



Assessing the Condition of a 30-inch Bar Wrapped Pipe Water Transmission Main

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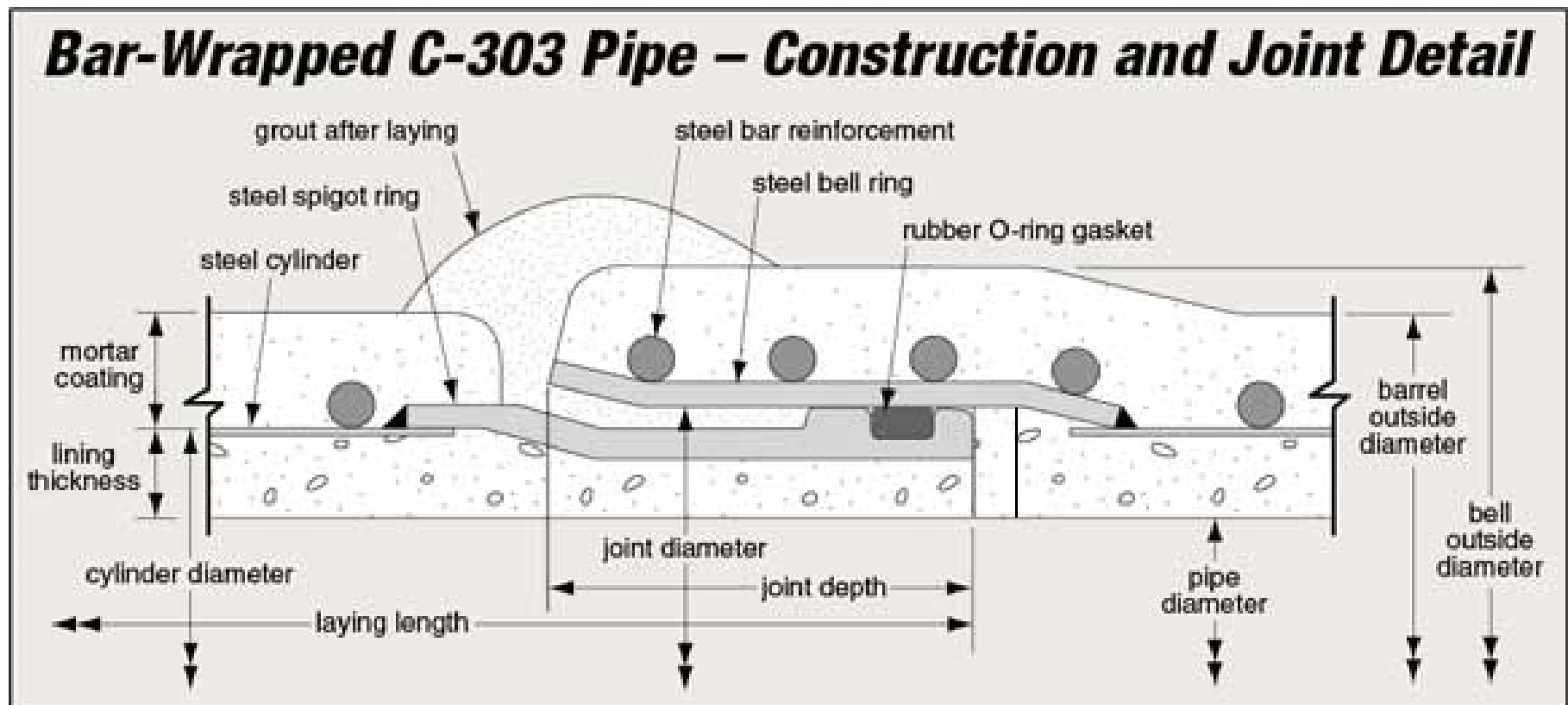


