Extending Pipe Service Life Using BEM

Globally Patented Broadband Electro-Magnetics (BEM™)

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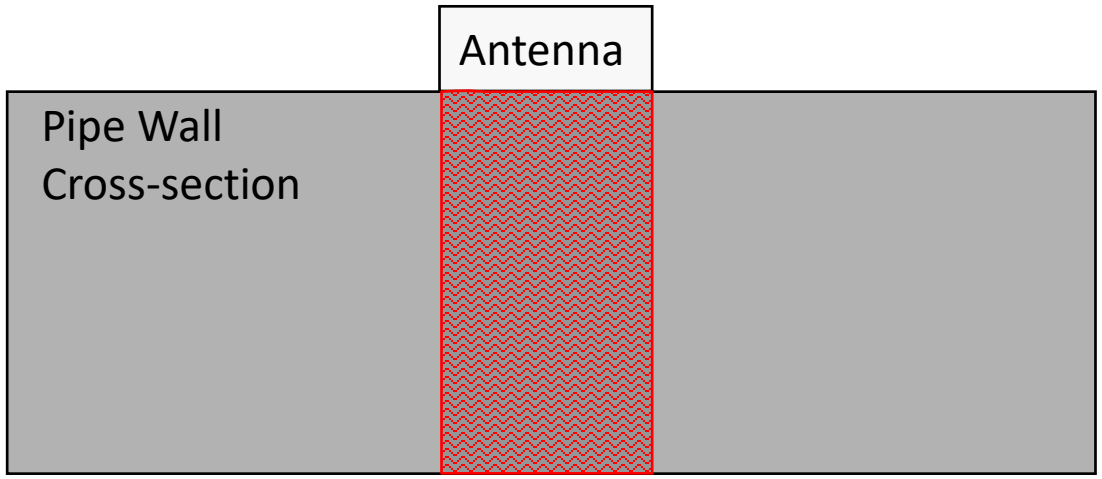
Rock Solid Group

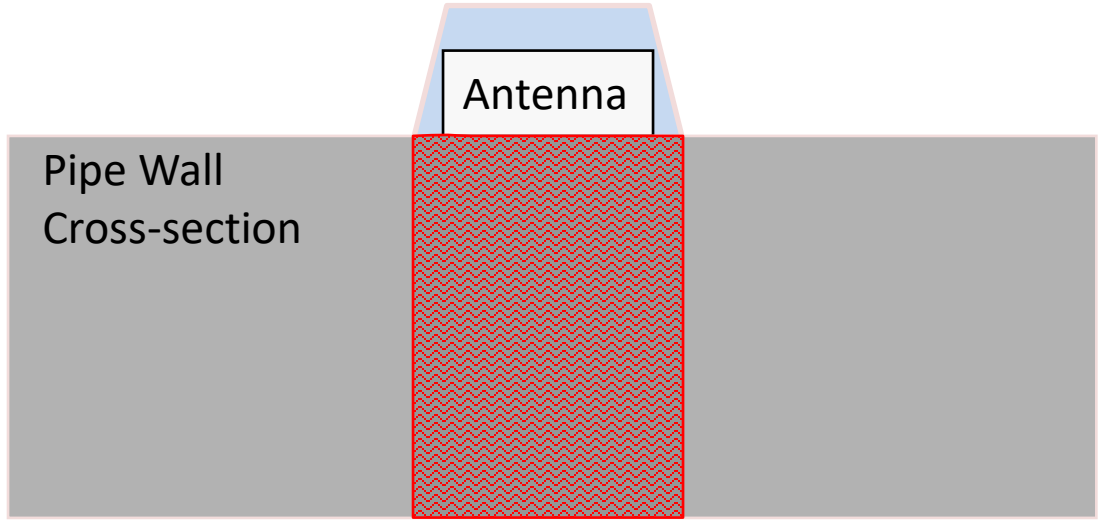
ROCK SOLID GROUP

BEM Overview

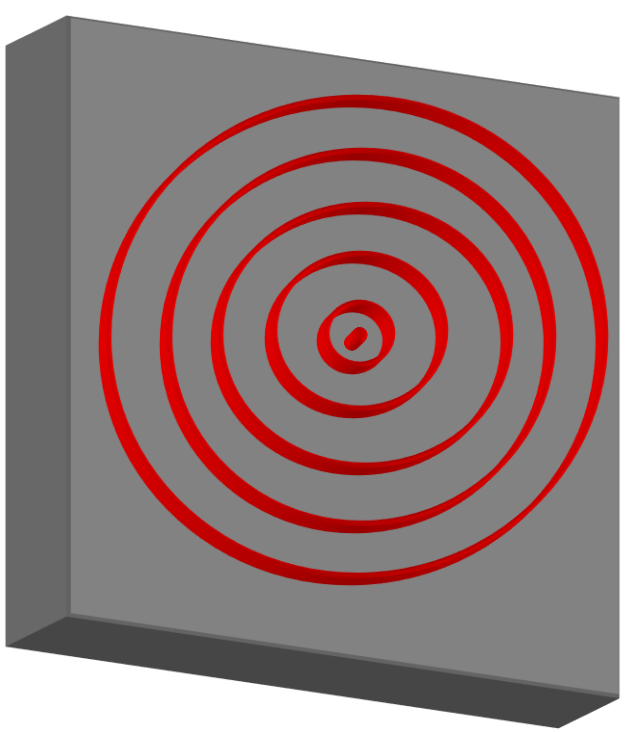
- Established geophysical exploration technology
- Modified for NDT inspections of infrastructure
- Magnetic & eddy current properties - mPEC
- Non-frequency dependent
- Ability to scan through thick coating/lining (2” +)
- Contact with metallic surface not required

