Regulatory Perspective on Risk Assessments

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Risk Assessment

Assessing risks for a pipeline requires a comprehensive knowledge of the characteristics of each of the piping systems an operator has.

Historical Risk Assessment

- Prior to the Integrity Management Regulations (IMP), risk assessment was mostly just a review of leak repairs.
- Based on this review, decisions were made as to what pipe needed replacement.
- Little consideration for risk, such as population density, was given.

Historical Virginia Activities

Findings:

Inspections of a new transmission pipeline in CY2000 revealed the coating at the joints was not being installed properly. More than 600 joints were involved.

Commission Action:

Company was required to run a high resolution in-line inspection device at 5 and 10 years. A minimum of 10 joints had to be excavated and examined for the first 10 years of operation. Based upon the results of the examination, additional measures may be required.

Historical Risk Assessment

- With the onset of IMP, companies began to develop risk ranking programs.
- Many companies felt that corrosion was their only threat and placed corrosion managers in charge of the integrity management program.
- While corrosion risks were addressed, other risks, such as dents or gouges, were overlooked.

Coating Installed Incorrectly

Corrosion Pits from Poor Coating

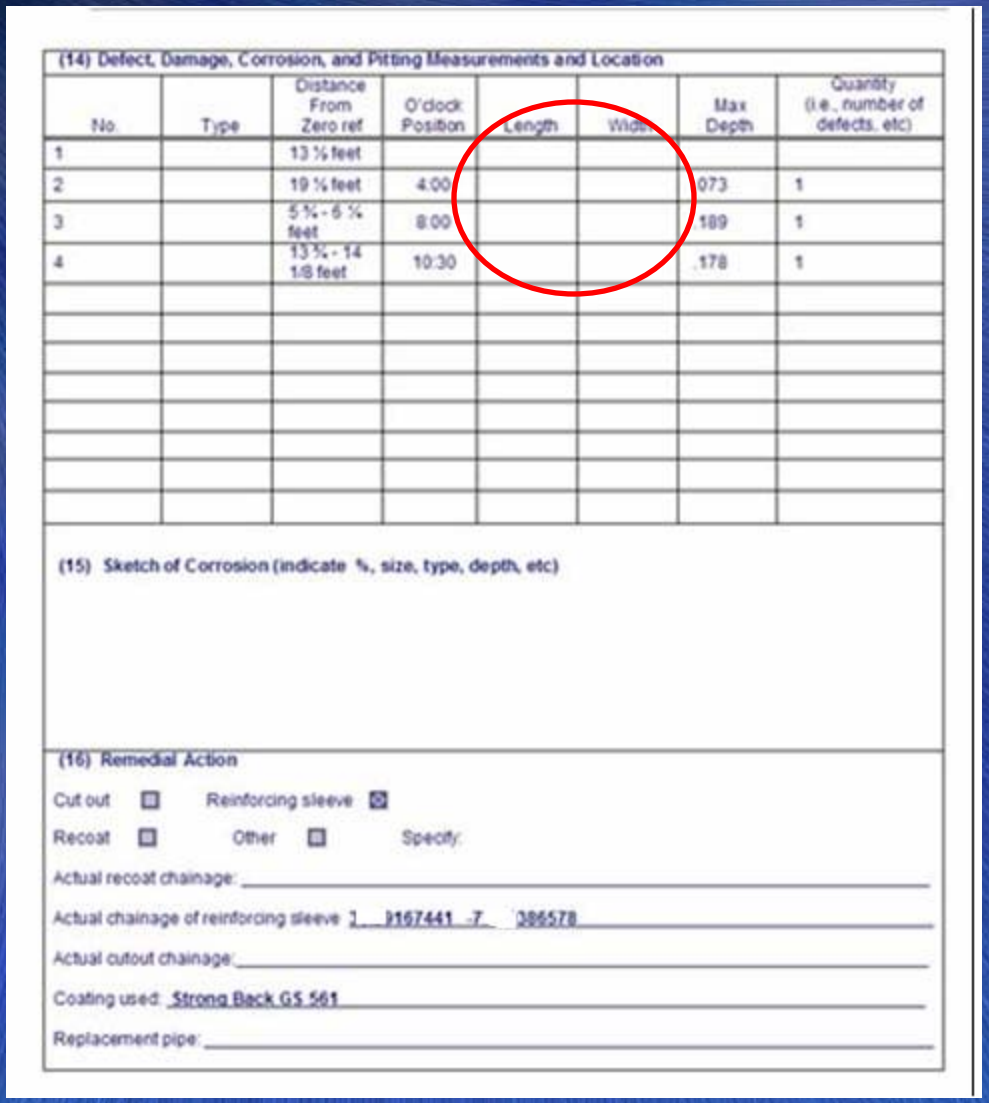
Gouge on a 16-inch, 1200 PSI MAOP Transmission Pipeline

