

## Public Page

**Contract Number:** December 21, 2007

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

**Project Title:** Advanced Technologies and Methodology for Automated Ultrasonic Testing Systems Quantification, #261

**Prepared by:** Edison Welding Institute (EWI)

**Contact Information:** Nancy Porter, nancy\_porter@ewi.org, 614-688-5194

**For quarterly period ending:** December 31, 2007

### **Progress to date:**

The overall objective of the program is to reduce the uncertainty of Automated Ultrasonic Testing (AUT) detection and sizing accuracy with the goal of dramatically improving the predicted reliability of pipelines in the early design stage and will be approached in the following manner:

- Develop a methodology for quantification of AUT systems.
- Advance and quantify AUT system's image-capture capabilities.
- Quantify the performance of multiple AUT systems and establish a guidance document.
- Implement the quantification methodology in field tests and guidance document in Reliability Based Design and Assessment (RBDA) standards.

The deliverables for this program include a methodology to quantify imaging capabilities and AUT systems, probability of detection (POD) and sizing accuracy curves for multiple representative systems, guidance for AUT capabilities and ECA/strain based design approach applicability, and technical justification for modifications of the current requirements for AUT quantification trails demanded by the global practices of majors companies and codes.

The project team is being lead by EWI with cost share contributions from ConocoPhillips, Chevron, ExxonMobil, BP, Heerema, TransCanada Pipeline LTD., UTTechnology, GE Inspection Technologies, UTQuality, Mechanical Integrity, ISQ (Portugal), and Pipeline Research Council International.

The draft quantification methodology has been delivered to DOT. The team is currently working to improved imaging capabilities by creating a model to measure actual defect area (as opposed to measuring the area as defined by the extremes of defect length and height). In the near future, EWI will begin fabricating welded samples with implanted and naturally occurring defects for the upcoming open and blind measurement trials.