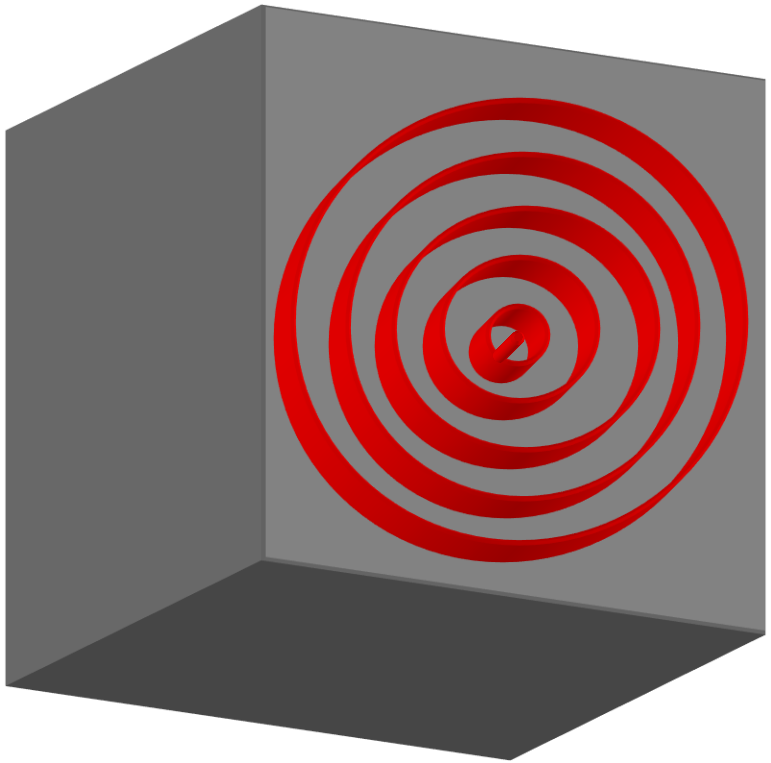
BEM Signal Penetration





BEM Signal Characteristics

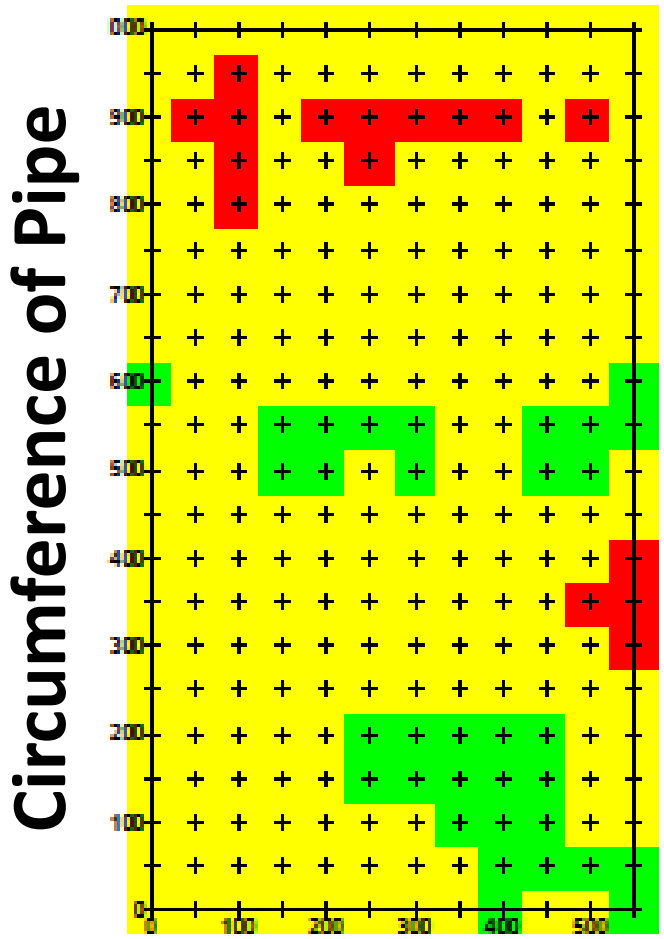




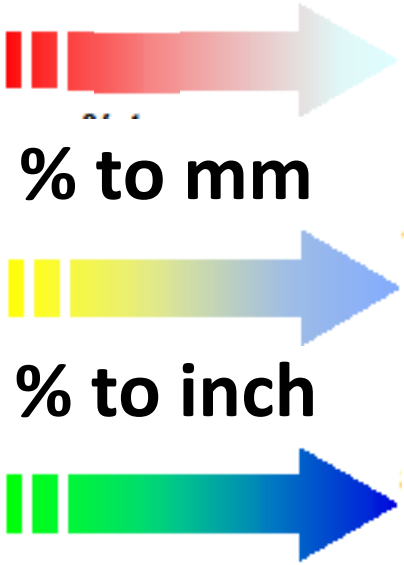
BEM Signal Conversion

- Changes in signal amplitude correspond to volume fluctuations of metal underneath the sensor
- Signal-to-thickness conversion is applied
- Post-survey processing yields the 'apparent' metal thickness for each data point collected

