



U.S. Department of the Interior
Bureau of Land Management

Projects FY 21-22

Federal Helium Operations

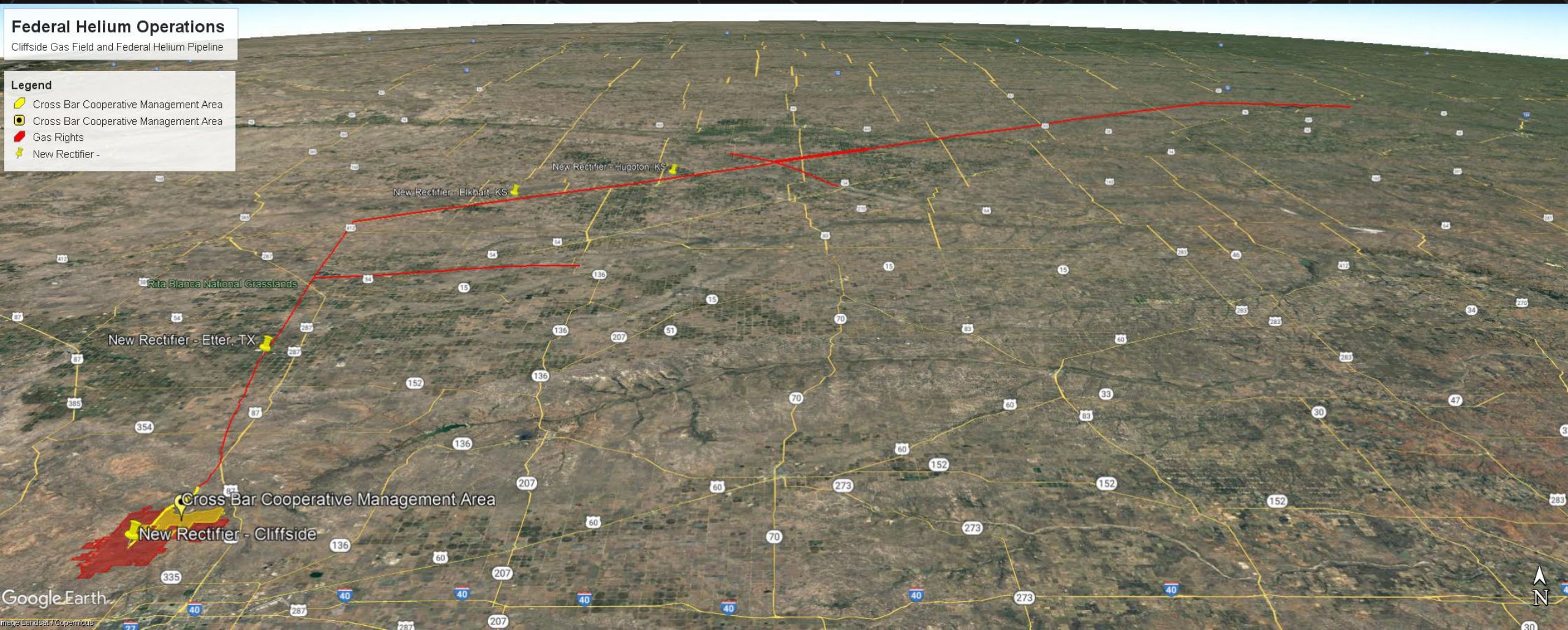
Mark Welch
General Engineer
Engineering & Tech Support

Federal Helium Operations

Cliffside Gas Field and Federal Helium Pipeline

Legend

- Cross Bar Cooperative Management Area
- Cross Bar Cooperative Management Area
- Gas Rights
- New Rectifier -





Overview

Pipeline Projects FY 21-22

- **Cathodic Protection (CP)**
 - Inspections
 - Pipeline Description
 - Rectifier locations
 - Current Requirements
- **Highway Expansion US 50**
 - Kansas Department of Transportation (KDOT) Hwy 50 Pipeline Project – KDOT 50-35 KA-2383-01



CP - Inspection

- S&B Services
 - Annual and Bi-monthly Inspections
 - Reports by J.D. Engineering
 - CP requirements referenced from:
Crude Helium Pipeline Annual Inspection Evaluation Report (2021)



