



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

McClurg #1-12

12-2s-37w Cheyenne KS

Start Date: 2016.11.01 @ 16:42:00

End Date: 2016.11.02 @ 00:45:15

Job Ticket #: 61192 DST #: 1

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.11.09 @ 10:09:37



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61192

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2016.11.01 @ 16:42:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:30:45

Time Test Ended: 00:45:15

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

Interval: 4166.00 ft (KB) To 4245.00 ft (KB) (TVD)

Reference Elevations: 3379.00 ft (KB)

Total Depth: 4245.00 ft (KB) (TVD)

3374.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 186.44 psig @ 4167.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.01

End Date:

2016.11.02

Last Calib.:

2016.11.02

Start Time: 16:42:05

End Time:

00:45:14

Time On Btm:

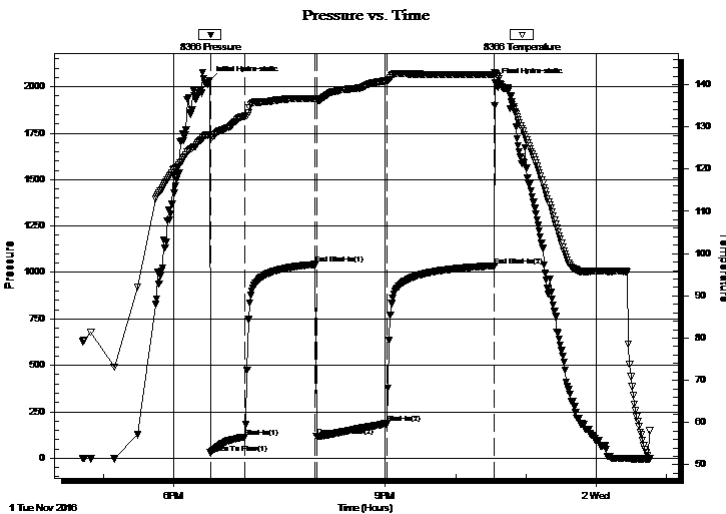
2016.11.01 @ 18:30:15

Time Off Btm:

2016.11.01 @ 22:33:30

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 20 min.
60 - IS: Blow back built to 3/4"
60 - FF: Blow built to BOB at 21 1/2 min.
90 - FS: Blow back built to 6 1/4"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2031.96	128.08	Initial Hydro-static
1	28.21	127.50	Open To Flow (1)
31	114.54	132.58	Shut-In(1)
90	1043.76	136.74	End Shut-In(1)
91	118.44	136.41	Open To Flow (2)
151	186.44	140.94	Shut-In(2)
243	1036.42	142.34	End Shut-In(2)
244	2024.08	142.72	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
175.00	GOM 39% <i>m</i> , 37% <i>o</i> , 24% <i>g</i>	0.86
167.00	GMCO 60% <i>o</i> , 21% <i>m</i> , 19% <i>g</i>	2.34
20.00	MCO 81% <i>o</i> , 15% <i>m</i> , 4% <i>g</i>	0.28
55.00	CO 90% <i>o</i> , 8% <i>g</i> , 2% <i>m</i>	0.77
0.00	GIP = 380'	0.00

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

12-2s-37w Cheyenne KS

McClurg #1-12

Job Ticket: 61192

DST#: 1

Test Start: 2016.11.01 @ 16:42:00

GENERAL INFORMATION:

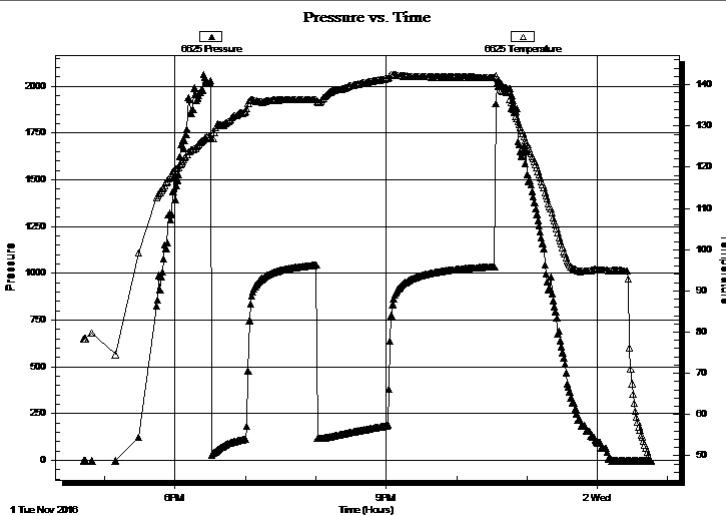
Formation: **Oread**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 18:30:45
 Time Test Ended: 00:45:15
Interval: 4166.00 ft (KB) To 4245.00 ft (KB) (TVD)
 Total Depth: 4245.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3379.00 ft (KB)
 3374.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 6625

Inside

Press@RunDepth: psig @ 4167.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2016.11.01 End Date: 2016.11.02 Last Calib.: 2016.11.02
 Start Time: 16:42:05 End Time: 00:45:44 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 20 min.
 60 - IS: Blow back built to 3/4"
 60 - FF: Blow built to BOB at 21 1/2 min.
 90 - FS: Blow back built to 6 1/4"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
175.00	GOM 39% <i>m</i> , 37% <i>o</i> , 24% <i>g</i>	0.86
167.00	GMCO 60% <i>o</i> , 21% <i>m</i> , 19% <i>g</i>	2.34
20.00	MCO 81% <i>o</i> , 15% <i>m</i> , 4% <i>g</i>	0.28
55.00	CO 90% <i>o</i> , 8% <i>g</i> , 2% <i>m</i>	0.77
0.00	GIP = 380'	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61192

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2016.11.01 @ 16:42:00

Tool Information

Drill Pipe:	Length: 3988.00 ft	Diameter: 3.80 inches	Volume: 55.94 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 175.00 ft	Diameter: 2.25 inches	Volume: 0.86 bbl	Weight to Pull Loose: 56000.00 lb
			<u>Total Volume: 56.80 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4166.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	79.00 ft			
Tool Length:	108.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4138.00	
Shut In Tool	5.00			4143.00	
Hydraulic tool	5.00			4148.00	
Jars	5.00			4153.00	
Safety Joint	3.00			4156.00	
Packer	5.00			4161.00	29.00 Bottom Of Top Packer
Packer	5.00			4166.00	
Stubb	1.00			4167.00	
Recorder	0.00	6625	Inside	4167.00	
Recorder	0.00	8366	Outside	4167.00	
Perforations	11.00			4178.00	
Blank Spacing	64.00			4242.00	
Bullnose	3.00			4245.00	79.00 Bottom Packers & Anchor

Total Tool Length: 108.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61192

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2016.11.01 @ 16:42:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

24.8 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.55 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
175.00	GOM 39% <i>m</i> , 37% <i>o</i> , 24% <i>g</i>	0.861
167.00	GMCO 60% <i>o</i> , 21% <i>m</i> , 19% <i>g</i>	2.343
20.00	MCO 81% <i>o</i> , 15% <i>m</i> , 4% <i>g</i>	0.281
55.00	CO 90% <i>o</i> , 8% <i>g</i> , 2% <i>m</i>	0.772
0.00	GIP = 380'	0.000

Total Length: 417.00 ft Total Volume: 4.257 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

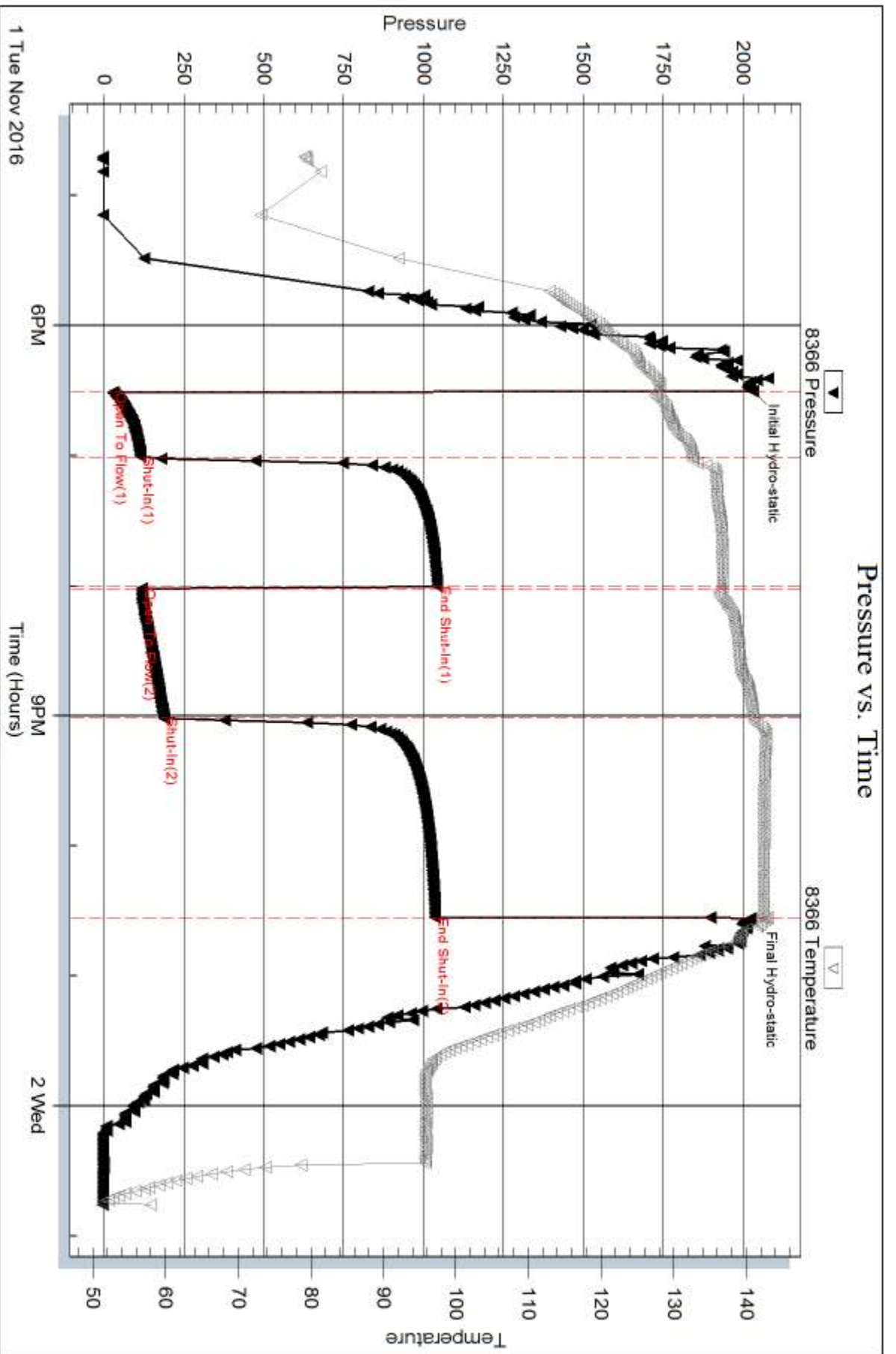
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 24 api @ 52 deg F

Corrected Gravity = 24.8



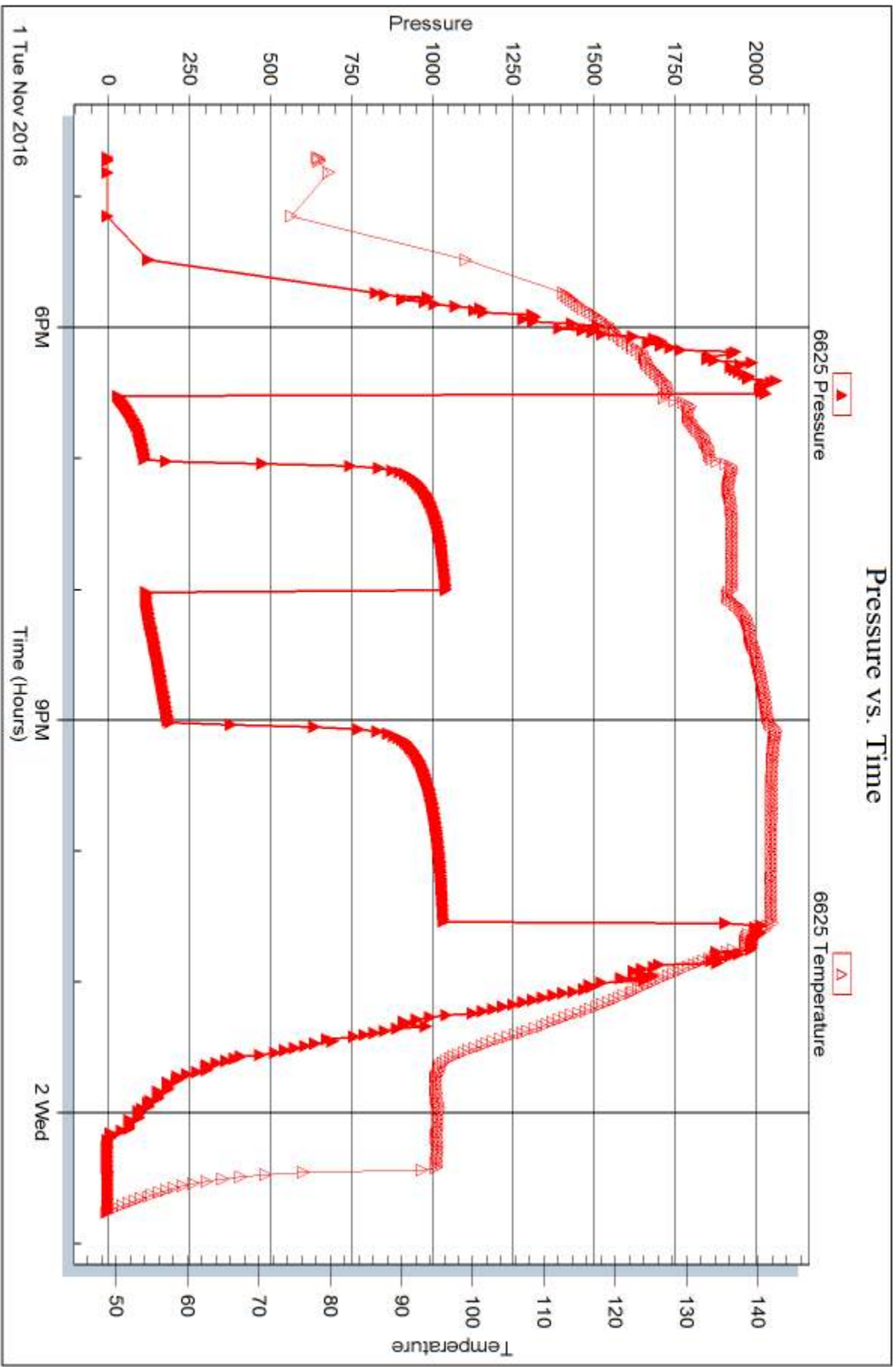
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

McClurg #1-12

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 61192

Printed: 2016.11.09 @ 10:09:39



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

McClurg #1-12

12-2s-37w Cheyenne KS

Start Date: 2016.11.02 @ 13:47:00

End Date: 2016.11.02 @ 21:16:15

Job Ticket #: 61193 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.11.09 @ 10:09:14

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

McClurg #1-12

DST # 2

LKC "A - D"

2016.11.02



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61193

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2016.11.02 @ 13:47:00

GENERAL INFORMATION:

Formation: **LKC "A - D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:36:45

Time Test Ended: 21:16:15

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4246.00 ft (KB) To 4384.00 ft (KB) (TVD)

Reference Elevations: 3379.00 ft (KB)

Total Depth: 4384.00 ft (KB) (TVD)

3374.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 505.66 psig @ 4247.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.02

