

**SOUTHWEST RESEARCH INSTITUTE®**  
**SUMMARY STATUS FOR PROJECT NO. 14.06172**  
**AGREEMENT DTRS56-02-T-0003**  
**“FEASIBILITY OF IN-LINE STRESS MEASUREMENT BY CONTINUOUS**  
**BARKHAUSEN METHOD”**

**STATUS OF WORK THROUGH DECEMBER 31, 2002**

This eighteen-month project relates to the problem of mechanical damage, hard spots and other stress anomalies in a pipeline. Current in-line inspection (ILI) systems using magnetic flux leakage (MFL) or ultrasonic methods to inspect pipelines for corrosion or cracks are not sensitive to regions of anomalous stress on the pipe wall. The Continuous Barkhausen Noise (CBN) method whose feasibility is being evaluated in this project has been shown in earlier SwRI work to detect such regions.

This project was designed to determine if CBN can be implemented on an existing MFL inspection pig by taking advantage of the fact that there are convenient transition regions in the magnetic flux around the pig. These transition regions are potential sensing areas for CBN. The project will study the magnetic fields, design CBN sensors and ultimately test them with pull rig and field pig operation.

To date, H. Rosen GmbH, our commercial partner in the project, has supplied us with detailed data describing the magnetic field distribution around one of their MFL pigs. We will use these data to identify potential sensing sites which will be tested with analytical and finite element modeling.

Although the start of the project was delayed by efforts to establish the cofunding arrangements and subcontracts and by normal work delays at the end of the calendar year, these delays are not expected to impact the forecast of progress by the second quarter of calendar 2003.

**Point of Contact**

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