Pipeline Description

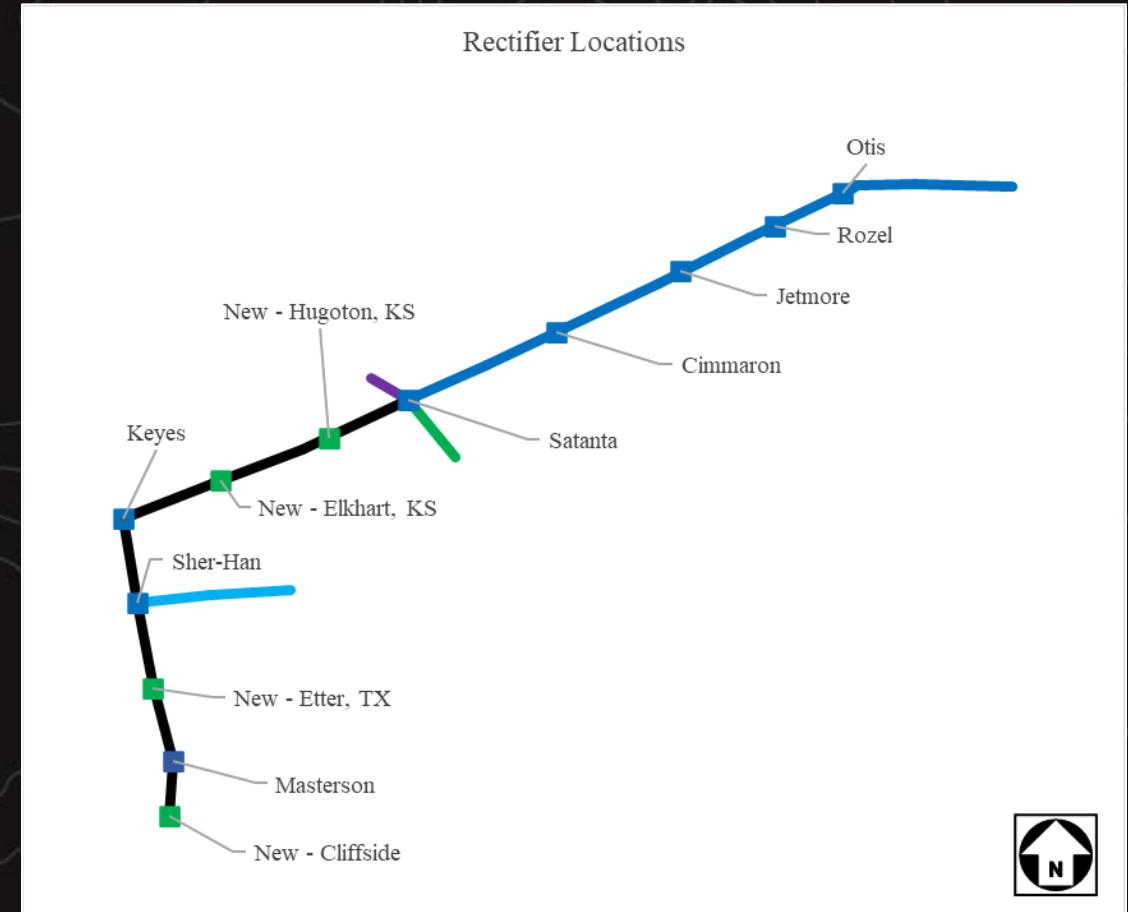
Table 1: BLM-AMFO, CHEU to Bushton, Pipeline Table of Segments

Segment	Mile Post	Length (mi)	Diameter (in)	Wall Thickness (in)	Material Grade (psi)	%SMYS (1,500 psi)
1. Amarillo CHEU to Satanta	0.0 to 187.5	187.5	8.625	0.250	46000	56.3%
2. Satanta to Bushton	187.5 to 354.8	169.1	4.5	0.219	35000	44.0%
3. Sher-Han Lateral	S0.0 to S37.7	37.7	4.5	0.219	35000	44.0%
4. National Lateral	N0.0 to N23.1	23.1	4.5	0.219	35000	44.0%
5. Jayhawk Lateral	J0.0 to J12.2	12.2	3.5	0.188	35000	39.9%