End Date: 2016.11.02

Last Calib.: 2016.11.02

Start Time: 13:47:05

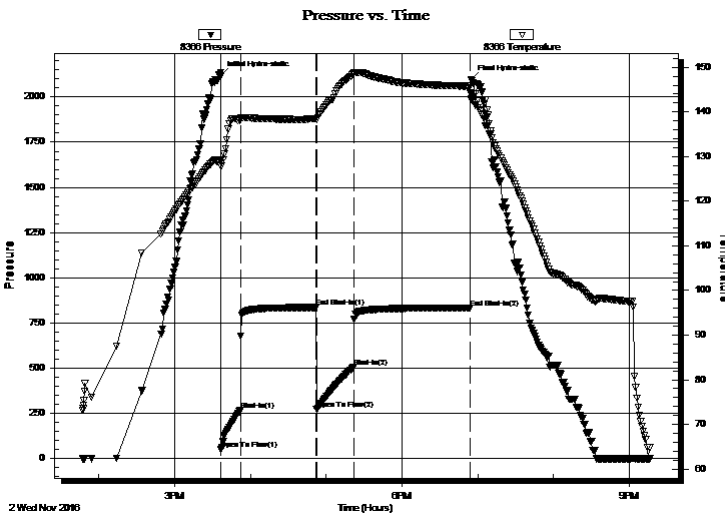
End Time: 21:16:14

Time On Btm: 2016.11.02 @ 15:36:30

Time Off Btm: 2016.11.02 @ 18:55:00

TEST COMMENT: 15 - IF: Blow built to BOB (11") at 4 1/4 min.
60 - ISI: No blow back
30 - FF: Blow started at 40 sec., built to BOB at 6 min.
90 - FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2116.61	129.08	Initial Hydro-static
1	49.31	127.80	Open To Flow (1)
16	265.76	138.40	Shut-In(1)
76	835.41	138.56	End Shut-In(1)
76	273.27	138.27	Open To Flow (2)
106	505.66	148.57	Shut-In(2)
198	833.45	145.80	End Shut-In(2)
199	2098.49	143.03	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
615.00	MCW w/trace oil 75%w, 25%m	7.03
125.00	SWCM w/oil spots 86%m, 7%w, 5%g	21.75
320.00	Mud w/oil spots 92%m, 6%g, 2%o	4.49

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



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12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

ATTN: Saman Sharifaie

Job Ticket: 61193

DST#: 2

Test Start: 2016.11.02 @ 13:47:00

GENERAL INFORMATION:

Formation: **LKC "A - D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:36:45

Time Test Ended: 21:16:15

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4246.00 ft (KB) To 4384.00 ft (KB) (TVD)

Total Depth: 4384.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3379.00 ft (KB)

3374.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 6625

Inside

Press@RunDepth: psig @ 4247.00 ft (KB)

Start Date: 2016.11.02

End Date:

2016.11.02

Capacity: 8000.00 psig

Last Calib.:

2016.11.02

Start Time: 13:47:05

End Time:

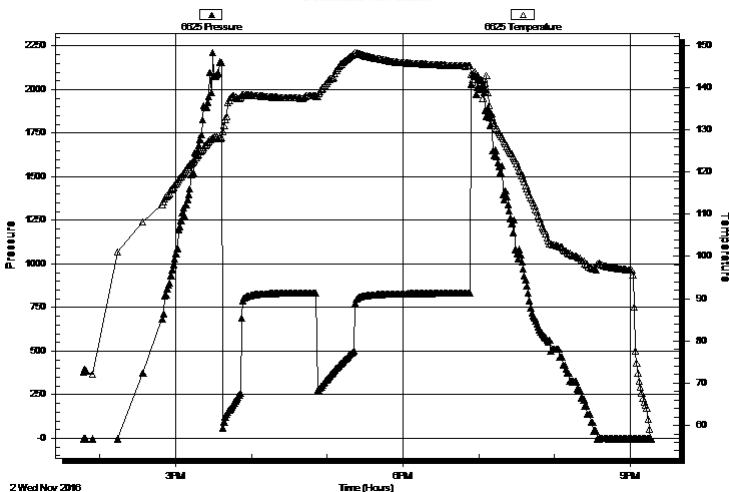
21:16:44

Time On Btm:

Time Off Btm:

TEST COMMENT: 15 - IF: Blow built to BOB (11") at 4 1/4 min.
60 - ISI: No blow back
30 - FF: Blow started at 40 sec., built to BOB at 6 min.
90 - FS: No blow back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
615.00	MCW w/trace oil 75%w , 25%m	7.03
125.00	SWCM w/oil spots 86%m, 7%w , 5%g,	21.75
320.00	Mud w/oil spots 92%m, 6%g, 2%o	4.49

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61193

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2016.11.02 @ 13:47:00

Tool Information

Drill Pipe:	Length: 4050.00 ft	Diameter: 3.80 inches	Volume: 56.81 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 175.00 ft	Diameter: 2.25 inches	Volume: 0.86 bbl	Weight to Pull Loose: 64000.00 lb
			<u>Total Volume: 57.67 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4246.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	138.00 ft			
Tool Length:	167.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4218.00	
Shut In Tool	5.00			4223.00	
Hydraulic tool	5.00			4228.00	
Jars	5.00			4233.00	
Safety Joint	3.00			4236.00	
Packer	5.00			4241.00	29.00 Bottom Of Top Packer
Packer	5.00			4246.00	
Stubb	1.00			4247.00	
Recorder	0.00	6625	Inside	4247.00	
Recorder	0.00	8366	Outside	4247.00	
Perforations	7.00			4254.00	
Blank Spacing	127.00			4381.00	
Bullnose	3.00			4384.00	138.00 Bottom Packers & Anchor

Total Tool Length: 167.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61193

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2016.11.02 @ 13:47:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

9000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.56 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
615.00	MCW w /trace oil 75%w , 25%m	7.033
125.00	SWCM w /oil spots 86%m, 7%w , 5%g, 2%o	1.753
320.00	Mud w /oil spots 92%m, 6%g, 2%o	4.489

Total Length: 1060.00 ft Total Volume: 13.275 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

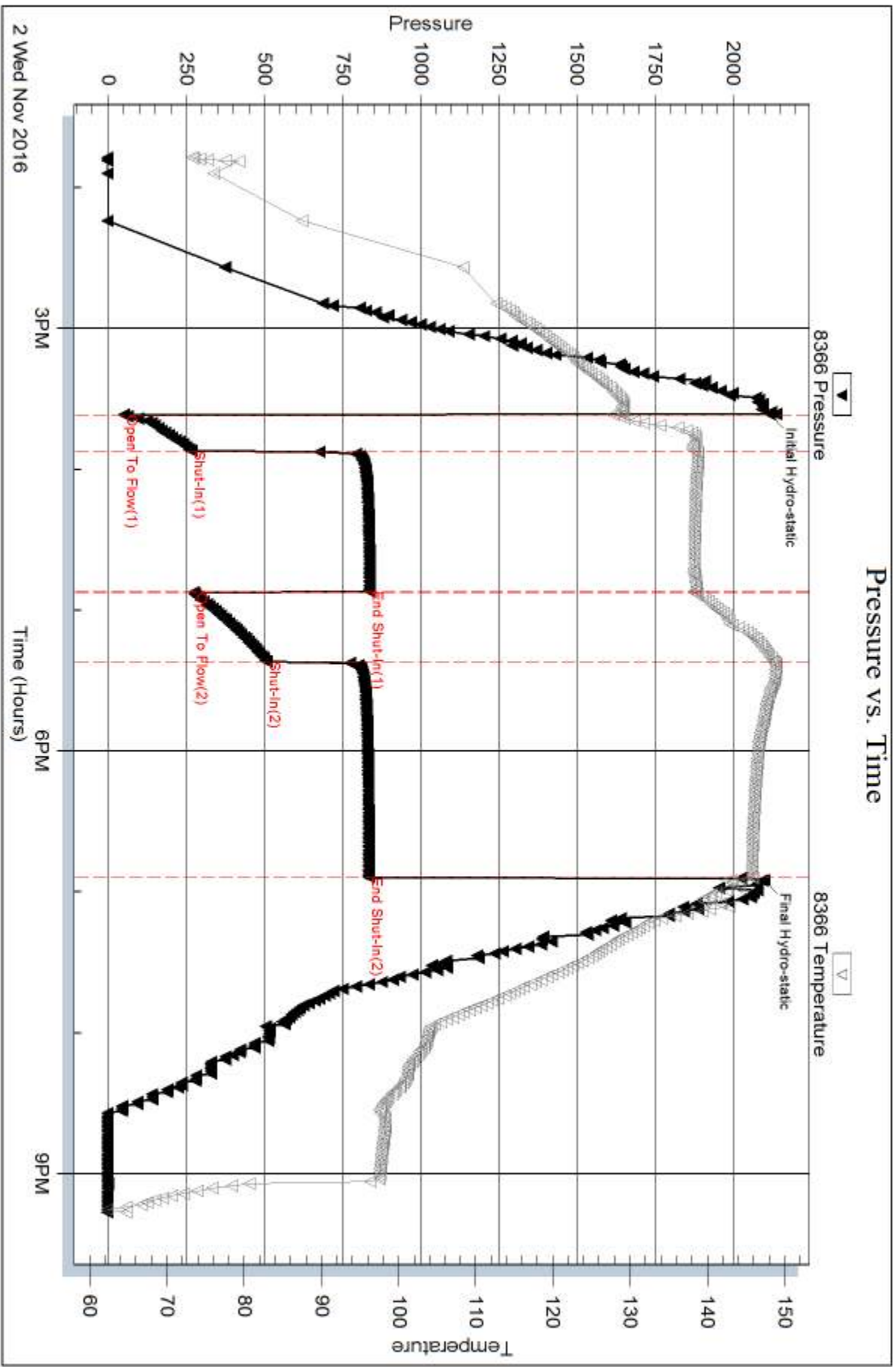
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .960 ohms @ 49.5 deg F

Chlorides = 9,000 ppm



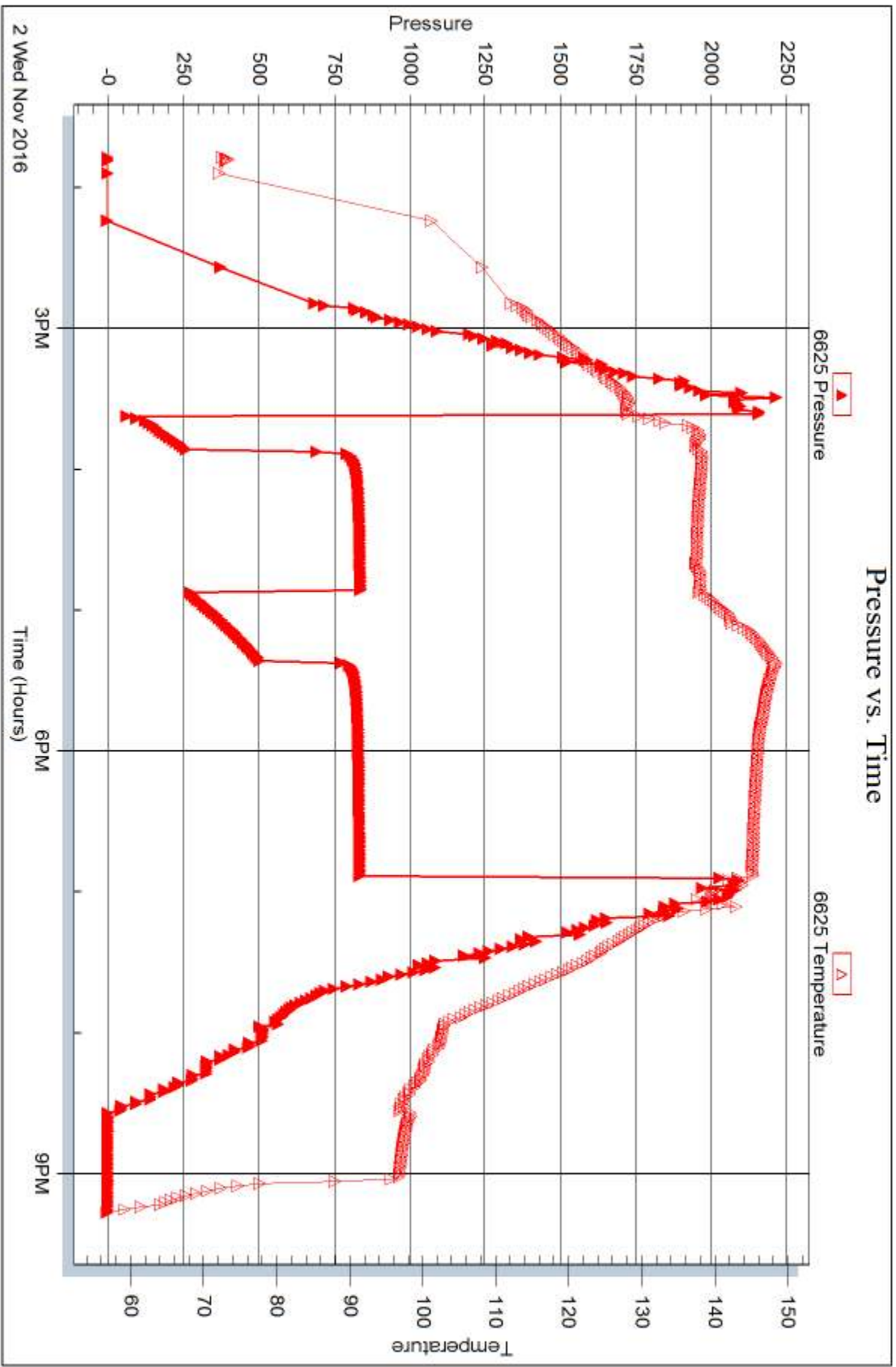
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

McClurg #1-12

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 61193

Printed: 2016.11.09 @ 10:09:15



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

McClurg #1-12

12-2s-37w Cheyenne KS

Start Date: 2016.11.03 @ 05:43:00

End Date: 2016.11.03 @ 12:51:45

Job Ticket #: 61194 DST #: 3

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.11.09 @ 10:08:51



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61194

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2016.11.03 @ 05:43:00

GENERAL INFORMATION:

Formation: **LKC "G"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 07:56:15
 Time Test Ended: 12:51:45
 Interval: **4393.00 ft (KB) To 4440.00 ft (KB) (TVD)**
 Total Depth: 4440.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3379.00 ft (KB)
 3374.00 ft (CF)
 KB to GR/CF: 5.00 ft

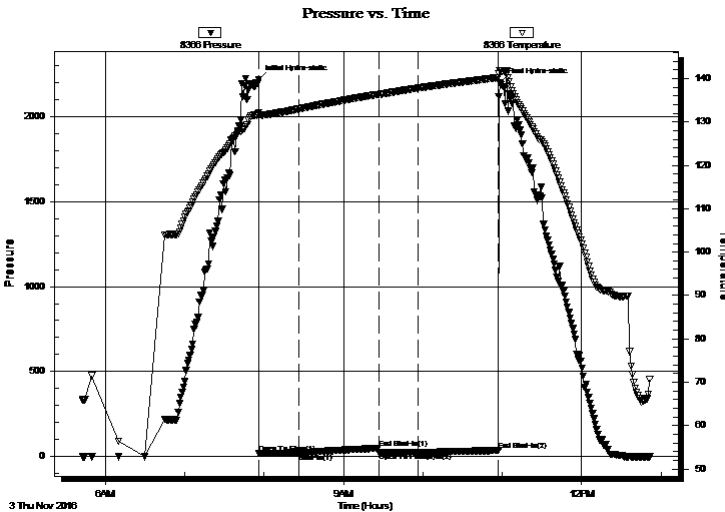
Serial #: 8366

Outside

Press@RunDepth: 22.22 psig @ 4394.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2016.11.03 End Date: 2016.11.03 Last Calib.: 2016.11.03
 Start Time: 05:43:05 End Time: 12:51:44 Time On Btm: 2016.11.03 @ 07:56:00
 Time Off Btm: 2016.11.03 @ 10:58:00

