

## Pipe and Coating Inspection Report: 8162

### Location

Reference 604-2011-034							
ID	Region	Line	Segment	Line #	Line Section	Inspection Location	OCID
TETLP	CE	Stanford	TOMP-DANV	15	VS-03	TOMP_15	E07601299
State/Province	County/Parish	Class Location	Facility Type	is VDOT	PCI #	Location Description	
Kentucky	Casey	1	Pipeline	N	n/a	AGM 38 20689+22 MP 391.84 Robinson Ridge Rd	
SPS Owner	SPS System	Fac. Assessment Date	Fac. Assessment Date Description	Special Permit	Special Permit Type		
Trimble	NAD83	Y	Yes	N	n/a		

### Dig From

Station	UT	Other Desc	Latitude	Longitude	Minimum Length (ft. or m)
2068809.000	391.820	210027.000			15.000

### Dig To

Station	UT	Other Desc	Latitude	Longitude
2068824.000	391.823	210042.000		

### Facility

Primary Reason	Inspection Type	Assess	Assess
ILI Anomaly Investigation	ILI	n/a	n/a
ILI Classification	ILI - Scheduled per FPRtc Due Date	Driving Capacity (lb)	ILI Year
		210039.7	8676
ILI Year	ILI Class	ILI Desc	ILI Desc
n/a	n/a	8677	8677
ILI Desc	ILI Desc	ILI Desc	ILI Desc
1000	n/a	0.3750	30
ILI Desc	ILI Desc	ILI Desc	ILI Desc
n/a	n/a	X-52/GR359	76.9
ILI Desc	ILI Desc	ILI Desc	ILI Desc
n/a	n/a	FW (A.O. Smith)	A.O. Smith
ILI Desc	ILI Desc	ILI Desc	ILI Desc
n/a	n/a		1957

### Casing

### Welds

Weld ID	Station	UT	Other Desc	Latitude	Longitude	Depth (ft)
8676	n/a	0.000	n/a	n/a	n/a	n/a
8677	n/a	0.000	n/a	n/a	n/a	n/a

### Environmental Conditions

Location	Eye Observation	Surface Soil Type	Surface Moisture	Surface Drainage	Soil Type (if any)
Below Ground	Full Circumference	Top Soil	Moist	Fair	Rocky Soil
Weather at Site	Depth of Ground	Land Usage	Drain Type	Inspection Pressure	Inspection Date
Dry	44	Pasture	Flat	n/a	8/20/2011

### Pipe & Coating

Coating 1	Coating 2	Coating 3	Coating 4	Coating 5	Coating 6	Coating 7	Coating 8	Coating 9	Coating 10	Coating 11	Coating 12	Coating 13	Coating 14
Coal Tar Enamel	No additional coatings	No additional coatings	No additional coatings	No additional coatings	No additional coatings	No additional coatings	No additional coatings	No additional coatings	No additional coatings	No additional coatings	No additional coatings	No additional coatings	No additional coatings
Coating Thickness (mil)	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT
150	120	100	140	140	140	140	140	140	140	140	140	140	140
Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present	Coating Defects Present
N	N	Assumed	No	No	No	No	No	No	No	No	No	No	No
Cause of Coating Damage N/A													

### Testing

Coating Type	Inspection Date	UT Defect	UT Defect	Type of UT	UT Time	UT Result	UT Result	UT Result	UT Result	UT Result	UT Result	UT Result	UT Result
N	N	Y	N	Wet Mag	12:00	n/a	n/a	n/a	n/a	3:00	n/a	n/a	n/a
UT Defect	UT Defect	UT Defect	UT Defect	UT Type	UT Time	UT Result	UT Result	UT Result	UT Result	UT Result	UT Result	UT Result	UT Result
Y	N	0.384	0.367	SCC Not Found	6:00	n/a	n/a	n/a	n/a	9:00	n/a	n/a	n/a
Coating Temp (F)	Pipe Temp (F)	UT System Type	UT System Type	UT System Type	UT System Type	UT System Type	UT System Type	UT System Type	UT System Type	UT System Type	UT System Type	UT System Type	UT System Type
88	73	Impressed	Y	-1.871	-1.888	26000	Soil Box	5					
UT System	UT System	UT System	UT System	UT System	UT System	UT System	UT System	UT System	UT System	UT System	UT System	UT System	UT System
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

### Defect Overview

Defect Description		Opponent Near Cause		Defect Involves Operator	Business of Service Contractor	Business of Entry Contractor	USE Test Determined	Number of Hits	Number of Shavings	USE Test Determined	Number of Hits	Number of Shavings
Manufacturing/Mill Defect		Mill Defect		N	N	N	N	n/a	n/a	N	n/a	n/a
Defect Location	Type of Filing	Is Defect Internal or External		How Were Defect Measurements Taken			Color of Deposits	Defect pH	Defect Shear Surface Characteristics	Business of Service Contractor	Business of Entry Contractor	
n/a	n/a	n/a		n/a			n/a	n/a	N	N	N	