Company Crew Damaged a Transmission Pipeline during Excavation

Post IMP Virginia Activities

- Subsequent to the promulgation of the IMP rule, we completed the Gas Integrity Protocol Review of the four intrastate companies with transmission pipelines.
- Conducted field audits of ECDA digs, ICDA digs, and ILI digs.
- Observed more than 100 integrity management digs over 2 years.

Record of Examination



(14) Defect, Damage, Corrosion, and Pitting Measurements and Location

No.	Type	Distance From Zero ref	O'clock Position	Length	Width	Max Depth	Quantity (i.e., number of defects, etc)
1		13 ½ feet					
2		19 ½ feet	4:00			073	1
3		5 ¾ - 6 ¾ feet	8:00			189	1
4		13 ¾ - 14 1/8 feet	10:30			.178	1

(15) Sketch of Corrosion (indicate %, size, type, depth, etc)

(16) Remedial Action

Cut out ☐ Reinforcing sleeve ☒

Recoat ☐ Other ☐ Specify:

Actual recoat chainage: _____

Actual chainage of reinforcing sleeve 1 9167441 -7 386578

Actual cutout chainage: _____

Coating used: Strong Back GS 561

Replacement pipe: _____

Data not Recorded

Location Question

Sch. Date: 11/19/2009

Inspector: John Land Walter

Location: Cromwell Road

Line Number: Joint Use Pipeline

Chainage: 1; 4 from Launcher

Absolute Odometer: 99090 ; 13676

Division/District: Hanover

State/County: Virginia

(2) Pipe Data

Diameter: 24 inches

Wall Thickness: .375 inch

Grade: X60

Pipe Manufacturer: ACIPCO

Longitudinal Seam Weld: ERW

MAOP: 1250 PSI

(3) External Coating:

Coated: ☒

Uncoated: ☐

Coating Type: FBE

Outer Wrap:

Total Thickness:

Internal Coating:

Note:
Coating type: asphalt, coal tar, FBE, extruded polyethylene, urethane, tape (single or double wrap), liquid epoxy, other)

(4) Condition of coating and pipe (include % values):

