

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



APPLICATION

Zedi Pipeline Leak Detection
Zedi Access
Zedi Go mobile app
Zedi Alarm Management Service

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.

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 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

SOLUTION

Emerson's Zedi Cloud SCADA Data Scientists 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 Zedi before, and we were developing artificial Intelligence (AI) Systems that could be trained to separate alarm-worthy incidents from non-emergency anomalies.

Using data from a monitored test section of pipe, an 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 based Zedi 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 over, the customer implemented the solution to their existing pipeline monitoring system and used Zed Alarm Management services to monitor, control and ensure effective alarm management for their upstream located 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.



North America and Latin America
Global Headquarters
Emerson Automation Solutions
Remote Automation Solutions
6005 Rogerdale Road
Houston, TX, USA 77072
T: +1 281 879 2699



Europe
Emerson Automation Solutions
Remote Automation Solutions
Unit 1, Waterfront Business Park
Dudley Road, Drierley Hill
Dudley, UK DY5 1LX
T: +44 1384 487200



Middle East and Africa
Emerson Automation Solutions
Remote Automation Solutions
Emerson FZE
PO Box 17033
Jebel Ali Free Zone - South 2
Dubai, UAE
T: +971 4 8118100



Asia Pacific
Emerson Automation Solutions
Remote Automation Solutions
1 Panda Crescent
Singapore 128461
T: +65 6777 8211

© 2021 Emerson. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their respective owners. The contents of this publication are presented for information purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the design or specifications of our products at any time without notice. Responsibility for proper selection, use and maintenance of any product remains solely with the purchaser and end user.

Find us in social media

- Facebook/Emerson-Automation-Solutions
- Remote Automation Solutions Community
- @Emerson_RAS
- Remote Automation Solutions