<b>Metal Loss</b>		Other Count				Series				
		210039.70				20688+15.29				
From Vendor	US Size ID	Length (in)	Depth (in)	US Size Diameter (in)	Color (in)	Color	Series ID (in)	Code	Code	Code
n/a	86750	n/a	n/a	37.48	n/a	10:10	0.375	X-	52/GR3	59
Type	Class 1	Class 2		Description						
n/a	n/a	n/a		n/a						
From Field	SPF (in)	Length (in)	Depth (in)	Color	US Diameter	Series ID	US Diameter	ISCD	Clear/Recoat	Sched. per FPRtc
n/a	0.000	n/a	n/a	10:10	n/a	66750	n/a	n/a	Sched. per FPRtc	
Depth (in)	Recoat Type	Description			Clear/Recoat?	Clear/Recoat?	Clear/Recoat?	Clear/Recoat?	Clear/Recoat?	Clear/Recoat?
n/a	Recoat	Mill Defect			n/a	N	n/a	0.500	0.85	
Micro Hardness (HV)	Micro Hardness (HV)			Micro Hardness (HV)						
n/a	n/a			n/a						
Comments										
Hardness Testing was performed by Houston Metallurgical Services.										
PF	SPF	SPF	SPF	CAOP	SPF	SPF	SPF	FPR	SPF	SPF
n/a	n/a	n/a	n/a	CAOP	n/a	n/a	n/a	FPR	n/a	n/a

Defect Interaction	Internal Shear Crack (in Manufacturing)	ISCD (HV)	Surface Crack	ISCD Shear Length (in)	ISCD Shear Width (in)	Geometry	Max Individual Length (in)	Max Interactive Length (in)	Clear PFD (in)	Removal	ISCD Max Depth (in)	ISCD Max Depth (in)
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Defect	Description											
n/a	Manufacturing Defect											
Defect	Description											
n/a	n/a											
Defect	ISCD	SPF	ISCD	CAOP	ISCD	SPF	ISCD	FPR	ISCD	SPF	ISCD	
n/a	n/a	n/a	n/a	CAOP	n/a	n/a	n/a	FPR	n/a	n/a	n/a	
Anomaly Interactions												

### Repairs

Type	Other Count From	Other Count To	Series From	Series To	Repair Length	Date
Recoat	n/a	n/a	20688+10.00	20688+20.00	10	8/23/2011
Is Full Repair?	Repair Class From	Repair Class To	Repair Class From	Repair Class To	Temporary Repair	
Y	n/a	n/a	n/a	n/a	N	
Location From	Location To	Location From	Location To	Location To	Location To	
n/a	n/a	n/a	n/a	n/a	n/a	
Thickness (in)	Coating Type	Coating Application	ISCD Location Number	Inspector		
63	Two Part Epoxy	n/a	n/a	n/a		
Temperature (F)	SPF (in)	Clear Coat (in)	Flow Temp Test (F)	Flow Temp Station (F)	Clearcoat	
n/a	n/a	n/a	n/a	n/a	n/a	
Sheets (in) Top	Sheets (in) Bottom	Sheets (in) - Length	Application	Hardness (Before Recoat)		
n/a	n/a	n/a	n/a	n/a		
Comments						
n/a						

### Notes

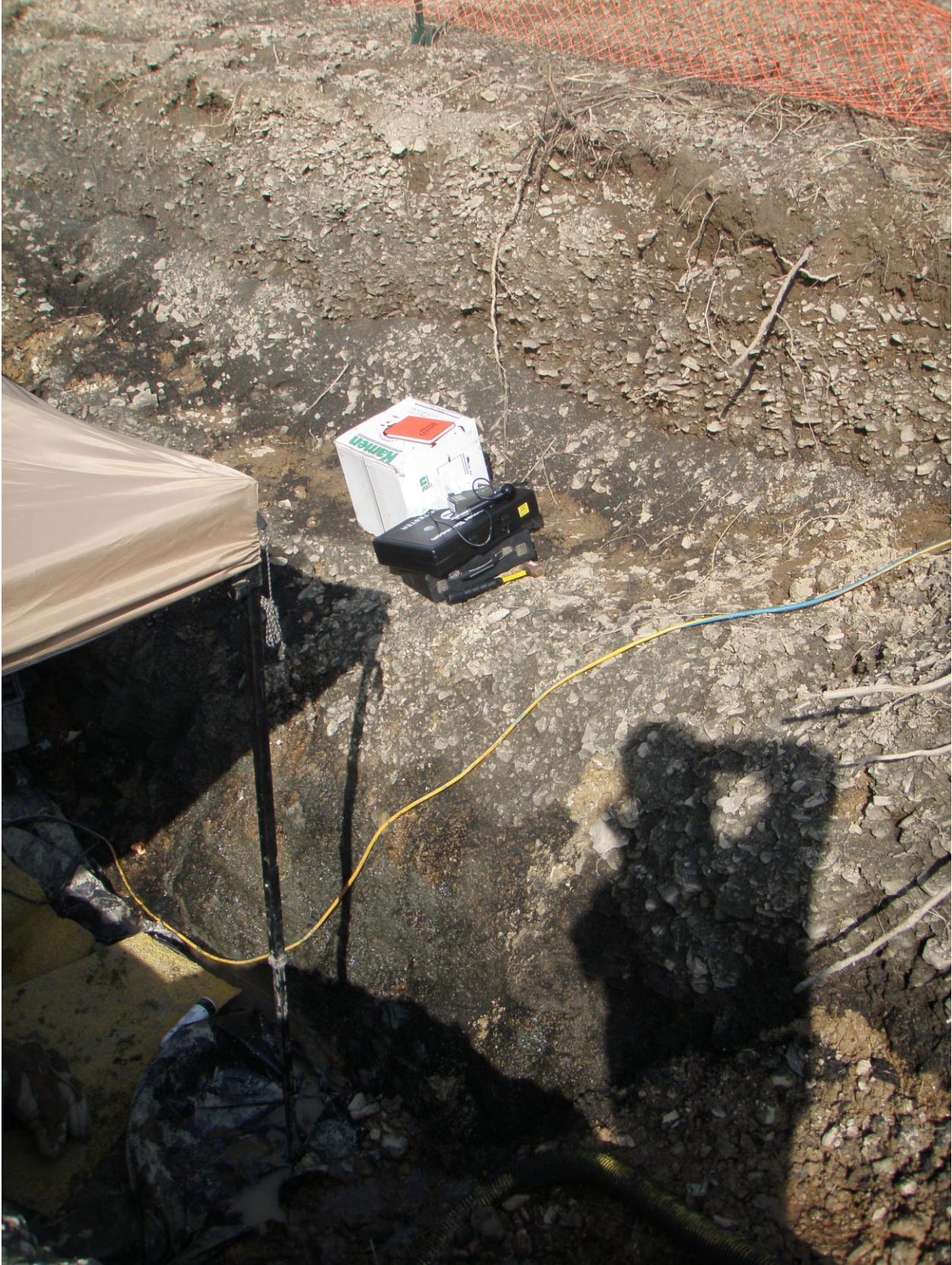
Inspector/Investigator/Contractor	Completion Date	Coating	Developer	Type	Test (inches)			
Mears	8/23/2011	Jeep	Y	Other	2000			
None Threats	Adhesive Contaminant	Internal Contaminant	External Contaminant	Manufacturing Residue	Construction/Restoration Residue	Unremoved Dry Spillage	Internal Operations	External Residue
	N	N	N	Y	N	N	N	N
Comments								
Upon hardness testing performed by Houston Metallurgical Services...it was determined that a recoat and backfill was an acceptable remedial action plan for this location.								

