

PROJECT facts

U.S. DEPARTMENT OF ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Natural Gas
Infrastructure Reliability

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PRIMARY PROJECT PARTNER

Southwest Research Institute

San Antonio, TX

PROJECT DURATION

12 Months

COST SHARING

DOE \$260,000

Non-DOE \$140,000

SCNG WEBSITE

www.netl.doe.gov/scng

DEVELOPMENT OF NONLINEAR HARMONIC SENSORS FOR DETECTION OF MECHANICAL DAMAGE

Description

This project will add new technology to in-line inspection of transmission pipelines. Mechanical damage defects such as dents and gouges are the major cause of pipeline failures. Current pipeline inspection "smart pigs" do not have the capability to reliably and accurately detect such defects.

Southwest Research Institute (SwRI) has developed an electromagnetic technology called nonlinear harmonics (NLH) for detection and characterization of plastically strained steel, including pipeline mechanical damage. SwRI's project partner is Tuboscope (a Varco Company) in Houston, Texas. Tuboscope is a leader in in-line inspection of pipelines and is interested in adding capability for mechanical damage to its fleet of inspection devices. NLH sensors and associated circuitry will be developed and installed on a Tuboscope "smart pig." Evaluation tests will be run to validate the approach prior to full-scale implementation of the sensors on Tuboscope's commercial fleet. Tuboscope will provide full commercialization of the technology outside the scope of this project.



DEVELOPMENT OF NONLINEAR HARMONIC SENSORS FOR DETECTION OF MECHANICAL DAMAGE

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.

CUSTOMER SERVICE

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