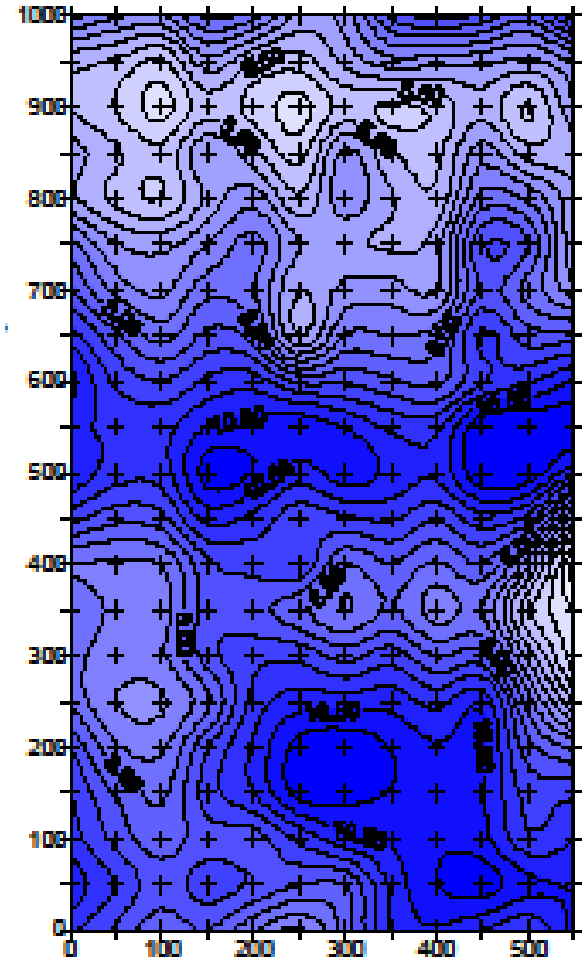
BEM Results



Real-time Display

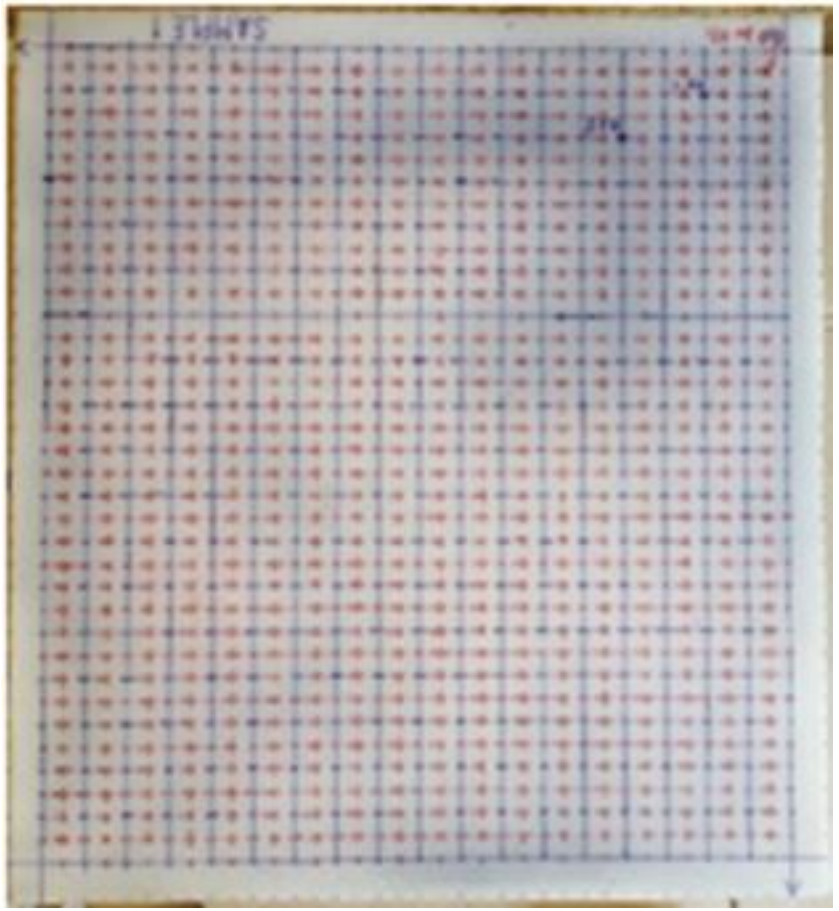


Circumferential corrosion mapping of the pipe using an unfurled plot



Processed Data

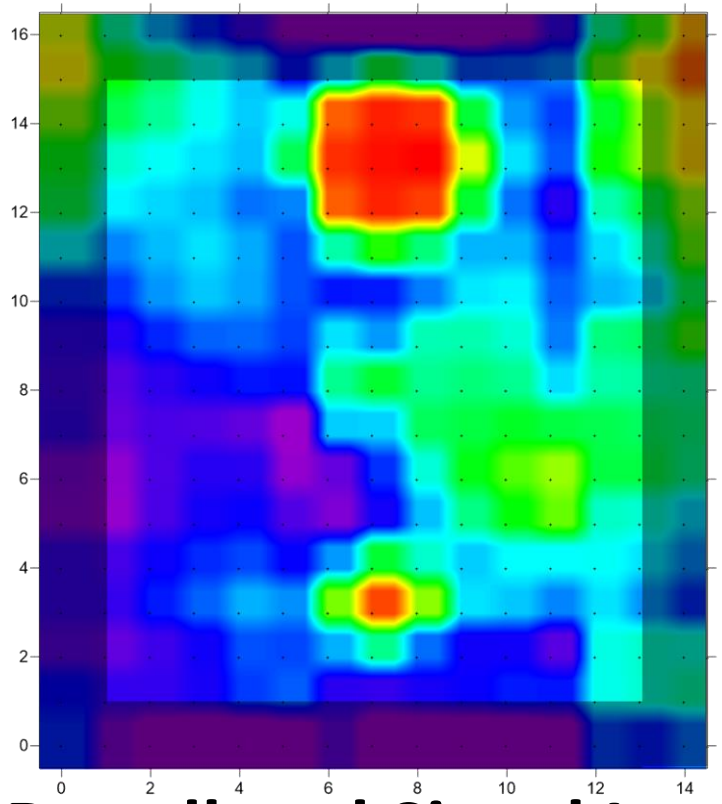
Technology Evaluation



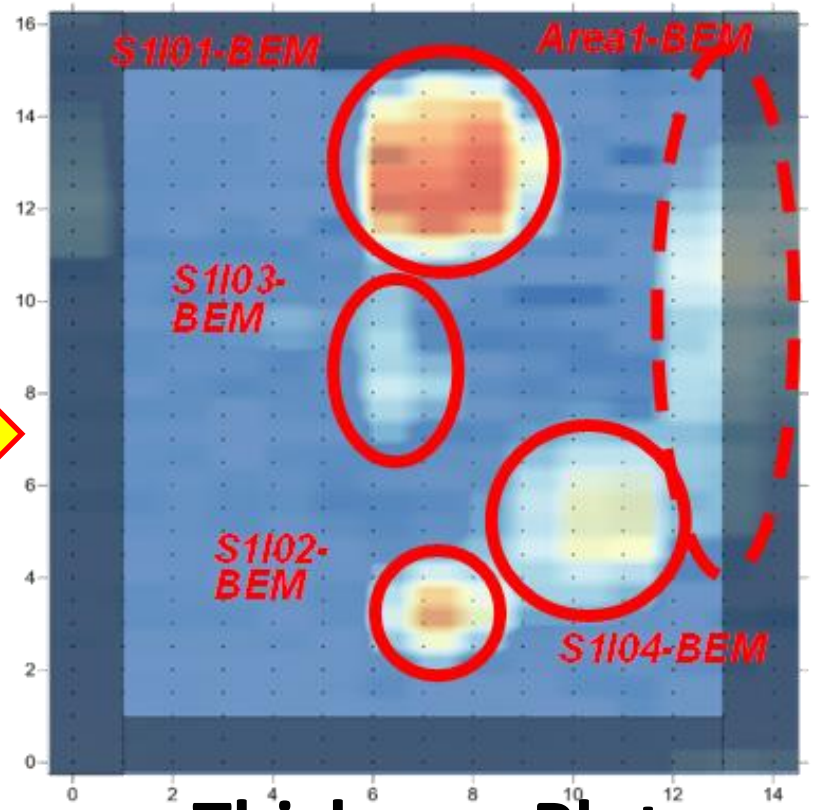
- 640mils Liner
- 500mils MS
- Test sample 1140mils thick

