



Construction Inspection

During This Session

- Review of Code: How often to inspect
- Challenges
- Examples: Why inspection is needed
- Safety Culture: How inspections impact
- DIMP and inspection documentation
- New OQ vs Existing: The transition
- Open Discussion

§192.305 Inspection: General.

Each transmission line or main must be inspected to ensure that it is constructed in accordance with this part.

Interpretation § 192.361

- §192.3, the following definitions are given: "'Pipeline' means all parts of those physical facilities through which gas flows in transportation, including . . ." and "'Service line' means a distribution line that transports gas from a common source of supply to (a) a customer meter or ..." The key word here is transportation. Therefore, since a service line transports gas to a consumer, it is a pipeline and subject to the same requirements that would be generally applicable to pipelines.

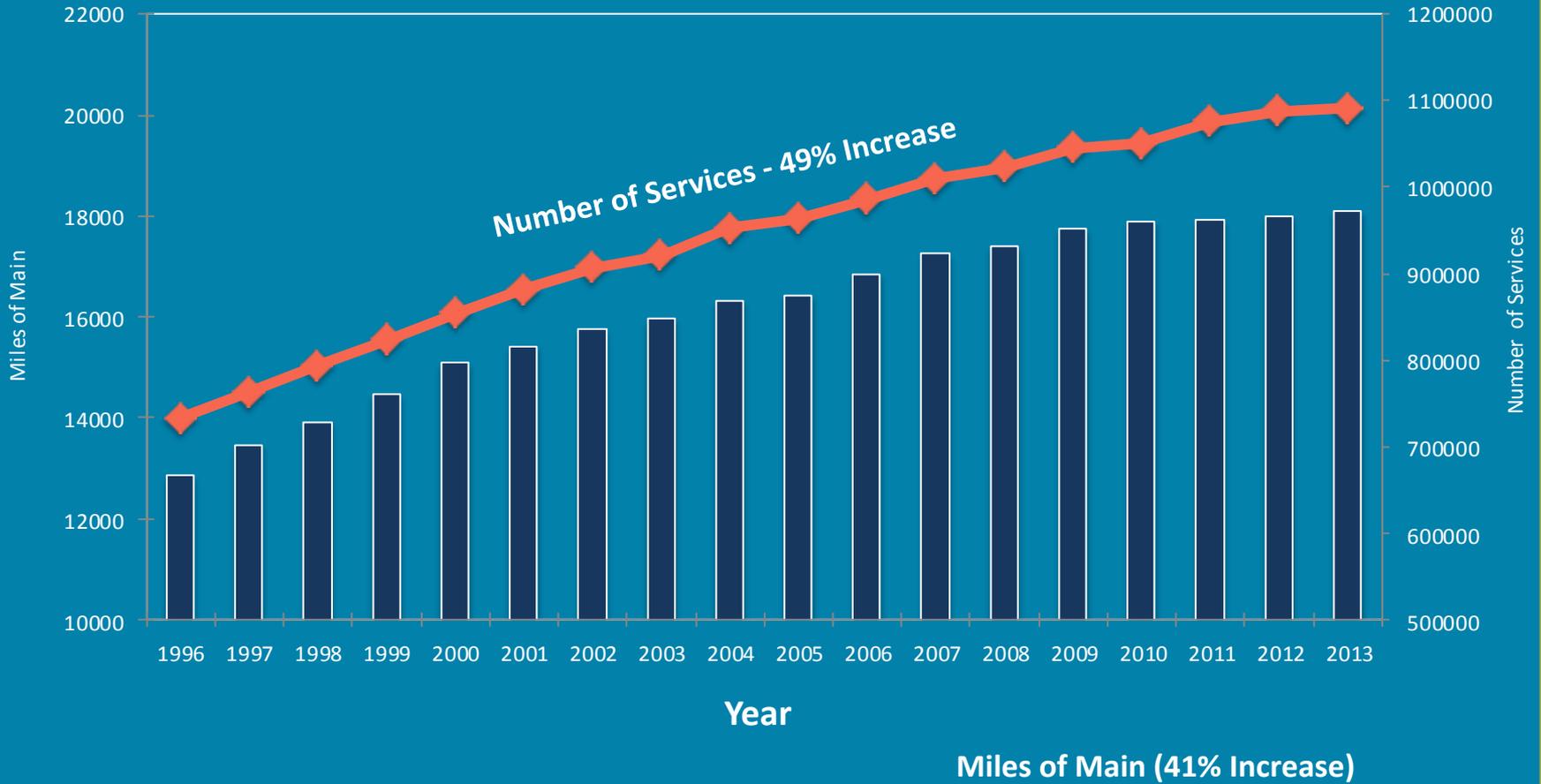
Interpretation of §192.305

- Sections 192.305 and 192.307 are requirements for inspecting the construction of gas pipelines. The personal qualifications of an inspector which are necessary to ensure compliance with the inspection requirements are a matter which each pipeline operator determines.

Code Requirements

- Code specifies the *Minimum Safety Standards*
- *Code is the price of admission!*
- *Is the minimum safety standard enough to run a safe system?*
- *Choice, not just compliance*

Gas Distribution System Growth in Virginia



Construction Activity

- Historically, gas system growth has been used as a measure of construction activity

In Addition...

- 115 miles of cast iron and ductile iron pipe (LDCs)
- 200 miles of bare steel pipe (LDCs)
- 300 miles of cast iron pipe (Municipals)
- 20 miles of bare steel (Municipals)

Inspections Over the Last Year





§ 192.273(b) - Failure of the Company to follow written procedures that have been proven by test or experience to produce a gas tight joint by not verifying the correct insertion depth on both ends before starting the electrofusion process.

§192.305 - Failure of the Company to inspect a main to ensure that it is constructed in accordance with Company's O&M procedures developed to comply with §192.273(b).





