PRCI Project Ref: SCC-1

QUARTERLY REPORT – PUBLIC PAGE

Guidelines for the Identification of Stress Corrosion Cracking Sites and the Estimation of Re-Inspection Intervals for Stress Corrosion Cracking Direct Assessment

Date of Report: February 29, 2008

Contract No: DTPH56-06-T-000013

Prepared For: United States Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Office of Pipeline Safety

Prepared By: Fraser King
Principal Investigator
NOVA Research & Technology Corporation
2928 16th Street, N.E.
Calgary Alberta T2E 7K7
fraser.king@shaw.ca

Mark Piazza
Team Project Manager and Technical Coordinator
Pipeline Research Council, International
1401 Wilson Blvd., Suite 1101
Arlington, VA 22209
703-387-0190
mpiazza@prci.org

For Period Ending: February 29, 2008

Distribution authorized to U.S. Government Agencies only, so as to protect information not owned by the U.S. Government and protected by the recipient's "limited rights" statement, or received with the understanding that it not be routinely submitted outside the U.S. Government.

LEADING PIPELINE RESEARCH

Pipeline Research Council International, Inc.
1401 Wilson Boulevard • Suite 1101 • Arlington, VA 22209 • USA
Main 703-387-0190 • Fax 703-387-0192 • www.prci.org

Technical Status

Progress in the quarter was made on a number of the scheduled tasks. In particular, progress was made on Task 1: Data Collection and Task 2: Data Analysis. A presentation was made to the February 2008 PRCI meeting in Atlanta, GA as part of Task 4 Technology Transfer. Limited progress was made on Task 3: Documentation, and there is no detailed reporting for that task presented in this report.

Task 1: Data Collection

Sub-task 1.1 Data Collection from Literature

Formal data collection from the historical literature has been completed as reported in the Q5 quarterly report (August 31, 2007). Although the formal literature data collection has been completed, the literature is still being monitored for new publications in this area. During the reporting period, a number of papers were published on pipeline SCC, including conference proceedings on environmentally assisted cracking, which included a session on pipeline SCC chaired by the PI. The papers from this conference will be reviewed, categorized and included in the analysis of susceptibility to SCC, crack initiation, crack growth and dormancy, and crack growth to failure, as appropriate.

Sub-task 1.2 Data Collection from Pipeline Operators

PRCI-member companies have requested that the data collection for this project be coordinated with that from other similar PRCI SCC projects in order to avoid multiple requests for the same data.

As presented in the last quarterly progress report, the issue causing the delay in initiating the collection of field SCC data from pipeline operators has been resolved. An initial survey of PRCI-member companies was issued in December 2007, but the response was limited. A further attempt to solicit data was made at the February 11-13, 2008 PRCI meeting in Atlanta, GA GA and coordination of the effort with other PRCI projects continues.

The collection and analysis of the field data, and more importantly the verification of the guidelines against those data, is a vital component of this project. It may be possible to develop a number of rules or guidelines from the R&D literature, but unless it can be shown that they have been validated against field data, pipeline companies will not likely implement them.

Sub-task 1.3 Data Collection: Foreign SCC Mitigation Practices

Collection of SCC data from non-North American operators was part of the overall coordinated strategy with PRCI. This task has been delayed because of the same issues with data collection from domestic pipeline companies. However, some foreign (Russian) data have been independently obtained and are discussed in more detail below.

Task 2: Data Analysis

Sub-task 2.0 Data Analysis: Categorizing Data

This task has been completed for the main body of R&D information obtained during the initial data collection phase. However, this task continues for the additional references identified through the on-going review of journal publications and conference proceedings.

Sub-tasks 2.1, 2.2, 2.3, 2.4 Data Analysis: Pipeline Susceptibility to SCC, Crack Initiation, Crack Growth and Dormancy, and Crack Growth to Failure

Critical review of the collected R&D papers and articles continued during the quarter in all aspects (modules) of the project. This is a lengthy process, since in excess of 400-500 papers and articles have been collected. All papers have been reviewed briefly as part of the initial data categorization process. Currently, each paper is being critically reviewed in detail to determine:

1. Whether the paper contains any information that can be used to derive guidelines, rules, algorithms, relative susceptibility, etc.
2. If not, could the results from the paper be used with those from other paper(s) to develop guidelines, etc.
3. Whether the required input data for the guideline/model/algorithm would be available to pipeline operators (i.e. would it be implementable)
4. Whether the derived guideline could be validated against field data, and
5. Whether the derived guideline would contribute to an increase in safety and/or increase in operating efficiency.

Even if a particular paper does not meet these criteria, it may still be useful and will be reviewed and catalogued.

Task 4: Technology Transfer

The main technology transfer activity during the quarter was a presentation on the status of the project to the PRCI meeting in Atlanta, GA on February 11-13, 2008. This presentation provided an update on the project to PRCI members and other attendees. In particular, the presentation emphasized the importance of validating the guidelines derived from the R&D literature against field data collected from member companies. Without this validation, pipeline companies will not have the confidence to implement the results from the study.

Plans for Future Activity

The following activities are anticipated for the next milestone period:

Technical Progress

The project will work on continued review and evaluation of the literature and data analysis and development of guidelines for each module or stage of the guidelines. The focus will be on all four modules.

Progress on coordinated data collection from PRCI-member companies will continue.

Tests and Demonstrations

No tests or demonstrations are planned for the next reporting period.