

Quarterly Report – Public Page

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Project Title: *Development of an Industry Test Facility and Qualification Process for ILI Technology Evaluation and Enhancement*

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Public Page Section- This section contains information on the technical status of the Project and the milestones completed during the quarter. Information will be information that PHMSA may release to the public in whole or in part at any time. The information must not contain proprietary data or confidential business information. The Team Project Manager must provide a point of contact for coordination, preparation, and distribution of any press releases.

Results and Conclusions:

ILI Vendor Participation

Commitments for project participation have been received from ILI vendors confirming their support of the program. To-date all ILI service providers have participated fully.

The final collective report arising from the ILI Vendor surveys has been submitted as a deliverable. This industry document describes more public information and industry practices, including general (non-vendor specific) information. The individual, vendor-specific reports have been issued to each of the vendors that participated in the surveys. These latter reports are confidential to each individual vendor.

As outlined in the pull test protocol developed for this project, an overview letter of the scope and nature of the trials that will be completed was assembled to inform the ILI Service Providers of the objective and scope of the inspection. This information recapped previously communicated information and provided new data as follows:

The NDE-4-F pull trial program will include 2 pipe pull strings. The pipe strings will be assembled by bolting together flanged pipe segments that are nominally 40 ft in length. The pull trials will proceed in three stages, as follows:

- 1) Facility Commissioning – A magnetic segment (no sensors required) will be pulled through the TDC test system as part of the system testing program. Commissioning will be completed on 24” or 16” diameter pipe segments. The support of 1 participant is required for these pulls at the end of April or the beginning of May 2015.
- 2) Blind Trial – No additional prior information about the test string pipes and features, other than that provided below, will be provided to the ILI Service Provider before the trial. These trials are scheduled for Sept 2015 with the specific dates to be confirmed with the ILI Service Providers.
- 3) Repeat Trial – After having received and reviewed the results of the Blind Trial and limited validation data following principles of API 1163, the ILI Service Provider will be offered an opportunity to repeat testing. The test dates will be selected to be mutually acceptable to the ILI Service Provider and PRCI. These trials are scheduled for October 2015 or later with the specific dates to be confirmed with the ILI Service Providers. The ILI Service Providers will complete their analysis and prepare a report on the features identified in the pull test after the trials at their respective offices. It is proposed that the ILI service providers will report the result of their inspection no later than 3 weeks after the pull test. The report format will be agreed with the NDE-4-F project team but will be expected to follow standard commercial reporting practice.

ILI Facility Design

The final general contractor/construction specification detailing all work associated with construction (materials and labor) above the concrete foundation and anchorages has been finalized. A tendering process was completed with bidding closed 30 January 2015. A contractor was selected to complete the fabrication and construction of the remaining test facility works and the assembly of the pipe test strings for 24-inch and 16-inch diameter pipes with fabricated and natural (removed from service) metal loss and mechanical damage features.

Beyond the budget and scope of this project PRCI is completing the construction of supporting warehouse, test lab, meeting facility and administrative multi-purpose facilities. The figure below provide some illustrations of the work ongoing and completed in support of the project.



Figure 1: Installation of Rails to Support Pull Test Winch System at TDC



Figure 2: Welding Flanges to 24 Inch Diameter Test Specimens and Test Specimen Storage

Pull-Test Winch

The design of the winch system, fabrication and assembly are completed. Photographs showing the winch fabrication are shown below. Initial winch demonstration trials were completed 24-25 March 2015 at the fabricator's facility.

An updated schedule for delivery of the winch was provided, including acceptance trials at the fabricator's facility. The delivery date was scheduled for 13 April 2015 to accommodate the construction schedule.

Testing plans, operation, maintenance and safety manuals are being prepared as part of the final documentation submission with the winch system.



