A Pipeline Operators Viewpoint on Underground Coatings Issues

Jeff Didas
Colonial Pipeline Company

Major Issues

• Existing Pipeline Coatings
• Coatings for New Construction
• Coatings for Pipeline Rehabilitation
• Coatings for Pipeline Repairs
Existing Pipeline Coatings

- Coal Tar Enamel
- Asphalt Enamel
- Extruded Polyethylene
- Fusion Bonded Epoxy
- Somastic
- Pritec
- Liquid Epoxy
- 3 Layer
- Tape
- Wax

What is the issue with existing coatings?

- Age
- Condition
- Failure Mode
- Reparability
- Compatibility with Repair Coatings
- Hazards & Toxicity
- Transition Zones
Transition Zones

Issues

- CP Shielding
- Increased CP Levels
- Recoating
Coatings for New Construction

- Most common is Fusion Bonded Epoxy – FBE
- Multi – Layer Systems Gaining in Popularity
- Issues are Coating the Weld Joints, Handling Damage, Flexibility and Coating Repair Methods – Quality Control & Inspector Standards.
Weld Joint

Flexibility
Handling Damage

Handling Damage
Coatings for Pipeline Rehabilitation Issues

- Compatibility with Existing Coatings
- Cure/Dry Time
- Performance
- Application
- Ambient Conditions
- Quality Control
- Inspector Standards

Weather
Job Site

Abrasive Blasting
Holiday Testing
Coatings for Pipeline Repairs

- Keyhole Coatings
- Wet ditch/hole Coatings
- Winter Grade/Summer Grade Coatings
- Cure/Dry Time

Repair Coatings
Repair Coatings

Keyhole Coating
Summary of Issues

• Repair & Rehabilitation Coatings are the major issue for pipeline operators.
• Deterioration & Aging of Existing Coatings are an ongoing issue for pipeline operators.
• Improving handling properties for new pipeline coatings, flexibility of new coatings, as well as weld joint coatings (quality) and in field repairs (quality) for the coating are major issues for pipeline operators.

Additional Issues

• Development of new or standardization of existing short term testing methods to reliably predict long term coating performance.
• Investigate the effects of pipeline preheating or thermal treatment used in the application of new coatings may affect the strain aging in steel substrates.