### Review & Signoff

Owner/By	Owner Date	Agree	Inspector/By	Inspector Date	Agree	Reviewer/By	Reviewer Date	Agree	Inspector/By	Inspector Date
CONTRACTOR	n/a	Y	CONTRACTOR	n/a	Y	ABJOHNSON	7/29/2015	Y	ABKUTSCHINS	7/29/2015
OR			R						K	5























W.C.  
210039.700  
© 10:10

	1	2	3	4	5	6	7
A	376	378	381	384	382	376	373
B	377	380	380	382	379	374	371
C	380	377	377	379	379	377	374
D	370	374	376	380	<del>378</del> 375	372	369
E	374	380	381	376	375	369	368
F	374	382	384	376	375	369	369
G	374	381	384	377	373	370	368

25-141 50 SHEETS  
25-142 100 SHEETS  
25-143 200 SHEETS  
25-144 300 SHEETS

Hardness Readings

WC 210034 700 @ 10:10

	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ
	1	2	3	4	5	6	7
Ⓐ	85.8B 85.4B 84.7B	82.1B 81.8B 80.6B	86.1B 81.1B 85.8B	90.8B 85.7B 85.7B	96.3B 93.4B 93.0B	80.5B 78.5B 82.1B	83.7B 81.9B 81.6B
Ⓑ	95.1B 94.6B 94.4B	87.0B 86.7B 87.5B	87.8B 87.2B 85.3B	93.1B 92.8B 94.6B	84.6B 81.4B 89.8B	81.2B 73.2B 77.5B	76.5B 80.1B 79.1B
Ⓒ	86.9B 87.4B 90.1B	87.2B 88.9B 83.2B	87.1B 87.3B 85.1B	85.6B 85.4B 89.3B	84.4B 85.9B 85.2B	83.9B 85.1B 88.9B	86.2B 82.7B 82.3B
Ⓓ	86.7B 84.8B 87.1B	89.7B 90.2B 89.9B	93.8B 96.8B 97.3B	<del>89.1B</del> <del>85.4B</del> <del>83.0B</del>	83.0B 87.0B 83.0B	86.6B 90.6B 87.9B	86.5B 85.7B 84.4B
Ⓔ	87.8B 84.0B 90.2B	96.5B 98.8B 97.3B	97.5B 99.6B 98.7B	86.6B 90.1B 89.0B	85.4B 86.5B 85.3B	88.9B 86.1B 86.7B	86.7B 92.3B 87.2B
Ⓕ	86.1B 87.7B 88.9B	96.9B 97.1B 100.0B	98.8B 98.1B 99.3B	86.6B 84.9B 87.3B	89.1B 89.8B 87.5B	89.5B 86.7B 85.4B	86.3B 81.9B 85.7B
Ⓖ	84.7B 85.7B 83.5B	<del>99.0B</del> 95.8B 98.2B 97.6B	95.1B 98.0B 93.1B	87.3B 90.2B 88.9B	84.4B 85.2B 83.7B	85.9B 88.1B 90.1B	90.5B 87.5B 90.2B

Maximum hardness: Rockwell 100.0 HRB (Rockwell 23 HRC, or 240 Brinell).

### Pipe and Coating Inspection Report: 8393

#### Location

Reference 504-2011-036							
BI	Region	Line	Segment	Line #	Line Section	Inspection Location	WCCM
TETLP	CE	Stanford	TOMP-DANV	15	VS-03	TOMP_15	076121041
State/Province	County/Parish	Case Location	Facility Type	is WCCP	WCCP	Location Description	
Kentucky	Casey	1	Pipeline	N	n/a	259993.4 MP 401.281 Silvers	
SPS Datum	SPS Datum	Post Processed Base	Post Processed Base Description	Ground Point	Ground Point Type		
Trimble	NAD83	Y	Yes	N	n/a		

#### Dig From

Station	UT	Line Start	Latitude	Longitude	Excavation Length (ft) (m)
2118758.000	401.280	259985.000			18