Pure Technologies

- Over **30 years of experience** in pressure pipe assessment and management
- Provided inspection, assessment, and management of **8,000 miles of pressure pipelines.**
- Expertise includes **non-destructive technologies and inspections**, hydraulic transient monitoring, forensic evaluations of pipes, structural modeling, geospatial/GIS delivery and life cycle assessment
- Inspection, assessment, and program management services for many utilities...**EPWU, DWU, SAWS, Tulsa, Houston, Austin Water, NTMWD, Flower Mound, Irving, Midlothian, Grand Prairie, Bedford, Mesquite...**



Bar Wrapped Pipe (BWP)



Bar Wrapped Pipe (BWP)

Methods of Failure

- Potential failure starts with damage or deterioration of cement mortar coating.
- Alkaline environment can be compromised, which leads to corrosion of steel components.
- As corrosion progresses pipes tend to develop leaks that grow over time, potentially leading to failure.
- Because BWP contains mild steel, sudden failures are uncommon. Failures tend to occur over time, often preceded by leakage.

GOALS

1. Use “enhanced” electromagnetic inspection technology to identify broken reinforcing bars and significant areas of wall loss on steel cylinder.
2. Use visual inspections to evaluate interior cement mortar lining condition.
3. Use findings to optimize repairs without compromising the pipeline performance.
4. Protect the investment by extending life of the pipeline.



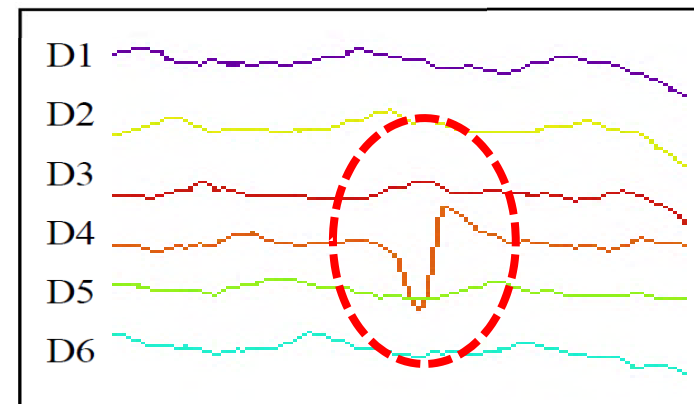
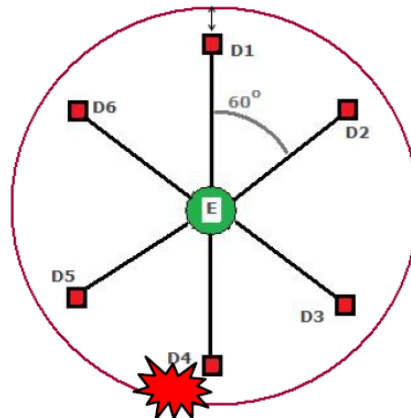
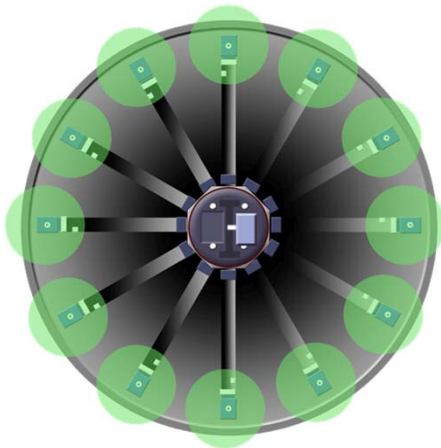
Bar Wrapped Pipe

Enhanced Electromagnetic (EM) Inspection

- **Electromagnetic (EM) Technology**
 - **Multiple detectors configured circumferentially**
 - **Identifies Broken reinforcing bars and large areas of corrosion with at least 50% wall loss on metallic pipe**

