

Expanding the Functions of Commercial DA Tools

Description: A study exploring the possibilities of better utilization of existing ECDA tools & enhancements to data collected from above ground surveys.

Status: The study has been completed.

BENEFITS

This project provides pipeline integrity engineers who work with Direct Assessment (DA) methods with information on possible new approaches to traditional above-ground inspection methods. It offers insight as to whether the functions of commercially available DA tools can be expanded. This is achieved by maximizing the application of existing data from survey tools and conducting new survey methods. The benefit of the study was aimed at producing more precise and accurate surveys especially in challenging DA situations.



DA Inspection in Progress

Specifically, the following concepts can be improved through this evaluation:

- Achieving more accurate indications of anomalous

conditions on buried pipelines.

- Pinpointing areas of current pickup and discharge with an ACVG (Alternating Current Voltage Gradient) survey.
- Achieving more accurate current measurement and pipe depth.



PCM Tx Connected to a Test Station

This new and valuable information can be used for instances which may occur when multiple surveying contractors inspect the same pipe during its service life at different current and voltage

settings and using dissimilar tools. The operator can increase the accuracy of pipeline predictions by illustrating which values to focus on and making the best use of data when test conditions or tools vary. The study also suggests a new approach for pinpointing areas of current pickup and discharge during an ACVG (Alternating Current Voltage Gradient) survey. The findings also suggest that more accurate current measurements and depth of covers can be collected using less popular commercially available tools.



Smart Interrupter™ Used in DA Surveys

BACKGROUND

External corrosion direct assessment (ECDA) is a structured process that is

intended to improve safety by assessing and reducing the impact of external corrosion on pipeline integrity. Indirect inspection methods for above ground evaluation of external coating conditions of buried pipelines have become a valuable part of assessing the integrity of gas pipelines. This has been accelerated through the passage of the Pipeline Safety Act of 2002 and NACE RP 0502 by the Office of Pipeline and Safety.

Indirect inspection tools have been around for many years but are not used to their potential during surveys. Additionally, the gas industry has not systematically proven all the available data from them.

JW's Pipeline Integrity Services (JW's) believes these tools can be better utilized to obtain data enhancing current above-ground ECDA surveys.



PCM with A-Frame Attached

TECHNICAL APPROACH

A research project was conducted by JW's Pipeline Integrity Services at the NYSEARCH Test Bed in Johnson City, NY. This facility has multiple pipe configurations, sizes, coatings, and engineered defects. It has been constructed for testing a wide variety of pipeline integrity tools and methods.



Precision Pipeline Locator

JW's Pipeline Integrity Services conducted the following surveys:

- Current Attenuation
- Depth of Cover
- ACVG

The ECDA tools used in the study were:

- Pipeline Current Mapper (PCM)
- PCM with A-Frame
- Smart Interrupter (SI)
- Precision Pipe Locator (PPL)
- Stray Current Mapper (SCM)

The data from the surveys was compared with actual pipe features on the test bed. Finally, novel methods of combining data were explored, verified and described in a final report.



Stray Current Mapper

PROJECT STATUS

The study has been completed. A final report has been issued to funding members.

FOR ADDITIONAL INFORMATION

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