PATTI ENGINEERING

Project Experience Study

Wilson Dam Spillway Controls Upgrade

Muscle Shoals, Alabama

Problem

The Tennessee Valley Authority (TVA) Wilson Dam was built in 1924 and is the largest hydroelectric plant in the TVA power system. It stands 137 feet high and stretches almost a mile across the Tennessee River. The dam's spillway consists of 49 gates which are used to control water flow and water levels. The hardware and software used to control the spillway were obsolete and outdated. The situation was so bad that the TVA staff had to manually open the gates across the mile-long dam. The control system was completely nonfunctional. The hardware had failed and there were no replacement parts available and this situation caused the software to constantly fail – it was a huge domino effect.

Patti's Solution

Roger Harvey, TVA engineer, could not find a controls vendor willing to undertake the project. The company that installed the original software was not interested in doing the upgrade and other local vendors politely refused. He found Patti Engineering by searching on the Internet.

Patti Engineering completed a thorough onsite investigation to evaluate the current hardware and software and to recommend the best corrective action. The goal was to improve system functionality, reliability and serviceability.

System upgrades included Devicenet IO modules replacement, Devicenet cabling repairs/modifications, control software upgrade, HMI software upgrade, PC replacements, functionality was expanded/enhanced, and complete system was thoroughly tested and verified. The system consisted of Steeplechase VLC control software, Visual Basic HMI software, Devicenet remote IO modules, and fiber-optic Ethernet. Patti Engineering provided project management, electrical engineering, hardware design, hardware procurement, software development, installation supervision, start-up testing/verification, documentation, training and warranty support.

Customer Benefits

The system is now functioning at 100 percent of its ability. The staff no longer needs to physically go from gate to gate to open them. The new system is a tremendous savings in manpower hours.

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