that is expandable.
- Local control from each pump station.
- Ability to communicate from the plant to each lift station and back through leased phone lines or radio.
- Ability to communicate between lift stations.

- Ability to communicate from the Main Plant to each Lift Station and back through leased phone lines using radio as a back up.
- Ability to communicate between the lift stations that “backed” each other up through leased phone lines using radio as a back up.

Solution

After meeting with the systems integrator and studying the specifications it was decided that the Modicon TSX Premium PLC provided the optimum balance between cost and functionality for the job.

A demonstration was commissioned for the integrator that highlighted the communications capabilities of the TSX Premium PLC. The Premium PLC can be configured with multiple communication ports, which lend themselves to this application. The TSX Premium PLC also provides ports for serial, and Ethernet communications as well as a port for an MMI. The customer was using 2 leased phone lines and a radio to communicate between the main plant and the lift stations and between each lift station. If line “A” goes out the radio automatically kicks in. Once it is determined that line “B” is OK the system would switch from radio back to leased phone line “B”. This redundancy is based on the thought that if one leased line goes down then chances are both would be down.

The integrator was invited to the local Graybar training facility. Grabar provided “hands on” training on the PL7™ programming software. This training demonstrated the integrator how easy it would be to get comfortable using PL7 software. By providing this training Graybar Electric demonstrated our capabilities to support this product and to support the integrator.

Benefits

- Reliable system that is expandable.
- Local control from each pump station. No matter what fails we will now have the capability to control each lift station independently.
- Ability to communicate from the plant to each lift station and back through leased phone lines or radio. Remember we have 2 leased phone lines and 1 radio.
- Ability to communicate between lift stations.