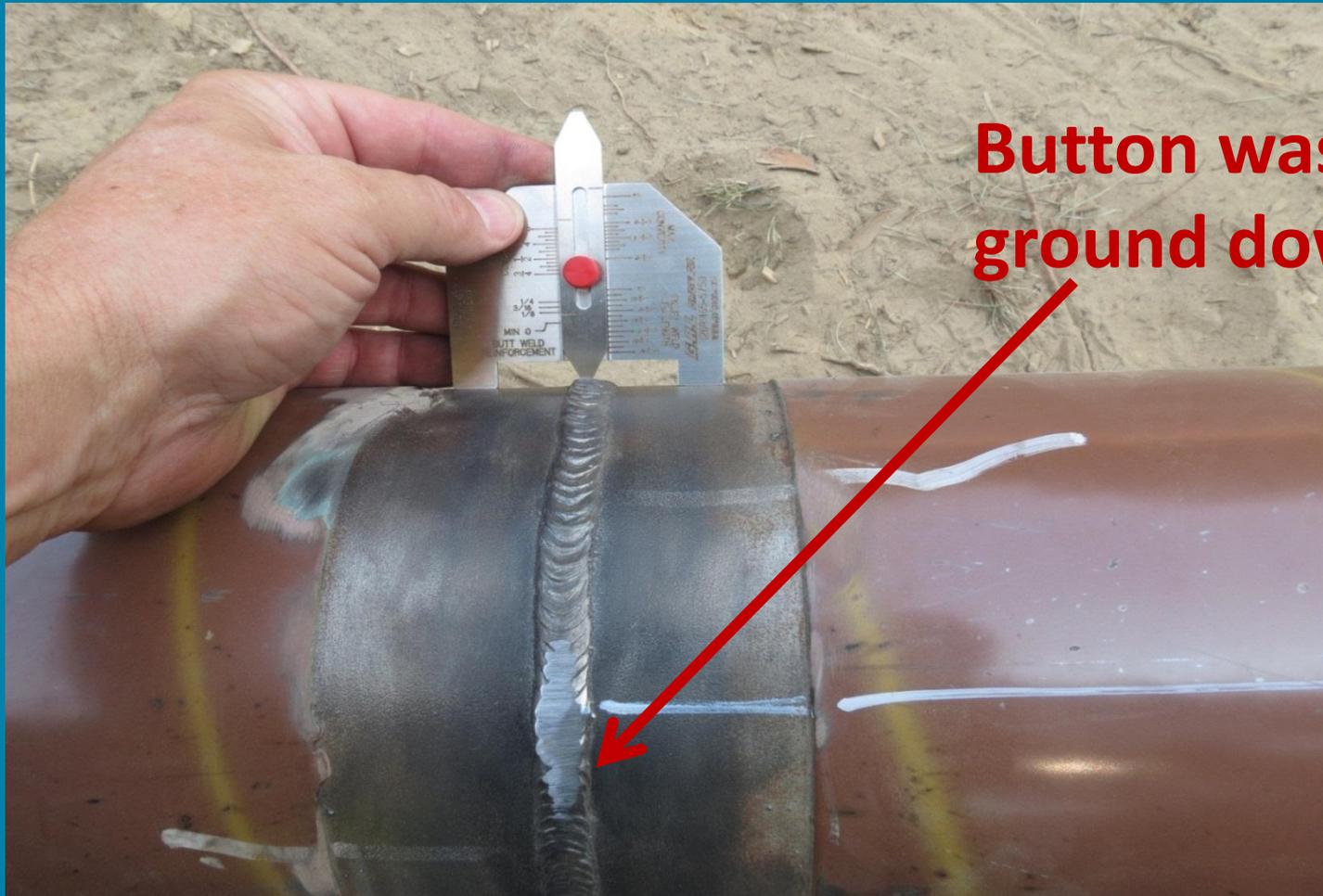
1652
5-11-13
CP-910
TCP-10:0

01/16/2014 11:36

§ 192.273(b) Failure of the Company to follow written procedures that have been proven by test or experience to produce a gas tight joint by not verifying the correct insertion depth on both ends before starting the electrofusion process.



