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QUARTERLY REPORT – PUBLIC PAGE

Development of Dual Field MFL Inspection Technology to Detect Mechanical Damage

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Technical Status

Dual Field Evaluation

The dual field data from the Pipeline 1 in-line inspection were reviewed by Bruce Nestleroth and Rick Davis from Battelle. This review focused on the decoupled signal at numerous internal diameter anomalies. The entire line was not reviewed; however, based on the portions that were reviewed, Battelle concluded that the decoupled data is of good quality. In total, the dual field data was evaluated for 183 anomalies. The dual field data was then evaluated by Rosen at a select subset of internal diameter anomalies.

The subset was selected based on the following guidelines:

- Internal diameter anomalies with depth greater than 2% between 8 and 4 o'clock (top 2/3 of pipe) (n=all)
- Internal diameter anomalies with depth less than 2% between 8 and 4 o'clock (n≈25)
- Internal diameter anomalies with depth less than 2% between 8 and 4 o'clock that do not have any easily verified secondary features as identified in the previous set (such as plow-gouge dipole signals)(n=10)
- Low or moderate low priority (according to the dual field classification) internal diameter anomalies where depth is between 1.5% and 2.0% (n=10)
    - If 10 anomalies within this depth range are not found, then low or moderate low priority internal diameter anomalies where depth is between 1.0% and 1.5% should be searched for.
    - The final depth range attempted should be between 0.5% and 1.0%.

From the subset of anomalies identified from the data and selected for evaluation, 20 anomalies were chosen in conjunction with Battelle as possible sites for excavation/field verification and presented to Enbridge in a meeting. Based on Enbridge's comments at the meeting, 20 alternative sites were then chosen by Rosen and Battelle. A report presenting the dual field inspection results and recommended excavation sites is scheduled to be presented to Enbridge (and the Project Team) in November 2008.

Other Notes:

The most current results from the dual field project were presented at the International Pipeline Conference in Calgary, Alberta, Canada in October 2008.

Issues, Problems or Challenges

High and low field levels were not within specifications over the entire line, and verification digs should preferably be performed on the portion of the line within which specified field levels were achieved, which is approximately the first half of the line inspected.

Evaluation of dual field data has been challenging at times, as it can be difficult to assign a Battelle dual field priority classification to some anomalies due to ambiguous decoupled signal patterns.

Plans for Future Activity

- Deliver dual field inspection results to Enbridge in November
- Develop an implementation plan for the field verification digs and initiate the field program for Pipeline 1. The field data will be reviewed and evaluated relative to the dual field signal as part of the assessment of the dual field tool performance.