TEST COMMENT: 30 - IF: Blow built to 1", slow ly died back to 1/2" at close
 60 - IS!: No blow back
 30 - FF: No blow
 60 - FS!: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2218.26	132.11	Initial Hydro-static
1	16.58	131.37	Open To Flow (1)
31	20.47	133.01	Shut-In(1)
91	47.75	136.40	End Shut-In(1)
91	21.88	136.38	Open To Flow (2)
121	22.22	137.81	Shut-In(2)
181	34.73	140.24	End Shut-In(2)
182	2200.64	141.80	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OCM 77% m, 23% o	0.02
1.00	MO 54% o, 44% m, 2% g	0.00

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



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TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61194

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2016.11.03 @ 05:43:00

GENERAL INFORMATION:

Formation: **LKC "G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:56:15

Time Test Ended: 12:51:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4393.00 ft (KB) To 4440.00 ft (KB) (TVD)

Reference Elevations: 3379.00 ft (KB)

Total Depth: 4440.00 ft (KB) (TVD)

3374.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6625 Inside

Press@RunDepth: psig @ 4394.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.03

End Date: 2016.11.03

Last Calib.: 2016.11.03

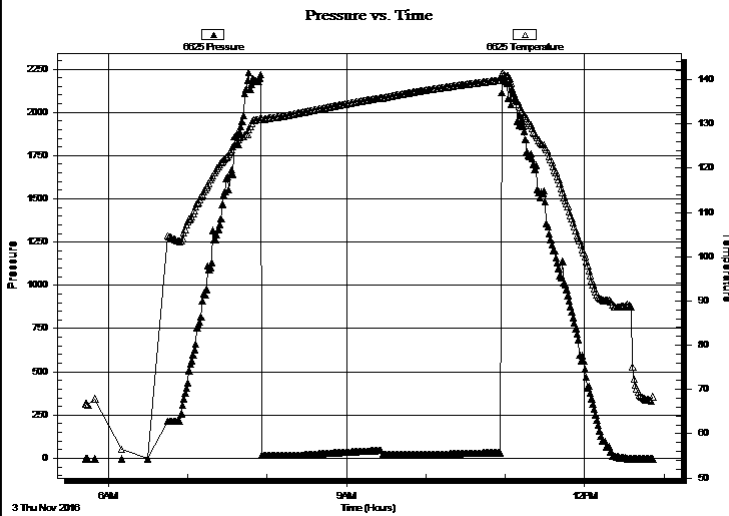
Start Time: 05:43:05

End Time: 12:51:59

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to 1", slow ly died back to 1/2" at close
60 - ISI: No blow back
30 - FF: No blow
60 - FSI: No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OCM 77% m, 23% o	0.02
1.00	MO 54% o, 44% m, 2% g	0.00

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61194

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2016.11.03 @ 05:43:00

Tool Information

Drill Pipe:	Length: 4206.00 ft	Diameter: 3.80 inches	Volume: 59.00 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 175.00 ft	Diameter: 2.25 inches	Volume: 0.86 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 59.86 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4393.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	47.00 ft			
Tool Length:	76.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			4365.00	
Shut In Tool	5.00			4370.00	
Hydraulic tool	5.00			4375.00	
Jars	5.00			4380.00	
Safety Joint	3.00			4383.00	
Packer	5.00			4388.00	29.00 Bottom Of Top Packer
Packer	5.00			4393.00	
Stubb	1.00			4394.00	
Recorder	0.00	6625	Inside	4394.00	
Recorder	0.00	8366	Outside	4394.00	
Perforations	10.00			4404.00	
Blank Spacing	33.00			4437.00	
Bullnose	3.00			4440.00	47.00 Bottom Packers & Anchor

Total Tool Length: 76.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61194

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2016.11.03 @ 05:43:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbf

Water Loss: 5.56 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
5.00	OCM 77% <i>m</i> , 23% <i>o</i>	0.025
1.00	MO 54% <i>o</i> , 44% <i>m</i> , 2% <i>g</i>	0.005

Total Length: 6.00 ft Total Volume: 0.030 bbf

Num Fluid Samples: 0

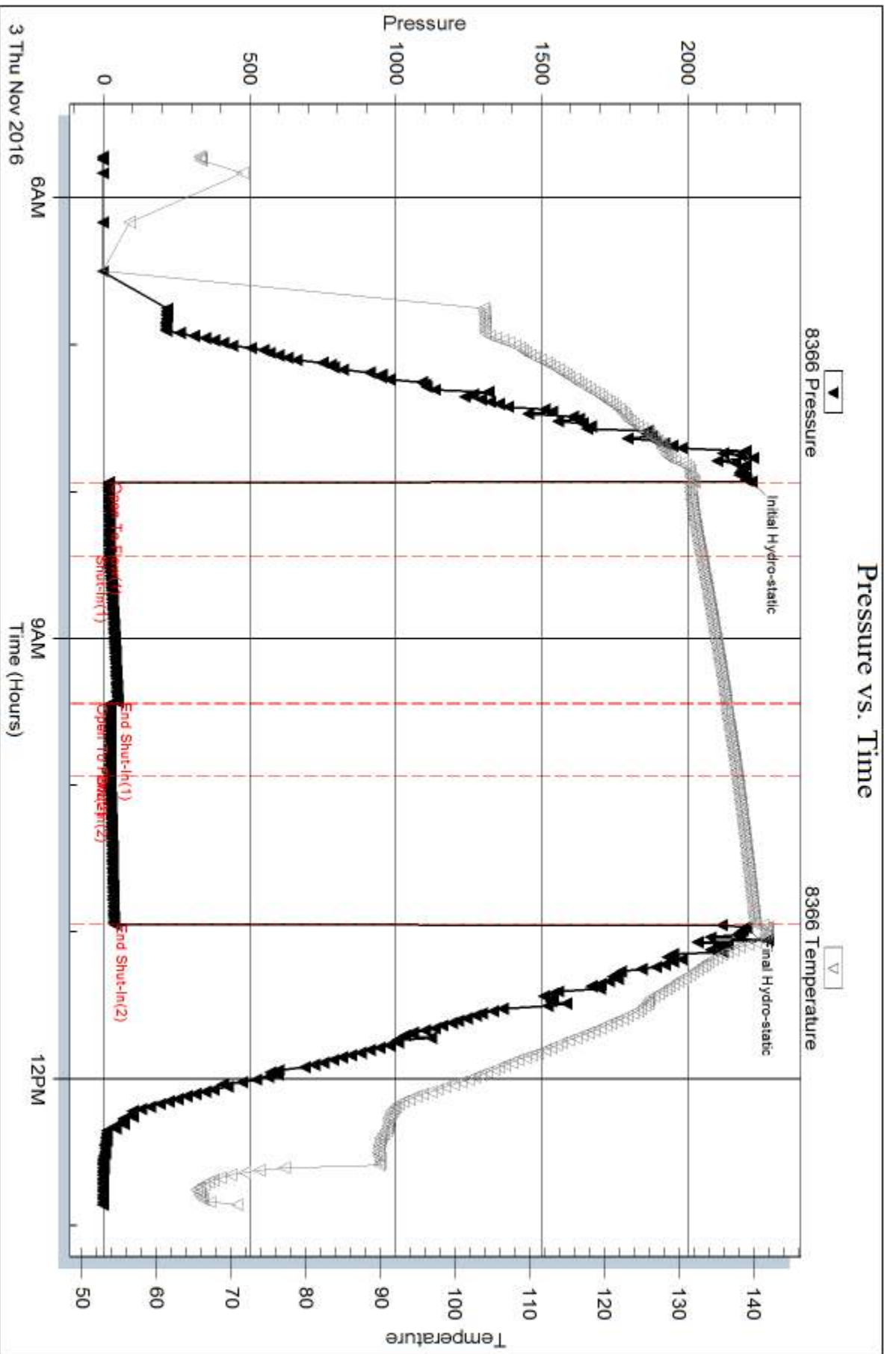
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



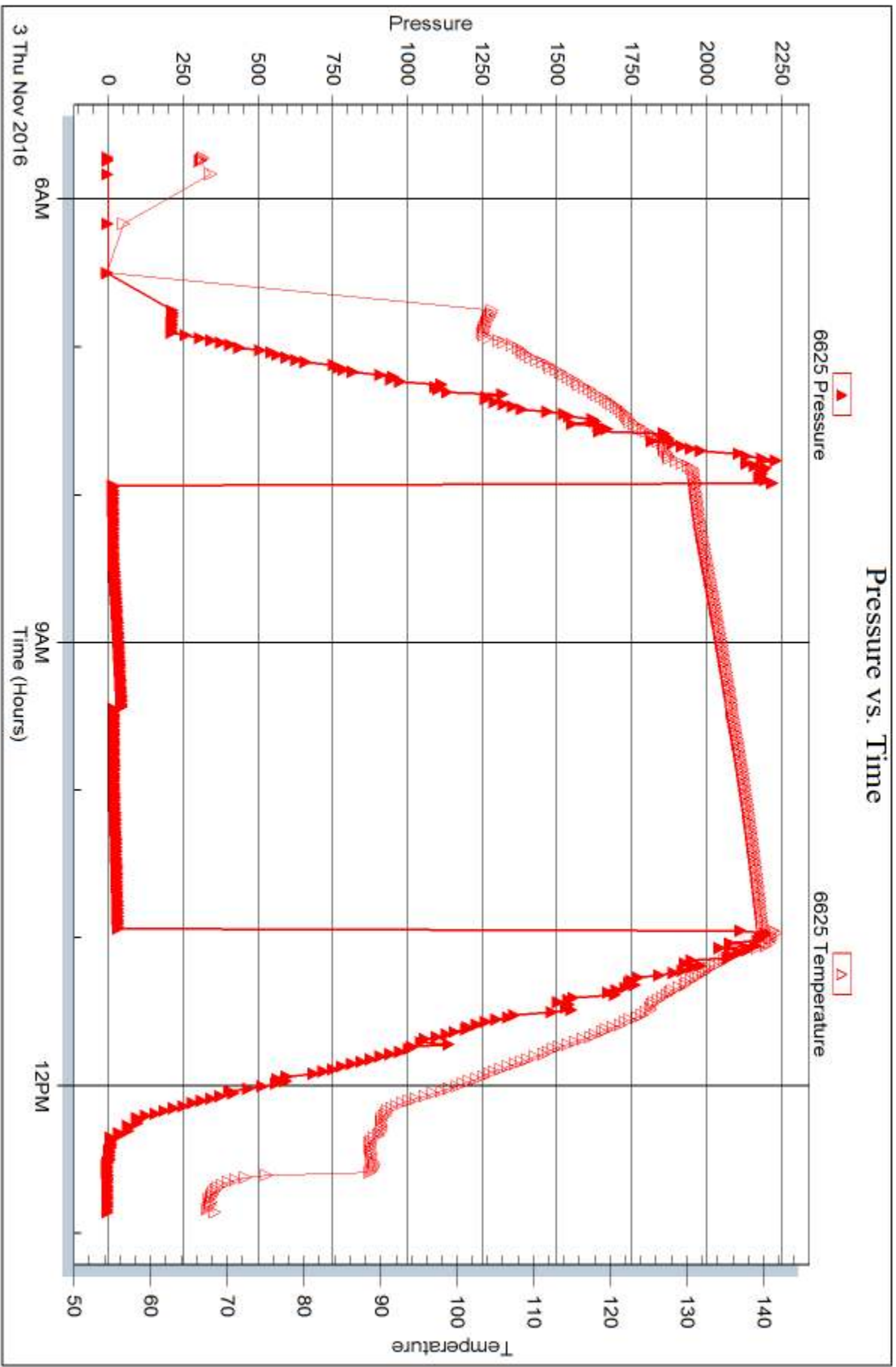
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

McClurg #1-12

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 61194

Printed: 2016.11.09 @ 10:08:53



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

McClurg #1-12

12-2s-37w Cheyenne KS

Start Date: 2016.11.04 @ 16:02:00

End Date: 2016.11.04 @ 23:56:30

Job Ticket #: 61195 DST #: 4

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.11.09 @ 10:08:31



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61195

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2016.11.04 @ 16:02:00

GENERAL INFORMATION:

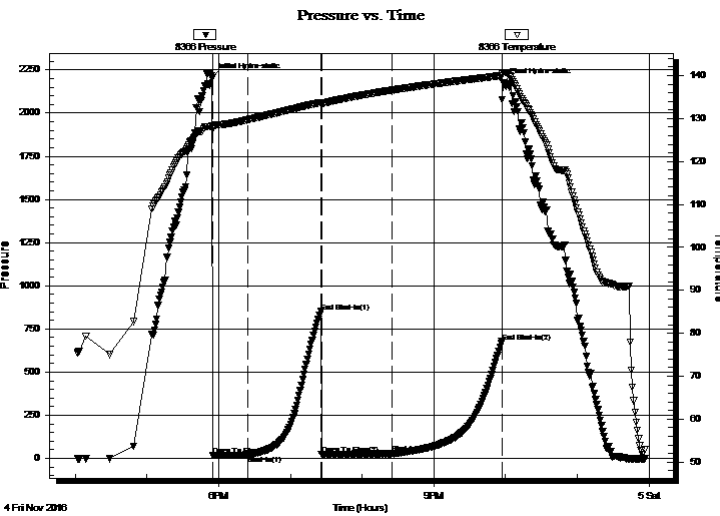
Formation: **LKC "H"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 17:54:45
 Time Test Ended: 23:56:30
 Interval: **4438.00 ft (KB) To 4492.00 ft (KB) (TVD)**
 Total Depth: 4492.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3379.00 ft (KB)
 3374.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8366

Outside

Press@RunDepth: 27.65 psig @ 4439.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2016.11.04 End Date: 2016.11.04 Last Calib.: 2016.11.05
 Start Time: 16:02:05 End Time: 23:56:29 Time On Btm: 2016.11.04 @ 17:54:30
 Time Off Btm: 2016.11.04 @ 21:57:45

TEST COMMENT: 30 - IF: 1/2" Blow at open, built to 1 1/2"
 60 - IS: No blow back
 60 - FF: No blow
 90 - FS: No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2203.14	128.35	Initial Hydro-static
1	16.49	127.54	Open To Flow (1)
30	19.91	129.73	Shut-In(1)
91	850.94	133.71	End Shut-In(1)
92	23.80	133.28	Open To Flow (2)
151	27.65	136.61	Shut-In(2)
243	675.94	140.00	End Shut-In(2)
244	2178.53	140.69	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	OCM 66% m, 32% o, 2% g	0.07

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.
250 N. Water STE 300
Wichita, KS 67202
ATTN: Saman Sharifaie

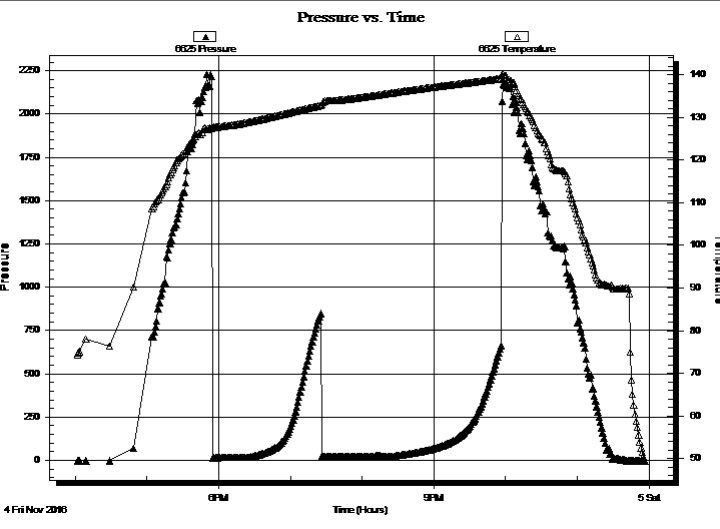
12-2s-37w Cheyenne KS
McClurg #1-12
Job Ticket: 61195 **DST#: 4**
Test Start: 2016.11.04 @ 16:02:00