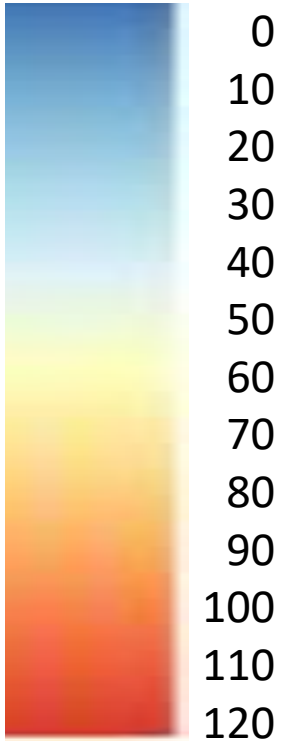
Technology Evaluation

Processed Data Display



Wall thickness



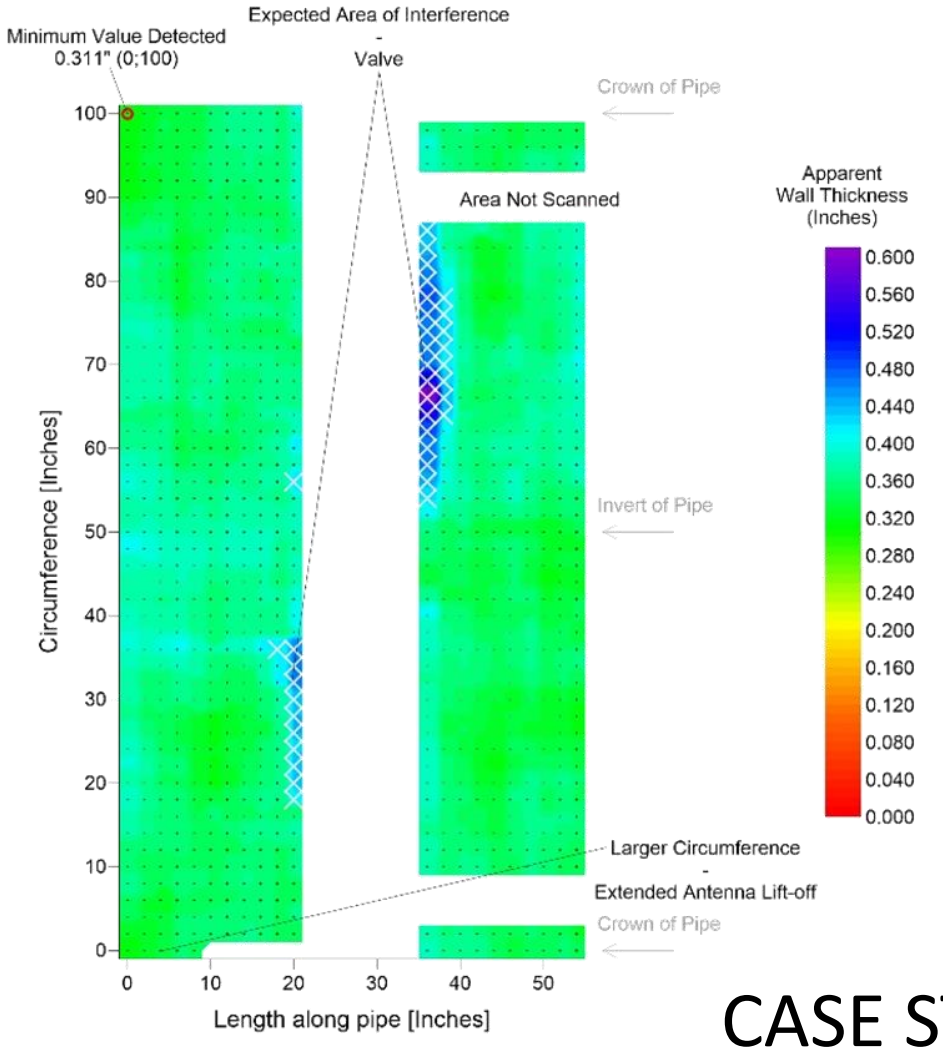


Broadband Signal Intensity

Thickness Plot

Pre-lining HSK scan

30” mild steel
No Lining

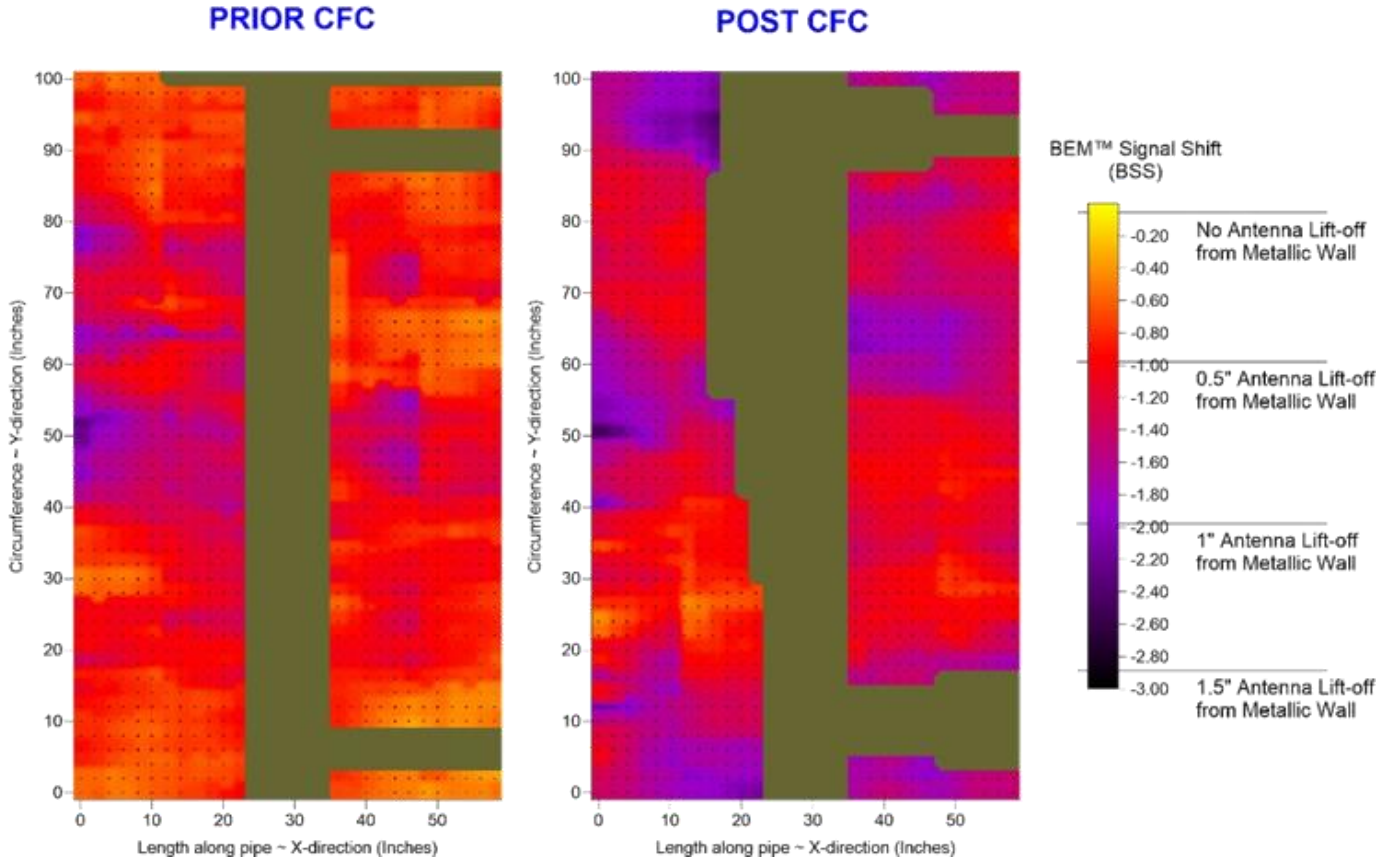


Processed data mils wall thickness pre-lining