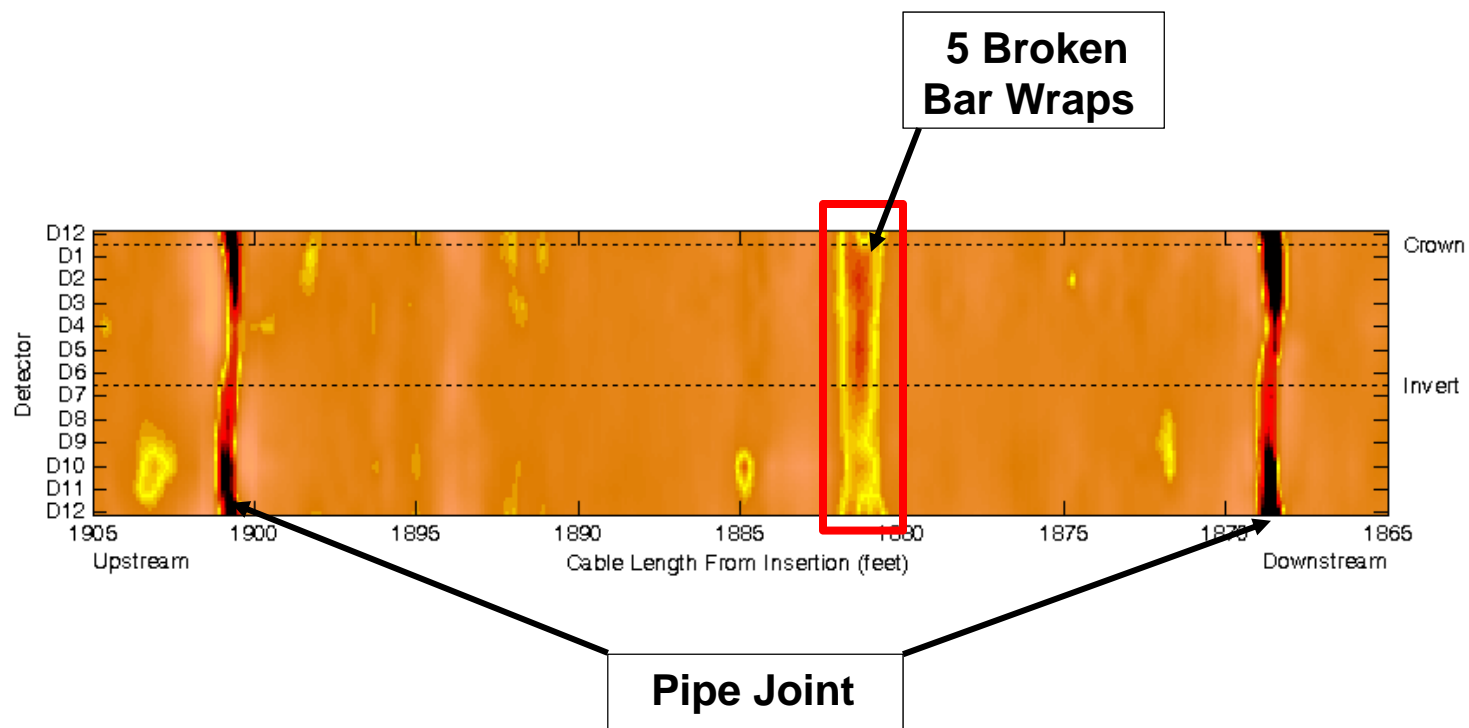


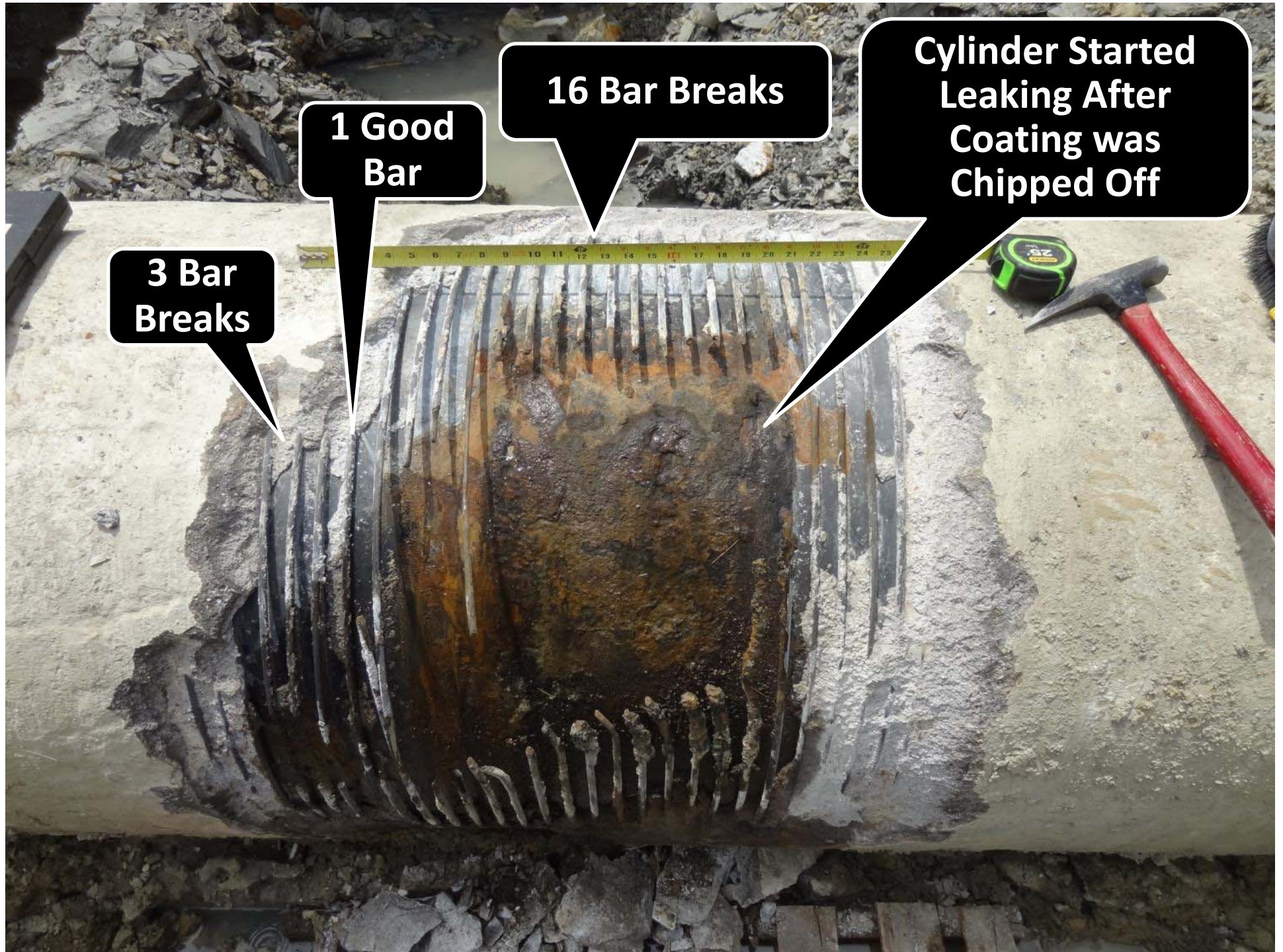
24D Array
used for Inspection
of Denton 30-inch BWP



Bar Wrapped Pipe (BWP)

