



How a Natural Gas Company Leveraged IIoT for Maintenance and Asset Management

Business Challenges

- Improving machine uptime
- Lengthy diagnosis and repair cycles
- Streamlining data exchange between operations and maintenance

LLumin CMMS+ Key Features

- Integrates with IIOT sensors and control systems
- Configurable and easy-to-use
- Automated workflow that triggers actions and notifications

The Results

- Dramatically improved operations uptime (> 99%)
- Reduced labor hours and significantly reduced MTTR cycles
- Predictive and Proactive maintenance processes are in place

About The Customer

Imagine flying over the alpine forest of the Rockies to the red mesas of the Southern Ute Reservation in southwestern Colorado. There you will find Red Cedar Gathering's Arkansas Loop natural gas treating plant in the San Juan basin. Red Cedar Gathering is a midstream energy company, one of the largest in the region, with treating capacity of about 250,000 MCF, or 250,000,000 cubic feet per day. The company "gathers" the gas from more than 1,200 wells at 25 sites over 895 miles of pipeline using 150,000+ horsepower of compression to deliver gas to the plant, where the gas then is treated and delivered to various interstate transportation pipelines.

Phil Velasquez, systems manager, Instrumentation, and electrical engineer for the company, manages and monitors this entire process beginning to end on his computer or work tablet. Velasquez and his team monitor the incoming and outgoing gas flows, temperatures, levels, pressures, and equipment, which make up a growing 10,000 live and 8,300 historical data points.



Improving Uptime

The energy firm deployed LLumin's IIoT-enabled asset management software 3-1/2 years ago. With the additional insight it's gained with the software, it has increased its up-time above 99%, resulting in plant throughput of 100% per year. "We require less labor hours due to fewer callouts with equipment going down," Coy Bryant, COO explains. There is less downtime due to automatic, proactive, actions triggered based on equipment condition alerts. We paid for our investment in LLumin in just over 2 years."

"Before we changed out our CMMS software, updating and maintaining data about machine operations in the old system was clunky, and the accuracy was limited," agrees Velasquez. And, as we expanded the functionality and capabilities of our control system and IIOT strategy, it was easy to expand and integrate LLumin software from there," he says.

A Streamlined Workforce

"Our labor hours are reduced due to a quicker reaction time with dehydration equipment and amine heaters," Velasquez adds. The process is automated where we did it manually before. It reduces the time to bring up the system. "Before the CMMS+ and its integration with our Rockwell PlantPAx control system, if the TEG or dehydration equipment went down, the team would diagnose the equipment manually. If a pump was malfunctioning, a team member would go to the pump, examine the issue and then remediate it in order to allow a system restart.

Now, operations and maintenance personnel receive specific condition alarms from the control room, analyze what's happening and decide on the best course of action- inspection, maintenance or repair. Or CMMS+ will automatically trigger an action or work order, reducing MTTR even more.

Predictive and Preventive Maintenance

Red Cedar Gathering also uses LLumin CMMS+ asset management software with integration to the Control System data historian to do predictive and preventive maintenance by monitoring and analyzing historical and real-time data such as temperatures and pressures. "The additional data helps us keep a close eye on the condition of the equipment," says Velasquez. "We now proactively measure the condition of our equipment and set historical and condition-based rules. We record machine data to see the condition of our equipment and use preset rules to identify out-of-spec conditions and then trigger actions and follow up with LLumin CMMS+.

"We keep tighter thresholds on temperatures now and have a more efficient burner management system," affirms Velasquez. "Our pumps are designed to maintain a consistent pressure and run efficiently. With the data, we can monitor the pumps 24/7 and identify any irregularities."

And, using the CMMS+ Asset Facility View module, Velasquez and his team can view, locate, and manage critical equipment. They also upload interior photos and architectural drawings. The entire visualization, along with ongoing condition and status monitoring makes it easy and fast for company personnel to track equipment and facility levels of risk. All of this information improves equipment life span and helps the company with forecasting timely capital replacements and purchasing, Velasquez explains.

Smooth Integration

With minimal training and using the services of a local system integrator, it was a smooth process to incorporate LLumin CMMS+ software directly into our control system and into our operations environment.

The software is also easy to use and is designed to match employees' roles and responsibilities with specific dashboards that truly facilitate work completion or information consumption," he said.

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— Phil Velasquez, Red Cedar Gathering

What is the Downtime Cost Equation?

Downtime happens in real-time production and incurs significant costs. Multiple factors are involved in the downtime cost equation — employees are idle or working overtime, and reduced production causes lost revenue and loss of customer confidence. Damaged equipment may need repairs, and specialized technical support may be required. To this, add stress to the entire operation and a loss of time and brain power for innovation. An Enterprise Strategy Group (ESG) study estimates the average downtime in manufacturing is about 1-1/2 hours, and other studies show an average of 3 to 4 hours per day. Calculations from different sources show costs to industrial manufacturers between \$30,000 to \$50,000 per hour, with increased costs of 5 to 10% according to Mark Stevens of the Manufacturing Tomorrow blog. According to Aberdeen Research, 82% of companies have experienced unplanned downtime over the past 3 years at a cost up to \$260,000 per hour. In studies, articles and blogs discussing downtime and how to reduce it, all roads lead to predictive analytics with IIoT technology.



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