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Prepared for: DOT
Project Title: Demonstration of ECDA Applicability and Reliability for Demanding Situations (Prj#195)
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This project includes the identification and demonstration of specific technologies to assess demanding pipeline situations (e.g., cased and non-cased crossings, pipe with no or shielded coatings, segments with stray currents or interferences from multiple pipes in right of ways). Demonstration of the capability and reliability of existing/proposed technology for these specific situations will result in a decision tree (protocol/recommend practice) of what direct assessment (DA) techniques and technologies are most effective for each situation.

The results will include expected reliability numbers for defect identification. Quantitative, reproducible assessment results will be stressed. These results and recommendations will be fed into industry standards and recommended practices (e.g., ASME and NACE) to ensure the fastest possible implementation of research benefits -- improved safety, ability to assess pipeline segments that have no alternate method available (i.e., expand DA applicability), and increased reliability of the DA method. This project will include support from a group of 23 gas company participants that will contribute pipeline segments for assessment, pipe inspection resources, and excavation and examination costs to demonstrate the DA technologies.

During the sixth quarter of the project,

Completed the analysis associated with the additional scope of work requested by DOT/PHMSA in accordance with DTPH56-06-T-0001, Modification 0001 dated August 28, 2007.

The additional Scope of Work is related to accuracy of predictions versus direct examinations for guided wave inspections, specifically:

- Review a select subset of GWUT data collected from various test locations (field trials with 100% direct exam validation digs) and analyze the data to spot-test the acceptability of the tool "The Equivalency of GWUT to Pressure Testing" [white paper to be provided by the COTR] to detect indications that would fail under a hydrotest (failure pressure ratio of 1.25 for Class 1 locations) for integrity assessment.
- The selected Guided Wave inspection data will be input into the referenced model and then compared with the actual direct exam measurements input into ASME B31G Manual for Determining the Remaining Strength of Corroded Pipelines a Supplement to ASME B31 Code for Pressure Piping.
- The draft results of this comparison have been submitted to the DOT/PHMSA COTR for review.

Future project activities will include:

- Continue analysis of inspection data from the third and fourth case studies - Cased highway crossing and cased, abandoned rail-road crossing. These case studies will be written up with tools used, what was predicted, and what was actually found (% Reliability of Prediction). This data will then be combined with in-kind (past) project data to form a comprehensive "Selection Matrix" with % Reliability numbers for each tool's (primarily guided wave technology) performance when used for a particular demanding situation (e.g. cased crossing).
- Continue refining the draft of the "GWUT Protocol" by expanding/adding to the current draft document. When this procedure is combined with the "Selection Matrix" it will form a two-part set to assist with the proper selection of tools for each demanding situation and the expected % Reliability of Prediction. Upon completion of the Demanding Situation "Procedure" & "Selection Matrix", a summary will be drafted for review by ASME and NACE for possible inclusion into their appropriate consensus standards.

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