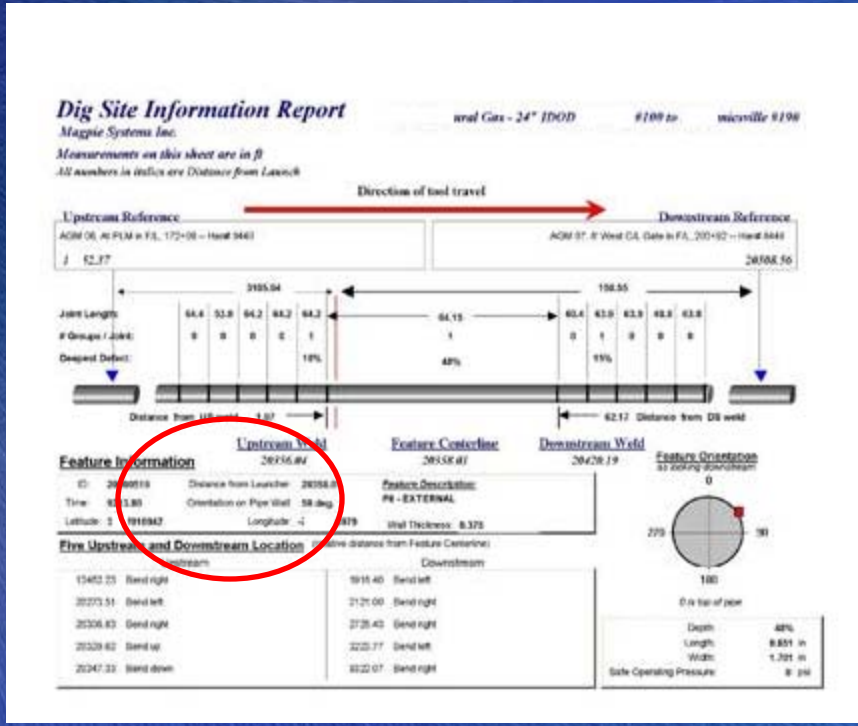
Coating: Good

Bonding/Adhesion: Good

Moisture: Y N

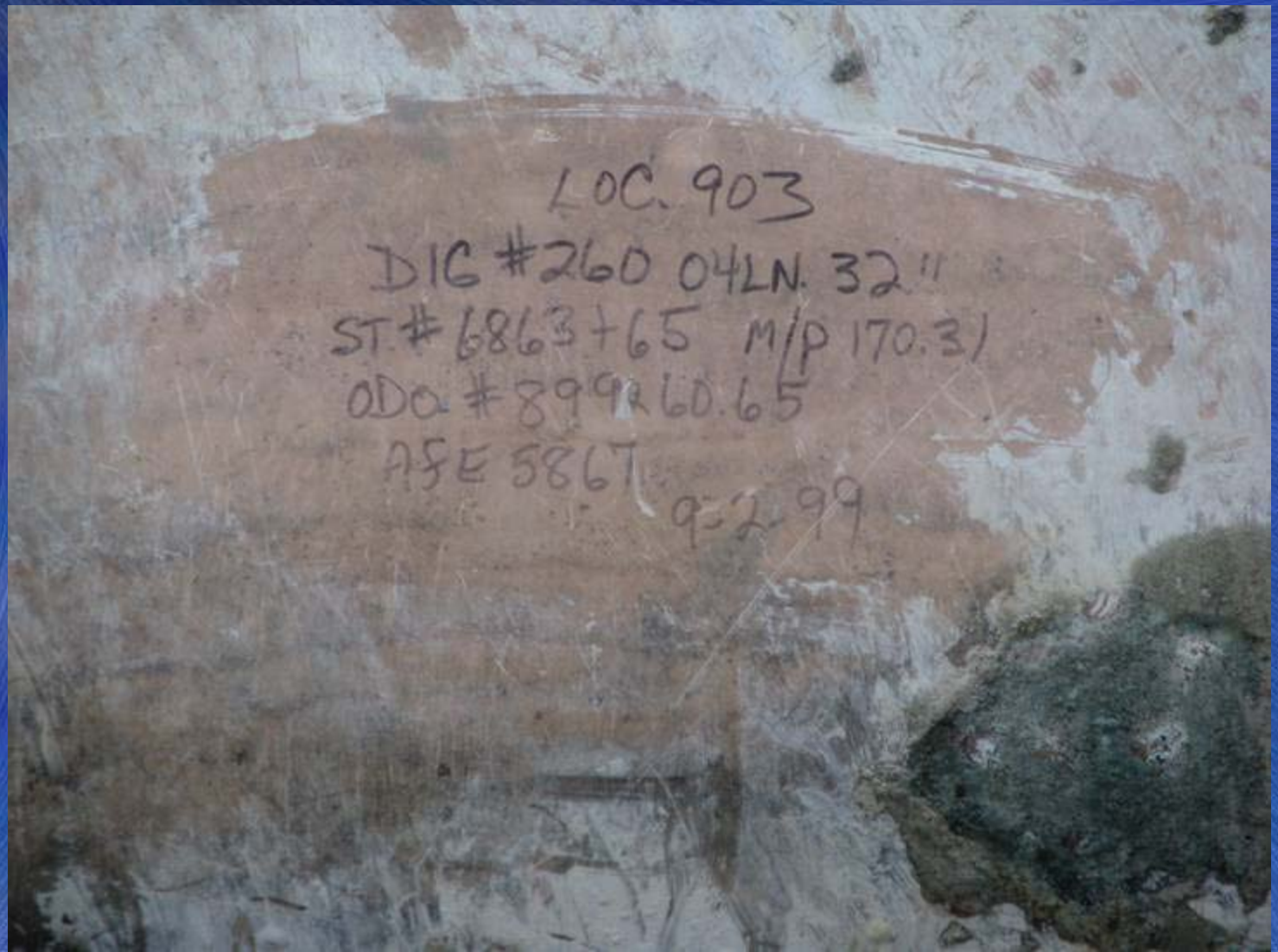
Moisture pH:

