INTECH
AUTOMATION · INTELLIGENCE

Pipeline Monitoring & Leak-Detection

Control & Automation Solutions

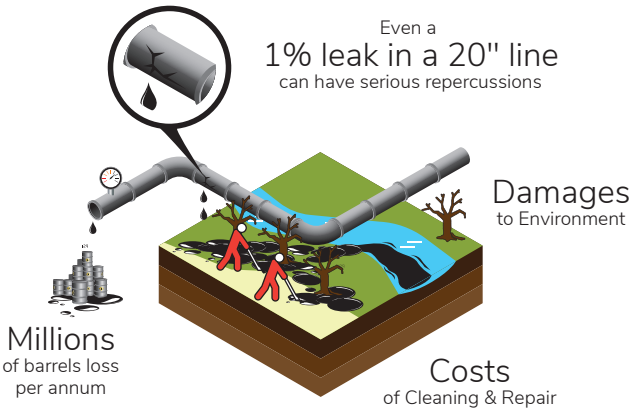
Pipeline Management for Oil & Gas and Chemical

Introduction

Global energy demands have raised manifolds over the past decade and pipeline networks, being the most economical mode of transporting oil and gas, are of the utmost significance to meet the energy appetite of the world. With rising energy demands as well as increasing global environmental awareness and consciousness, pipeline operators cannot afford the slightest oversight to compromise pipeline safety, reliability and efficiency. Unfortunately, pipeline operators around the world are still incurring significant monetary and environmental expenses every year for pipeline losses which could potentially be saved by smart applications such as a pipeline leak detection system.

Why Do Operators Need A Pipeline Leak Detection System?

A leak detection system is an essential component to react promptly to pipeline failures in order to protect the public and environment. The primary purpose of leak detection systems is to assist pipeline operators in detecting and localizing leaks. The rising number of significant pipeline incidents as well as ageing pipeline networks and millions of dollars' worth of small incidents make a compelling case for the need of a pipeline leak detection system.



INTECH's Pipeline Leak Detection System Using PSIpipelines

INTECH's pipeline leak detection solutions are based on the PSIpipelines application package. The package provides a complete range of powerful real-time applications to assist operators in monitoring their liquid and gas pipelines to quickly identify critical situations, to maintain pipeline integrity and to react instantly to all conditions. This highly available and reliable system is designed to make sure that the strict requirements for transporting liquids and gases are met and can be deployed for multi-batch and multi grade pipelines to monitor the movement of various fluid compositions.

Simulation:

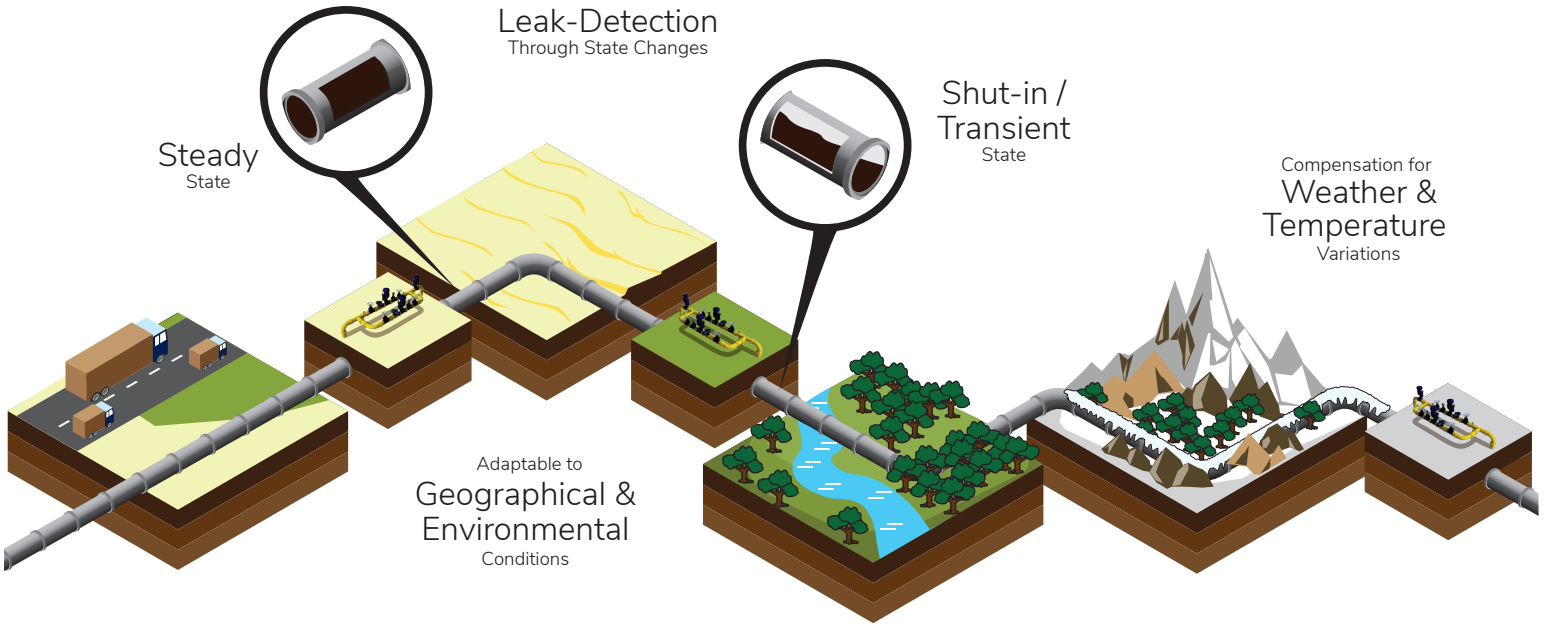
- Real-Time Transient Modelling (RTTM)
- Look-Ahead
- What-If
- Offline

