

1.11.16. ADVANCED POSSIBILITIES FOR CORROSION INSPECTION OF GAS PIPELINES USING EMAT-TECHNOLOGY

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The reliable assessment of corrosion anomalies in pipelines strongly depends on the accuracy of the defect sizing (in particular on the depth profile of the anomaly). Data from ultrasonic in-line inspections have convincingly proven in the past to provide the desired accuracy thus being superior to the typical sizing capabilities of MFL tools. However, tools using conventional ultrasonic technology (piezoelectric transducers) can normally be operated only in liquid pipelines as the liquid medium is required for the coupling of the ultrasonic pulses into the pipe wall. In order to overcome this restriction we have developed an inspection tool that can be used for ultrasonic wall thickness inspections of gas pipelines without the need of a liquid coupling medium. The new tool is based on EMAT-technology for ultrasonic wall thickness measurement. In addition to the ultrasonic measurement the sensor design allows for the simultaneous measurement of the MFL response as well as the eddy current response of the pipe wall. Taking advantage of the information obtained from several physically independent measuring signals, this multi-technology approach provides significant improvements with regard to both classification as well as sizing of anomalies.

In the paper, the functionality of the new inspection approach and the set-up of the inspection tool are described. Results from first practical experiences are presented and the advantages of the improved sizing capabilities with regard to pipeline integrity issues are discussed.