Holidays: Three small holidays

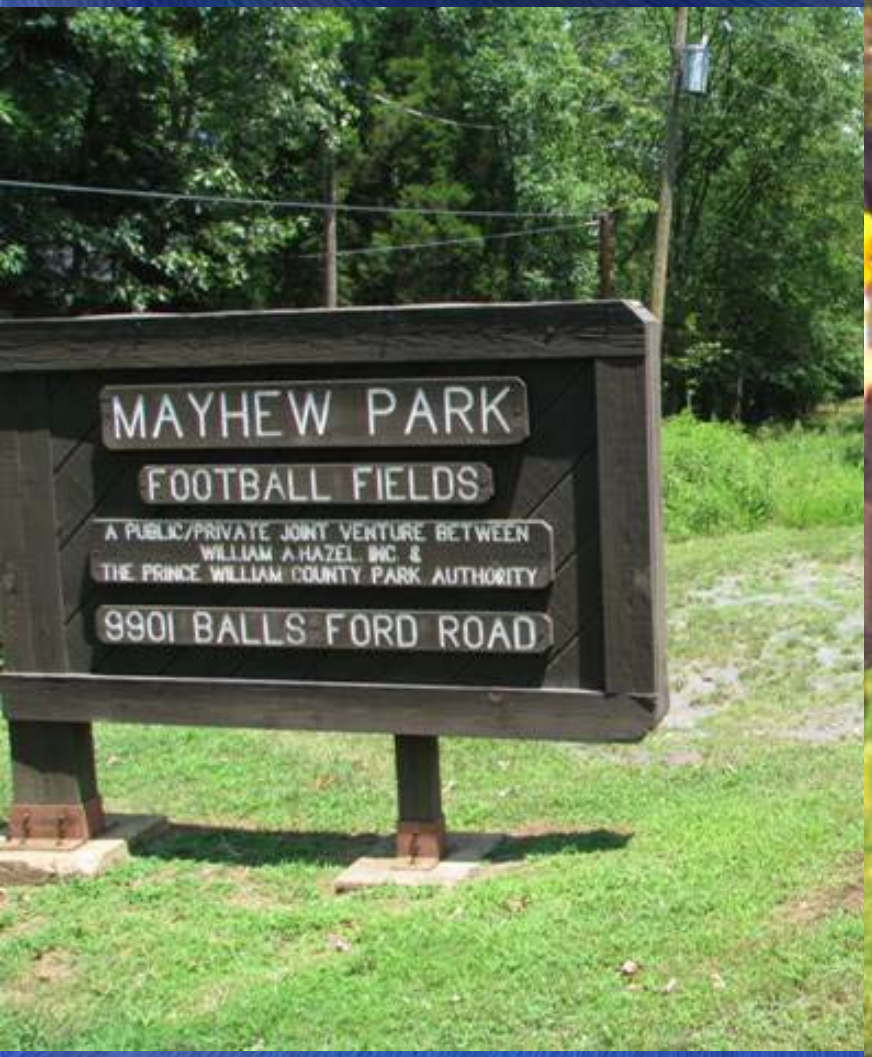


Incorrect Data Recorded

Records Issue – Anomaly Excavated Twice



Newly Identified Areas



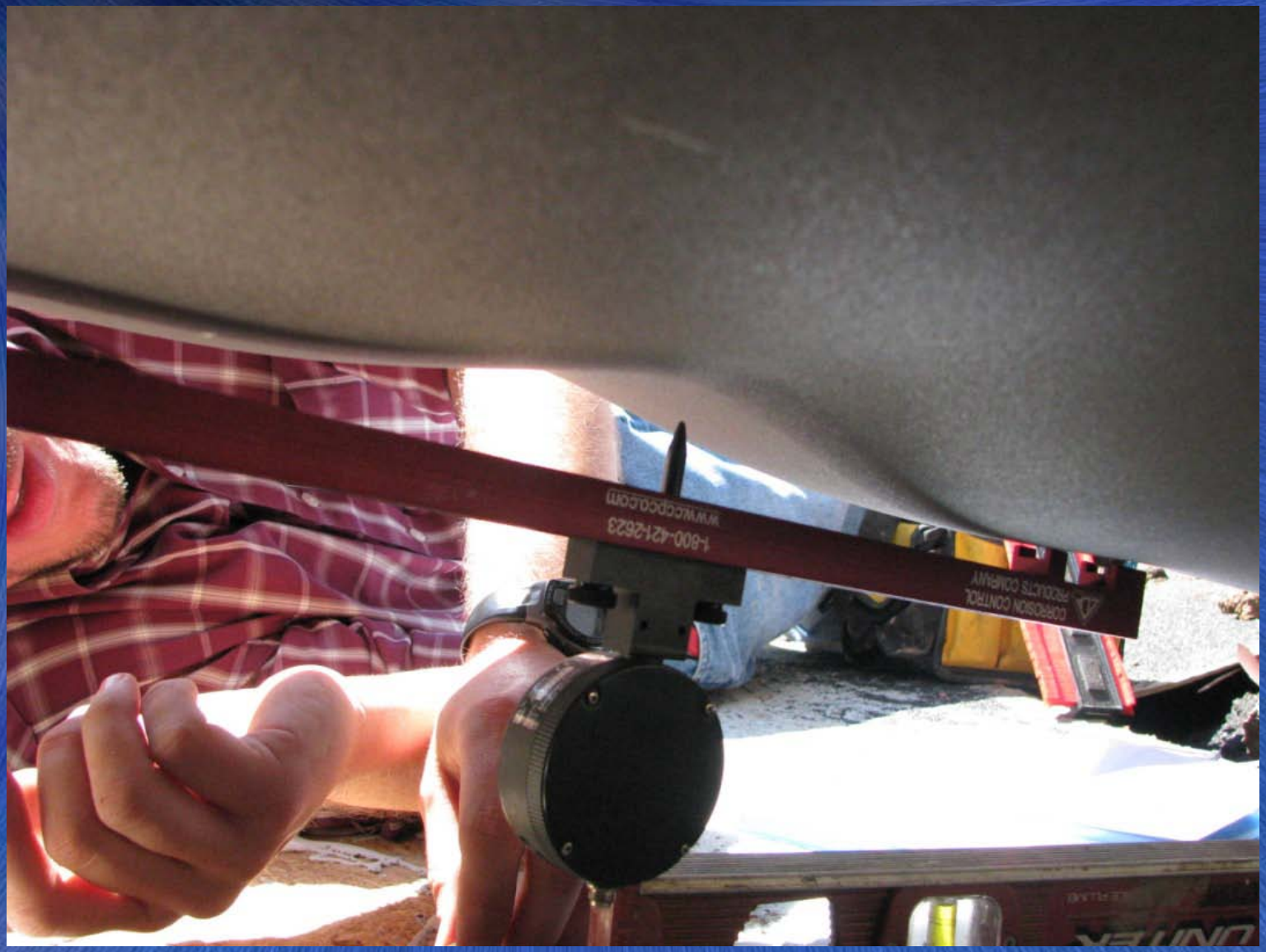
Other Inspection Findings

- Inadequate IMP programs
  - Did not bring together all the data needed to properly assess
  - Operators did not identify all of the threats to their facilities
  - Repair procedures were improper or did not address all threats

Construction Practices

- Successful IM programs should identify most faulty construction practices
- More time spent during construction to get it right the first time should eliminate the need for future repairs

