



DRILL STEM TEST REPORT

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

250 N. Water, STE 300
Wichita, KS 67202

ATTN: Kent Matson

Krug "A" #1-8

8-1s-38w Cheyenne,KS

Start Date: 2014.11.29 @ 01:55:00

End Date: 2014.11.29 @ 09:59:30

Job Ticket #: 61037 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.12.05 @ 16:18:14



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.
 250 N. Water, STE 300
 Wichita, KS 67202
 ATTN: Kent Matson

8-1s-38w Cheyenne,KS

Krug "A" #1-8

Job Ticket: 61037

DST#: 1

Test Start: 2014.11.29 @ 01:55:00

GENERAL INFORMATION:

Formation: **Le Compton & Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:45:30

Time Test Ended: 09:59:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Quintana

Unit No: 46

Interval: 4040.00 ft (KB) To 4108.00 ft (KB) (TVD)

Total Depth: 4108.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3203.00 ft (KB)

3192.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8647 Inside

Press@RunDepth: 31.03 psig @ 4041.00 ft (KB)

Start Date: 2014.11.29

End Date: 2014.11.29

Start Time: 01:55:01

End Time: 09:59:30

Capacity: 8000.00 psig

Last Calib.: 2014.11.29

Time On Btm: 2014.11.29 @ 04:38:30

Time Off Btm: 2014.11.29 @ 07:51:30

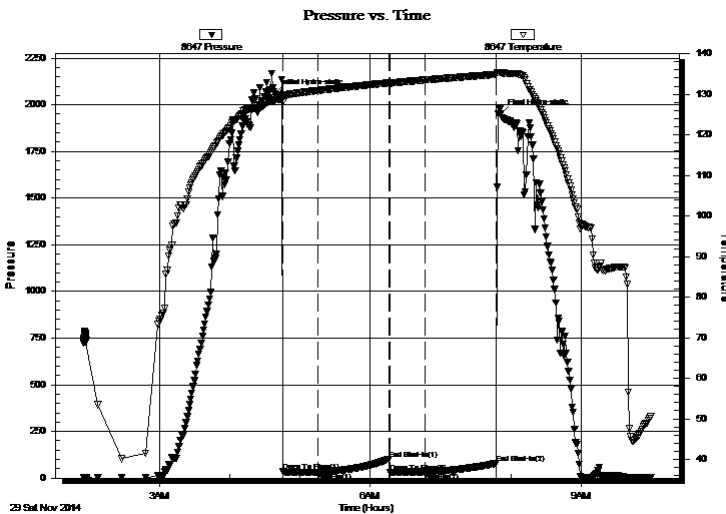
TEST COMMENT: 30 - IF - Opened w/ surface blow , built to 1/4" died back to nothing

60 - ISI - No Return

30 - FF - No Blow

60 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2060.39	128.52	Initial Hydro-static
7	36.06	128.18	Open To Flow (1)
37	30.15	130.93	Shut-In(1)
97	101.90	132.78	End Shut-In(1)
98	32.36	132.74	Open To Flow (2)
128	31.03	133.50	Shut-In(2)
189	79.44	134.87	End Shut-In(2)
193	1953.33	135.28	Final Hydro-static

Recovery

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

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61037

DST#: 1

ATTN: Kent Matson

Test Start: 2014.11.29 @ 01:55:00

Tool Information

Drill Pipe:	Length: 3860.32 ft	Diameter: 3.80 inches	Volume: 54.15 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 183.06 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose:	80000.00 lb
			Total Volume: - bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:	31.38 ft			String Weight: Initial	64000.00 lb
Depth to Top Packer:	4040.00 ft			Final	64000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	68.00 ft				
Tool Length:	96.00 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			4013.00	
Shut In Tool	5.00			4018.00	
Hydraulic tool	5.00		Inside	4023.00	
Jars	5.00			4028.00	
Safety Joint	3.00			4031.00	
Packer	5.00			4036.00	28.00 Bottom Of Top Packer
Packer	4.00			4040.00	
Stubb	1.00			4041.00	
Recorder	0.00	8647	Inside	4041.00	
Recorder	0.00	8372	Outside	4041.00	
Perforations	30.00			4071.00	
Change Over Sub	1.00			4072.00	
Drill Pipe	32.00			4104.00	
Change Over Sub	1.00			4105.00	
Bullnose	3.00			4108.00	68.00 Bottom Packers & Anchor

Total Tool Length: 96.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61037

DST#: 1

ATTN: Kent Matson

Test Start: 2014.11.29 @ 01:55:00

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: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	100%mud	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