#### Dig To

Station	UT	Line Start	Latitude	Longitude
2118776.000	401.283	260003.000		

#### Facility

Primary Reason	Assessment Type	Passes	Passes
ILI Anomaly Investigation	ILI	n/a	n/a
ILI Description	Drilling Interval (ft)	ILI Meter	ILI Meter
ILI - Scheduled per FPRtc Due Date	259993.4	n/a	8008
ILI Meter	ILI Meter	ILI Meter	ILI Meter
1000	n/a	0.3750	30
ISOP	ISOP	ISOP	ISOP
n/a	n/a	X-52	78.9
ISOP Date Entered	Comments	ISOP Date Entered	Comments
n/a	n/a	n/a	n/a

#### Casing

#### Welds

Weld ID	Station	UT	Line Start	Latitude	Longitude	Depth of Weld
8008	n/a	0.000	n/a	n/a	n/a	n/a
8009	n/a	0.000	n/a	n/a	n/a	n/a

#### Environmental Conditions

Location	Soil Moisture	Soil Sat. Type	Soil Texture	Soil Density	Soil Type (if any)
Below Ground	Full Circumference	Top Soil	Moist	Fair	Rocky Soil
Moisture of Soil	Depth of Ground	Land Usage	Terrain Type	Excavation Pressure	Inspection Date
Saturated	46	Pasture	Flat	n/a	6/19/2011

#### Pipe & Coating

Coating 1	Coating 2	Coating 3	Coating 4	External Pipe Condition	Internal Pipe Condition
Coal Tar Enamel	No additional coatings	No additional coatings	No additional coatings	No Defect(s) Observed	Int. Surface Not Exposed
Coating Thickness (mil)	13.00	150	160	135	Sample Taken
140	150	160	135	Sample Taken	N
Internal Coating Thickness (mil)	Internal Coating Thickness (mil)	Internal Coating Thickness (mil)	Internal Coating Thickness (mil)	Internal Coating Thickness (mil)	Internal Coating Thickness (mil)
N	N	Assumed	No	Intact/Small Holidays	No
Coating Damage	Coating Damage	Coating Damage	Coating Damage	Coating Damage	Coating Damage
N/A	N/A	N/A	N/A	N/A	N/A

#### Testing

Coating	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect
N	N	Y	N	Wet Mag	12:00	n/a	n/a	n/a	n/a	3:00	n/a	n/a	n/a
UT Defect	UT Defect	UT Defect	UT Defect	SCC Type	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	
Y	N	0.405	0.393	SCC Not Found	6:00	n/a	n/a	n/a	n/a	9:00	n/a	n/a	
UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	UT Defect	
84	78	Impressed	Y	-1.459	-1.442	12000	Soil Box	8.8					
Comments	Comments	Comments	Comments	Comments	Comments	Comments	Comments	Comments	Comments	Comments	Comments	Comments	
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	

### Defect Overview

Defect Description		Upstream Root Cause	Defect Includes Defenses	Business of Defect Defenses	Business of Defect Defenses	USE Test Defenses	Number of Tests	Number of Defects	USE Test Defenses	Number of Tests	Number of Defects
Manufacturing/Mill Defect		Mill Defect	N	n/a	N	N	n/a	n/a	N	n/a	n/a
Discussion Review	Type of Finding	Is Defect Internal or External	How Were Other Measurements Taken		Color of Deposits		Defect ID	Defect Occurs (Event Circumstances)	Business of Defective Beam Defenses	Business of Cover Defect Defenses	
n/a	n/a	n/a	n/a		n/a		n/a	N	N	N	

<b>Metal Loss</b>		Sheet Count	259993.40		Start	21187+67.00						
From Vendor		USE Sheet ID	Length (in)	Depth (in)	USE Sheet Diameter (in)	Width (in)	Case	Service (PT) (in)	Case			
n/a		n/a	n/a	n/a	n/a	n/a	n/a	.375	X-52			
Type		Case 1	n/a		Case 2	Description		n/a				
From Field		PT (in)	Length (in)	Depth (in)	Width (in)	Case	USE Diameter	Sheet ID	USE Diameter	COO	Classification	Sched. per FPRtc
n/a		n/a	n/a	n/a	n/a	05:30	9.34	8008	n/a	n/a	Sched. per FPRtc	
Depth (in)	Beam Type	Description		Case Verified?	Case Defenses?	Case Spring Process	Edge Repair (Steps)					
n/a	Type B Sleeve - Ends Welded	Mill Defect		n/a	n/a	0.5	0.85					
Use Initial Pressure (psi)				Final Defenses or Assembly?				n/a				
Comments												
Hardsopt evaluated by Houston Metallurgical Services												
PF	ADIC	ADU	AWB21C	CAOP	ADIC	ADU	AWB21C	FPR	ADIC	ADU	AWB21C	
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	

