

## **Public Page**

This project is focusing on the design, construction and testing of a prototype segmented MFL sensor system for ultimate integration into a robotic platform for the inspection of unpiggable transmission pipelines. The effort was initiated in December 2004 and at the conclusion of this first quarter in March 2005, the project has progressed well.

The major issue facing the concept development phase, is the requirement that the sensor and entire robotic platform are able to pass through a plug valve and negotiate a mitered bend in a transmission pipeline. The restrictions imposed on the sensor in such cases are severe, necessitating the use of segmented sensor elements, each able to fit through the plug valve. Once the elements have passed through the plug valve, they can be potentially arranged in different ways to accomplish that task in hand. In addition, the elements have to be able to collapse in a reduced diameter shape to negotiate a mitered bend.

A sensor concept has been selected from more than eight considered. The selected design offers maximum resolution and accuracy in wall thickness measurement, and minimum need for software development. A shunting mechanism was designed and tested via a prototype sensor/shunting system with great success. During this period the design of this sensor has been finalized and its impact on the robotic platform that carries it has been determined.

The project now moves into its fourth quarter during which the construction of the sensor module will be initiated.