

Pipeline Data Analysis to make suitable decisions in the integrity of pipelines

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Abstract

A Pipeline Integrity Management System (PIMS) is a crucial to ensure the safety of the public, protection of the environment and the reliable and cost effective transportation in pipelines in accordance with API 1160, Managing System Integrity for Hazardous Liquid Pipelines and the PD 8010 part 4, Steel pipelines on land and subsea - code of practice for integrity management. The keynote of the PIMS is to develop a Geographic Information Systems (GIS) to facilitate data integration and further assessments.

The purpose of this paper is to present two study cases where a proper data analysis give an operator the opportunity of making suitable decisions to maintain their assets and prioritize their investments.

The first case of study relates how combining different sources of data helped us to identify cathodically unprotected locations or external corrosion areas using an internal risk model and the methodology described in "Pipeline Risk Management Manual. Ideas, techniques and resources, W. Kent Muhlbauer, 2004, WKM Consultancy, Texas, USA".

The second case explains a successful vulnerability analysis to detect illegal tapings on pipelines. Pipeline thefts have been reported as a major integrity issue as they increase the likelihood of having a loss of containment in High Consequence Areas (HCA). This assessment was carried out in different sections of the pipeline network through multivalent analysis based on geographic information and previous experiences, what has allowed the company to predict the location of new potential sabotages.

Key words: Pipeline Integrity Management System, PIMS, Geographic Information Systems, GIS, Illegal Tapping, Vulnerable Analysis, High Consequence Area, HCA