Dent from Resting on Rock



Duct Tape under Coating

Jeeping during Installation

We used to think transmission pipelines were away from populated areas

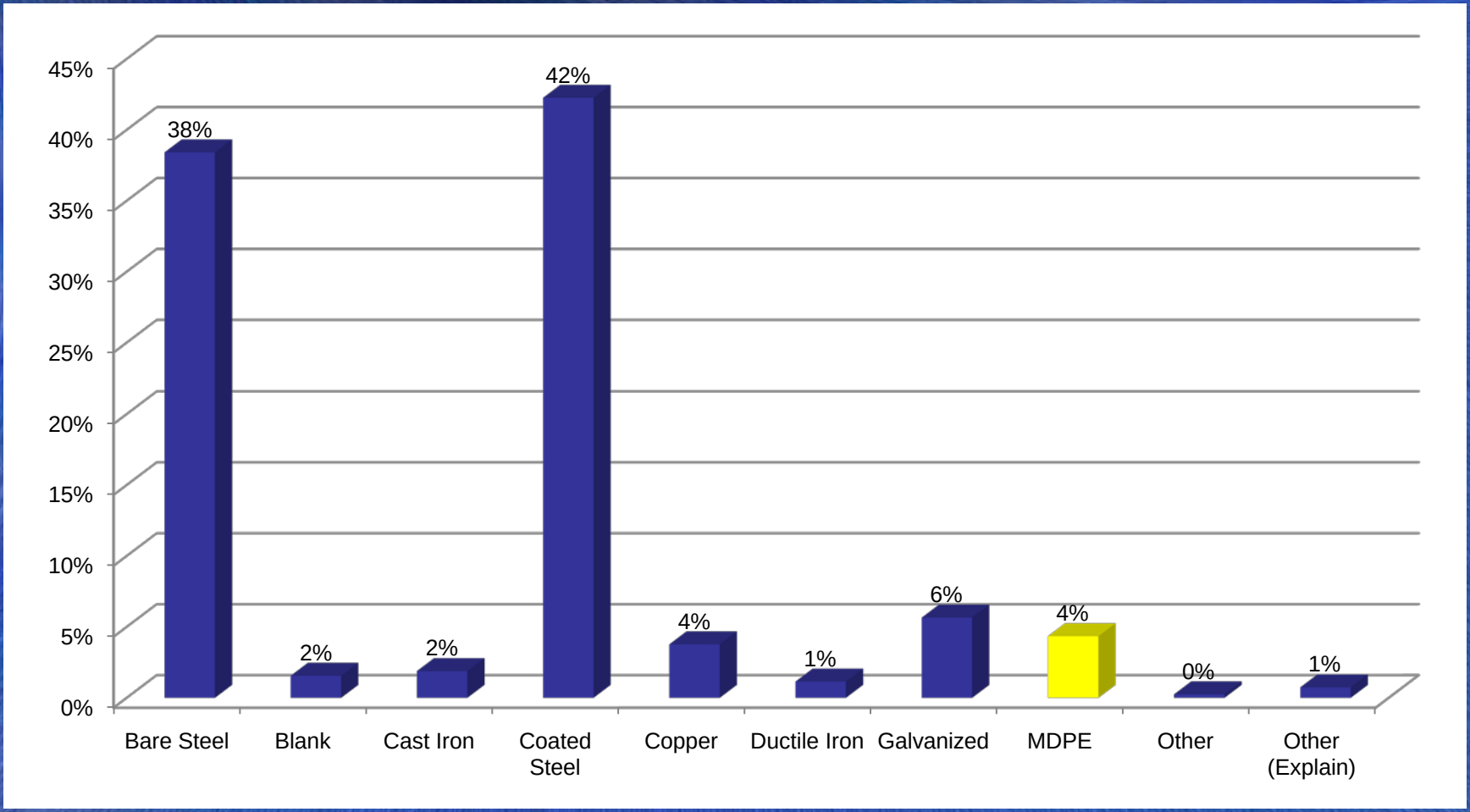
Appomattox, Virginia

Distribution Integrity Management

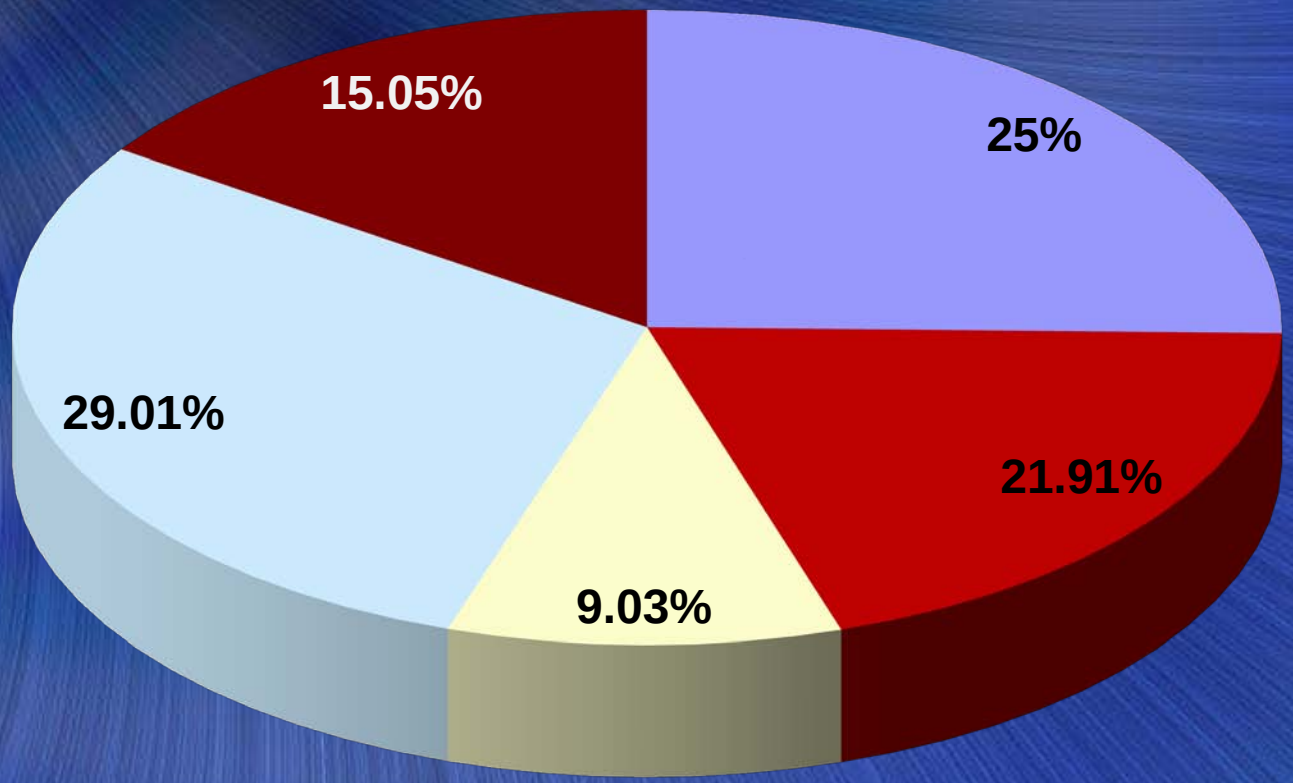
Data Accuracy

- Accurate and detailed data is crucial to the effectiveness of TIMP and DIMP
- Accuracy starts in the field
- Must have quality assurance to ensure accuracy
- Bad data is counterproductive and a waste of resources.

Statewide Corrosion Leaks by Material (Accuracy of Data)



2010 Gas Damage Cause Distribution



Trenchless Excavation around Sewer Laterals

Actions to Mitigate Risk

- Amended Virginia 1-Call Law to address marking of sewer laterals
- Amended Virginia Building Code to require trace wire on all new sewer laterals
- Educated plumbers to call for marking of utilities before attempting to unclog blocked sewer laterals

Done properly, risk assessments, whether TIMP or DIMP, provide operators and regulators the opportunity to ensure the issues from the past are found and corrected. Proper design, construction, and operation of pipelines should prevent these same issues from arising on pipelines built in the future.