When asked by Staff about the proper cap height the inspector could not answer and stated they would have to look it up. The inspector could not produce an instrument to perform the measurement. This was after over 90 welds had been made.



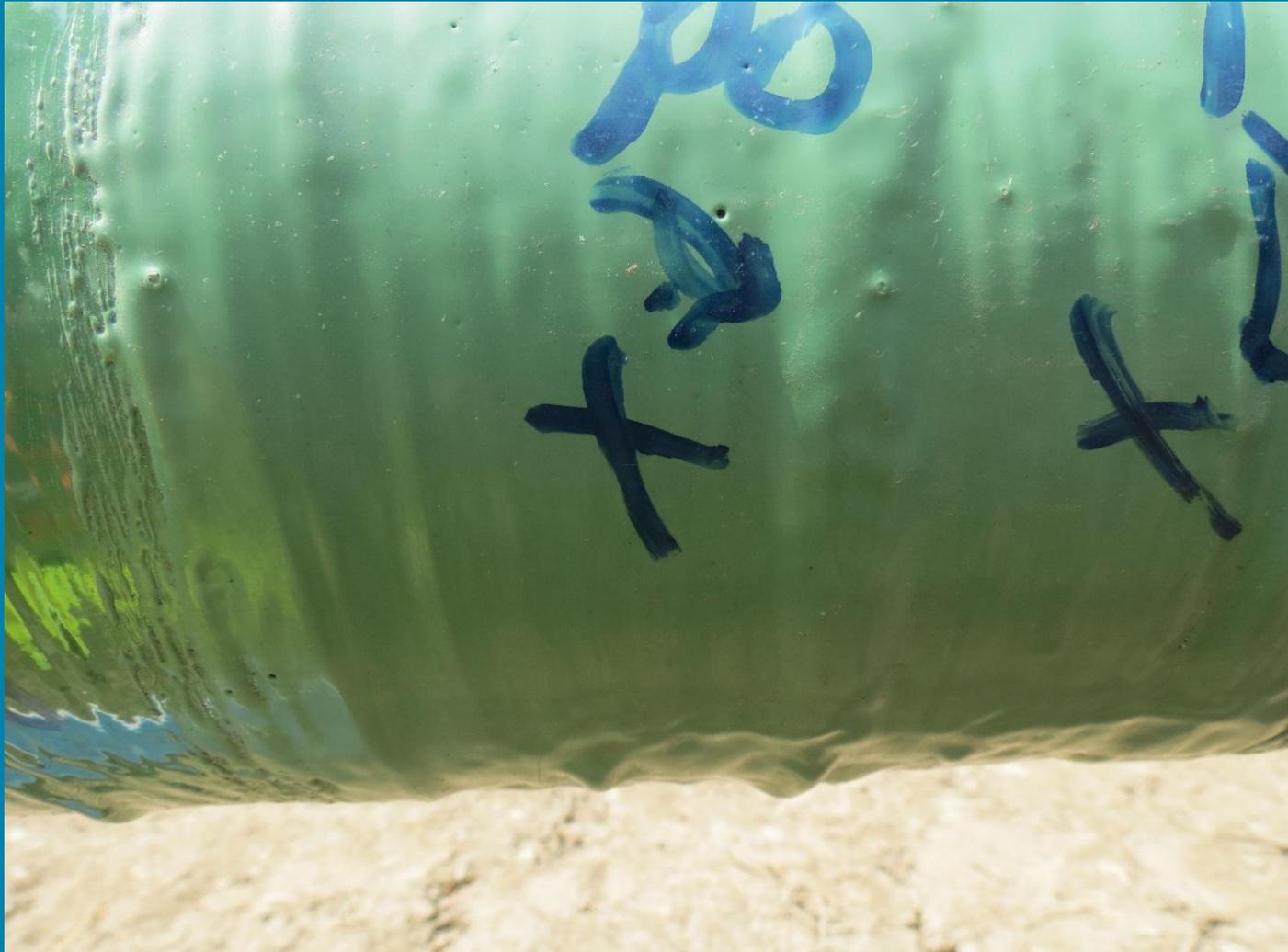
§ 192.235- Failure of the Company to preserve the alignment while the root bead is being deposited.



