

## **Fifth Quarterly Report – Public Page**

Date of Report: *December 21, 2011*

Contract Number: *DTPH56-10-T-000010*

Prepared for: *DOT and Co-funders (PRCI, INGAA & Williams Pipeline Company)*

Project Title: *Development of a Model to Accurately Predict the Conditions of Carrier Pipe within Casings based on Conditions at the Casing Ends*

Prepared by: *Southwest Research Institute*

Contact Information: Frank Song, phone: (210) 522-3988, email: fsong@swri.org

For quarterly period ending: *December 30, 2011*

### ***Public Page Section***

We have maturing our casing model to predict various corroding conditions on the carrier pipe in a casing annulus. The model was used to investigate several factors that may have an effect on the corrosion of the carrier pipe in the annulus.

By assuming the annulus is filled full of electrolyte, we investigated how the potential of the carrier pipe varies when:

- The overall coating quality (measured by coating porosity defined as average fraction of defect area in coating) inside and outside the annulus varies,
- Only the coating quality inside the annulus varies,
- The native potential of the casing wall outer or inner surface varies,
- The coating in the annulus has a holiday and the native potential of the casing wall outer surface varies, and
- The casing and carrier pipe has a metallic contact and the contact resistance varies.

These effects are being summarized and plan to be published in 2012 IPC meeting.

### **Plans for Future Activity:**

Complete model development and validate the model results.