PROJECT facts

U.S. DEPARTMENT OF ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Natural Gas Infrastructure Reliability

09/2002

DEVELOPMENT OF EMAT IN-LINE INSPECTION SYSTEM FOR DETECTION, DISCRIMINATION, AND GRADING OF STRESS CORROSION CRACKING IN PIPELINES

CONTACT POINTS

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PRIMARY PROJECT PARTNER

Tuboscope Pipeline Services
Houston, TX

PROJECT DURATION

18 Months

COST SHARING

DOE	$639,288
Non-DOE	$344,232

STRATEGIC CENTER FOR NATURAL GAS WEBSITE

www.netl.doe.gov/scng

Description

This project will add new technology to detect, evaluate, and grade corrosion cracking in pipelines. Stress corrosion cracking (SCC), if undetected, can increase and cause pipeline failure. There is currently no economically viable method to locate and grade SCC in natural gas pipelines. Any acceptable method to solve this problem must also be able to differentiate SCC from other benign pipeline features to eliminate the potentially high costs of excessive remedial work.

Tuboscope Pipeline Services will initially develop a sensor using electromagnetic and acoustic technology (EMAT) that can grade corrosion cracks at very low levels. The company will then develop a platform to attach an in-line inspection tool, followed by the necessary processing software to be integrated with existing systems.

Development of EMAT In-Line Inspection System for Detection, Discrimination, and Grading of Stress Corrosion Cracking in Pipelines

CUSTOMER SERVICE

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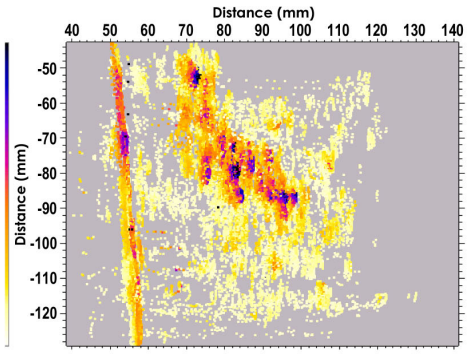
Goal

The goal of this project is to help modernize the nation's natural gas delivery system. It responds to the Secretary of Energy's message of May 2001: "By 2020, Americans will be consuming 50 percent more natural gas than today. We will need newer, cleaner, and safer pipes to move these larger quantities of natural gas." The project responds to the Natural Gas Infrastructure Reliability Program goal: to foster the technologies needed to ensure the integrity, operational reliability, and efficiency of the nation's natural gas infrastructure as it adapts to rapidly changing natural gas markets.

Stress Corrosion Defect # 93

Conventional Contact Ultrasonic Acoustic Image



Axial Distance

EMAT SV1 Mode Amplitude Thru Transmission