



## CUSTOMER CASE STUDY

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# Colorado Springs Utilities uses AVEVA™ PI System™ to improve water quality assurance

Colorado Springs Utilities - [www.csu.org](http://www.csu.org)  
Industry - Water and Wastewater

## Goals

- Deliver faster quality analysis of 14,000 annual samples
- Gain situational awareness of operations
- Integrate disparate information systems

## Challenges

- Reliance on SCADA operators
- Multiple unintegrated systems
- Large service area with many assets

## Results

- Analysis reporting time decreased from three weeks to fifteen minutes
- Fully integrated systems with maximum operational visibility
- Reduction in overtime by 58%, vehicle usage by 30%, and effluent chlorine costs by 10%

## Solution

- AVEVA PI System
- AVEVA PI System asset framework
- AVEVA™ PI Vision™

As one of the nation's largest utility providers, Colorado Springs Utilities (CSU) supplies energy and water to nearly half a million people across a huge territory. Despite heavy annual snowfalls in Colorado, water remains scarce in the West, which has created a sense of increasing urgency to conserve every drop of clean water. To succeed, environmental scientists must collect and analyze a staggering amount of data. Each year, CSU's Water Quality Assurance processes 14,000 samples and 80,000 analytes from eight watersheds, seven finished water treatment facilities, 38 finished water reservoirs, four post-chlorination stations, two wastewater treatment facilities, and over 2700 miles of pipeline. What's more, they must analyze the data in a timely manner. If it takes weeks to get the analyses back, they're not of much use, as the water quality will likely have already changed – exactly the problem David Mora and his team were tasked with solving. In their hunt for sustainable solutions, Mora and his team turned to AVEVA PI System to decrease operational costs and reporting times.

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**David Mora**  
Environmental Scientist Lead of Water Quality Assurance,  
Colorado Springs Utilities

## Digging out from a heap of data

One of the biggest obstacles CSU faced was its dependence on disparate information systems and interfaces. Because it had to pull information from multiple interfaces, sometimes it took as long as three weeks for the Water Quality Assurance team to collect the relevant data and prepare a report for customers. As Mora explained, “it’s almost like checking your checkbook three weeks later. That was one of the complaints from our customers: They need the data to make these process control changes, and they need the data now.” Other operational challenges stemmed from CSU’s decentralized interfaces. The Water Quality Assurance team also had to contend with the possibility of human error.

Using multiple enterprise interfaces meant Mora and his team constantly questioned whether their data was accurate. “We were really dependent on our SCADA operators,” Mora said. “We’d actually call our operators

to find out what’s going on with our system and ask what the current residuals are, what the tank levels are. And you’re hoping that the operator on the other end is giving you the right number because you are actually making operational changes based on the information.”

Mora and the Water Quality Assurance team began a small trial of the PI System. They began with about 220 monthly data points from a bacteriological sampling site, and, after early successes, the team turned to its post-chlorination stations and water quality monitoring stations. Once that was successful, the team moved on to process control and compliance sampling and, finally, to watershed and source water management.

