DOT 460 Quarterly Report – Public Page

Date of Report: June 30, 2014

Contract Number: DTPH56-10-T-000009

Prepared for: DOT

Project Title: "MWM-Array Characterization of Mechanical Damage and Corrosion"

Prepared by: JENTEK Sensors, Inc.

Contact Information: Todd Dunford, todd.dunford@jenteksensors.com, 781-373-9742

For quarterly period ending: June 30, 2014

Public Page Section-

This project is aimed at advancing JENTEK's MWM-Array technology to provide quantitative characterization of pipeline corrosion and mechanical damage as measured through coatings or insulation. Also of interest are higher resolution images produced with the coatings or insulation removed. For mechanical damage, quantitative characterization includes geometric variations and multidirectional residual stresses (near the surface and deeper within the pipeline). In addition, this program will develop capability to detect cracks at damage sites. For corrosion, enhanced high resolution imaging of both external and internal corrosion will be developed for specific applications to support life management decisions. The JENTEK team will build on demonstrated MWM-Array and MR-MWM-Array detection capabilities to deliver substantially enhanced characterization of damage and a practical means for implementation. This technology has been successfully applied in the aerospace and manufacturing industries and, compared to conventional NDE methods, provides substantially improved performance for imaging curved surface and buried damage through coatings.

During the fifteenth quarter of this program, we have: (1) Continued refinement and modification of the new crack depth measurement tool, with the goal towards transition for field deployment and commercialization. Continued discussions with a NDE service provider to coordinate a dig location to perform field trial for the SCC mapping and crack measurement tool. (2) Continued refinement of the corrosion mapping system for transition to field deployment. We have been in discussions with an oil major and several NDE service providers to coordinate demonstrations and field trials for detection and characterization of internal and external corrosion through insulation and weather jacket. (3) Continued evaluation of transition requirements for SCC crack mapping and depth measurement tool as well as the corrosion mapping tool. We have started to investigate certification requirements for operation of our systems in the field. We have also continued development of training coursework for NDE service personnel as well as manuals and procedure documents to operate the equipment.

The point of contact for this program is Todd Dunford (Email: todd.dunford@jenteksensors.com; Phone: 781-373-9742).

General Information required on all Public Quarterly Reports

Results and Conclusions:

This section summarizes progress made in this program. This project is aimed at advancing JENTEK's MWM-Array technology to provide quantitative characterization of corrosion and mechanical damage to pipelines.

Progress has been made in a number of areas:

- Perform demonstrations and field trials for SCC mapping and crack depth measurement – Lab Demonstrations, planning and preparation – Continued measurements on fabricated defect samples to refine crack depth measurement algorithm and improve the overall robustness of the crack measurement tool. Continued modifications to the crack depth measurement scanner to improve overall performance as well as measurement reliability in the field.
- Perform demonstrations and field trials for detection and characterization of internal and external corrosion through insulation and weather jacket – Planning and preparation – Continued discussions with an oil major and several NDE service providers to identify a location and to coordinate demonstrations and field trials for detection and characterization of internal and external corrosion through insulation and weather jacket.
- Evaluation of transition requirements – Continued evaluation of transition requirements for SCC crack mapping and depth measurement tool as well as the corrosion mapping tool. We are defining the remaining obstacles to operation of our systems in the field. We have also continued development of training coursework for NDE service personnel as well as manuals and procedure documents to operate the equipment.

Planned Future Activities:

N/A