CASE STUDY 1

Post-lining scan HSK

30” mild steel



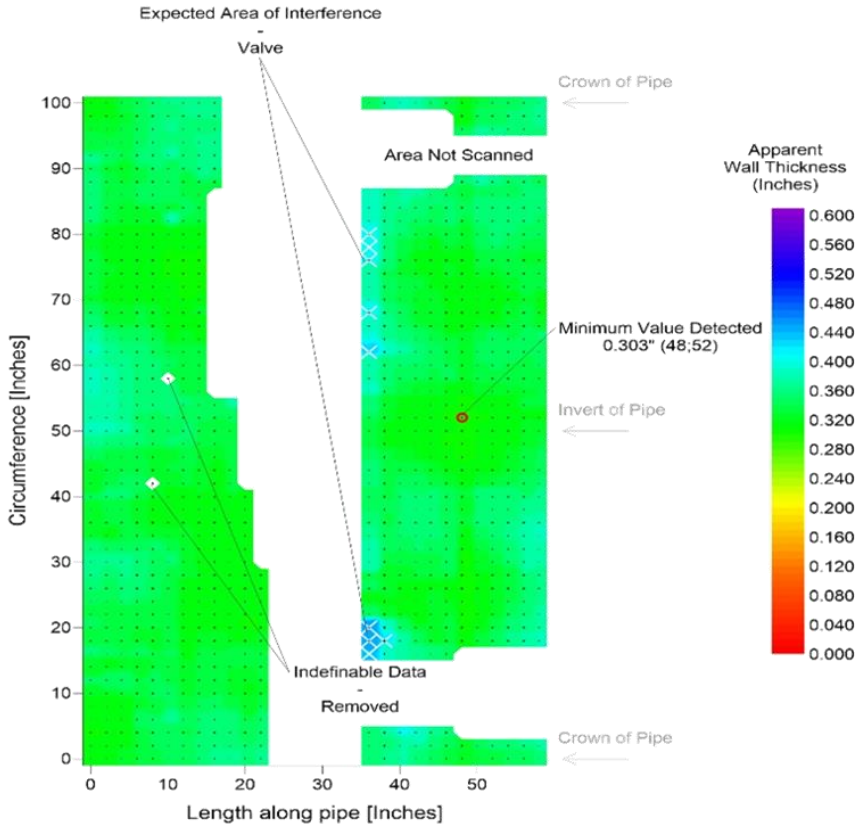
CASE STUDY 1

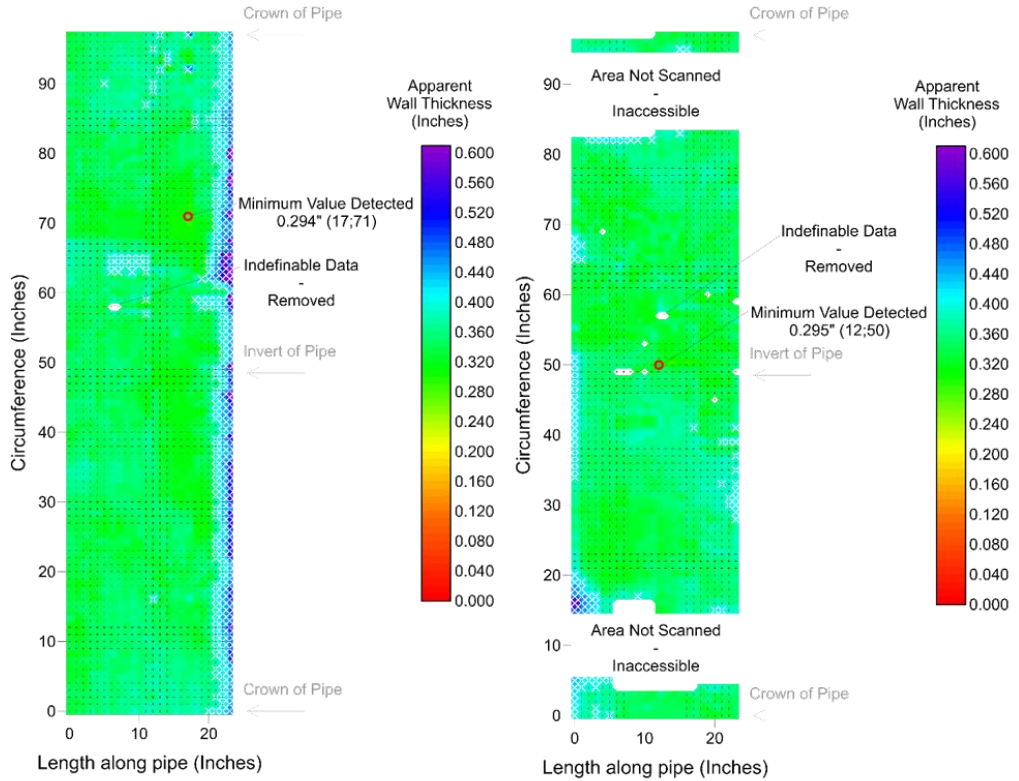
Lining thickness assessment

Post-lining scans HSK

Wall thickness

3 years later

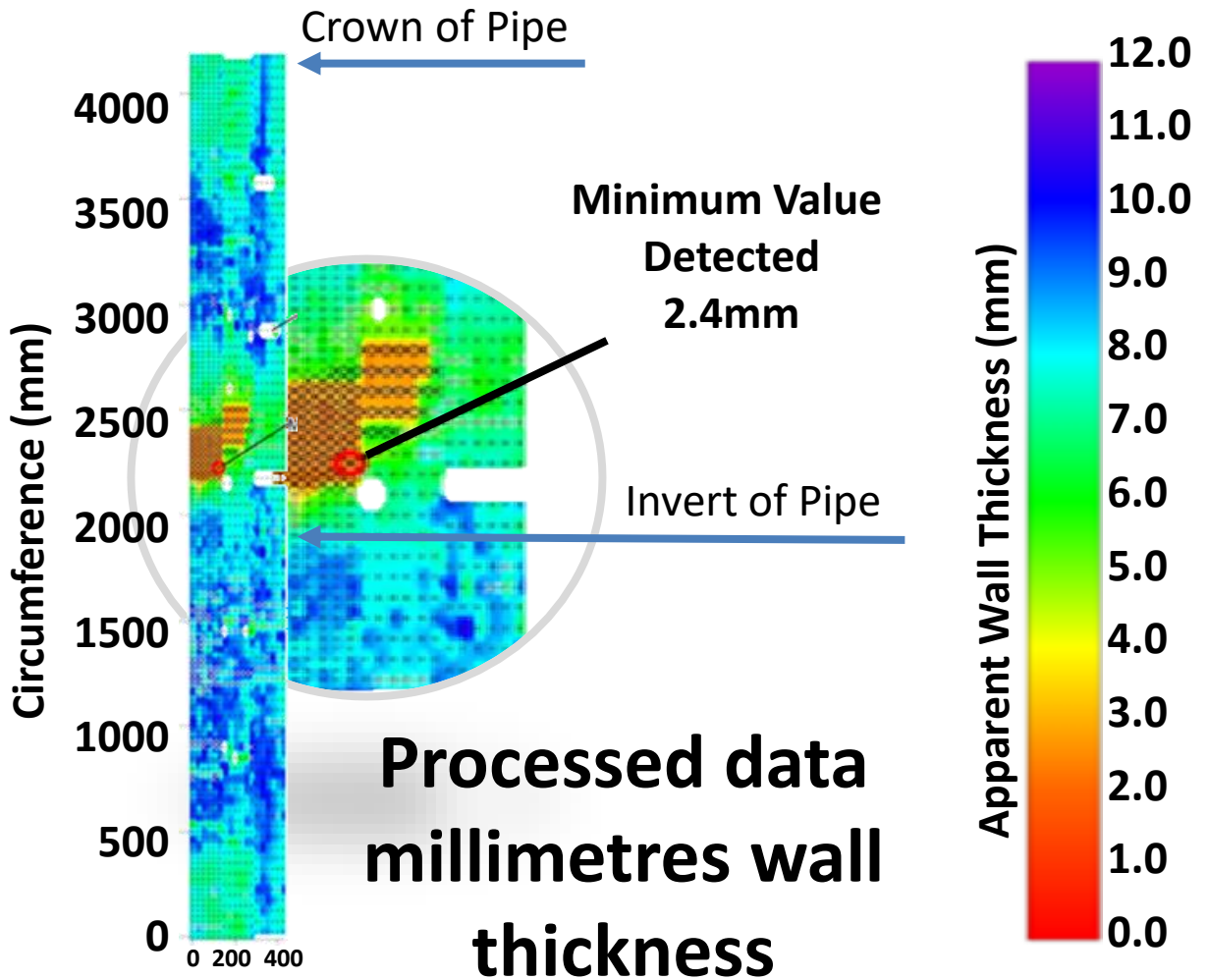




CASE STUDY 1

Mild Steel Lined Pipe i-FAST

