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PROJECT
Owens Valley, CA Dams Monitoring

APPLICATION
Environmental

SCOPE
Supply LADWP with real-time data to assess how their dams responded to the unprecedented snowmelt volumes

EQUIPMENT AND SERVICES
- 18 ThreadX3 units connected to field cameras for live visual monitoring
- 3 Worldsensing Gateways enabling long-range communication
- 20 Event Detection Tiltmeters for monitoring deformation or slope movement, integrated with Sensemetrics and Bentley iTwin IoT
- 30 one-channel Vibrating Wire Loggers connected to various turbidity sensors and piezometers.

SUPPLIER
Specto Technology

DATE
2024 - ongoing

Protecting dams during record snowmelt: A real-time monitoring success

Challenge
During the winter of 2022 to 2023, the Eastern Sierra Mountain ranges in California experienced record snowfall. While this snowfall was a welcome relief after years of drought, it also posed a threat to Owens Valley's water infrastructure. The projected snowmelt was expected to exceed the capacity of the region's water collection system.

In response, the Los Angeles Department of Water and Power (LADWP) increased real-time monitoring for three of their key dams and reservoirs: South Haiwee, Tinemaha, and Long Valley. The goal was to closely track the dams' conditions and responses to the anticipated snowmelt.

Solution
The project team, alongside the Instrumentation Solution Provider, Specto Technology, rapidly mobilized to install and configure the system before the expected peak of snowmelt. With snowmelt already occurring in the surrounding watershed, it was crucial to proceed with deployment to gather vital data and manage potential risks effectively.

The team worked tirelessly to design, install, configure, and display real-time metrics from the project, including: 18 ThreadX3 units connected to field cameras for live visual monitoring; 3 Worldsensing Gateways enabling long-range communication; 20 Event Detection Tiltmeters for monitoring deformation or slope movement, integrated with Sensemetrics and Bentley iTwin IoT; and 30 one-channel Vibrating Wire Loggers connected to various turbidity sensors and piezometers. The system provided comprehensive monitoring of key parameters at the dam, tracking reservoir levels, weir measurements, and piezometer readings across multiple locations to detect any abnormal changes.

Benefits
This project supplied LADWP with real-time data to assess how their dams responded to the unprecedented snowmelt volumes. It provided the organization with peace of mind by delivering synchronized, hourly monitoring data and images from the remote dam sites—something that would have been impossible to achieve manually.

Advantages
- Increased real-time monitoring capabilities, thanks to the installation and configuration of advanced monitoring systems, including field cameras, gateways, tiltmeters, and various sensors.
- Improved risk management with the set-up of an early warning system, measuring deformation or abnormal changes in water levels.
- Expanded coverage and efficiency. The use of remote monitoring allowed LADWP to collect data of multiple dam sites simultaneously. The automated system provided a comprehensive overview of the dams' conditions, enabling more efficient and effective management of the water resources.