Winch Platform



Winch Platform



A-Frame Maximum Elevation



A-Frame Minimum Elevation

Figure 3: Winch System Assembly (Photos Taken March 25, 2015)



Figure 4: Winch Operator Station During Performance Test – Pulling Loaded Truck (up to 50,000lb pull force tested)

Inventory and Sample Characterization

Information regarding the inventory of test specimens available at the PRCI repository is being collected to augment the preliminary listing. Approximately 90% of the available NDE data has been collected; however not all of the samples on hand have been characterized fully. In some cases, the characterization data available is not adequate in the current state for application to this project, however, this information is being generated in a parallel NDE research project and will be used to the benefit of this project. The collected and characterized pipe samples removed from service with natal defects are held by PRCI at the TDC (Figure 5). These samples are being transferred to the new site and are being stored in shipping containers and under protective cover during construction.



Figure 5: Pipe Samples for ILI and NDE Research at the PRCI TDC

The TDC Pipe sample catalogue continues to progress as new samples are received. Data describing each pipe sample, its history, material and geometric properties and all of the features it contains are recorded. NDE inspection reports are linked to each pipe sample feature.

A sufficient number of pipe samples with corrosion and mechanical damage features have been secured and characterized at the TDC facility to support pull testing. Additional samples, are being received and characterized to provide a greater variety of pipe diameters and feature geometries to enhance the scope of ILI performance trials.

The draft standard for test specimen characterization has been completed and circulated for comment. A second draft version of the test protocol was developed and posted for ILI industry comment.

Sample NDE-4F trial program data records are being developed to explain the data being delivered and distribution process.

Final pipe and feature tally documentation has been prepared and flanging of pipe specimens is underway. This documentation of the pull test pipe strings is the first step in assembling the trial truth data to measure ILI system performance as outlined in the test protocol.

Test Protocol Development

The results of the survey have contributed to the development of an initial Test Protocol, which has been circulated for comment within the project team. ILI Service Providers and other PRCI project team members committed to providing constructive feedback by the end of the 2014 calendar year on the draft test protocol posted to PRIME. Feedback from the team included comments from two service providers and two operating companies by the end of December 2014. More feedback is required from the ILI Vendors.

The Project Team reviewed the comments received and the direction of the test protocol document. This preliminary feedback included a suggestion to have the test protocol clearly state where the project data will be stored and the ownership of the data. ILI Service Providers indicated that the results from the Open (technology development) trials need to be confidential to the Service Provider for them to be of significant use. In response, the project team requested a proposal from the ILI Service Providers on what could be reported; noting that US DOT needs to have something reported to demonstrate that the trials were completed and technology development benefit was derived. ILI Service Providers will prepare a response.

ILI Service Providers were asked also to respond with cost estimates of participation by the end of 2014 and to confirm their availability to participate on the proposed trial dates. A description of the pull test has been forwarded to the ILI vendors so they know what to expect in terms of features, allowing them to make decisions about what tools they will supply and the availability.

The testing protocol second revision has been delivered and was reviewed as a subject of open discussion at the PRCI Research Exchange in Houston, January 2015. The test protocol will be finalized and issued as a deliverable within Q7. A sample application document is being assembled as well to describe the type of information that will be generated in the current testing program. This document will be useful to describe the application of the generalized test protocol to this specific project.

The assembly of the pull test line is proceeding to include metal loss and mechanical damage features removed from in-service pipelines. The test specimens will also include the recommended array of metal loss features from the POF guideline for ILI qualification. Machining of the POF reference features will proceed in the coming months.

The project team expects to spend up to the budgeted amount on manufacturing the full POF feature set is included. The machined samples are being prepared with reference features compliant with those defined in Pipeline Operator Forum (POF) standard for ILI system qualification.

Management of Test Information

It was identified that an understanding and a consensus for the management of the test and specimen information is an important aspect of the test facility and other PRCI activities. This would include material donation process and associated information; NDE requirements and documentation; NDA requirements; documentation of specimen receipt and characterization.

Plans for Future Activity:

Winch trials completed and winch delivered to TDC site in Houston for initial setup. Final commissioning to occur subsequently.

General contractor to complete outfitting of pull-test facility components, including arrangement of test pipe strings.

Continued development and enhancement of the TDC pipe sample database system.

The final Test Protocol will be issued after review and incorporation of feedback from the team members.

Test specimen fabrication will continue with preparation of samples by machining.