



**National Institute of
Standards and Technology**
U.S. Department of Commerce

Material Measurement Laboratory
Applied Chemicals and Materials Division
Structural Materials Group

Quarterly Report

Project Title: Characterization of Modern High Toughness Steels for Fracture Propagation and Arrest Assessment	Quarter: Q2FY14
	Quarter Ending Date: 31 March 2014
	NIST Project Leader: Timothy Weeks
	Contact: 303-497-5302, timdash@nist.gov
	Prepared for: DOT/PHMSA
	Contract: DTPH56-13-X-000013
DOT/PHMSA Sponsor: James Merritt	

Work Completed in this Quarter

The literature collection and review for testing methods and model development is still underway. Thus far, more than 100 relevant publications have been entered into the database for this project.

Steering Committee solicitation letters were sent via email to prospective Steering Committee members. Most solicitations were responded to immediately with acceptance to the solicitation. Some responses were contingent upon organizational approval.

NIST researchers attended the PRCI Research Exchange where attending members of the Steering Committee were met for discussions about the project. Current contact information was obtained for other potential Steering Committee members. By the end of the quarter a final Steering Committee was formed.

NIST hosted a web conference call with the Steering Committee, the NIST research team and DOT/PHMSA. Meeting minutes were distributed for edits/comments and a final version is attached.

Work Planned for next Quarter

NIST research team meetings are planned to discuss and finalize the proposed test methods for the Steering Committee review. Action items from the last Steering Committee meeting will be completed. Additional literature review is ongoing and several members of the Steering Committee have offered assistance in obtaining literature that is lacking and inaccessible to NIST.

Quarterly Report – Q2FY14

Two members of the Steering Committee are planning a trip to NIST to work with the NIST research team on test method development and project planning. The methods and constraints will be presented to the Steering Committee.

The NIST research team will be preparing the procurement package for additional modelling software.

The Steering Committee and NIST research team will meet via web conference every 2-3 weeks in this upcoming quarter as schedules allow.

Technical Status of the Project

With more than four decades worth of research and testing conducted on rapid fracture of pipeline steels and an increasing use of high-strength high-toughness steels in pipeline systems, there is an enormous amount of literature still left to obtain and review.

A fully vetted test methodology is outstanding. Several methods have been proposed and are being evaluated by the NIST research team to determine their feasibility and applicability to the industry needs and to determine the constraints associated with each method.

Current modelling efforts have focused on applying available models to available (literature) testing results to determine what modelling needs remain outstanding. Additional modelling software has been identified to meet the needs of the test development.

Project Schedule

A version of the work scope, task and milestone chart will be updated for the Steering Committee. The project is on schedule for the modelling literature review but a few months behind schedule on test method development. Members of the Steering Committee visiting NIST this upcoming quarter will significantly improve the schedule outlook for the project.