GENERAL INFORMATION:

Formation: LKC "H"		Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock: ft (KB)		Tester: James Winder
Time Tool Opened: 17:54:45		Unit No: 83
Time Test Ended: 23:56:30		
Interval: 4438.00 ft (KB) To 4492.00 ft (KB) (TVD)	Reference Elevations:	3379.00 ft (KB)
Total Depth: 4492.00 ft (KB) (TVD)		3374.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Fair	KB to GR/CF: 5.00 ft

Serial #: 6625	Inside				
Press@RunDepth: psig @ 4439.00 ft (KB)		Capacity:		8000.00 psig	
Start Date: 2016.11.04	End Date:	2016.11.04	Last Calib.:	2016.11.05	
Start Time: 16:02:05	End Time:	23:56:59	Time On Btm:		
			Time Off Btm:		

TEST COMMENT: 30 - IF: 1/2" Blow at open, built to 1 1/2"
60 - ISI: No blow back
60 - FF: No blow
90 - FSI: No blow



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery		
Length (ft)	Description	Volume (bbl)
15.00	OCM 66% m, 32% o, 2% g	0.07

* Recovery from multiple tests

Gas Rates			
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61195

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2016.11.04 @ 16:02:00

Tool Information

Drill Pipe:	Length: 4239.00 ft	Diameter: 3.80 inches	Volume: 59.46 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 175.00 ft	Diameter: 2.25 inches	Volume: 0.86 bbl	Weight to Pull Loose: 64000.00 lb
			<u>Total Volume: 60.32 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4438.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	54.00 ft			
Tool Length:	83.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4410.00	
Shut In Tool	5.00			4415.00	
Hydraulic tool	5.00			4420.00	
Jars	5.00			4425.00	
Safety Joint	3.00			4428.00	
Packer	5.00			4433.00	29.00 Bottom Of Top Packer
Packer	5.00			4438.00	
Stubb	1.00			4439.00	
Recorder	0.00	6625	Inside	4439.00	
Recorder	0.00	8366	Outside	4439.00	
Perforations	15.00			4454.00	
Blank Spacing	33.00			4487.00	
Perforations	2.00			4489.00	
Bullnose	3.00			4492.00	54.00 Bottom Packers & Anchor

Total Tool Length: 83.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61195

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2016.11.04 @ 16:02:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.55 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	OCM 66% _m , 32% _o , 2% _g	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

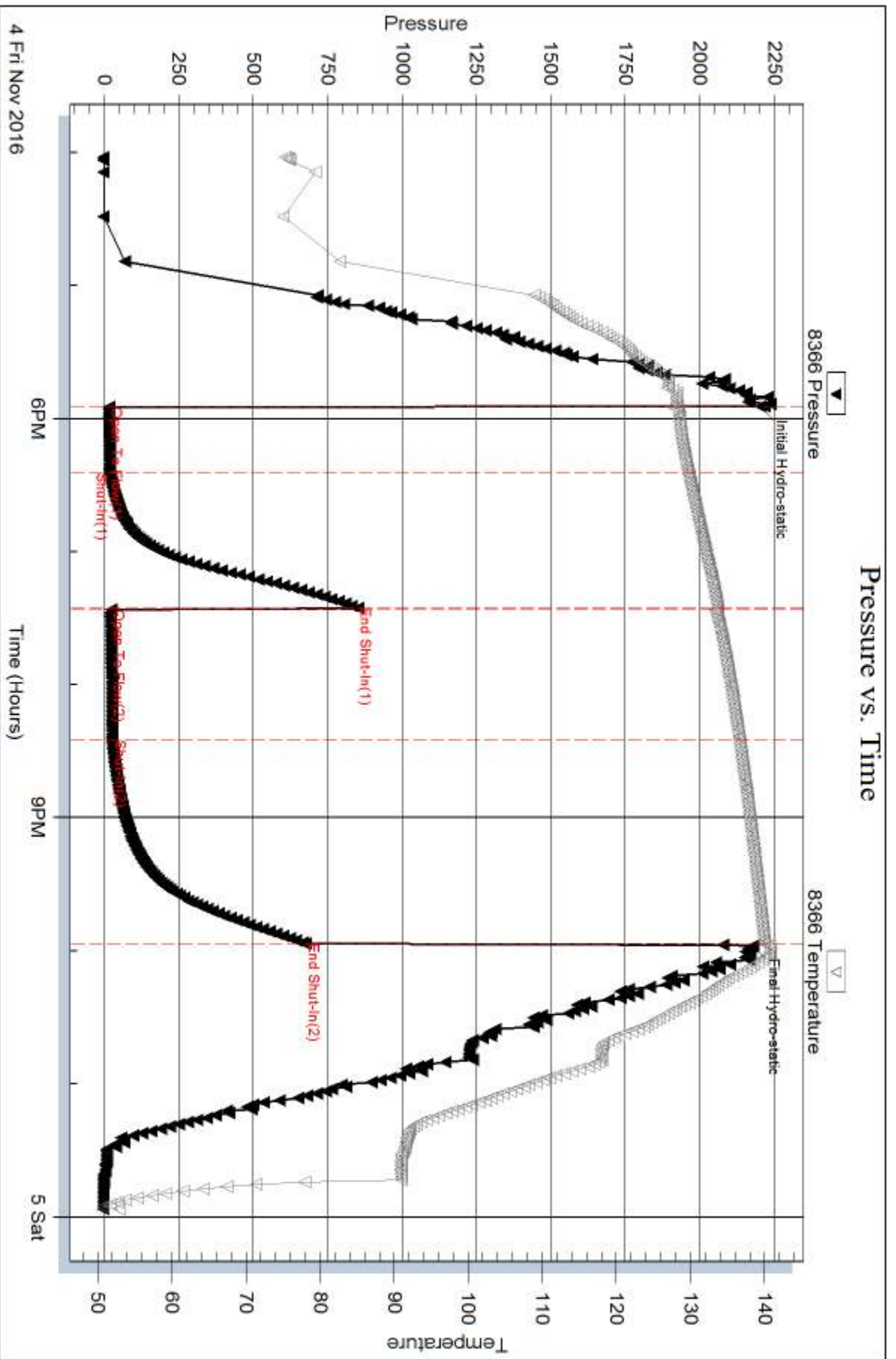
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



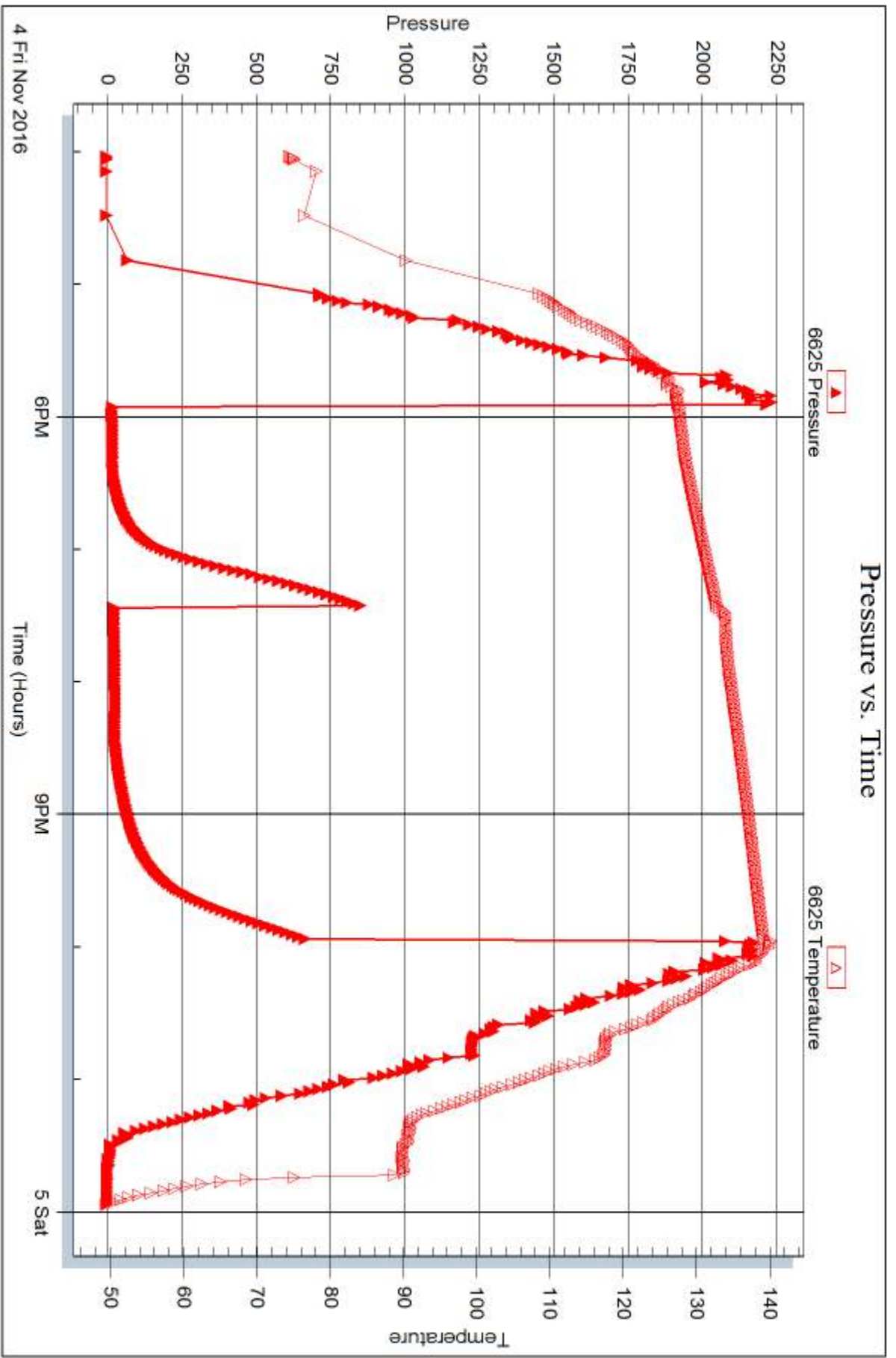
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

McClurg #1-12

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 61195

Printed: 2016.11.09 @ 10:08:33



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

McClurg #1-12

12-2s-37w Cheyenne KS

Start Date: 2016.11.05 @ 08:25:00

End Date: 2016.11.05 @ 16:13:00

Job Ticket #: 61196 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.11.09 @ 10:08:10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61196

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2016.11.05 @ 08:25:00

GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:17:15

Time Test Ended: 16:13:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4492.00 ft (KB) To 4530.00 ft (KB) (TVD)

Reference Elevations: 3379.00 ft (KB)

Total Depth: 4530.00 ft (KB) (TVD)

3374.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 18.12 psig @ 4493.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.05

End Date:

2016.11.05

Last Calib.:

2016.11.05

Start Time: 08:25:05

End Time:

16:12:59

Time On Btm:

2016.11.05 @ 10:17:00

Time Off Btm:

2016.11.05 @ 13:19:45

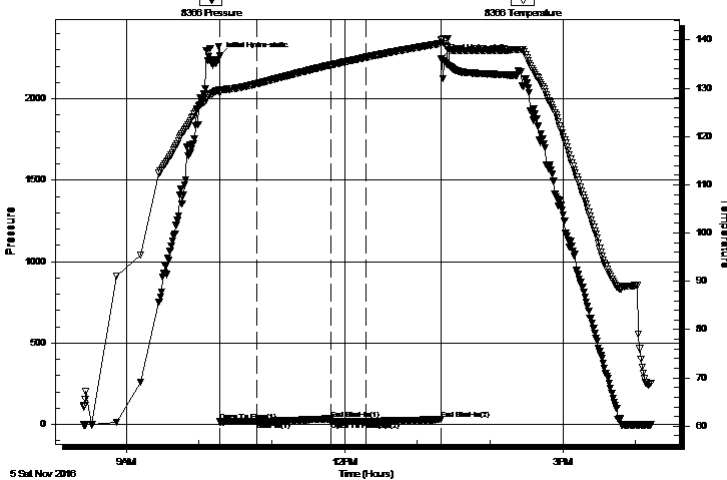
TEST COMMENT: 30 - IF: Blow built to just over 1"

60 - IS: No blow back

30 - FF: No blow

60 - FS: No blow back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2262.42	129.72	Initial Hydro-static
1	16.20	129.00	Open To Flow (1)
31	17.10	130.92	Shut-In(1)
92	33.59	134.82	End Shut-In(1)
92	17.57	134.82	Open To Flow (2)
121	18.12	136.39	Shut-In(2)
183	30.08	139.29	End Shut-In(2)
183	2246.38	140.04	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud w/oil spots 99%m, 1%o	0.01

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61196

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2016.11.05 @ 08:25:00

GENERAL INFORMATION:

Formation: **LKC "J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:17:15
 Time Test Ended: 16:13:00

Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83

Interval: **4492.00 ft (KB) To 4530.00 ft (KB) (TVD)**
 Total Depth: 4530.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair

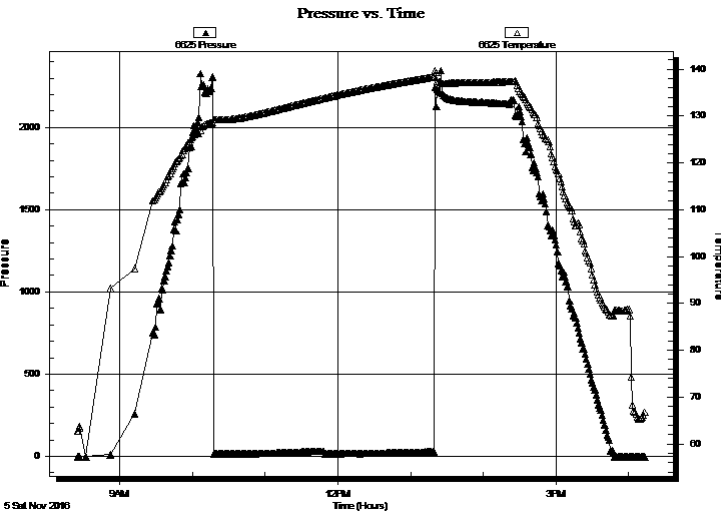
Reference Elevations: 3379.00 ft (KB)
 3374.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 6625 **Inside**

Press@RunDepth: psig @ 4493.00 ft (KB)
 Start Date: 2016.11.05 End Date: 2016.11.05
 Start Time: 08:25:05 End Time: 16:13:29

Capacity: 8000.00 psig
 Last Calib.: 2016.11.05
 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to just over 1"
 60 - ISI: No blow back
 30 - FF: No blow
 60 - FSI: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud w/oil spots 99%o, 1%o	0.01

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61196

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2016.11.05 @ 08:25:00

Tool Information

Drill Pipe:	Length: 4300.00 ft	Diameter: 3.80 inches	Volume: 60.32 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 175.00 ft	Diameter: 2.25 inches	Volume: 0.86 bbl	Weight to Pull Loose: 72000.00 lb
			<u>Total Volume: 61.18 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4492.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	38.00 ft			
Tool Length:	67.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4464.00	
Shut In Tool	5.00			4469.00	
Hydraulic tool	5.00			4474.00	
Jars	5.00			4479.00	
Safety Joint	3.00			4482.00	
Packer	5.00			4487.00	29.00 Bottom Of Top Packer
Packer	5.00			4492.00	
Packer - Shale	0.00			4492.00	
Stubb	1.00			4493.00	
Recorder	0.00	6625	Inside	4493.00	
Recorder	0.00	8366	Outside	4493.00	
Perforations	34.00			4527.00	
Bullnose	3.00			4530.00	38.00 Bottom Packers & Anchor

Total Tool Length: 67.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61196

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2016.11.05 @ 08:25:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.55 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Mud w /oil spots 99%m, 1%o	0.010