Understanding the manufacturer's procedures when they are referenced in the Operator's O&M.



Coating issues



189.5 mills



Understanding the manufacturer's procedures when they are referenced in the Operator's O&M. Get clarification when there is more than one interpretation.

Example: 2 coats would be 100 mils total thickness, 30 mils greater than recommended.

- Fast touch dry and set times
- High temperature resistance up to 203°F (95°C)
- High build (up to 50 mils in one coat)
- Excellent adhesion (compliments FBE coated pipe)
- High abrasion resistance for drilling applications

The Company inspector interpreted this as 50 mils per coat.

Theoretical Coverage	14 ft ² /30 mils/liter
Thickness - Weld Joints / FBE Repairs	
Minimum/Maximum	20/70 mils
Recommended	<u>25 - 30 mils</u>
Thickness - Bore Pipe	
Minimum/Maximum	40/70 mils
Recommended	<u>45 - 60 mils</u>
Holiday Detection - based on min. mil. thickness specified	125 volts/mil
Cathodic Disbondment Test (ASTM G95)	
28 Days @ 77°F (25°C)	3 mm
28 Days @ 150°F (65°C)	4 mm
28 Days @ 185°F (85°C)	6 mm
28 Days @ 203°F (95°C)	6 mm
Hardness (ASTM D-2240-02)	Shore D 85 +/-2
Impact Resistance (ASTM G14.00)	60.00 in lbs





The gas line was not purged to greater than 95% as required by the Operations Procedural Manual.



The inspector was not aware of the Operator's requirement for the installation of service lines under the root system of trees.



Safety Culture

- Inspectors must drive safety culture in the field
- Field crews will take their cues from management, construction supervisors, foreman, auditors, inspectors and from each other

Inspector Documentation



DIMP

- Inspection data will support DIMP
 - Crews
 - Individuals
 - Pipe types and materials
 - Activities
 - Inspectors (SME) input in DIMP
- Empower inspectors to take appropriate actions to mitigate risk (AAs)

OQ

- Enhanced OQ development is underway
- SMEs on the team
 - Develop an outline of each task so companies can compare to existing O&Ms
 - Carry information back to companies to update
- We can't simply wait for new OQ if a deficiency in current OQ is identified



PIPELINE SAFETY

make it personal!

Path Forward

- Bring a task force together to develop industry practices to:
 - Access the knowledge of inspectors
 - Implement a program to fill knowledge gaps and enhance inspectors knowledge of tasks they inspect
 - Qualify inspectors (OQ) to tasks they inspect
 - Identify and enhance current OQ and O&M procedures
 - Develop and implement enhanced documentation of inspection activities
 - Use inspection data to guide risk based inspection activities and enhance QA/QC processes