

Quarterly Report
DTPH56-05-T-0005
"Cathodic Protection Current Mapping In-Line Inspection Technology"
Public Page

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Project Title: "Cathodic Protection Current Mapping In-Line Inspection Technology"

Prepared by: Shell Global Solutions (US) INC.

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- Technical Status –

Data from the first prototype tool run in December, 2005 has been evaluated. The tool was successfully able to measure the magnitude and direction of current from rectifiers with low levels of noise in the tool. Changes in voltage gradient along the pipe that would be attributable to rectifiers and pipe wall changes were evident. There were several waveforms in the measured data that could not be readily attributed to specific cathodic protection sources. Field investigations were undertaken to investigate several of these locations.

In conjunction with the field investigations, a Pipeline Current Mapper (PCM)tm tool was used to artificially impose and measure a current onto the pipe at four areas of interest. This data was compared to the CPCM measured data and excavations of the pipe were made to determine the causes of several types of signals.

We also found one location where a large amount of current was being picked up at one specific point. We believe this location is either a buried magnesium anode that is picking up a lot of current from the nearby impressed current system, or may be a short to another unknown pipe.

While doing the above work, we were able to compare the relative merits of the CPCM tool with the commonly used PCM. Several key advantages of CPCM were identified. In two of the four places we used the PCM, we may have been lead to needlessly excavate the pipe where the CPCM indicated that the magnitude of current showed it was not necessary.

Based on the above, the first test of the CPCM tool was judged to be very successful.

Based on the field analysis, it was determined that another field trial of the tool was necessary. We ran the tool in another products pipeline on May 4, 2006. This pipeline is 65 miles long and it took the tool approximately 15 hours to complete the trip. For evaluating the viability of the CPCM tool against other technologies, we set-up an

elaborate series of tests along the pipeline, with current interrupters and temporary bonds to casings and foreign pipelines. Pipe-to-soil potentials and current across shunts were measured to determine precise data to compare the tool against as well as to better facilitate comparison with other technologies.

Once the data are received, we will make a decision as to what the next steps will be. We still feel that we need to do more work to compare the CPCM tool against other technologies before we make firm and final decisions about the viability of the device.

Results and Conclusions:

The first field test (December 2005) was successful and the tool is able to measure voltage gradients caused by cathodic protection with very low noise.