Total Length: 2.00 ft Total Volume: 0.010 bbl

Num Fluid Samples: 0

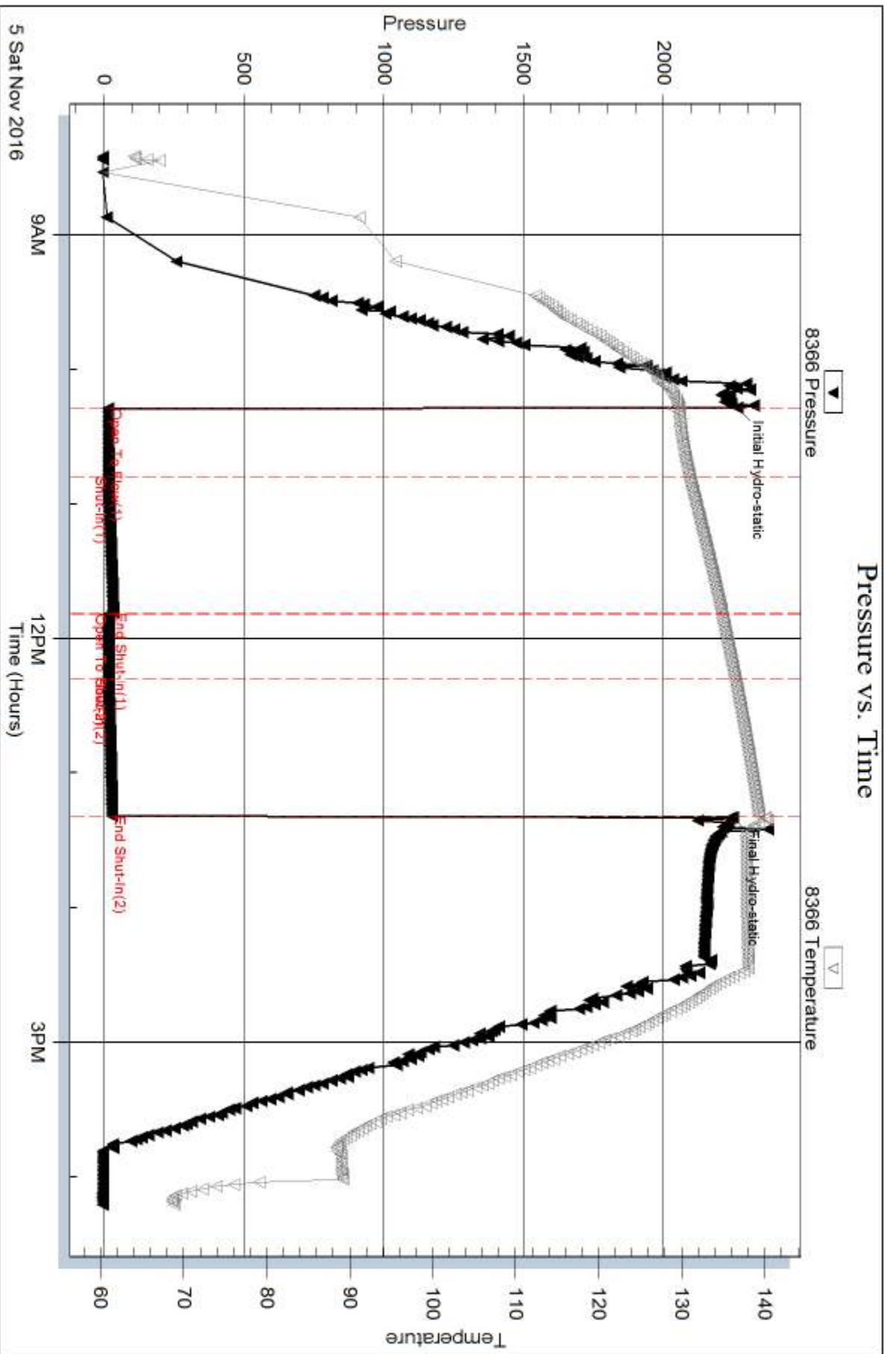
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



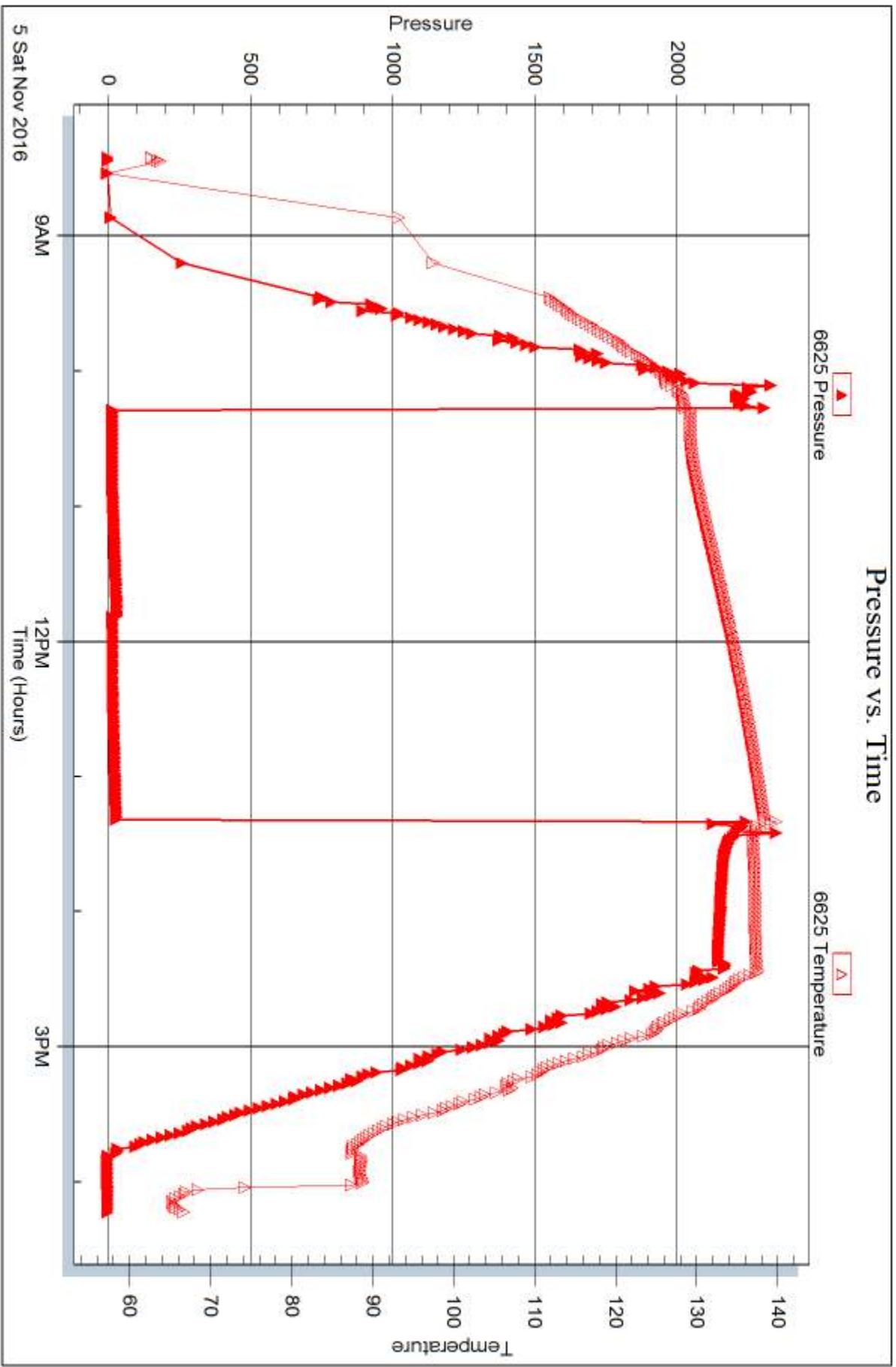
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

McClurg #1-12

DST Test Number: 5





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

McClurg #1-12

12-2s-37w Cheyenne KS

Start Date: 2016.11.06 @ 00:36:00

End Date: 2016.11.06 @ 08:52:45

Job Ticket #: 61197 DST #: 6

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.11.09 @ 10:07:48

Murfin Drilling Co., Inc.
12-2s-37w Cheyenne KS
McClurg #1-12
DST # 6
LKC "L"
2016.11.06



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61197

DST#: 6

ATTN: Saman Sharifaie

Test Start: 2016.11.06 @ 00:36:00

GENERAL INFORMATION:

Formation: **LKC "L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:23:45

Time Test Ended: 08:52:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4558.00 ft (KB) To 4580.00 ft (KB) (TVD)

Reference Elevations: 3379.00 ft (KB)

Total Depth: 4580.00 ft (KB) (TVD)

3374.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 598.32 psig @ 4559.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.06

End Date:

2016.11.06

Last Calib.:

2016.11.06

Start Time: 00:36:05

End Time:

08:52:44

Time On Btm:

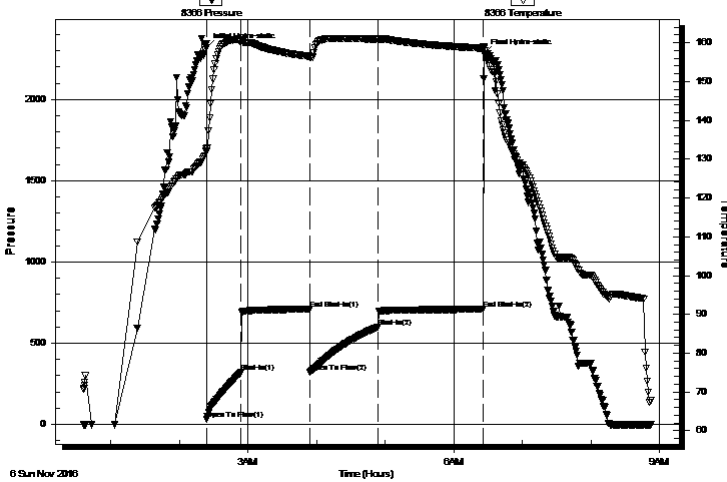
2016.11.06 @ 02:23:30

Time Off Btm:

2016.11.06 @ 06:26:45

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 6 min.
60 - IS: Blow back built to 1/8" then died back
60 - FF: Blow built to BOB at 8 1/2 min.
90 - FS: No blow back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2321.17	132.58	Initial Hydro-static
1	30.36	131.94	Open To Flow (1)
30	319.04	160.38	Shut-In(1)
91	709.27	156.46	End Shut-In(1)
91	319.90	156.18	Open To Flow (2)
150	598.32	160.89	Shut-In(2)
242	708.59	158.56	End Shut-In(2)
244	2280.06	158.61	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1050.00	Water 97%w , 3%m	13.13
295.00	MW 59%w , 41%m	4.14

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61197

DST#: 6

ATTN: Saman Sharifaie

Test Start: 2016.11.06 @ 00:36:00

GENERAL INFORMATION:

Formation: **LKC "L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:23:45

Time Test Ended: 08:52:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: **4558.00 ft (KB) To 4580.00 ft (KB) (TVD)**

Reference Elevations: 3379.00 ft (KB)

Total Depth: 4580.00 ft (KB) (TVD)

3374.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6625 Inside

Press@RunDepth: psig @ 4559.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.06

End Date:

2016.11.06

Last Calib.:

2016.11.06

Start Time: 00:36:05

End Time:

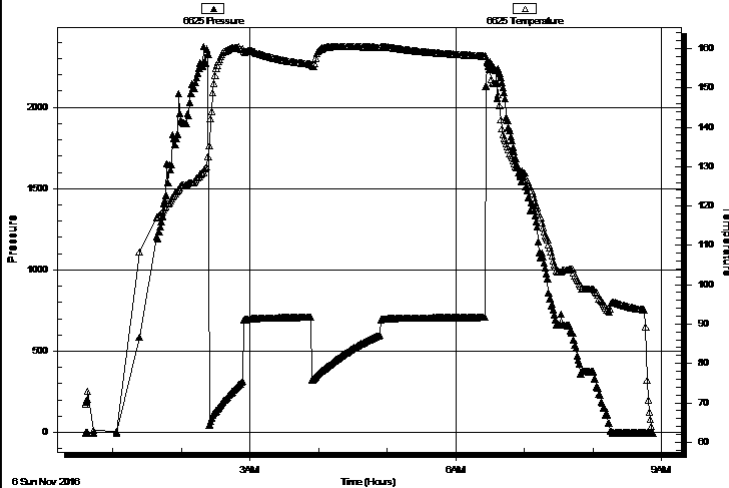
08:52:59

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 6 min.
60 - IS: Blow back built to 1/8" then died back
60 - FF: Blow built to BOB at 8 1/2 min.
90 - FS: No blow back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
1050.00	Water 97%w , 3%m	13.13
295.00	MW 59%w , 41%m	4.14

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61197

DST#: 6

ATTN: Saman Sharifaie

Test Start: 2016.11.06 @ 00:36:00

Tool Information

Drill Pipe:	Length: 4362.00 ft	Diameter: 3.80 inches	Volume: 61.19 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 175.00 ft	Diameter: 2.25 inches	Volume: 0.86 bbl	Weight to Pull Loose: 64000.00 lb
			<u>Total Volume: 62.05 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4558.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	51.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4530.00	
Shut In Tool	5.00			4535.00	
Hydraulic tool	5.00			4540.00	
Jars	5.00			4545.00	
Safety Joint	3.00			4548.00	
Packer	5.00			4553.00	29.00 Bottom Of Top Packer
Packer	5.00			4558.00	
Stubb	1.00			4559.00	
Recorder	0.00	6625	Inside	4559.00	
Recorder	0.00	8366	Outside	4559.00	
Perforations	18.00			4577.00	
Bullnose	3.00			4580.00	22.00 Bottom Packers & Anchor

Total Tool Length: 51.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61197

DST#: 6

ATTN: Saman Sharifaie

Test Start: 2016.11.06 @ 00:36:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

13000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.57 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1050.00	Water 97%w , 3%m	13.135
295.00	MW 59%w , 41%m	4.138

Total Length: 1345.00 ft Total Volume: 17.273 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