<b>Defect Interaction</b>	Internal Sheet Count (in Rectangles)	COO (in)	Surface Case	COO Sheet Length (in)	COO Sheet Width (in)	Geometry	Use Individual Length (in)	Use Intermediate Length (in)	Case DRP (in)	Penalty	COO Use Case Depth (in)	COO Use Case Depth (in)
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Case							Depth					
n/a							n/a					
Defenses							Manufacturing Defenses					
n/a							n/a					
Beam Size							Case Size	COO Depth (in)	Effective Width in COO-40% Depth (in)			
n/a							n/a	n/a	n/a			
PF	ADIC	ADU	AWB21C	CAOP	ADIC	ADU	AWB21C	FPR	ADIC	ADU	AWB21C	
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
<b>Anomaly Interactions</b>												
<b>Metal Loss</b>		Sheet Count	259994.00		Start	21187+68.00						
From Vendor		USE Sheet ID	Length (in)	Depth (in)	USE Sheet Diameter (in)	Width (in)	Case	Service (PT) (in)	Case			
n/a		n/a	n/a	n/a	n/a	n/a	n/a	.375	X-52			
Type		Case 1	n/a		Case 2	Description		n/a				
From Field		PT (in)	Length (in)	Depth (in)	Width (in)	Case	USE Diameter	Sheet ID	USE Diameter	COO	Classification	Sched. per FPRtc
n/a		n/a	n/a	n/a	n/a	05:30	8.77	8008	n/a	n/a	Sched. per FPRtc	
Depth (in)	Beam Type	Description		Case Verified?	Case Defenses?	Case Spring Process	Edge Repair (Steps)					
n/a	Type B Sleeve - Ends Welded	Mill Defect		n/a	n/a	0.5	0.85					
Use Initial Pressure (psi)				Final Defenses or Assembly?				n/a				
Comments												
Hardsopt evaluated by Houston Metallurgical Services												
PF	ADIC	ADU	AWB21C	CAOP	ADIC	ADU	AWB21C	FPR	ADIC	ADU	AWB21C	
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
<b>Defect Interaction</b>	Internal Sheet Count (in Rectangles)	COO (in)	Surface Case	COO Sheet Length (in)	COO Sheet Width (in)	Geometry	Use Individual Length (in)	Use Intermediate Length (in)	Case DRP (in)	Penalty	COO Use Case Depth (in)	COO Use Case Depth (in)
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Case							Depth					
n/a							n/a					
Defenses							Manufacturing Defenses					
n/a							n/a					
Beam Size							Case Size	COO Depth (in)	Effective Width in COO-40% Depth (in)			
n/a							n/a	n/a	n/a			
PF	ADIC	ADU	AWB21C	CAOP	ADIC	ADU	AWB21C	FPR	ADIC	ADU	AWB21C	
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
<b>Anomaly Interactions</b>												



### Repairs

<b>Type</b> Type B Sleeve - Ends Welded		Other Count From	Other Count To	Order From	Order To	Pages Length	Date
		n/a	n/a	21187+86.60	21187+86.60	2	7/14/2011
<b>is it Repair?</b>	<b>Repair Code From</b>	<b>Repair Code To</b>	<b>Rep. Order number</b>		<b>Temporary Repair</b>		
N	n/a	n/a	N		N		
<b>Latitude From</b>	<b>Longitude From</b>	<b>Latitude To</b>	<b>Longitude To</b>				
n/a	n/a	n/a	n/a				
<b>Manufacturer</b>	<b>Event System</b>	<b>Event</b>	<b>Circle Diameter</b>	<b>OT</b>	<b>Wheel Size (in)</b>		
Confab	FBE	X-70	30	.500	n/a		
<b>Part Number</b>	<b>Serial Number</b>						
n/a	n/a						
<b>Comments</b> Type B sleeve was placed around pipe and recoated with a two part epoxy SPC 4888.							

### Notes

<b>is it an Investigator Comment</b>	<b>Completion Date</b>	<b>Coating</b>	<b>Developer</b>	<b>Type</b>	<b>Test (stage 1)</b>				
Mears	6/25/2011	Jeep	Y	Other	2000				
<b>None Threads</b>	<b>Minimum Diameter</b>	<b>Internal Diameter</b>	<b>External Diameter</b>	<b>Manufacturing Material</b>	<b>Construction/Manufacturer Material</b>	<b>Equipment Material</b>	<b>Examination Or Only Damage</b>	<b>Inspection Operations</b>	<b>Inspection Material</b>
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<b>Comments</b> Hardsopt evaluated by Houston Metallurgical Services. MT performed by Jan-X.									

### Review & Signoff

<b>Created By</b>	<b>Created Date</b>	<b>Agree</b>	<b>Inspected By</b>	<b>Inspected Date</b>	<b>Agree</b>	<b>Reviewed By</b>	<b>Reviewed Date</b>	<b>Agree</b>	<b>Verified By</b>	<b>Verified Date</b>
CONTRACT OR	n/a	Y	QUANTA/RW EST	n/a	Y	ABKUTSCHIN SK	1/13/2015	Y	ABKUTSCHINS K	1/13/2015









UT OF WC 252993.442

	1	2	3	4	5	6	7	8	9	10	11	12
A	398	397	396	396	399	401	403	402	399	398	397	397
B	397	396	397	399	400	399	399	397	397	395	395	397
C	397	398	400	400	398	396	397	396	396	396	399	401
D	402	400	398	397	396	395	397	397	401	405	405	402
E	401	396	395	396	398	398	403	405	405	402	400	396
F	395	395	394	396	399	403	403	400	398	395	395	394
G	397	397	398	401	401	399	396	395	397	394	395	396
H	396	398	398	396	396	394	394	394	393	395	396	397
I	397	396	395									
J												
K												
L												

