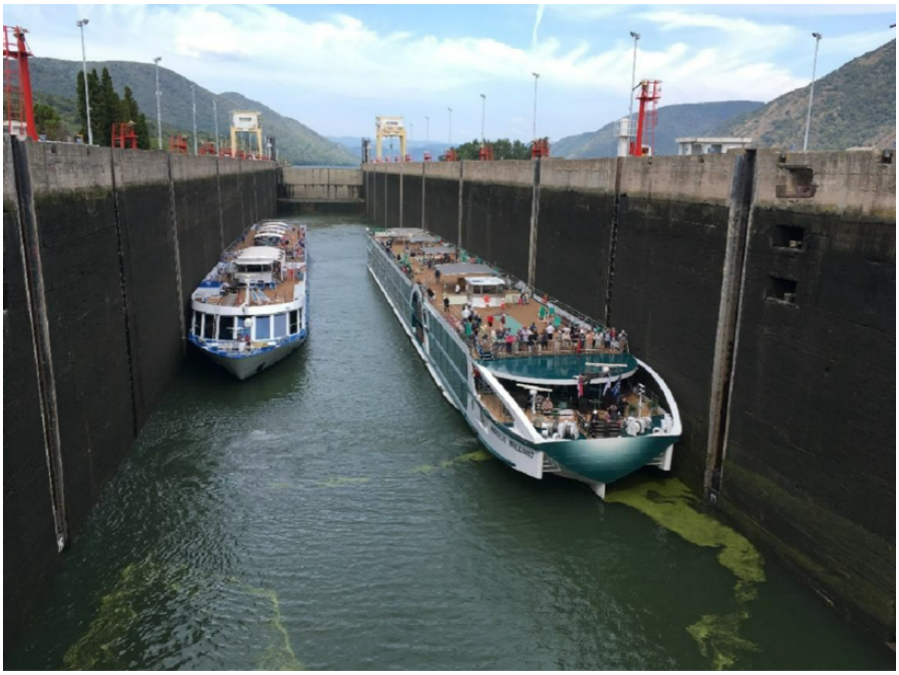
CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

Serbia: Enhancing Power Plant Safety Measures

Monitoring system integrated with a SCADA system



(Photo courtesy of AP Company)

Overview

The reconstruction of the navigational lock system at the Iron Gate I Hydroelectric Power Station in Serbia, one of the largest hydroelectric power plants in Europe and the largest dam on the Danube River, was undertaken with a primary focus on ensuring transportation safety. Central to this upgrade was implementing a monitoring system to track the working doors' stress levels, particularly the voltage state. This system, integrated into a Supervisory Control and Data Acquisition (SCADA) system, aimed to enhance safety measures by promptly detecting any deviations from permissible stress levels or water ingress into critical components.

The Challenge

The primary challenge revolved around establishing a robust monitoring system capable of accurately tracking stress levels of the lock system's working doors. This necessitated selecting suitable sensors capable of withstanding the harsh underwater environment while providing reliable data. Additionally, integrating these sensors into a unified monitoring system posed technical challenges that needed to be addressed to ensure seamless operation and data collection.

The Solution

AP Company developed a unique monitoring system composed of three interconnected sensor networks connected to a SCADA system and visual display to provide instantaneous updates. To measure the relative elongation of the door

Case Study Summary

Application
Hydroelectric power plant and dam

Location
Serbia

Products Used
AM16/32B, CR6

Contributors
AP Company

Participating Organizations
AP Company

Measured Parameters
Microstrain, temperature, voltage

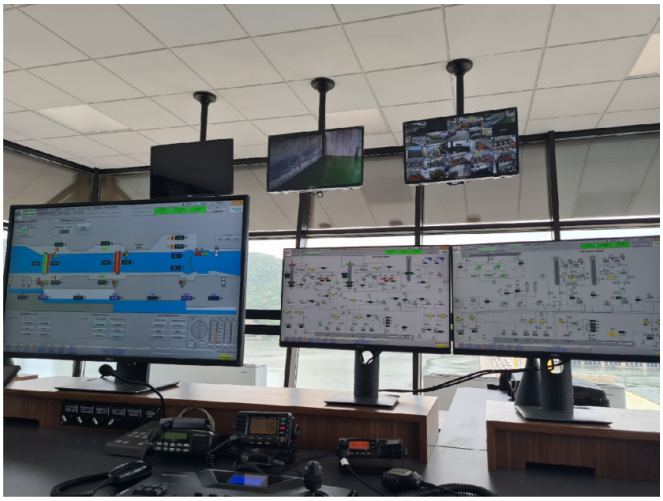
material, vibrating wire sensors from Geokon (Model 4000) were chosen for their reliability and durability, particularly under water pressure.

This network of sensors connects multiplexers and Campbell Scientific CR6 Automated Monitoring Platforms to communicate via Ethernet networks with the SCADA system. The choice of CR6 devices facilitated efficient communications through Modbus TCP IP. With the integration of Campbell Scientific's patented VSPECT® vibrating wire measurement technology, the CR6 devices help ensure timely monitoring and response to any deviations in stress levels or water intrusion.

For more information about VSPECT technology, visit our VSPECT Essentials page.

The Benefits

Implementing the monitoring system provided several benefits, primarily enhancing safety and operational efficiency. By continuously monitoring stress levels and water ingress, the system enabled proactive identification of potential issues, minimizing the risk of accidents and downtime. Furthermore, integrating the monitoring system into the SCADA infrastructure allowed for centralized control and real-time data analysis, facilitating informed decision-making. Additionally, selecting reliable sensors and communications equipment ensured long-term reliability, contributing to the overall longevity and effectiveness of the lock system reconstruction project.



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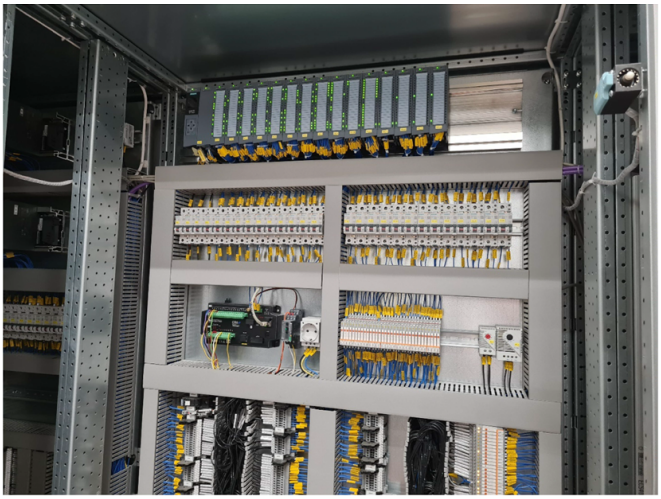

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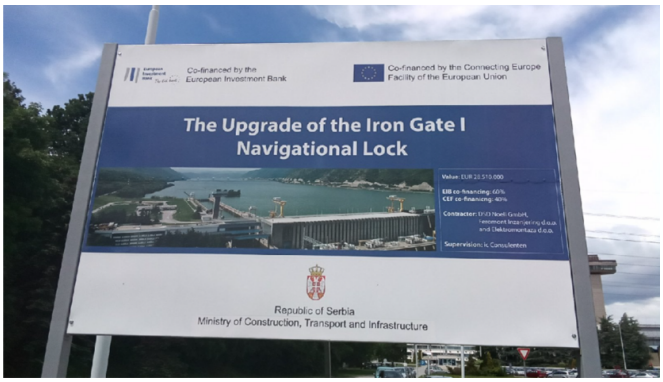

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