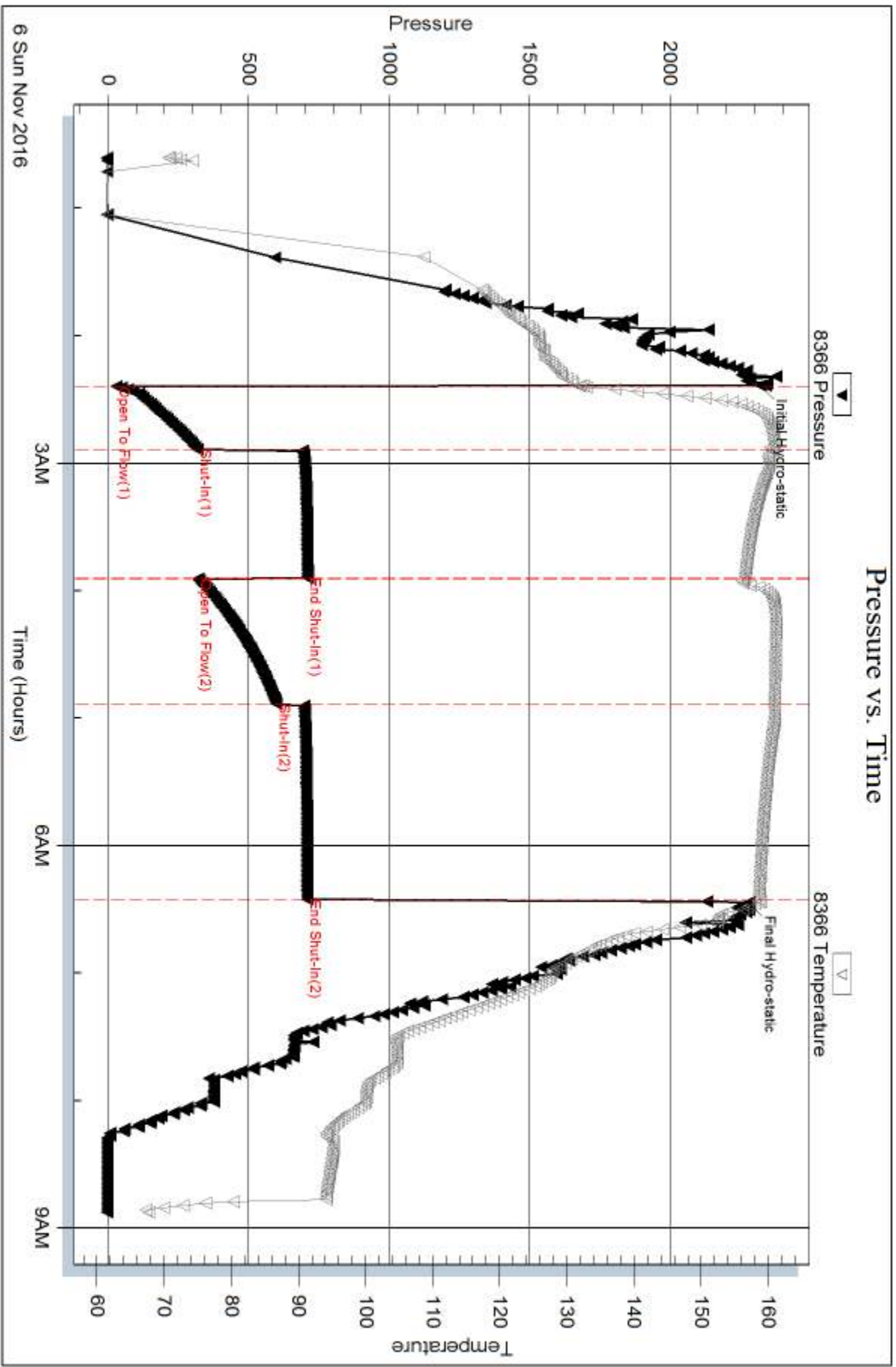
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .635 ohms @ 54.3 deg F

Chlorides = 13,000 ppm



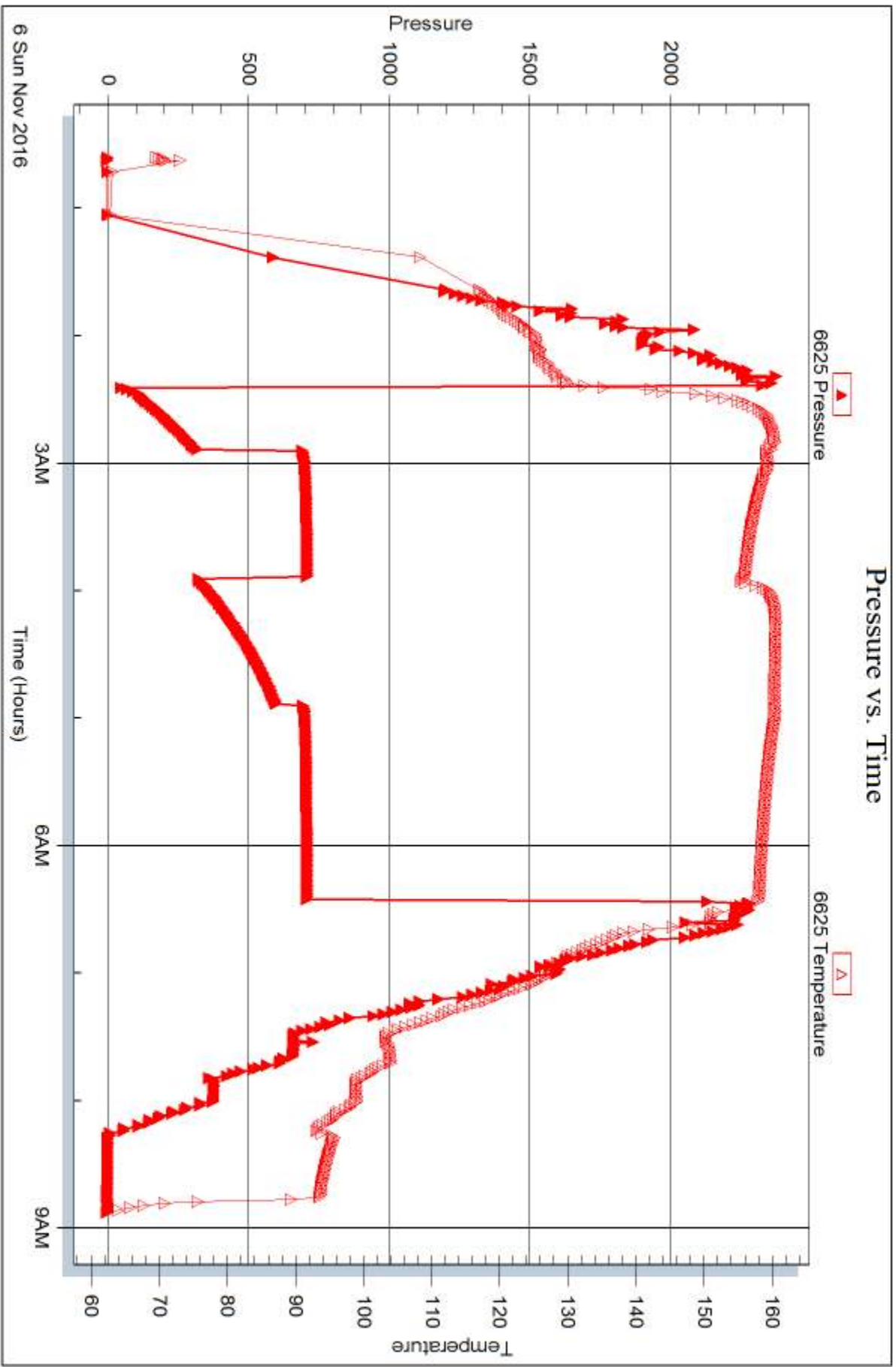
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

McClurg #1-12

DST Test Number: 6





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

McClurg #1-12

12-2s-37w Cheyenne KS

Start Date: 2016.11.06 @ 21:56:00

End Date: 2016.11.07 @ 05:15:45

Job Ticket #: 61198 DST #: 7

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.11.09 @ 10:07:25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61198

DST#: 7

ATTN: Saman Sharifaie

Test Start: 2016.11.06 @ 21:56:00

GENERAL INFORMATION:

Formation: **Marmaton "C"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:15:45

Time Test Ended: 05:15:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4626.00 ft (KB) To 4690.00 ft (KB) (TVD)

Reference Elevations: 3379.00 ft (KB)

Total Depth: 4690.00 ft (KB) (TVD)

3374.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 36.85 psig @ 4627.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.06

End Date:

2016.11.07

Last Calib.:

2016.11.07

Start Time: 21:56:05

End Time:

05:15:44

Time On Btm:

2016.11.07 @ 00:15:30

Time Off Btm:

2016.11.07 @ 03:20:45

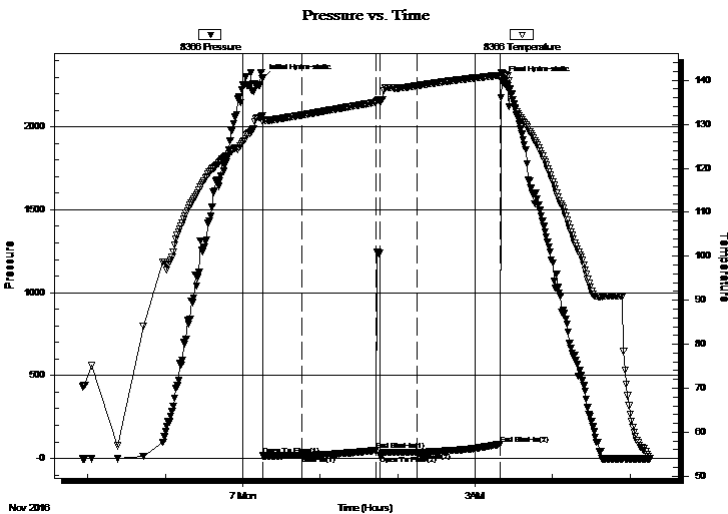
TEST COMMENT: 30 - IF: Blow built to 1/2", died back, dead at 26 min.

60 - IS: No blow

30 - FF: No blow

60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2294.40	131.77	Initial Hydro-static
1	15.74	130.59	Open To Flow (1)
31	16.55	132.09	Shut-In(1)
88	49.51	135.00	End Shut-In(1)
91	18.70	135.07	Open To Flow (2)
120	36.85	138.77	Shut-In(2)
184	85.75	141.14	End Shut-In(2)
186	2280.71	141.73	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mud 100%	0.15
0.00	Trace of oil in tool	0.00

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61198

DST#: 7

ATTN: Saman Sharifaie

Test Start: 2016.11.06 @ 21:56:00

GENERAL INFORMATION:

Formation: **Marmaton "C"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:15:45

Time Test Ended: 05:15:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4626.00 ft (KB) To 4690.00 ft (KB) (TVD)

Reference Elevations: 3379.00 ft (KB)

Total Depth: 4690.00 ft (KB) (TVD)

3374.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6625 Inside

Press@RunDepth: psig @ 4627.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.06

End Date: 2016.11.07

Last Calib.: 2016.11.07

Start Time: 21:56:05

End Time: 05:16:14

Time On Btm:

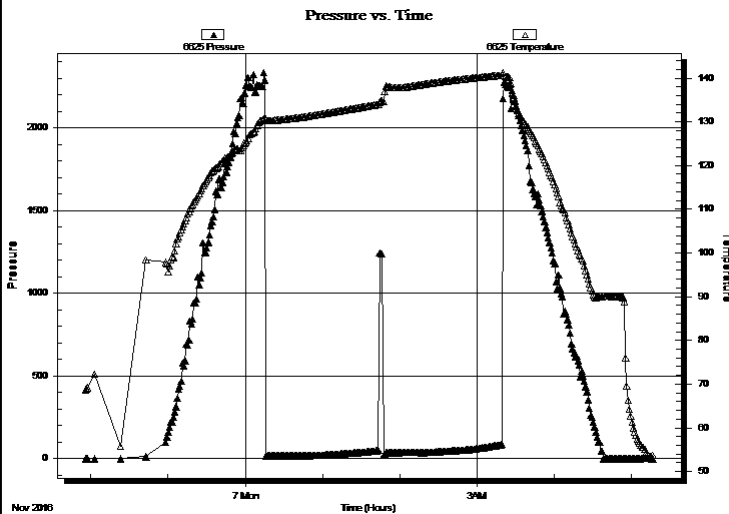
Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to 1/2", died back, dead at 26 min.

60 - IS: No blow

30 - FF: No blow

60 - FS: No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mud 100%	0.15
0.00	Trace of oil in tool	0.00

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61198

DST#: 7

ATTN: Saman Sharifaie

Test Start: 2016.11.06 @ 21:56:00

Tool Information

Drill Pipe:	Length: 4427.00 ft	Diameter: 3.80 inches	Volume: 62.10 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 175.00 ft	Diameter: 2.25 inches	Volume: 0.86 bbl	Weight to Pull Loose: 76000.00 lb
			<u>Total Volume: 62.96 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 66000.00 lb
Depth to Top Packer:	4626.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	64.00 ft			
Tool Length:	93.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4598.00	
Shut In Tool	5.00			4603.00	
Hydraulic tool	5.00			4608.00	
Jars	5.00			4613.00	
Safety Joint	3.00			4616.00	
Packer	5.00			4621.00	29.00 Bottom Of Top Packer
Packer	5.00			4626.00	
Stubb	1.00			4627.00	
Recorder	0.00	6625	Inside	4627.00	
Recorder	0.00	8366	Outside	4627.00	
Perforations	25.00			4652.00	
Blank Spacing	33.00			4685.00	
Perforations	2.00			4687.00	
Bullnose	3.00			4690.00	64.00 Bottom Packers & Anchor

Total Tool Length: 93.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61198

DST#: 7

ATTN: Saman Sharifaie

Test Start: 2016.11.06 @ 21:56:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	Mud 100%	0.148
0.00	Trace of oil in tool	0.000