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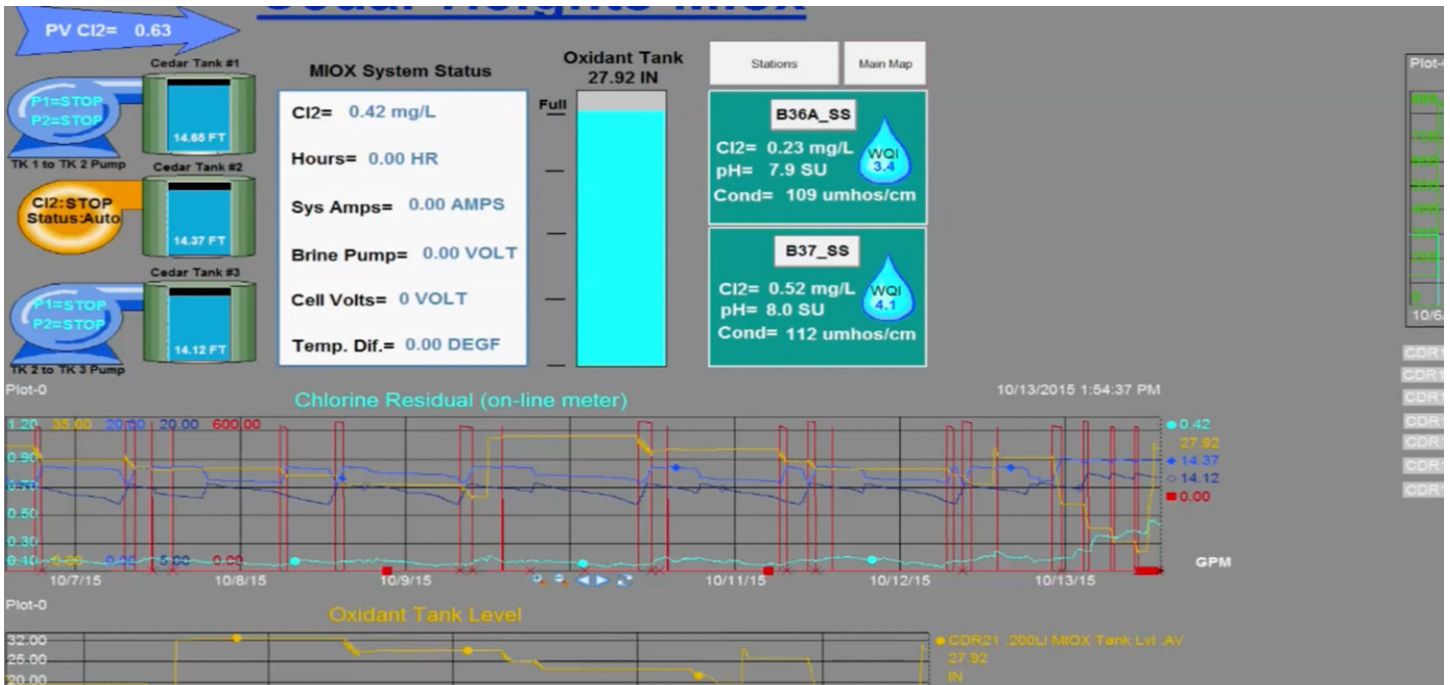
**David Mora**

Environmental Scientist Lead of Water Quality Assurance,  
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## The benefits of centralized data

What began as a small trial to see how effectively AVEVA PI System would improve CSU’s data management became a groundswell. The shift from multiple interfaces to a centralized data platform led to a 58% reduction in overtime, a 30% reduction in vehicle usage, and a 10% reduction in effluent chlorine costs. CSU’s three-week reporting time decreased substantially. “Just 15 minutes after authorization, our operators, our customers are getting our data,” Mora said.

These operational improvements helped the team better use its resources and further improve operational systems. “Prior to AVEVA PI System implementation we only had six operating systems. When I say ‘operating,’ [I mean] they were powered up. That was as close as we would get. The PI System is the pulse of our distribution system, and this is realized because we saved that money in our resource allocation and reallocated it to a cause that would really help us fine-tune our system.” Thanks to AVEVA’s PI System, CSU’s Water Quality Assurance team could deliver accurate data fast, without having to worry about the potential for human error.



Asset framework display for CSU Chlorination Station

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### Future data plans

Given their early successes with AVEVA PI System, Mora and his team added PI Vision to visualize their data in real time. Mora believes PI Vision “is going to change how we do business. In the past, you had to have the AVEVA PI System ProcessBook on your computer. Now, it is available anywhere. I can see what’s happening with my infrastructure 936 miles away from my hometown.”

In the future, Colorado Springs Utilities plans to increase its use of notifications. “We want improved process control sampling and compliance sampling. We want to expand the data sharing side,” Mora said, “to be able to provide that integration into the ArcGIS is going to be huge. Now we are going to be able to get our spatial analytics with all the data and put it together. That’s going to be powerful for us as we move forward.”

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