WC 259993.442							
	A	B	C	D	E	F	G
1	88.6 B 82.8 B 88.7 B	85.5 B 86.7 B 90.8 B	88.3 B 86.4 B 87.3 B	89.2 B 87.5 B 84.4 B	90.3 B 84.8 B 86.8 B	84.6 B 86.4 B 85.7 B	86.2 B 86.4 B 83.5 B
2	89.4 B 87.0 B 89.9 B	88.2 B 93.8 B 95.3 B	85.4 B 85.8 B 93.0 B	87.1 B 85.6 B 87.0 B	85.0 B 85.6 B 83.7 B	85.4 B 81.2 B 85.0 B	83.1 B 82.2 B 83.9 B
3	94.5 B 91.7 B 89.8 B	97.3 B 25.6 C 21.9 C 21.8 C	98.9 B 97.8 B 96.3 B	90.1 B 90.2 B 86.8 B	95.2 B 91.4 B 91.7 B	90.9 B 86.1 B 91.8 B	91.7 B 86.9 B 84.9 B
4	22.8 C 23.9 C 96.8 B	101.8 B 24.9 C 28.2 C 26.0 C	98.9 B 96.7 B 98.3 B	88.8 B 88.6 B 86.5 B	87.6 B 85.7 B 90.5 B	92.5 B 90.9 B 86.7 B	90.0 B 85.7 B 89.5 B
5	23.0 C 28.8 C 29.0 C	25.7 C 24.9 C 24.0 C	29.3 C 22.7 C 20.2 C	93.8 B 91.0 B 91.4 B	93.5 B 90.4 B 89.7 B	91.8 B 92.7 B 90.7 B	96.1 B 91.7 B 86.2 B
6	94.7 B 95.6 B 94.9 B	97.1 B 95.4 B 95.9 B	96.0 B 93.6 B 100.3 B	89.5 B 92.3 B 92.2 B	89.6 B 92.3 B 89.9 B	91.3 B 90.9 B 90.3 B	91.3 B 88.9 B 89.7 B
7							
		(4B) 2.45 PIPE = 2.6 185 BRINELL					
		(5B) 2.4 = BAR 2.4 = PIPE OFF SCALE BRINELL					
		(5B) 2.6 = BAR 2.5 = PIPE 2.7 BRINELL					

Maximum Hardness WC 259993.442 – Rockwell 27 (Brinell 264).

Wheel Count 259994.08

1	2	3	4	5	6	7	8	9	10
396	396	396	396	395	396	396	394	393	392
396	396	396	397	398	397	395	393	392	391
398	392	396	397	400	399	398	396	393	393
402	398	397	398	401	401	398	395	392	392
403	398	398	398	Hard spot 399	399	398	396	395	392
398	396	396	395	398	397	396	393	392	391
396	394	394	395	395	395	394	392	393	391
394	393	393	393	394	393	393	392	390	389
393	392	393	393	394	395	392	391	392	390
394	394	395	395	396	396	394	393	392	391



	A	B	C	D	E	F	G
1	WC 259994.008						
2	@ 5:30						
3	90.2B	86.8B	91.1B	96.9B	94.8B	93.1B	87.4B
	90.6B	85.9B	95.2B	94.9B	91.3B	95.5B	89.5B
	86.8B	84.3B	92.9B	91.3B	93.5B	92.6B	88.9B
4	93.9B	96.8B	23.4C	24.5C	23.6C	97.9B	96.4B
	97.1B	93.7B	21.6C	30.2C	26.0C	96.9B	96.3B
	97.8B	98.0B	21.0C	26.8C	24.9C	97.4B	97.0B
5	95.6B	20.2C	31.5C	31.4C	23.4C	23.0C	94.3B
	95.4B	21.5C	31.5C	31.4C	21.6C	21.1C	97.4B
	93.5B	27.6C	34.4C	29.5C	23.8C	20.7C	23.2C
6	94.9B	98.7B	99.2B	102.6B	97.8B	96.6B	93.6B
	94.0B	93.8B	99.2B	98.9B	98.4B	97.3B	97.6B
	92.3B	96.7B	98.4B	97.8B	98.5B	99.6B	94.0B
7							

Maximum Hardness WC 25994.008 – Rockwell 32.5 (Brinell 311).

## Pipe and Coating Inspection Report: 8163

### Location

Address  
504-2011-035

Region	CE	Line	Stanford	Segment	TOMP-DANV	Line #	15	Line Section	VS-03	Inspection Location	TOMP_15	MSDR	E07601299
State/Province	Kentucky	County/Parish	Casey	Line Location	1	Facility Type	Pipeline	IS-NDSP	N	MSDR	n/a	Location Description	MP 398.40 Amish Farm Ln
SPS Source	Trimble	SPS Datum	NAD83	Post-Processed Base	Y	Post-Processed Base Description	Yes	Base Point	N	Base Point Type	n/a		

### Dig From

Station	2103634.000	Offset	398.416	Line Start	244869.000	Station		Station		Station Length (ft. or m)	12.000
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### Dig To

Station	2103646.000	Offset	398.418	Line Start	244881.000	Station		Station			
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### Facility

Company Name	ILI Anomaly Investigation			Inspection Type	ILI	Passes	n/a	Passes	n/a								
U-Description	ILI - Scheduled per FPRtc Due Date					Drilling Energy (kJ)	244877.8	U-Date	n/a	U-Station	7608	U-Station	7609				
ISDR (in)	1000	MSDR	n/a	Normal (ft/in)	0.3750	SDR	30	Grade	X-52	U-Overline Error	76.9	Beam Type	FW (A.O. Smith)	Manufacturer	A.O. Smith	Year Installed	1957
ISDR Date Installed	n/a	Comments	n/a														

### Casing

### Welds

Station	Station	Offset	Line Start	Station	Station	Station	Station
7608	n/a	0.000	n/a	n/a	n/a	n/a	n/a
7609	n/a	0.000	n/a	n/a	n/a	n/a	n/a

### Environmental Conditions

Location	Below Ground	Pipe Diameter	Full Circumference	Screen Soil Type	Top Soil	Screen Moisture	Moist	Screen Drainage	Fair	Soil Type (1)	Rocky Soil
Moisture Type	Saturated	Depth of Ground	47	Land Usage	Pasture	Screen Type	Flat	Excavation Pressure	n/a	Inspection Date	6/21/2011