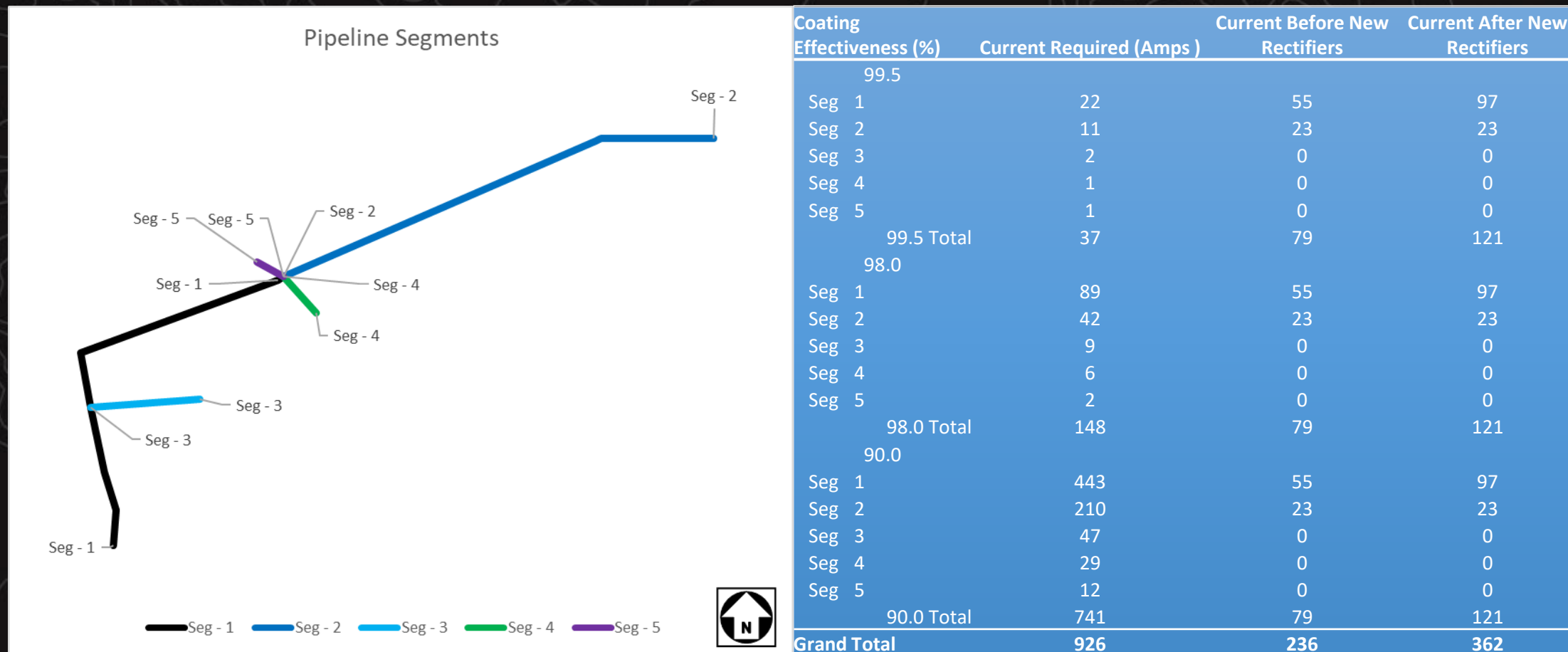
CP – Rectifier Locations

- 8 existing rectifiers
 - Cliffside and privately owned Otis rectifiers providing current as well (not shown)
- 4 Rectifiers added in 2021
 - Weak points from 2012 CIS
 - Working to establish account with energy supplier





CP – Current Requirements





US Hwy 50 Expansion Project

KDOT 50-35 KA-2383-01

- Expansion of U.S. 50 Cimmaron/Dodge City, Kansas
 - Upgrade to controlled access, four-lane divided expressway
- Utility Conflict KDOT / Federal Helium Pipeline
 - Need for pipeline reinforcement
 - Following slides used to showcase the condition of pipeline



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- US 50 /
Federal
Helium
Pipeline
Crossing





