

Public Page

Contract Number: DTPH56-08-T-000002

Prepared for: U.S. DOT Pipeline and Hazardous Materials Safety Administration

Project Title: Enhanced Defect Detection and Sizing Accuracy Using Matrix Phased-Array Ultrasonics Tools

Prepared by: Edison Welding Institute (EWI)

Contact Information: Nancy Porter, nancy_porter@ewi.org, 614-688-5194

For quarterly period ending: July 31, 2008

Progress to date: The objective of the program is to enhance detection and sizing accuracy of crack-like and planar imperfections created during pipeline fabrication and service using matrix phased-array (MPA) ultrasonics (UT) tools with the goal of improving the predicted reliability of pipelines during early design stage and service life. The technical objectives are to: develop a concept for MPA modules applicable for either outside or inside pipe inspection and carried by different inspection tools, platforms and systems; define and optimize detection and sizing capabilities of the modules via modeling and simulation; design and fabricate two probe modules (one for outside and one for inside pipe inspection); and determine and demonstrate the detection and sizing performance of the probe modules and systems capable of driving MPA.

The primary deliverables for this program include two prototype MPA modules, the results of the optimization/detection/sizing technical task work, training and workshop materials to support transfer of the technology to industry, and conference papers and a series of comprehensive reports. The prototype modules constitute the development of new technology for the pipeline industry.

The project team is being lead by EWI with a large cash cost-share contribution from ConocoPhillips and in-kind contributions from ConocoPhillips, CEA/List, itRobotics, Imasonic, TransCanada Pipelines, Zetec, NDT Systems & Services, ApplusRTD, INDES/KJTD (USA) and UT Technology.

The project kick-off meeting was held at EWI on June 5, 2008. Since then, the project team started developing functional specifications for the MPA modules, the prototype wedge design is in process, and the software is under development. The team has also delivered the draft system concept to DOT and the project team for review/comment.