### Pipe & Coating

Coating 1	Coal Tar Enamel	Coating 2	No additional coatings	Coating 3	No additional coatings	External Pipe Condition	No Defect(s) Observed				Internal Pipe Condition	Int. Surface Not Exposed											
Coating Thickness (mil)	140	ISDR	135	ISDR	110	ISDR	120	Sample Taken	N	ISDR	N	Coating	Y	In Pipe Condition	N	ISDR	N	Coating	N	Under Coating Fluids	N	Under Coating Deposits	N
Internal Coating Detail Present	N	Coating Deposits Present	N	Coating Deposits Location	Assumed	Coating Deposits Under Coating	No	External Coating Condition	Intact/Small Holidays	Coating Under Coating	No	ISDR	n/a	Coating of Discontinuity Coating	n/a	ISDR	n/a	ISDR	n/a	Description of Foreign Material / Log	N/A		
Cause of Coating Damage	N/A																						

### Testing

Coating Thickness	N	ISDR	Y	ISDR	N	Type of ISDR	Wet Mag	12:00	ISDR	n/a	ISDR	n/a	ISDR	n/a	ISDR	n/a	ISDR	n/a	ISDR	3:00	ISDR	n/a	ISDR	n/a	ISDR	n/a	ISDR	n/a	
ISDR	Y	ISDR	N	ISDR	0.379	ISDR	0.362	ISDR	6:00	ISDR	n/a	ISDR	n/a	ISDR	n/a	ISDR	n/a	ISDR	n/a	ISDR	9:00	ISDR	n/a	ISDR	n/a	ISDR	n/a	ISDR	n/a
ISDR	84	ISDR	77	ISDR	Impressed	ISDR	Y	ISDR	-1.476	ISDR	-1.492	ISDR	18000	ISDR	Soil Box	ISDR	6.2	ISDR	n/a										
Comments	n/a																												

### Defect Overview

Defect Description <b>Manufacturing/Mill Defect</b>		Apparent Root Cause <b>Mill Defect</b>		Defect Instance Count N	Balance of Lot(s) Count n/a	Balance of Entry Count N	ISE Test Defect N	Number of Vias n/a	Number of Drills n/a	ISE Test Defect N	Number of Vias n/a	Number of Drills n/a
Calculation Review n/a	Type of Thing n/a	Is Defect Internal or External n/a		Has Other Defect Measurements Taken n/a		Date of Defect n/a		Defect ID N	Defect Count N	Balance of Balance Defect N	Balance of Count Defect N	Balance of Date Defect N

<b>Metal Loss</b>		Other Count 244877.88	Station 21038+37.00									
From Vendor	US Item ID 76070	Length (in) n/a	Depth (in) n/a	ISE Item Diameter (in) 2.22	ISE Item n/a	Class 1:30	Surface ID 0.375	Class X-52				
Type n/a	Class 1 n/a			Class 2 n/a	Exception n/a							
From Field	ISE Item ID n/a	Length (in) n/a	Depth (in) n/a	ISE Item Diameter (in) n/a	ISE Item 7608	Class 1:30	Surface ID n/a	Class Schd. per FPRtc				
Depth (in) n/a	Repair Type Recast			Description Mill Defect	Class Identifier n/a	Class Defect n/a	Class Spring 0.5	Class Repair 0.85				
Max Heat Pressure (MPa) n/a	Final Decision on Usability n/a											
Comments Hardness Testing performed by Houston Metallurgical Services.												
PF	ISE	MPa	ISE	CAOP	ISE	MPa	ISE	FPR	ISE	MPa	ISE	MPa

Page 1 of 2

Defect Interaction	Internal Drill Count (n=Metaphor)	ISE (in)	Surface Class	ISE Drill Length (in)	ISE Drill Width (in)	Category	Max Individual Length (in)	Max Interactive Length (in)	Class ID (in)	Remarks	ISE Item Count Depth (in)	ISE Item Count Depth (MPa)
Defect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Class	n/a					Depth	n/a					
Category	n/a					Manufacturing Defect	n/a					
Item Name	n/a			Class Name	ISE Depth (in)	Max Interactive Length (in)	n/a	Max Item Count Depth (in)				
PF	ISE	MPa	ISE	CAOP	ISE	MPa	ISE	FPR	ISE	MPa	ISE	MPa

### Repairs

<b>Recast</b>		Other Count From n/a	Other Count To n/a	Station From 21038+34.00	Station To 21038+46.00	Repair Length 12	Date 8/24/2011
Is A/I Repair? N	Repair Class From n/a	Repair Class To n/a	Repair Class From n/a	Repair Class To n/a	Repair Station Number N	Temporary Repair N	
Latitude From n/a	Latitude To n/a	Longitude From n/a	Longitude To n/a				
Thickness (in) 30	Coating Type Two Part Epoxy	Coating Operator n/a	Coating Location n/a	ISO17 Revision Number n/a	Inspector n/a		
Temperature (F) n/a	Part ID n/a	Doc. Date (F) n/a	Site Temp Tag (F) n/a	Flow Temp Station (F) n/a	Continues n/a		
Part ID (in) Tag n/a	Part ID (in) Station n/a	Part ID (in) Number n/a	Application n/a	Approved (Before Recast) n/a			
Comments n/a							

### Notes

Initial Investigation Comment <b>Mears</b>	Completion Date 8/22/2011	Coating Jeep	Delivered Y	Type Other	Year (Range (Y)) 2000
<b>Nine Threats</b>	Balance Comment n/a	Internal Comment n/a	Class Comment n/a	Manufacturing Repair n/a	Disposition/Retention n/a
	Equipment Repair n/a	Operational/End Only n/a	Inspection n/a	Customer Repair n/a	
Comments Upon completion of hardness testing performed by Houston Metallurgical Services...it was determined that a recast and backfill was an acceptable remedial action for this location.					