1300mm internal-Flexible Array Scanning Tool



Processed data millimetres wall thickness

CASE STUDY 2

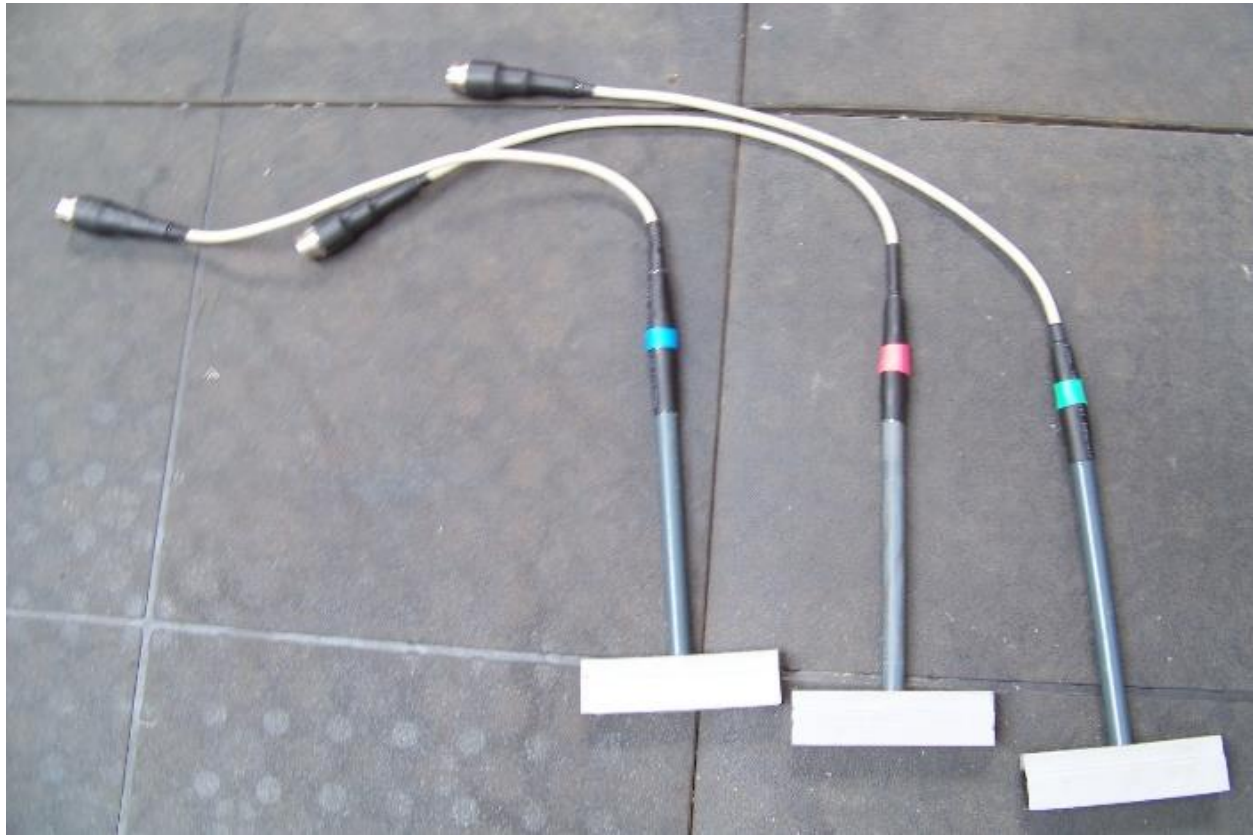
Mild Steel Lined Pipe i-FAST

CASE STUDY 2

Mapping flaw – pipe invert

Flaw exposed

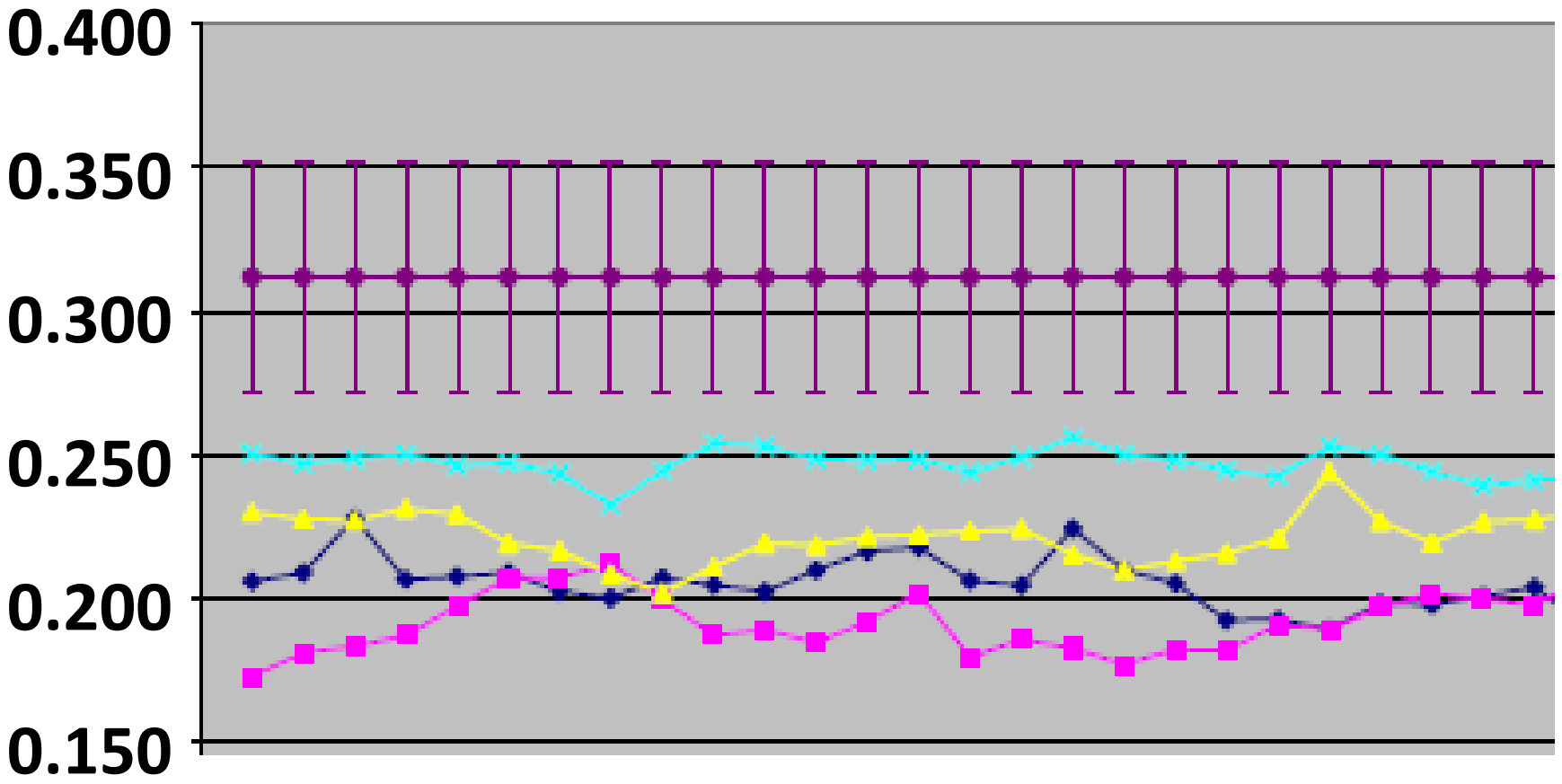
PCCP pipe joint prep for Weko-Seals JET



CASE STUDY 3

