



PHMSA R&D Forum

Working Group #1

Baltimore, MD, Sept 2018

September 12, 2018

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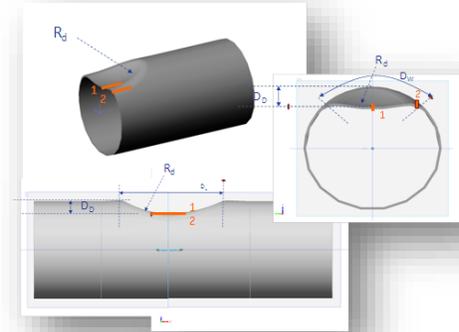
Cracks in Dents - EMAT

Demonstrated through collaborative program...

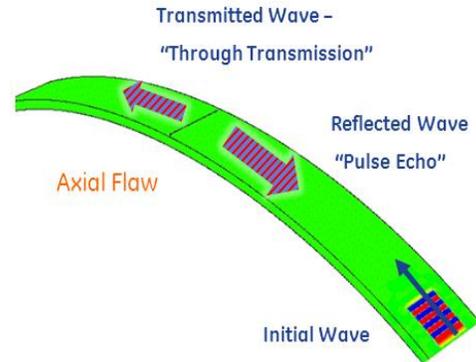
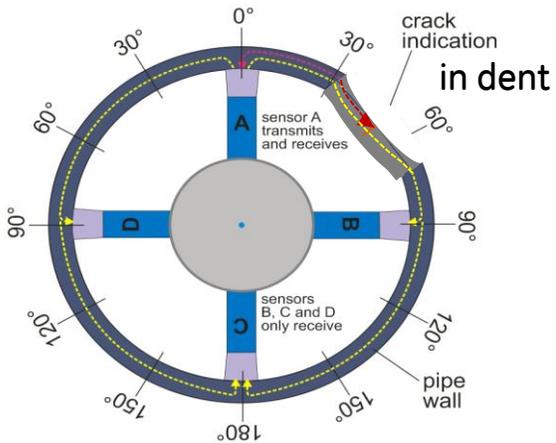


EMATScan

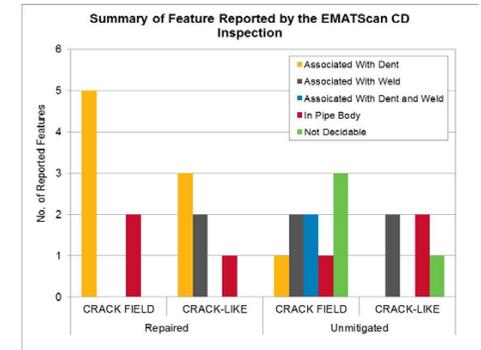
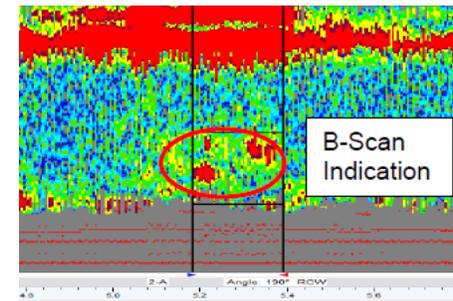
Feasibility



IPC2014-33451 APPLICATION AND ADVANCEMENT OF EMAT ILI TECHNOLOGIES FOR THE INSPECTION OF CRACKS IN DENTS



Field trials

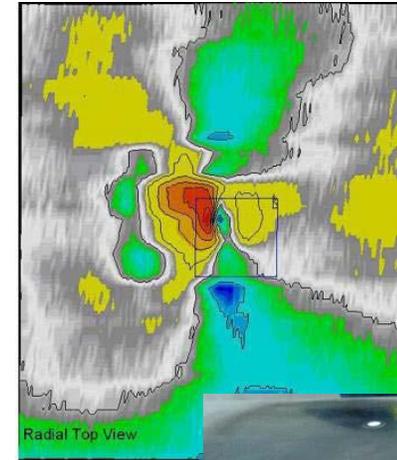
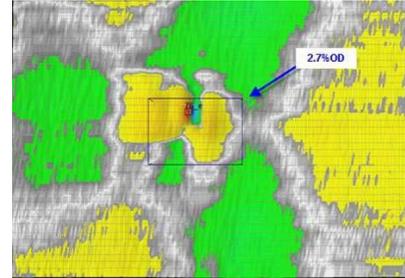
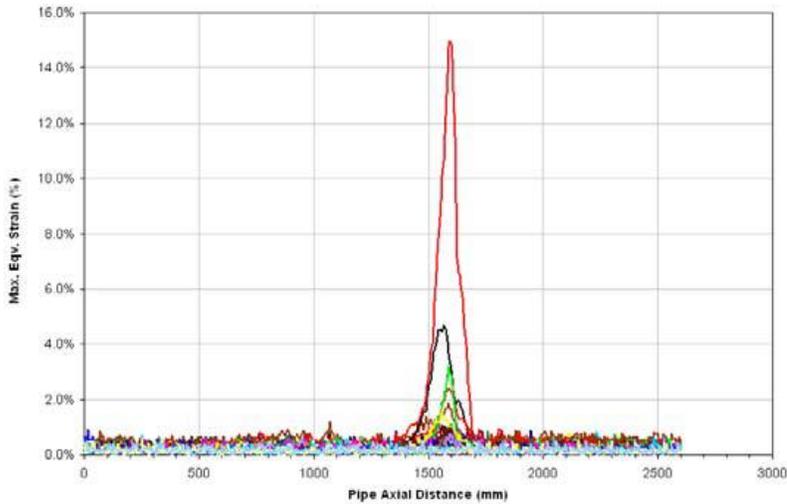