Tracking:

- Scraper
- Batch
- Density
- DRA

Monitoring:

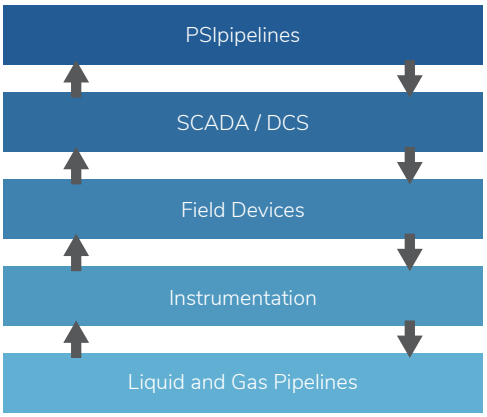
- Leak Detection and Location
- Pipeline Stress
- Pipeline Inventory
- Instrumentation Drift & Malfunction
- Slack Line



Why INTECH's Pipeline Leak Detection System

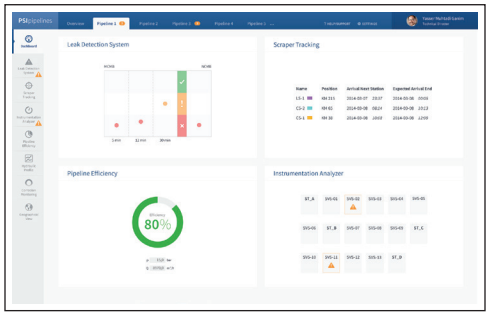
Fully Integrated Solutions

- Seamless integration with SCADA systems, instrumentation and field devices
- Integrates easily with third party systems across diverse operational environments
- End to end solution including instrumentation and integration for pipepline networks with missing or inadequate instruments



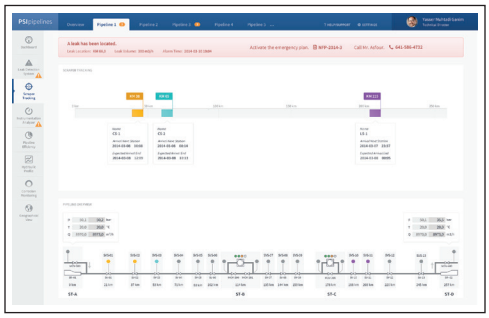
Compliance with International Standards

- PSIpipelines LDS is approved by the independent experts of TÜV and fully complies with international and industry standards:
  - TRFL (Technical Guideline on Pipelines)
  - API 1130 Computational Pipeline Monitoring for Liquids
  - IEC EN 61508 / SIL 1
- Supports multiple communication protocols like OPC, Modbus, IEC, DNP3 etc.



Scalability & Flexibility

- Highly Scalable System that provides all parts of a solution that are needed for day to day operations
- Inherent flexibility ensures that an existing solution can expand as the pipeline system expands to a larger scale without project specific code changes
- Applications built on top of a common set of subsystems including:
  - Data Acquisition and Processing
  - Real-Time Database
  - Data Historian and Trending
  - Alarm Management and Event Logging
  - HMI System
  - Historical Data Playback
  - Multi-Level, Multi-Role User Access Control
  - Redundancy Management with automatic failover
  - Communication and Data
  - Slack line Flow Detection Exchange



A Versatile Tracking System

- With its powerful and proven methods the tracking system covers all requirements for accurate tracking of scrapers, batches, products, densities and temperatures
- The tracking system provides complete linefill information for all associated applications and keeps all data reliable even if a pipeline topology has been changed
- The tracking system is able to handle any mixing and splitting point. It uses scraper signals in order to correct automatically their position and generates warnings whenever valve stations are approached
- It calculates and provides the exact arrival time and velocity of all linefill elements. Operators are informed in good time before a batch arrives at a pump station or pipeline branch
- Self-adaptive system to tune to particular installation. Reduces false alarm rates as well as identifies leaks in shut-in and transient state (when there are operational changes or external effects)

Bottomline Impact

- Based on the Real Time Transient Model (RTTM) and actual hydraulic conditions like linefill, pipe friction factor etc. the system determines the most efficient pump operations and provides the results to the operator. By employing Model Compensated Mass Balance it uses line fill info (via RTTM) and friction and drag coeffecients, conductivity etc. to accurately determine leak
- Maintains pipeline integrity on an enhanced level by continuous pipeline stress monitoring, wall roughness monitoring, inventory monitioring and density monitoring

What Our Customers Say

Chevron

"I would like to commend INTECH's on-site team for going beyond individual primary responsibilities, exhibiting a diverse skill set to progress towards project completion"

Project Supervisor

Schlumberger

"The experience, knowledge and dedication of the INTECH Process Automation team was instrumental in executing a professional job towards the Control and Safety Systems of the project"

Sr. I&E Engineer

TOTAL

"After successful commissioning I would express my satisfaction at duly meeting the project schedule. The work was done in most professional manner and we shall favourably consider your company for future work."

Sr. Engineer

End User

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