JET (Joint Evaluation Tool)

Joint Condition Data - JET



Joint 64
Joint 65
Joint 66
Joint 67

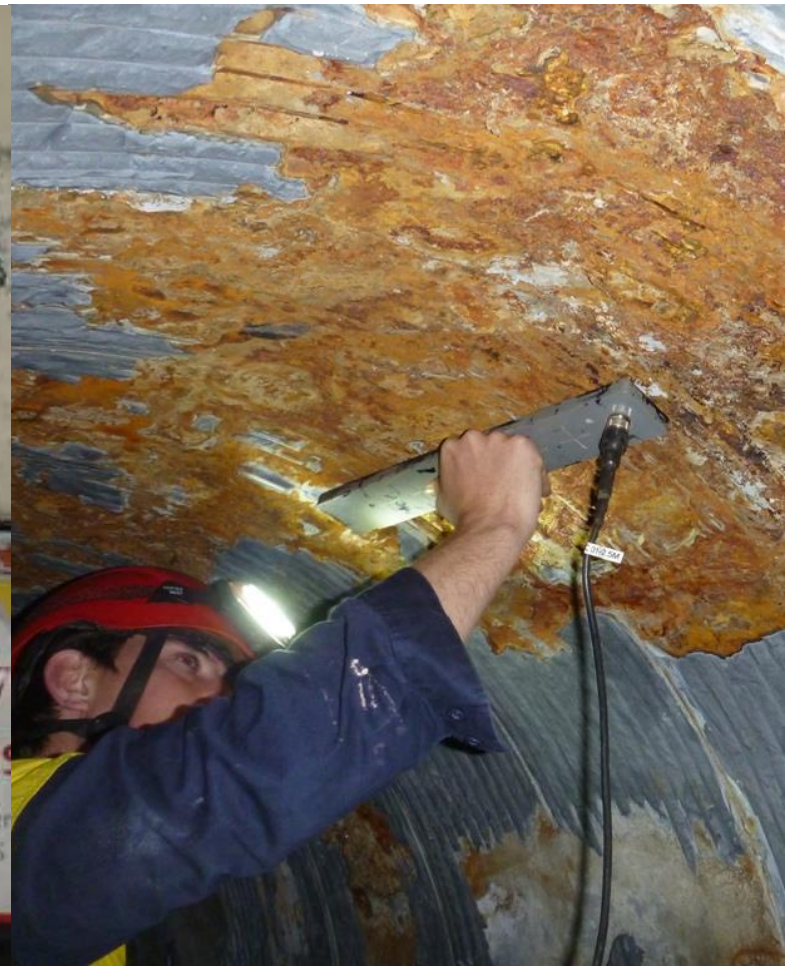
Nominal Thickness

CASE STUDY 3

Coupon Assessment Tool (CAT)

- Spot scans
- Internal or external
- External on live pipe
- Virtual pipe coupon
- Flexi-joint

Hand Scanning Kit (HSK)



- Basic System
- Portable / modular
- Internal / external
- External (live pipe)

Crown Assessment Probe (CAP)

- External scanning
- Sewer gas attack
- Non-person entry
- On live pipe

Flexible Array Scanning Tool (e-FAST/i-FAST)

Pipe Inspection Gauge (PIG)

CONTACT US

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