Quarterly Report
Public Page

Date of Report: *March 31, 2015*

Contract Number: *DTPH56-14-H-00003*

Prepared for: *Government Agency: DOT*

Project Title: *Strain-based design and assessment in critical areas of pipeline systems with realistic anomalies*

Prepared by: *Center for Reliable Energy Systems (CRES), C-FER, NIST, and CANMET*

Contact Information: *Yong-Yi Wang (ywang@cres-americas.com, 614-808-4872)*

For quarterly period ending: *March 31, 2015*

1 Work Completed in this Quarter

All pipes for full-scale tests have been received. Welding and specimen fabrication for the full-scale tests is in progress along with welding of the pipes for the curved wide plate tests (CWP).

Finite element analyses (FEA) for pipes with different anomalies (i.e., transition welds, corrosion anomalies, and dents) were continued. The focus was on (1) the development of the specimen dimensions and instrumentation plans and (2) the key controlling parameters.

The studies on the corrosion anomaly sizes for full-scale tests, i.e., tension, compression, and burst, were continued. The anomaly sizes for full-scale tension tests were finalized.

The studies on the key controlling parameters for various problems were continued and the key controlling parameters have been being identified. It was found that the width and length of the corrosion anomalies played different roles for different failure mechanisms.

Full scale testing was commenced starting with burst tests on specimens with varying axial pre-strain.

Monthly reports were submitted online. Two online progress review meetings were held on 1/14/2015 and 3/11/2015, respectively.

2 Work Planned for the next Quarter

The work planned in the next quarter includes: (1) weld fabrications, (2) small-scale material tests, (3) finite element analyses and model development, (4) curved-wide plate tests, (5) remaining full-scale pipe tests, and (6) project management, monthly and quarterly reports, and meetings.