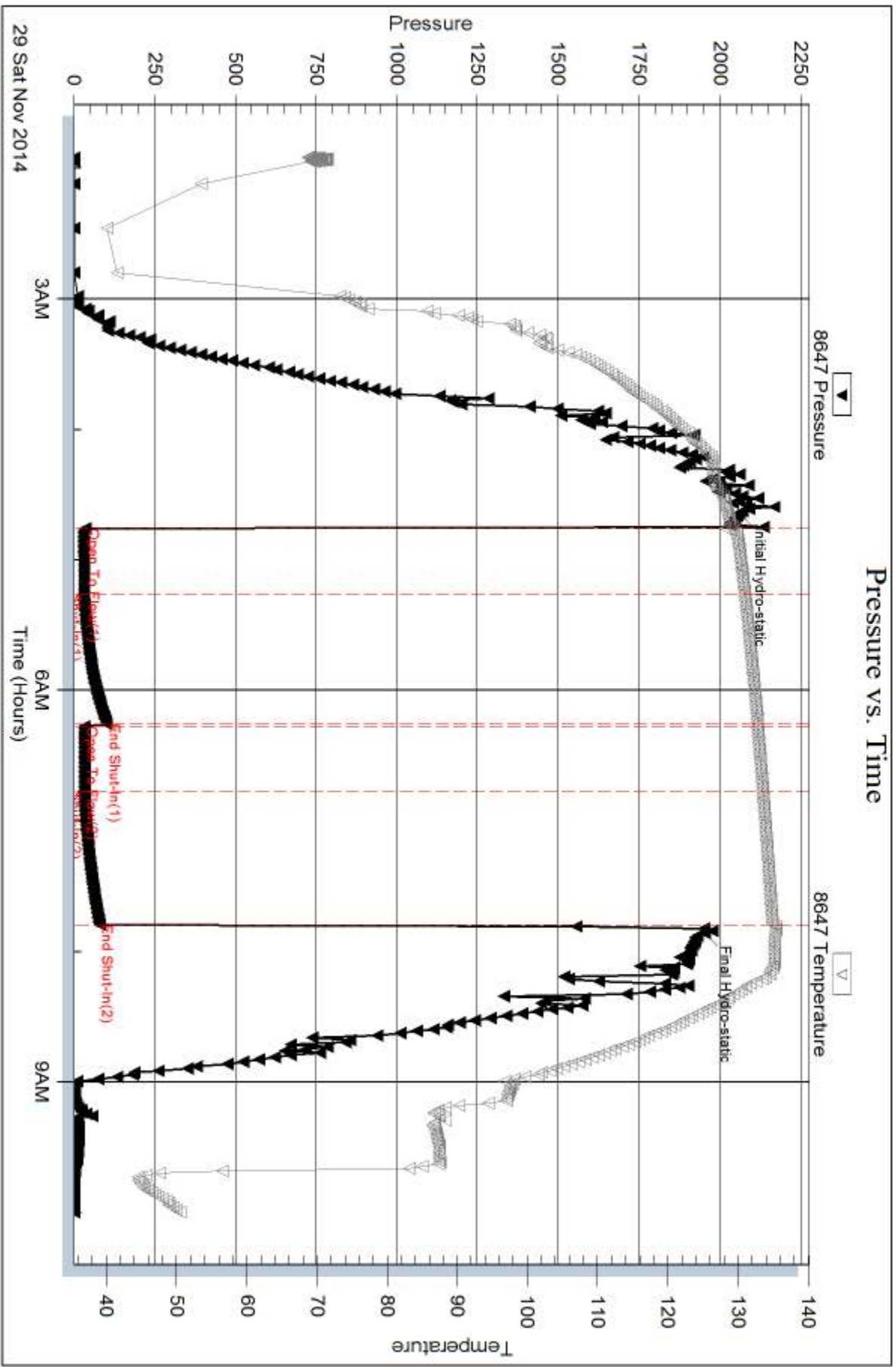
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