### Review & Signoff

Owner By CONTRACT OR	Owner Date n/a	Owner Y	Inspected By CONTRACTOR	Inspected Date n/a	Owner Y	Reviewed By ABKUTSCHIN SK	Inspected Date 1/13/2015	Owner Y	Inspected By ABKUTSCHIN K	Inspected Date 1/13/2015
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Page 2 of 2







UT WT

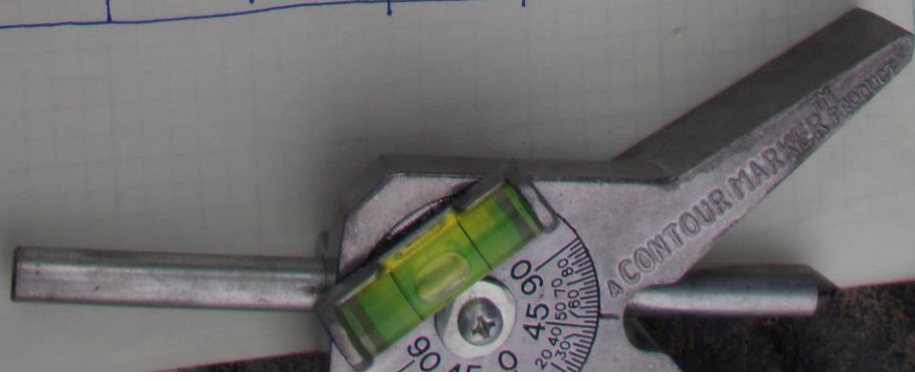
WC 244877.883

1:30

A B C D E F G

1	367	372	376	377	375	368	364
2	369	372	377	375	369	366	366
3	366	373	378	375	372	368	366
4	367	374	379	<u>Hard spot</u> 374	372	370	363
5	369	375	379	374	371	366	363
6	365	375	377	374	369	369	364
7	366	373	373	375	372	370	362

22-141 50 SHEETS  
22-142 100 SHEETS  
22-144 200 SHEETS  
SAMPALIT

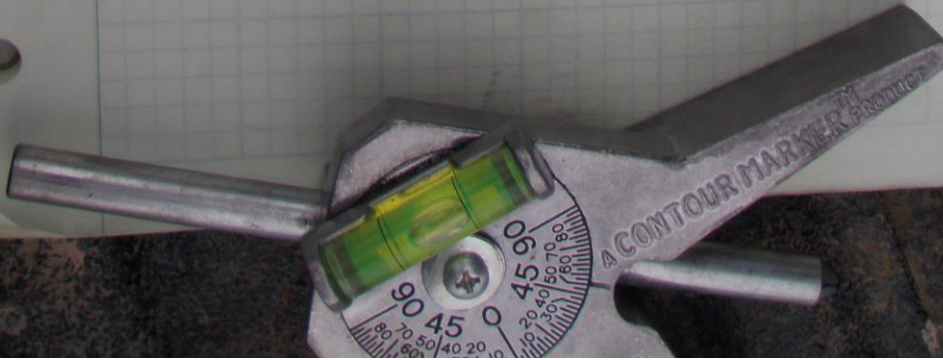


Hardness

WC 244877.883 1:30

	A	B	C	D	E	F	G
1	85.1B 86.5B 86.0B	79.4B 80.0B 84.9B	79.0B 82.7B 83.4B	84.2B 86.2B 84.9B	84.1B 84.5B 80.8B	84.5B 84.2B 86.1B	85.8B 83.4B 81.1B
2	88.8B 85.7B 80.8B	80.3B 83.4B 83.3B	85.2B 79.6B 82.1B	81.5B 81.0B 83.4B	79.3B 87.0B 82.7B	87.0B 82.2B 79.8B	86.2B 84.9B 79.5B
3	83.0B 84.9B 86.1B	86.2B 88.2B 83.9B	80.5B 82.6B 79.4B	85.6B 85.6B 83.2B	80.3B 83.5B 81.5B	84.5B 81.2B 83.4B	81.6B 78.4B 86.0B
4	82.3B 81.0B 83.2B	86.2B 82.8B 80.5B	74.4B 79.6B 85.1B	<del>85.2B</del> <del>81.1B</del> <del>81.3B</del>	80.4B 82.3B 80.3B	82.3B 79.7B 77.2B	82.9B 82.3B 83.8B
5	80.0B 79.8B 86.1B	77.8B 79.9B 83.2B	80.2B 81.1B 84.9B	79.9B 81.3B 80.8B	85.1B 85.2B 85.5B	85.2B 86.5B 86.3B	86.7B 87.1B 93.2B
6	84.2B 82.2B 88.8B	85.6B 83.7B 85.2B	79.9B 78.0B 78.7B	80.1B 81.5B 80.6B	78.1B 84.2B 85.2B	87.0B 86.2B 85.7B	85.4B 82.4B 81.4B
7	77.6B 75.3B 77.2B	73.8B 78.5B 80.1B	73.1B 81.7B 77.1B	77.2B 86.9B 86.1B	85.5B 83.6B 85.2B	88.3B 86.5B 81.7B	85.1B 85.1B 86.6B

22-141 50 SHEETS  
22-142 100 SHEETS  
22-144 200 SHEETS



Maximum Hardness Rockwell 89 HRB (Brinell 160)