AVEVA

AVEVA™ PI System™ and the Los Angeles Department of Water and Power - a winning combination

Los Angeles Department of Water and Power - www.ladwp.com
Industry - Water

Goals

Automate data collection from disparate sources to improve operational oversight, resource monitoring, and access to critical information

Challenges

Aging infrastructure, along with persistent droughts and wildfires, put a strain on LADWP's resources

Solution

- AVEVA PI System
- AVEVA™ PI Vision™

Results

Increased data visibility helps maintain water reliability and safety

The Los Angeles Department of Water and Power (LADWP) is constantly preparing for a dizzying array of challenges, which range from natural disasters, like droughts, wildfires, and earthquakes, to aging infrastructure and the persistent need to reduce water loss and improve water quality treatment. Water utilities like the LADWP are also looking for ways to improve customer service while safeguarding water storage and delivery systems. The best way to seize new opportunities, the LAWDP decided, was to harness the power of all the data it collected and use it to improve the operation and maintenance of its water system. The LADWP is now looking to AVEVA PI System to help it enable over 120 use cases related to goals surrounding improved infrastructure management and disaster preparedness, as well as water reliability and safety.

A WIN for infrastructure, supply, and safety

The LADWP is the largest municipal utility in the United States, serving over 4 million people living within a 500-square-mile service area. A network of over 7,000 miles of pipeline distributes water in the City of Los Angeles from a wide range of sources, including the Los Angeles Aqueduct system, the Colorado River, the Sacramento River, local groundwater, and stormwater capture. Recently, the utility launched a project called the Water Information Network (WIN). The LADWP Water System plans to use WIN (which relies on AVEVA PI System) to help achieve three major goals: improve management of the department's critical infrastructure, diversify its water portfolio, and ensure the continued safety of its drinking water.

Due to infrastructure investments like relining all pipelines, the LADWP's distribution network has one of the lowest leakage rates, with water loss of only 5.2%. However, to further reduce water loss, the utility focused on leveraging its existing vast array of flow, pressure, and customer-usage data to gain insights not possible without a time-series database like PI System.

The LADWP also has to deal with the persistent droughts and wildfires that plague California. The utility must closely monitor its water resources to ensure that there is a sufficient supply to serve the community and be prepared for a natural disaster. This means more water needs to be pumped and stored in aquifers for later use. Having real-time sensors of available storage in the aquifers and the amount of extra water in the Los Angeles aqueduct system helps facilitate operational decisions and keeps Los Angeles ahead of the next crisis.

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Nicole Smith
Project Manager at the Los Angeles Department of Water and Power

AVEVA PI System enables a data hub

The LADWP knows that the key to facing these challenges is to improve the oversight of its operations through automated remote asset monitoring and better data collection.

The utility already has many kinds of data generated by a variety of sources. These include SCADA data, relational data coming from the CMMS system, and customer billing data. In addition, the LADWP compiles spatial data from its ArcGIS system and Microsoft file systems, as well as a suite of in-house applications. To integrate these data sources, the LADWP decided to use AVEVA PI System to create a data hub where information from disparate sources can be brought together and turned into actionable insights.

"The point we're trying to drive home here is that we believe that data and data system integration is the key to achieve highly optimized workflow and truly realize a smart utility," said Nicole Smith, a project manager at the LADWP. "We already have a lot of data out there, and we're trying to bring that all into a central location. That's what we're going to use AVEVA PI System for."

Another advantage the LADWP sees in PI System is real-time notifications, which can be used to alert users to the condition of various assets. The utility plans to use notifications to increase situational awareness of its sensitive infrastructure. The company also hopes to take advantage of real-time analytics.

"As we combine all that data, new analysis becomes possible through the use of things like AI," said Vincent Rivera, an engineering associate at the LADWP. "That will hopefully lead us to be able to make quick, informed decisions." In one use case, the utility plans to use AI and analytics to automate treatment, which would make individual water sampling and mitigations a thing of the past. Finally, the department hopes to use PI Vision to create intuitive dashboards that will make it easy for anyone in the company to access critical data.

AVEVA PI Vision dashboard helps the LAPWD monitor the health of its dams at the Bouquet Reservoir in California by displaying important information about water levels in wells beneath the dams.

A notification pipeline

So far, the LADWP has launched three pilot projects as part of WIN. In one example, the department is using AVEVA PI System to collect data about the groundwater levels in earthen dams. In the past, this data was available only to a couple of people in field offices near the dams. When managers in the home office wanted to know what was happening with the dams, they would have to call and ask the field office to send over Microsoft Excel spreadsheets.

AVEVA PI Vision screens now make data from the reservoir available 24/7 to anyone at the LADWP.

"AVEVA PI System's built-in automatic notification system is like a second pair of eyes that reassure [us] that the dam is safe and that we're protecting our residents downstream," Smith said.

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