Enhanced Electromagnetic (EM) Inspection



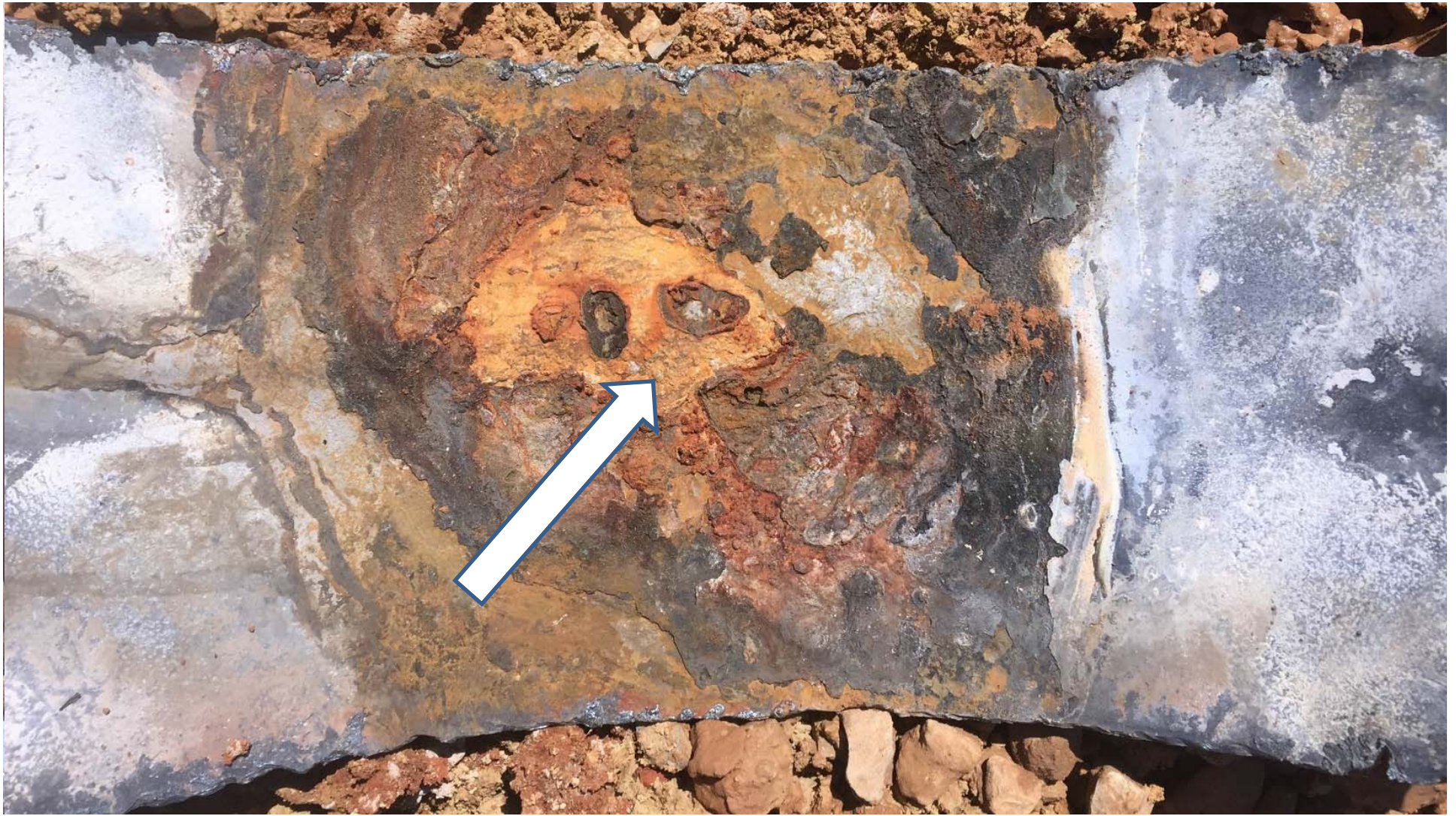


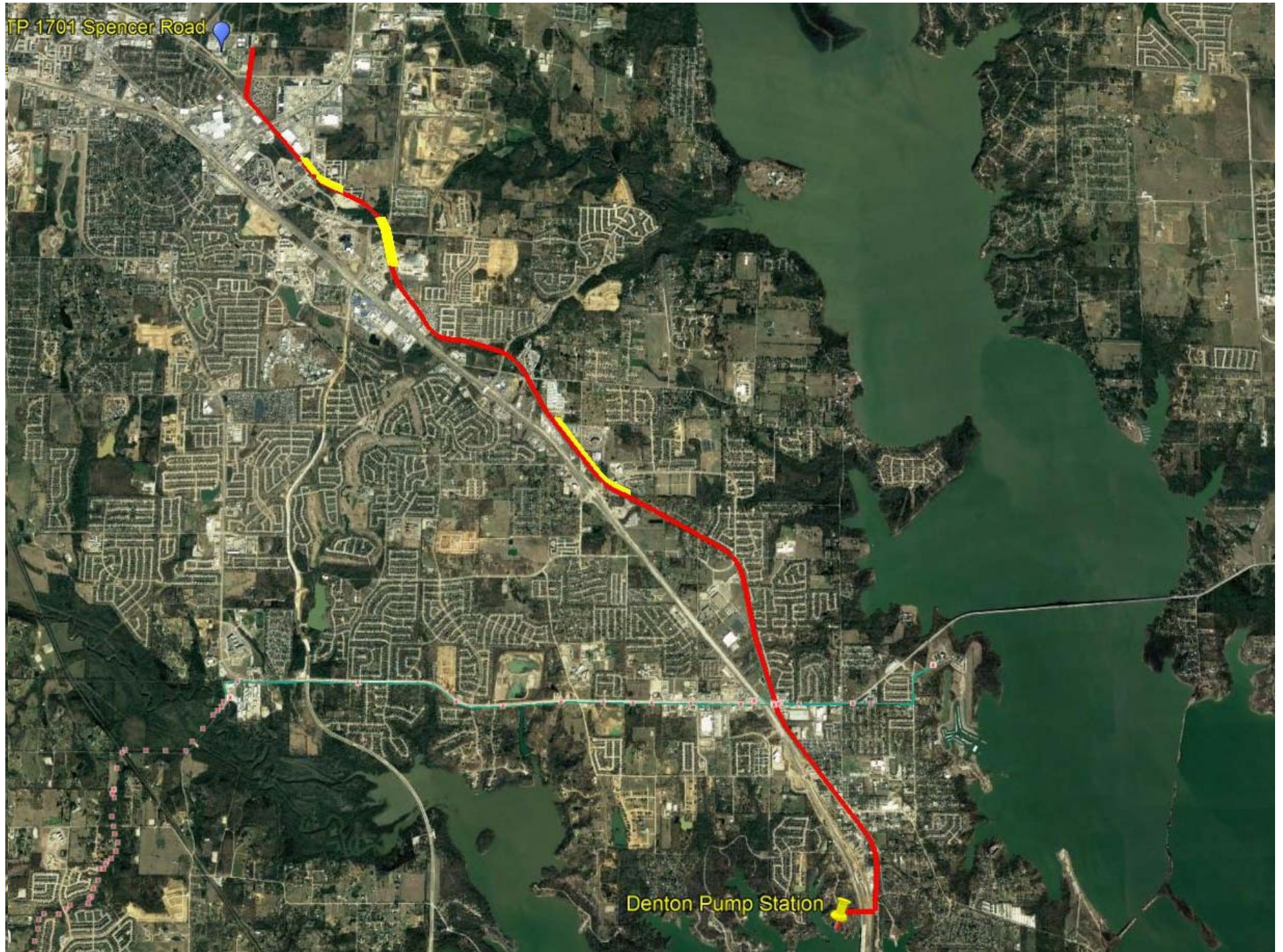