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

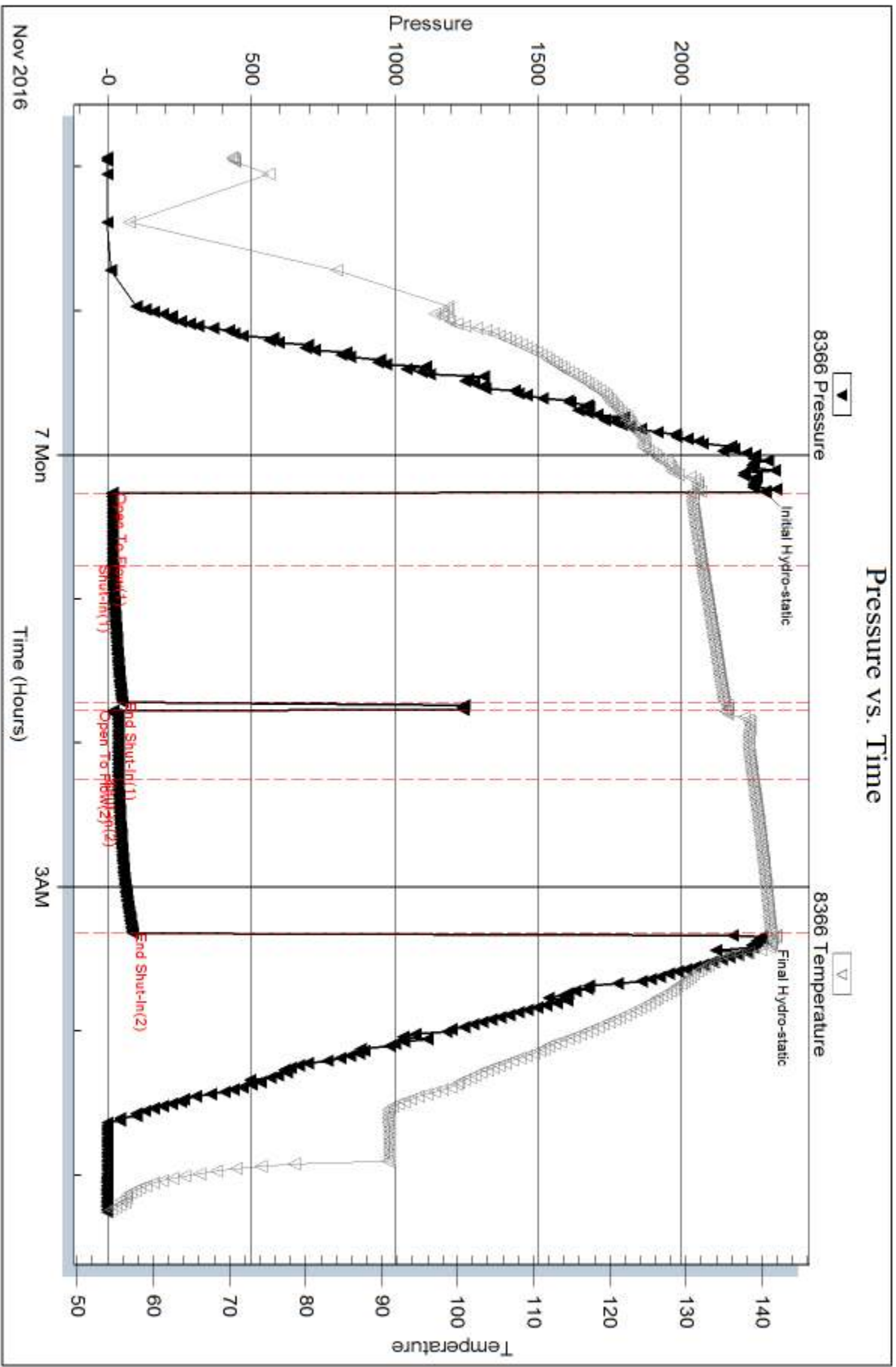
Num Gas Bombs: 0

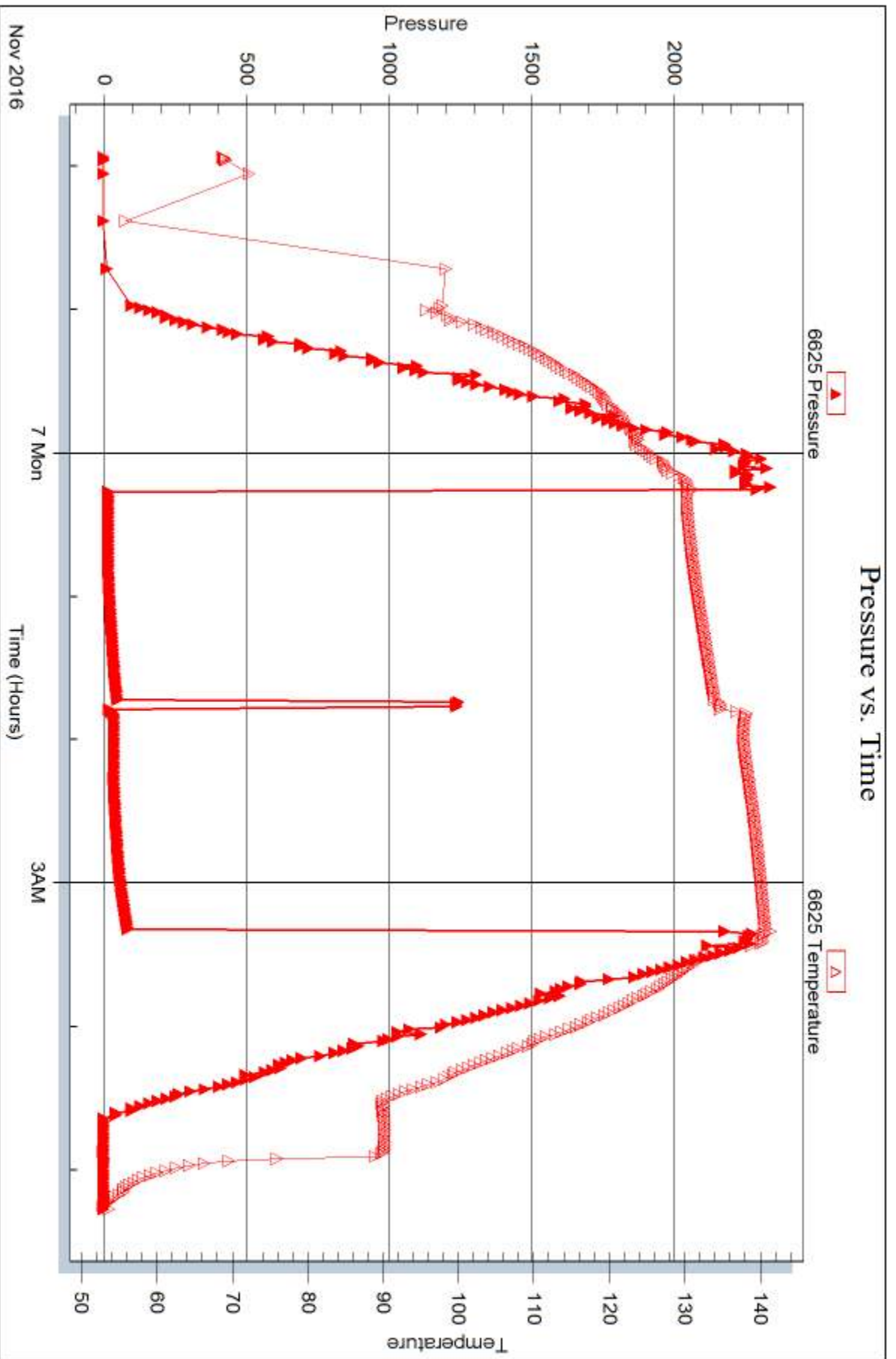
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

McClurg #1-12

12-2s-37w Cheyenne KS

Start Date: 2016.11.07 @ 17:42:00

End Date: 2016.11.08 @ 01:34:45

Job Ticket #: 61199 DST #: 8

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.11.09 @ 10:06:39



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61199

DST#: 8

ATTN: Saman Sharifaie

Test Start: 2016.11.07 @ 17:42:00

GENERAL INFORMATION:

Formation: **Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:23:15

Time Test Ended: 01:34:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4685.00 ft (KB) To 4760.00 ft (KB) (TVD)

Reference Elevations: 3379.00 ft (KB)

Total Depth: 4760.00 ft (KB) (TVD)

3374.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 21.53 psig @ 4686.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.07

End Date:

2016.11.08

Last Calib.: 2016.11.08

Start Time: 17:42:05

End Time:

01:34:44

Time On Btm: 2016.11.07 @ 20:23:00

Time Off Btm: 2016.11.07 @ 23:27:45

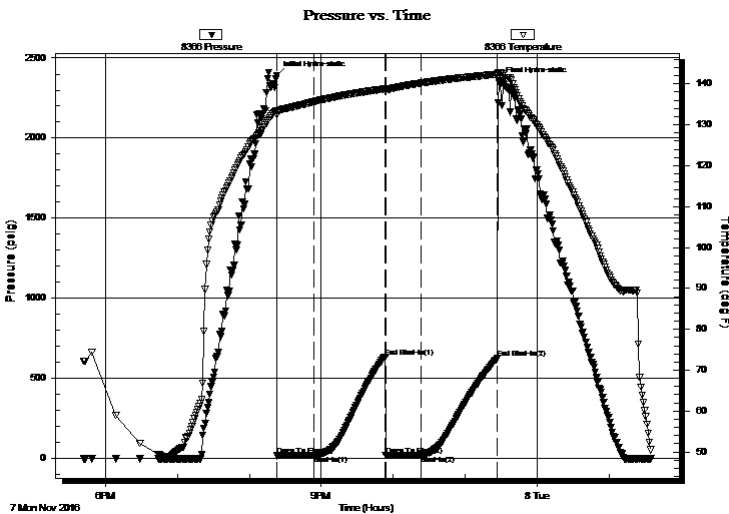
TEST COMMENT: 30 - IF: 1/2" Blow at open, built to 1 1/4"

60 - IS: No blow back

30 - FF: No blow

60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2391.99	133.45	Initial Hydro-static
1	16.88	132.48	Open To Flow (1)
31	19.01	135.65	Shut-In(1)
91	634.52	138.81	End Shut-In(1)
91	18.50	138.42	Open To Flow (2)
120	21.53	140.21	Shut-In(2)
184	625.50	142.38	End Shut-In(2)
185	2355.65	142.73	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100%	0.02

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61199

DST#: 8

ATTN: Saman Sharifaie

Test Start: 2016.11.07 @ 17:42:00

GENERAL INFORMATION:

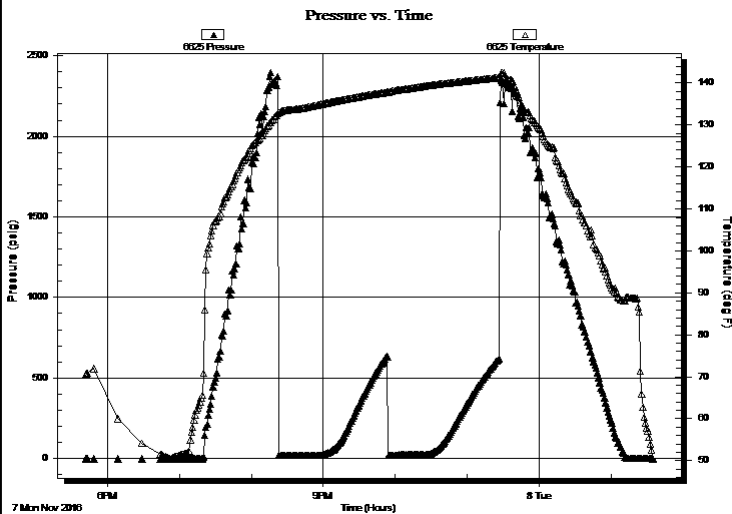
Formation: **Ft. Scott**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:23:15
 Time Test Ended: 01:34:45
 Interval: **4685.00 ft (KB) To 4760.00 ft (KB) (TVD)**
 Total Depth: 4760.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3379.00 ft (KB)
 3374.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 6625

Inside

Press@RunDepth: psig @ 4686.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2016.11.07 End Date: 2016.11.08 Last Calib.: 2016.11.08
 Start Time: 17:42:05 End Time: 01:34:59 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: 1/2" Blow at open, built to 1 1/4"
 60 - ISI: No blow back
 30 - FF: No blow
 60 - FSI: No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100%	0.02

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61199

DST#: 8

ATTN: Saman Sharifaie

Test Start: 2016.11.07 @ 17:42:00

Tool Information

Drill Pipe:	Length: 4488.00 ft	Diameter: 3.80 inches	Volume: 62.95 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 175.00 ft	Diameter: 2.25 inches	Volume: 0.86 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 63.81 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4685.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	75.00 ft			
Tool Length:	104.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4657.00	
Shut In Tool	5.00			4662.00	
Hydraulic tool	5.00			4667.00	
Jars	5.00			4672.00	
Safety Joint	3.00			4675.00	
Packer	5.00			4680.00	29.00 Bottom Of Top Packer
Packer	5.00			4685.00	
Stubb	1.00			4686.00	
Recorder	0.00	6625	Inside	4686.00	
Recorder	0.00	8366	Outside	4686.00	
Perforations	5.00			4691.00	
Blank Spacing	64.00			4755.00	
Perforations	2.00			4757.00	
Bullnose	3.00			4760.00	75.00 Bottom Packers & Anchor

Total Tool Length: 104.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

12-2s-37w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

McClurg #1-12

Job Ticket: 61199

DST#: 8

ATTN: Saman Sharifaie

Test Start: 2016.11.07 @ 17:42:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.55 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100%	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

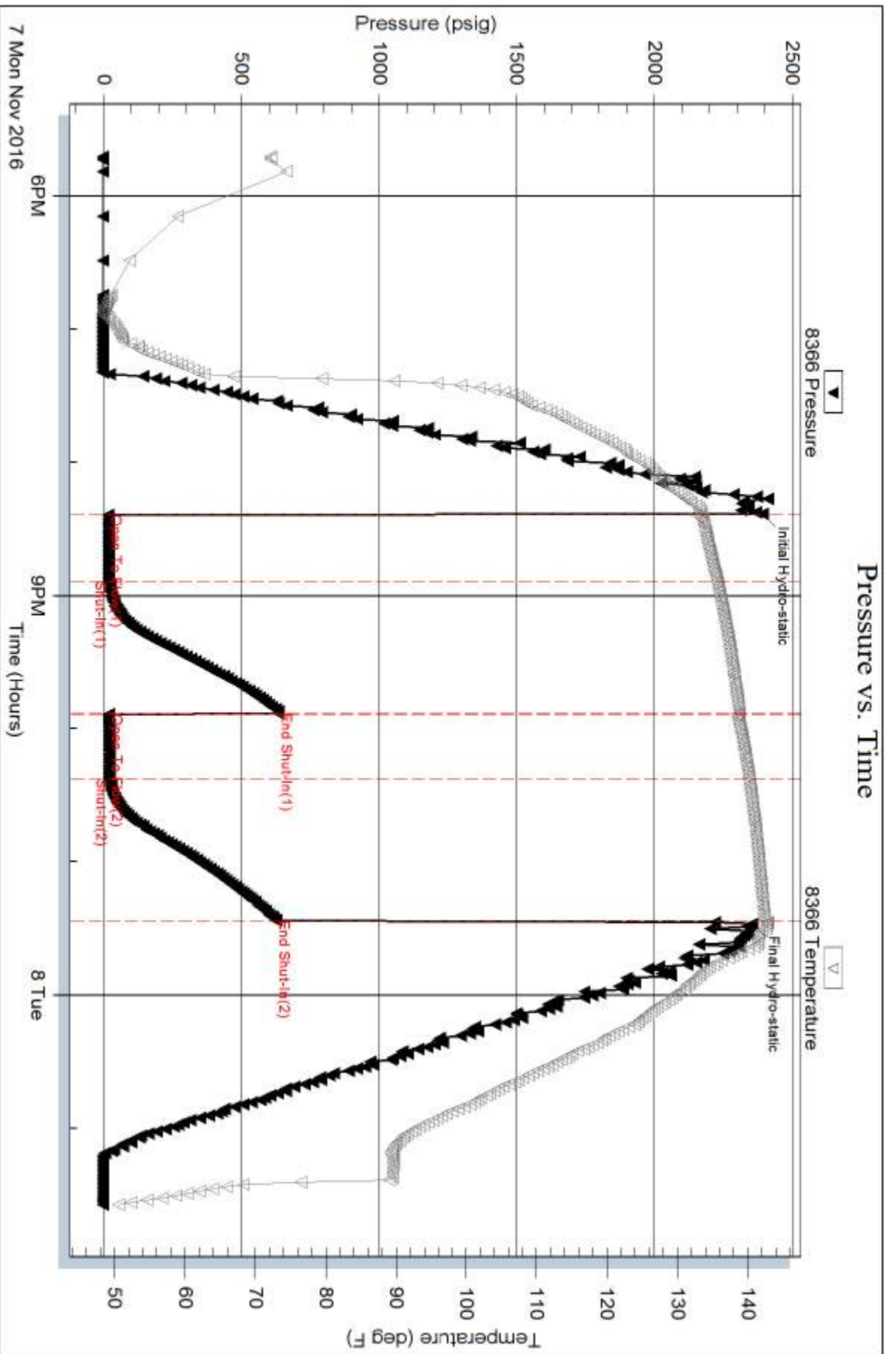
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



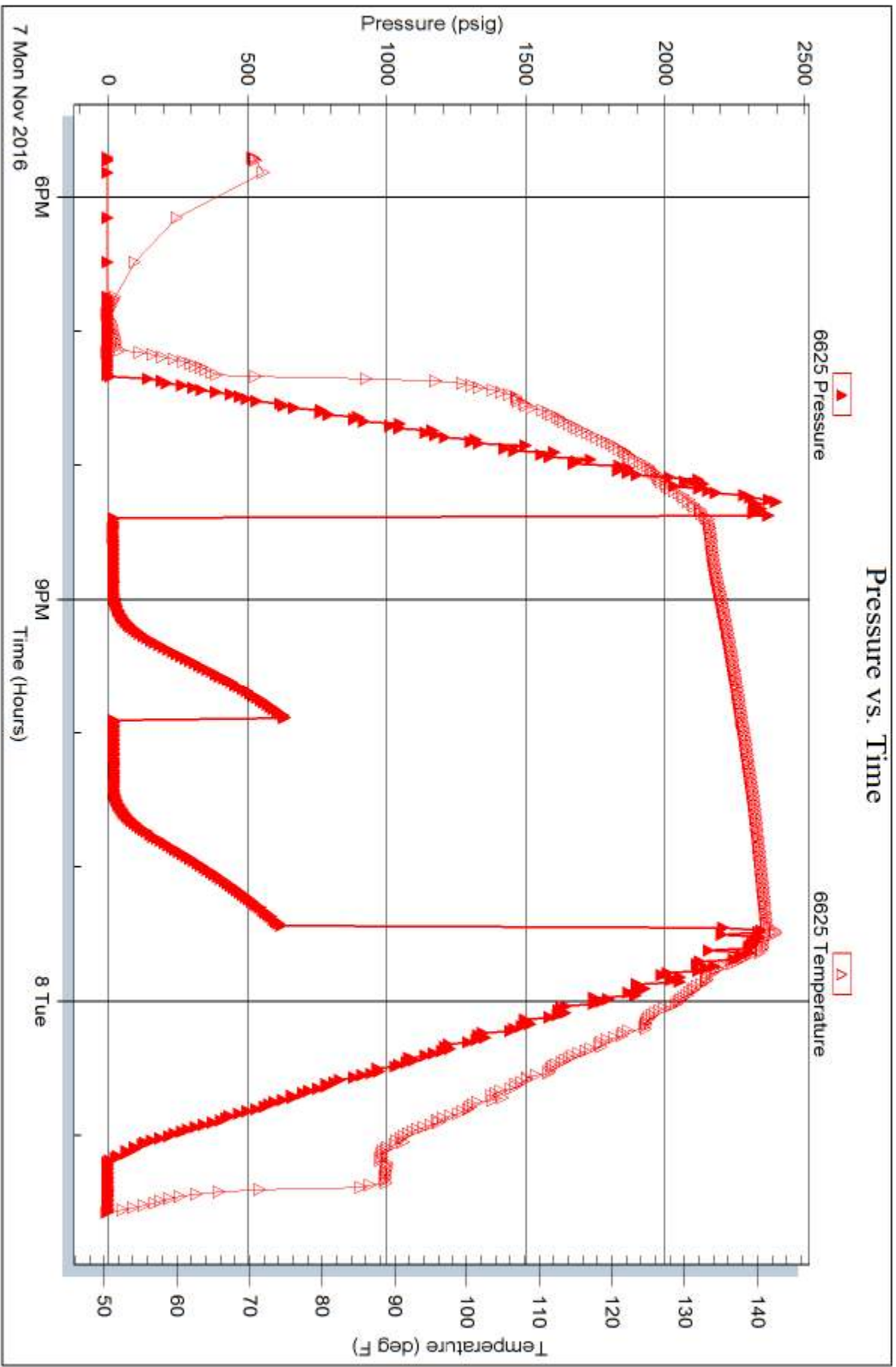
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

