Accurate Alarms for UpStream Pipeline Leak Detection

RESULTS

• Reduced detection time for pipeline leaks and other anomalies

• Met government regulations for backup leak detection system

• Accurately alarmed and reduced "Alarm fatigue "among field staff

• Increased mobility of staff and data availability

APPLICATION

DeltaV™ SaaS SCADA with Pipeline Protect
DeltaV™ SaaS SCADA Mobile
DeltaV™ SaaS SCADA Alarm Experts

CUSTOMER

International oil and gas producer in Calgary, Alberta

CHALLENGE

A large producer found themselves inundated with approximately 40 alarms per month. Because very few of these alarms indicated an actual pipeline leak, field personnel began ignoring alarms which could mean a real leak might be ignored, causing significant damage to lease property before caught, repaired, and remediation efforts were even needed.

To overcome alarm fatigue, the company tried taking readings less often. However, this approach increased the risk of delay in finding a leak. They also considered factoring in a 10% margin of error when comparing input/output volumes but was concerned that even with fewer readings, false alarms would still exist, and field personnel would develop a new threshold for alarm fatigue.

In addition, the operator was also concerned about meter errors and the time it took employees to analyze the data effectively. They needed to reduce false alarms and increase data accuracy, so employees could then utilize their time much more efficiently.

> "Removing the wasted time of false alarms for pipeline leaks and giving that time back to our operations has made an impressive impact on how our people are able to make better use of their time and has created much more focus for us all."
>
> Oil and gas producer in Calgary, Alberta
> - CEO

DELTAV™

EMERSON™

SOLUTION

Emerson's DeltaV SaaS SCADA data experts worked with the operator to develop a statistical approach that could characterize the asset's normal operation and distinguish abnormal patterns in the data.

The customer worked with DeltaV SaaS SCADA before, and we were developing an artificial Intelligence (AI) System that could be trained to separate alarm-worthy incidents from non-emergency anomalies.

Using data from a monitored test section of pipe, a new approach was introduced to avoid triggering alarms when operation transitions occurred. Such transitions can create fluctuations in flows and pressures that can generally be interpreted as anomalies.

Our solutions processed and analyzed sensor information as soon as it arrived to our cloud-native platform. The data was cleaned up, verified for consistency, and filtered prior to analysis. We used the Sequential Probability Ratio Test (SPRT) to validate or disprove our null hypothesis of an anomaly being present.

During the test, the system accurately identified normal pipeline flow transitions without creating alarms. Other anomalies identified were build-up in the flow meters, compressor issues, problems with the water level in the inlet separator, meter errors, and plant shutdowns.

Once the testing phase was complete, the customer implemented the solution to their existing pipeline monitoring system and utilized DeltaV SaaS SCADA available with Alarm Expert service to monitor, control and ensure effective alarm management for their pipelines.

The customer can now unlock the more value from their operational data. Personnel can also access data from anywhere to utilize their time effectively and make more informed decisions with stronger focus to manage operations.

SECURITY	SCALABILITY	SERVICE
✓ Monthly automatic security updates	✓ Mobile app anywhere, anytime access	✓ Live 24/7/365 support included
✓ Secure web access anywhere, anytime	✓ Customer roadmap involvement	✓ eLearning courses & workshops
✓ Two-factor authentication	✓ Customize your user groups	✓ Project Management available
✓ Backups & disaster recovery	✓ Budget friendly & low CapEx	✓ Data Exchange service available
✓ ~3500 Microsoft™ security experts	✓ 26 effortless software updates in 2023	✓ Alarm Management available

DeltaV™ SaaS SCADA is an IIoT cloud-native platform designed to enable asset-intensive industries to quickly and securely connect, acquire analytics and provide control of remotely located devices anywhere, anytime by anyone of your authorized users. We help our customers become more productive, profitable and sustainable to improve life around the globe.

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