IPC2016-64216 DETECTION OF CRACK-RELATED FEATURES WITHIN DENTED PIPE USING ELECTROMAGNETIC ACOUSTIC TRANSDUCTION (EMAT) TECHNOLOGY

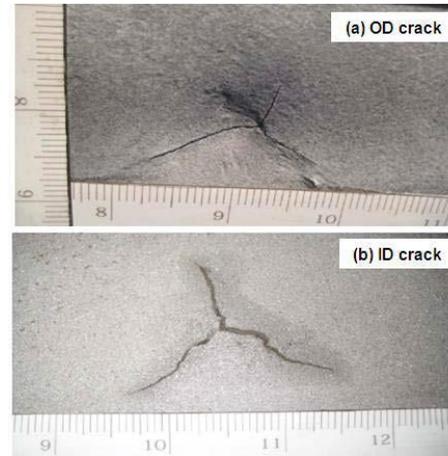
Dents with Cracking - MFL

Assess and identify cracking conditions...

DFDI method



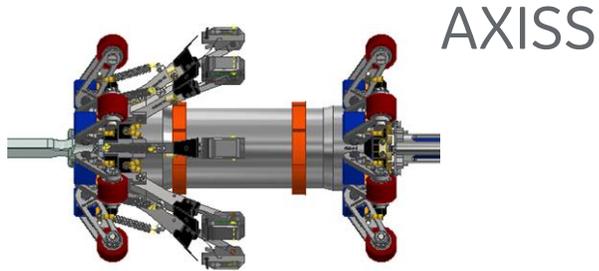
Vectra MFL



IPC2012-90499 Combined Approach to Characterization of Dent with Metal Loss

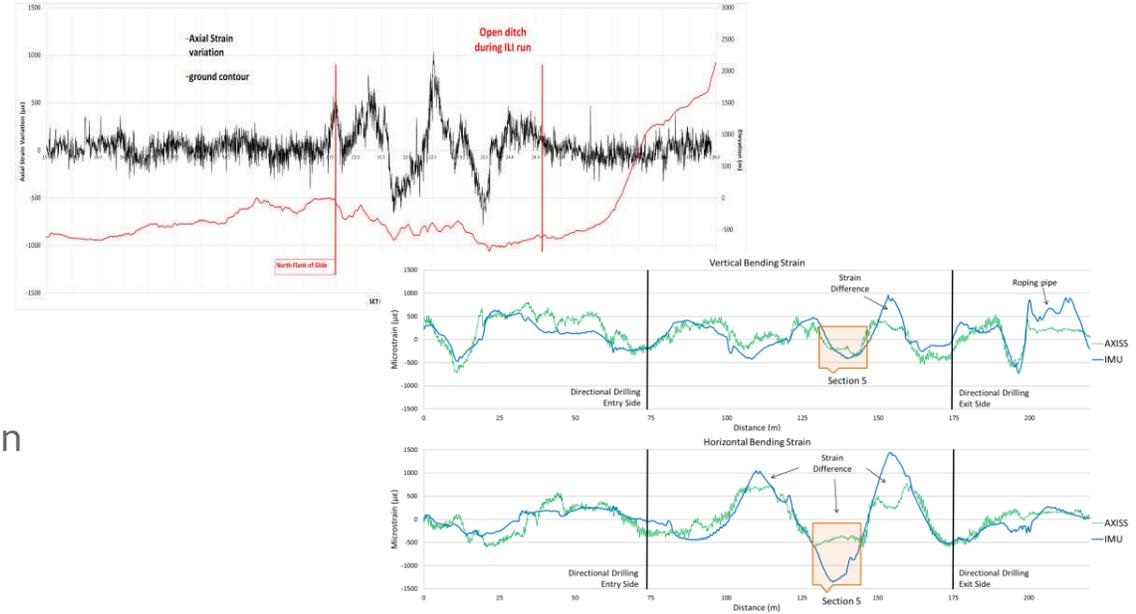
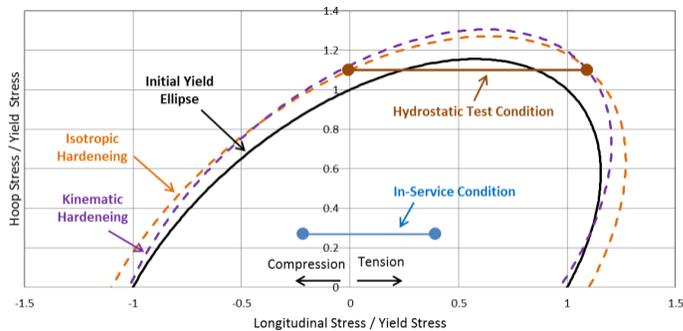
Pipeline Strain and Profiling

Pipe Loading Conditions...



AXISS

Characterize Axial Strain distinct from IMU derived Bending strain
Localization measurements



IPC2018-78577 UNDERSTANDING PIPELINE STRAIN CONDITIONS –CASE STUDIES BETWEEN ILI AXIAL AND ILI BENDING MEASUREMENT TECHNIQUES

IPC2014-33245 IN LINE INSPECTION OF GEOTECHNICAL HAZARDS

IPC2008-64093 NON-CONTACTING BI-AXIAL STRAIN MEASUREMENT METHOD ON STEEL PIPELINE

BAKER
HUGHES
a GE company



ILI Geometry

Designed with Intent...

Integrated high resolution caliper ...

Target use: Dent profile & shape for FEA analysis
& strain assessment

ASME B31.8 (2007) to estimate total strain due
to dent shape