**3 Bar
Breaks**

**1 Good
Bar**

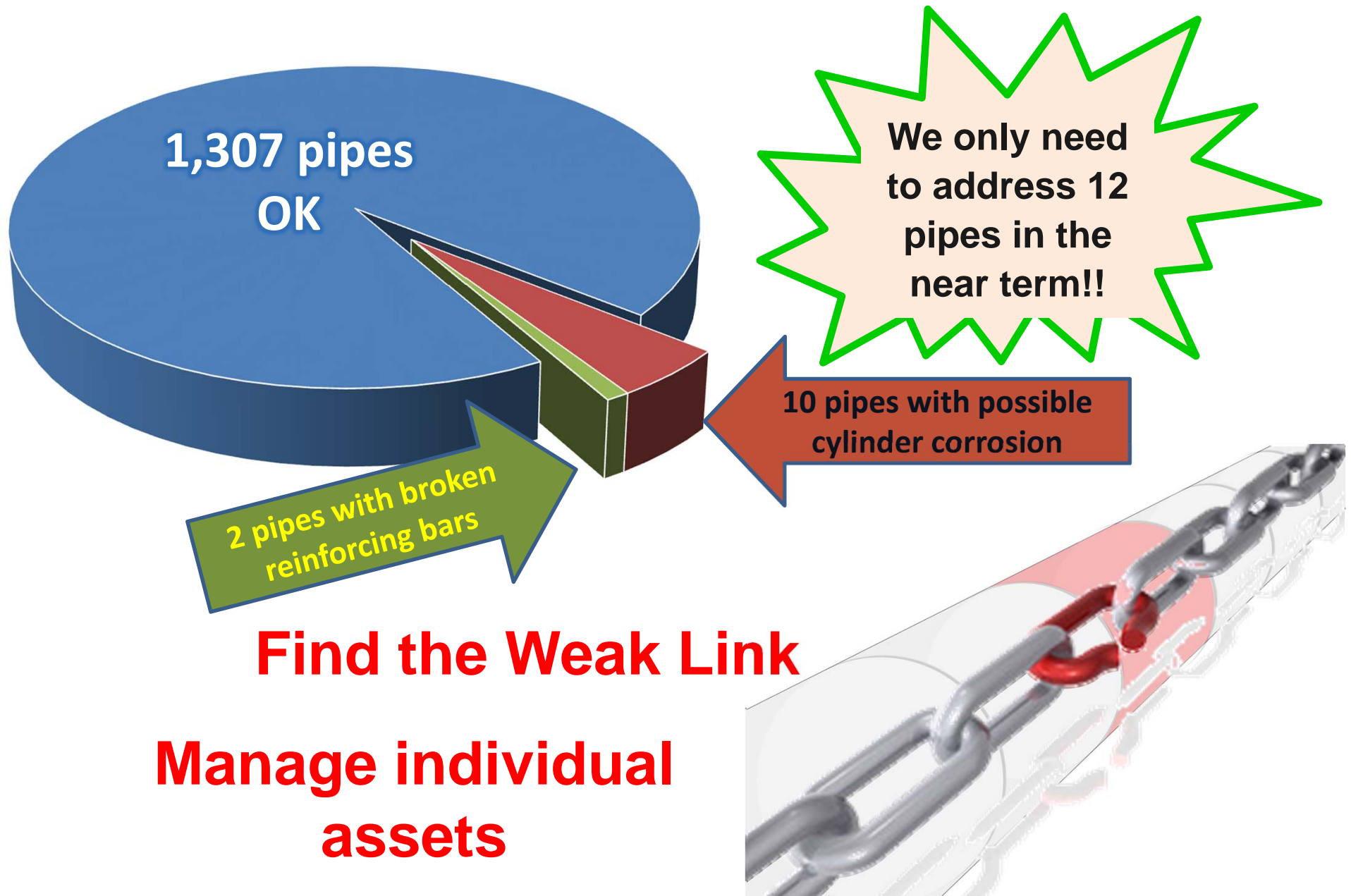
16 Bar Breaks

**Cylinder Started
Leaking After
Coating was
Chipped Off**





8.62 Miles Inspected (1,319 Pipes)



Questions?

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