McClurg #1-12

DST Test Number: 8



Trilobite Testing, Inc

Ref. No: 61199

Printed: 2016.11.09 @ 10:06:41



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61192

4/10

Well Name & No. McClurg #1-12 Test No. 1 Date 11-1-16
 Company Murfin Drilling Co. Inc Elevation 3379 KB 3374 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 12 Twp. 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4166 - 4245 Zone Tested Oread
 Anchor Length 79 Drill Pipe Run 3988 Mud Wt. 8.8
 Top Packer Depth 4161 Drill Collars Run 175 Vis 62
 Bottom Packer Depth 4166 Wt. Pipe Run - WL 5.6
 Total Depth 4245 Chlorides 700 ppm System LCM 2

Blow Description IF: Blow built to BOB(11") at 20 min;
ISI: Blowback built to 3/4"
FF: Blow built to BOB at 21 1/2 min.
FSI: Blowback built to 6 1/4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>55</u>	<u>CO</u>	<u>8</u>	<u>90</u>	<u>-</u>	<u>2</u>
<u>20</u>	<u>MCO</u>	<u>4</u>	<u>81</u>	<u>-</u>	<u>15</u>
<u>167</u>	<u>Gmco</u>	<u>19</u>	<u>60</u>	<u>-</u>	<u>21</u>
<u>175</u>	<u>GOM</u>	<u>24</u>	<u>37</u>	<u>-</u>	<u>39</u>
	<u>GIP= 380'</u>				

Rec Total 417 BHT 142 Gravity 24.8 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 2032 Test 1150 T-On Location 15:40 4/1
 (B) First Initial Flow 28 Jars 250 T-Started 16:42
 (C) First Final Flow 115 Safety Joint 75 T-Open 18:30
 (D) Initial Shut-In 1044 Circ Sub T-Pulled 22:33
 (E) Second Initial Flow 118 Hourly Standby T-Out 00:35 1/2
 (F) Second Final Flow 186 Mileage 112 RT 84 Comments
 (G) Final Shut-In 1036 Sampler
 (H) Final Hydrostatic 2024 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies
 Extra Recorder

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90
 Sub Total 1559
 Total 1559
 MP/DST Disc't

Approved By _____ Our Representative James Vinder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61193

Well Name & No. McClurg #1-12 Test No. 2 Date 11-2-16
 Company Murfin Drilling Co. Inc Elevation 3379 KB 3374 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 12 Twp. 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4246-4384 Zone Tested LKC "A-D"
 Anchor Length 138 Drill Pipe Run 4050 Mud Wt. 9.0
 Top Packer Depth 4241 Drill Collars Run 175 Vis 58
 Bottom Packer Depth 4246 Wt. Pipe Run - WL 5.6
 Total Depth 4384 Chlorides 700 ppm System LCM 2

Blow Description IF: Blow built to BOB (11") at 4 1/4 min.
ISI: No blowback
FF: Blow started at 40 sec., built to BOB at 6 min.
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>320</u>	<u>Mud w/oil spots</u>	<u>6</u>	<u>2</u>	<u>92</u>	
<u>125</u>	<u>SWCM w/oil spots</u>	<u>5</u>	<u>2</u>	<u>7</u>	<u>86</u>
<u>615</u>	<u>MCM w/trace oil</u>	<u>-</u>	<u>trace</u>	<u>75</u>	<u>25</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total ~~1060~~ 1060 BHT 146 Gravity _____ API RW .960 @ 49.5 °F Chlorides 9000 ppm

(A) Initial Hydrostatic 2117 Test 1150 T-On Location 13:30
 (B) First Initial Flow 49 Jars 250 T-Started 13:47
 (C) First Final Flow 266 Safety Joint 75 T-Open 15:36
 (D) Initial Shut-In 835 Circ Sub _____ T-Pulled 18:53
 (E) Second Initial Flow 273 Hourly Standby _____ T-Out 21:15
 (F) Second Final Flow 506 Mileage 112 RT 84 Comments _____
 (G) Final Shut-In 833 Sampler _____
 (H) Final Hydrostatic 2098 Straddle _____

Initial Open 15 Ruined Shale Packer _____
 Initial Shut-In 60 Ruined Packer _____
 Final Flow 30 Extra Packer _____
 Final Shut-In 90 Extra Recorder _____
 Sub Total 0 Extra Copies _____
 Total 1559 Day Standby _____
 Sub Total 1559 Accessibility _____
 MP/DST Disc't _____

Approved By _____ Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61194

4/10

Well Name & No. McClurg #1-12 Test No. 3 Date 11-3-16
 Company Murfin Drilling Co, Inc Elevation 3379 KB 3374 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 12 Twp. 25 Rge. 37w Co. Cheyenne State KS

Interval Tested 4393 - 4440 Zone Tested LKC "6"
 Anchor Length 47 Drill Pipe Run 4206 Mud Wt. 9.2
 Top Packer Depth 4389 Drill Collars Run 175 Vis 59
 Bottom Packer Depth 4393 Wt. Pipe Run - WL 6.0
 Total Depth 4440 Chlorides 800 ppm System LCM 3
 Blow Description IF: Blow built to 1", slowly died back to 1/2" at close
ISI: No blowback
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>MO</u>	<u>2</u>	<u>54</u>	<u>44</u>	<u>44</u>
<u>5</u>	<u>OCM</u>	<u>-</u>	<u>23</u>	<u>77</u>	<u>77</u>

Rec Total 6 BHT 140 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2218 Test 1150 T-On Location 5:00
 (B) First Initial Flow 17 Jars 250 T-Started 5:43
 (C) First Final Flow 20 Safety Joint 75 T-Open 7:56
 (D) Initial Shut-In 48 Circ Sub _____ T-Pulled 10:57
 (E) Second Initial Flow 22 Hourly Standby _____ T-Out 12:45
 (F) Second Final Flow 22 Mileage 112RT 84 Comments _____
 (G) Final Shut-In 35 Sampler _____
 (H) Final Hydrostatic 2201 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1559
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1559

Approved By _____

Our Representative James Windler

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61195

4/10

Well Name & No. McClurg #1-12 Test No. 4 Date 11-~~7~~⁴-16
 Company Murfin Drilling Co Inc Elevation 3379 KB 3374 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 12 Twp. 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4438 - 4492 Zone Tested LKC "H"
 Anchor Length 54 Drill Pipe Run 4239 Mud Wt. 9.1
 Top Packer Depth 4433 Drill Collars Run 175 Vis 65 62
 Bottom Packer Depth 4438 Wt. Pipe Run - WL 6.0 5.6
 Total Depth 4492 Chlorides 800 ppm System LCM 4
 Blow Description IF: 1/2" Blow at open, built to 1 1/2"
ISI: No blowback
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>OCM</u>	<u>2</u>	<u>32</u>	<u>66</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 15 BHT 140 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2203 Test 1150 T-On Location 21:30 15:30
 (B) First Initial Flow 16 Jars 250 T-Started 16:02
 (C) First Final Flow 20 Safety Joint 75 T-Open 17:54
 (D) Initial Shut-In 851 Circ Sub _____ T-Pulled 21:56
 (E) Second Initial Flow 24 Hourly Standby _____ T-Out 23:55
 (F) Second Final Flow 28 Mileage 112 RT x 2 84+84 Comments Rig Drags turbo out on Tripout w/ bit
 (G) Final Shut-In 676 Sampler _____
 (H) Final Hydrostatic 2179 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Sub Total 1643
 Total 1643
 MP/DST Disc't _____

Approved By _____

Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61196

Well Name & No. McClurg #1-12 Test No. 5 Date 11-5-16
 Company Murfin Drilling Co. Inc Elevation 3379 KB 3374 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 12 Twp. 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4492 - 4530 Zone Tested LKC "J"
 Anchor Length 38 Drill Pipe Run 4300 Mud Wt. 9.1
 Top Packer Depth 4487 Drill Collars Run 175 Vis 69
 Bottom Packer Depth 4492 (shale) Wt. Pipe Run - WL 5.6
 Total Depth 4530 Chlorides 800 ppm System LCM 3

Blow Description IF: Blow built to just over 1"
ISI: No blowback
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>mud w/oil spots</u>		<u>1</u>		<u>99</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 2 BHT 139 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic 2262 Test 1150 T-On Location 7:05
 (B) First Initial Flow 16 Jars 250 T-Started 8:25
 (C) First Final Flow 17 Safety Joint 75 T-Open 10:17
 (D) Initial Shut-In 34 Circ Sub _____ T-Pulled 13:19
 (E) Second Initial Flow 18 Hourly Standby _____ T-Out 16:10
 (F) Second Final Flow 18 Mileage 112 RT 84 Comments _____
 (G) Final Shut-In 30 Sampler _____
 (H) Final Hydrostatic 2246 Straddle _____

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 60 Ruined Packer _____
 Final Flow 30 Extra Packer _____
 Final Shut-In 60 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1809
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1809

Approved By _____ Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61197

Well Name & No. McClurg #1-12 Test No. 6 Date 11-6-16
 Company Murfin Drilling Co. Inc Elevation 3379 KB 3374 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifate Rig Murfin #3
 Location: Sec. 12 Twp. 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4558-4580 Zone Tested LKC "L"
 Anchor Length 22 Drill Pipe Run 4362 Mud Wt. 9.2
 Top Packer Depth 4553 Drill Collars Run 175 Vis 58
 Bottom Packer Depth 4558 Wt. Pipe Run - WL 5.6
 Total Depth 4580 Chlorides 800 ppm System LCM 3

Blow Description IF: Blow built to BOB (11") at 6 min.
ISI: Blowback built to 1/8" then died back
FF: Blow built to BOB at 8 1/2 min.
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>295</u>	<u>mw</u>		<u>59</u>	<u>41</u>	
<u>1050</u>	<u>Water</u>		<u>97</u>	<u>3</u>	

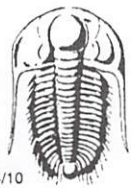
Rec Total 1345 BHT 159 Gravity _____ API RW .635 @ 54.3 °F Chlorides 13000 ppm

(A) Initial Hydrostatic 2321 Test 1150 T-On Location 00:10
 (B) First Initial Flow 30 Jars 250 T-Started 00:36
 (C) First Final Flow 319 Safety Joint 75 T-Open 2:23
 (D) Initial Shut-In 709 Circ Sub _____ T-Pulled 6:25
 (E) Second Initial Flow 320 Hourly Standby _____ T-Out 7:50
 (F) Second Final Flow 598 Mileage 112 RT 84
 (G) Final Shut-In 709 Sampler _____
 (H) Final Hydrostatic 2280 Straddle _____

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 60 Ruined Packer _____
 Final Flow 60 Extra Packer _____
 Final Shut-In 90 Extra Recorder _____
 Sub Total 0
 Total 1559
 MP/DST Disc't _____
 Sub Total 1559

Approved By _____ Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61198

Well Name & No. McClurg #1-12 Test No. 7 Date 11-6-16
 Company Murfin Drilling Co. Inc Elevation 3379 KB 3374 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 12 Twp. 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4626-4690 Zone Tested Marmaton "C"
 Anchor Length 64 Drill Pipe Run 4427 Mud Wt. 9.1
 Top Packer Depth 4621 Drill Collars Run 175 Vis 65
 Bottom Packer Depth 4626 Wt. Pipe Run - WL 6.4
 Total Depth 4690 Chlorides 800 ppm System LCM 4
 Blow Description IF: Blow built to 1/2", died back, dead at 26 min.
ISI: No blow
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>mud</u>			<u>100</u>	
	<u>trace of oil in tool</u>				

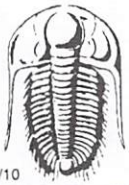
Rec Total 30 BHT 141 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2294</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>21:20</u> <u>1/6</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>21:56</u>
(C) First Final Flow <u>17</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>00:15</u>
(D) Initial Shut-In <u>50</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>3:19</u>
(E) Second Initial Flow <u>19</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>5:10</u> <u>1/2</u>
(F) Second Final Flow <u>37</u>	<input checked="" type="checkbox"/> Mileage <u>112 RT</u> <u>84</u>	Comments _____
(G) Final Shut-In <u>86</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2281</u>	<input type="checkbox"/> Straddle _____	
	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
	<input type="checkbox"/> Extra Packer _____	<input checked="" type="checkbox"/> Ruined Packer <u>320</u>
	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
	<input type="checkbox"/> Day Standby _____	Sub Total <u>320</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1879</u>
	Sub Total <u>1559</u>	MP/DST Disc't _____

Approved By _____

Our Representative James Winkler

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61199

Well Name & No. McClurg #1-12 Test No. 8 Date 11-7-16
 Company Murfin Drilling Co. Inc Elevation 3379 KB 3374 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Saman Shari faie Rig Murfin #3
 Location: Sec. 12 Twp. 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4685-4760 Zone Tested F+ Scott
 Anchor Length 75 Drill Pipe Run 4488 Mud Wt. 9.0
 Top Packer Depth 4680 Drill Collars Run 175 Vis 64
 Bottom Packer Depth 4685 Wt. Pipe Run - WL 5.6
 Total Depth 4760 Chlorides 800 ppm System LCM 4

Blow Description IF: 1/2" Blow at open, built to 1/4"
IST: No blowback
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud</u>				<u>100</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 142 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic 2392 Test 1150 T-On Location 16:50 1/2
 (B) First Initial Flow 17 Jars 250 T-Started 17:42
 (C) First Final Flow 19 Safety Joint 75 T-Open 20:23
 (D) Initial Shut-In 635 Circ Sub _____ T-Pulled 23:26
 (E) Second Initial Flow 19 Hourly Standby _____ T-Out 1:30 1/8
 (F) Second Final Flow 22 Mileage 112 RT x 2 84+84 Comments _____
 (G) Final Shut-In 626 Sampler _____ loaded 11/9 3:00
 (H) Final Hydrostatic 2356 Straddle _____
 Ruined Shale Packer _____
 Ruined Packer _____

Initial Open 30 Extra Packer _____
 Initial Shut-In 60 Extra Recorder _____
 Final Flow 30 Day Standby _____
 Final Shut-In 60 Accessibility _____
 Sub Total 1643

Approved By _____ Our Representative James Winder

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