- MLV - 27





KDOT 50-35 KA-2383-01

1. Bare casing; good seal
2. Calcareous deposit
3. Corrosion on casing
4. WT carrier pipe (0.208")





KDOT 50-35 KA-2383-01





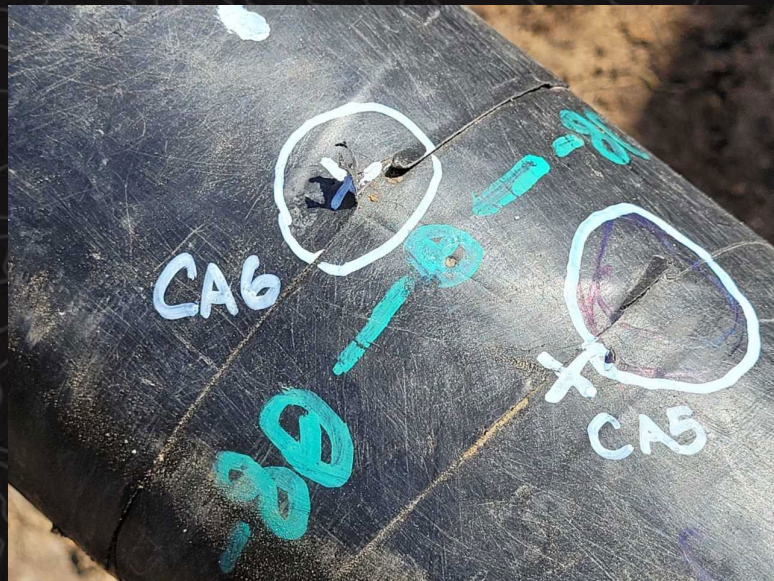
KDOT 50-35 KA-2383-01

1. Pipe damage
2. After coating removal
3. After sandblasting
4. Grind repair

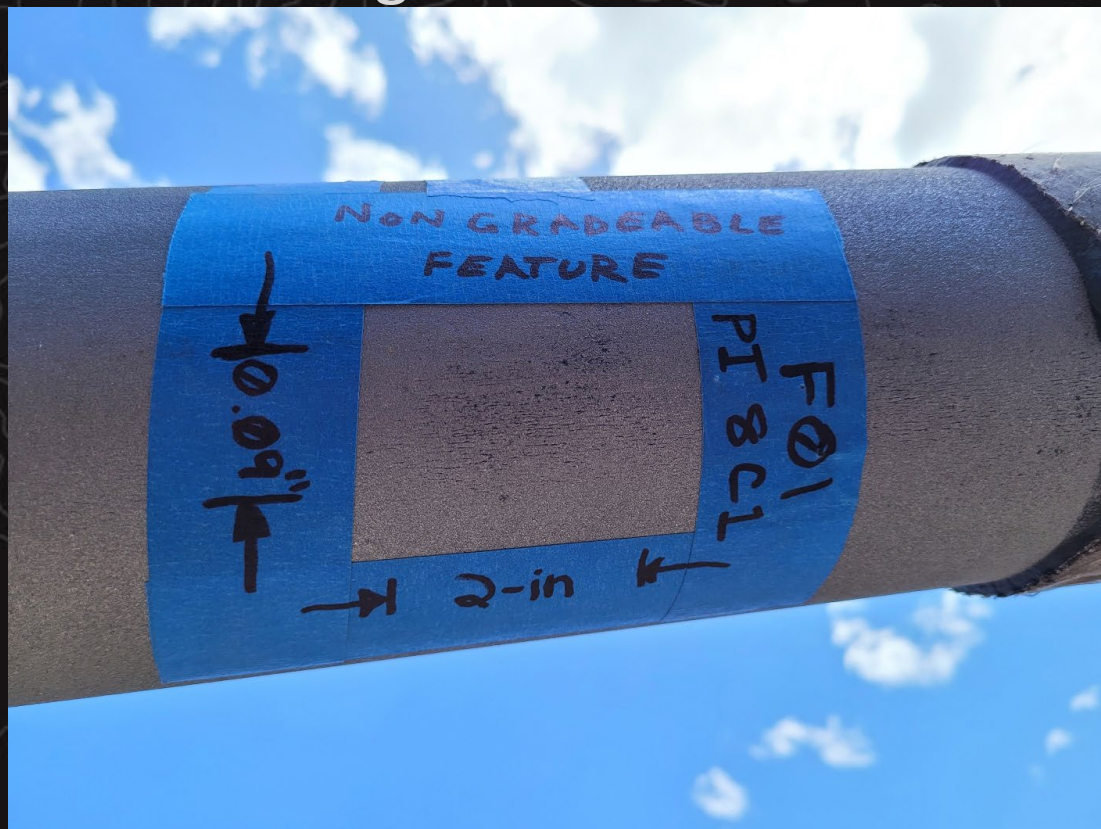




KDOT 50-35 KA-2383-01



Surface irregularities



Grind test



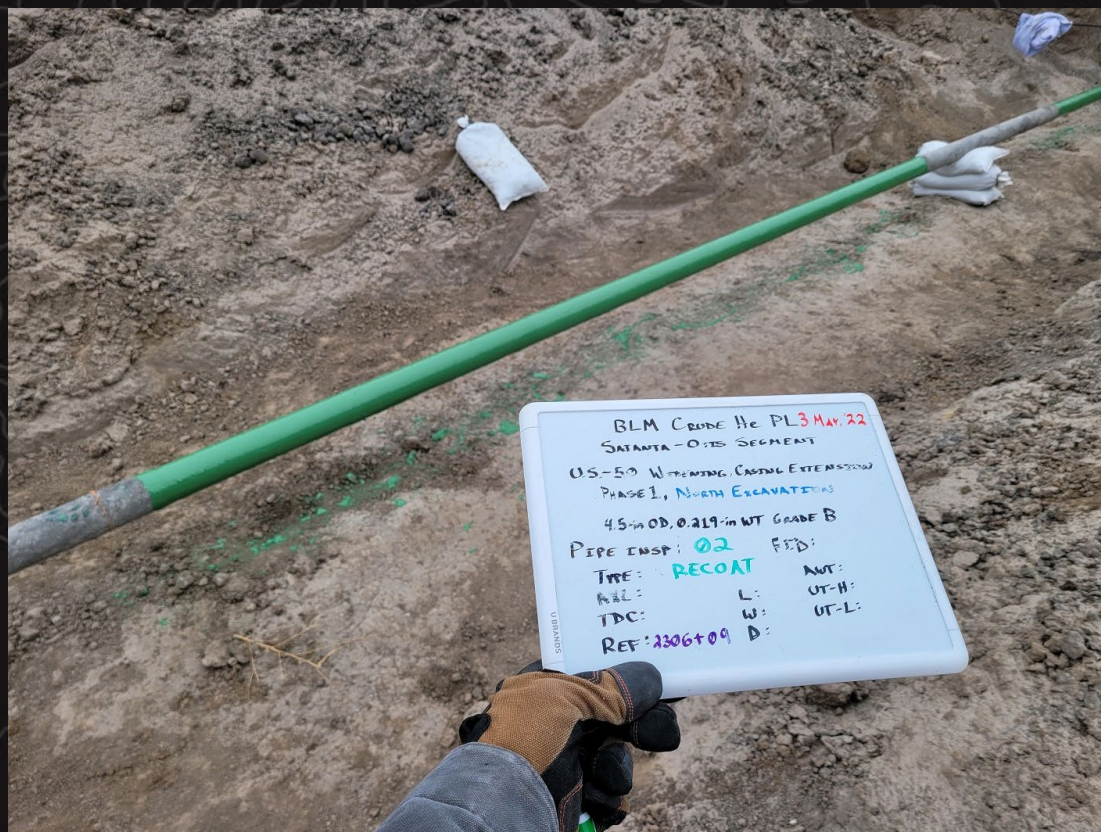


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KDOT 50-35 KA-2383-01

Denso Protal 7200 two-part epoxy

Worst case pit (carrier pipe)





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Welding on new split casing



Continued toward MLV 27





KDOT 50-35 KA-2383-01

Spit casing weld seams



Casing and spacers





KDOT 50-35 KA-2383-01

South of US 50

- End sealing system
- Test station
- Air-to-soil interface





KDOT 50-35 KA-2383-01

- North casing end
 - Contrast new/old





KDOT 50-35 KA-2383-01

- Casing pressure test
 - 1 psi/20 min (good results)
 - Leak on casing vent (shown)





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Bull guard and ditch tape by MLV 27



New test station with coupon





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Soil resistivity test



MLV 27, relocated AM 229 signpost





KDOT 50-35 KA-2383-01

- Backfill





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Questions/Comments