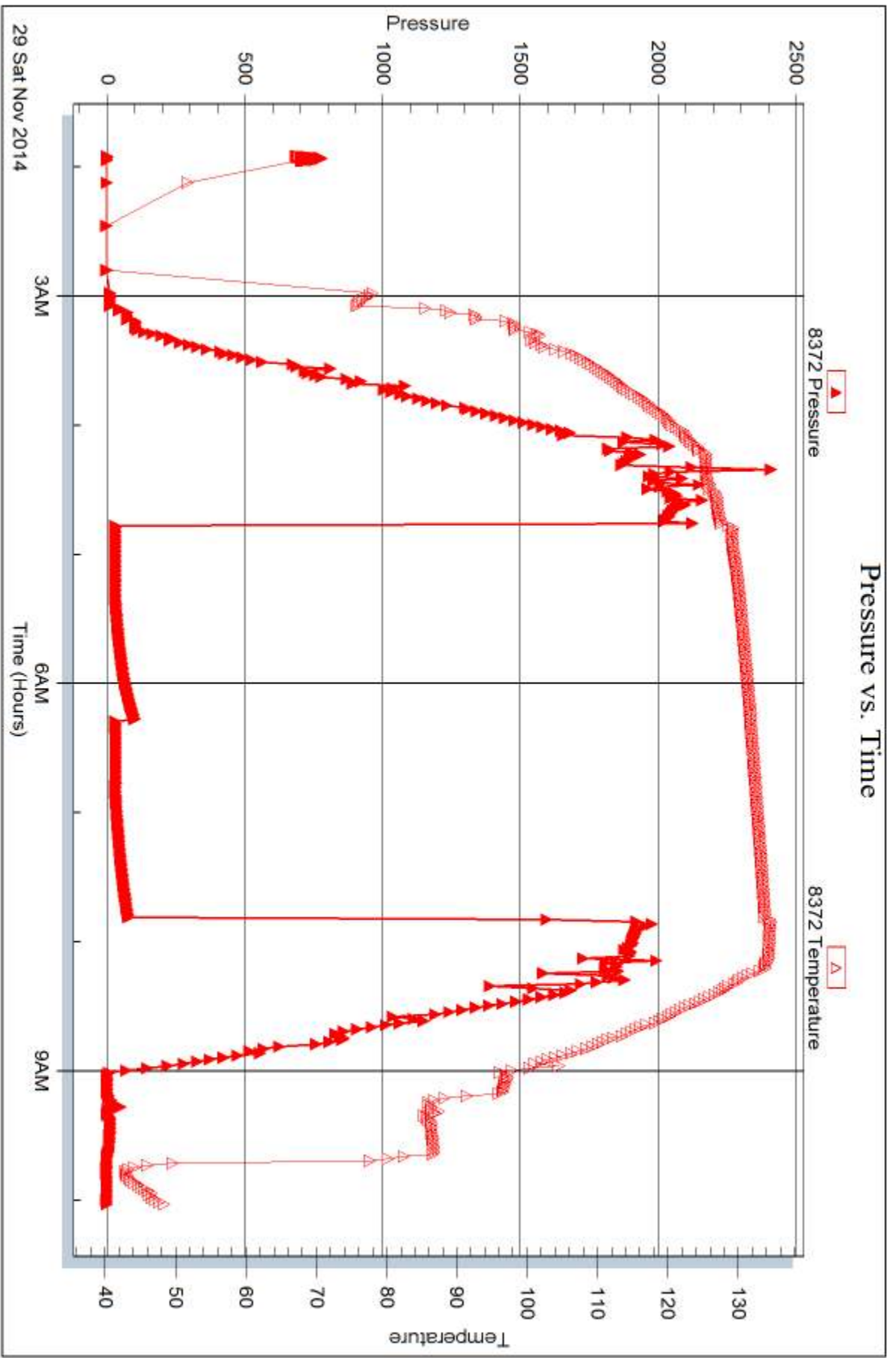


Serial #: 8372

Outside Marfin Drfg. Co., Inc.

Krug "A" #1-8

DST Test Number: 1





DRILL STEM TEST REPORT

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

250 N. Water, STE 300
Wichita, KS 67202

ATTN: Kent Matson

Krug "A" #1-8

8-1s-38w Cheyenne,KS

Start Date: 2014.11.29 @ 23:44:00

End Date: 2014.11.30 @ 08:23:00

Job Ticket #: 61038 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.12.05 @ 16:17:53



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.
250 N. Water, STE 300
Wichita, KS 67202
ATTN: Kent Matson

8-1s-38w Cheyenne,KS

Krug "A" #1-8

Job Ticket: 61038

DST#: 2

Test Start: 2014.11.29 @ 23:44:00

GENERAL INFORMATION:

Formation: **LKC "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:58:00

Time Test Ended: 08:23:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Quintana

Unit No: 46

Interval: 4116.00 ft (KB) To 4190.00 ft (KB) (TVD)

Total Depth: 4190.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3203.00 ft (KB)

3192.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8647

Inside

Press@RunDepth: 27.79 psig @ 4117.00 ft (KB)

Start Date: 2014.11.29

End Date:

2014.11.30

Start Time: 23:44:01

End Time:

08:23:00

Capacity: 8000.00 psig

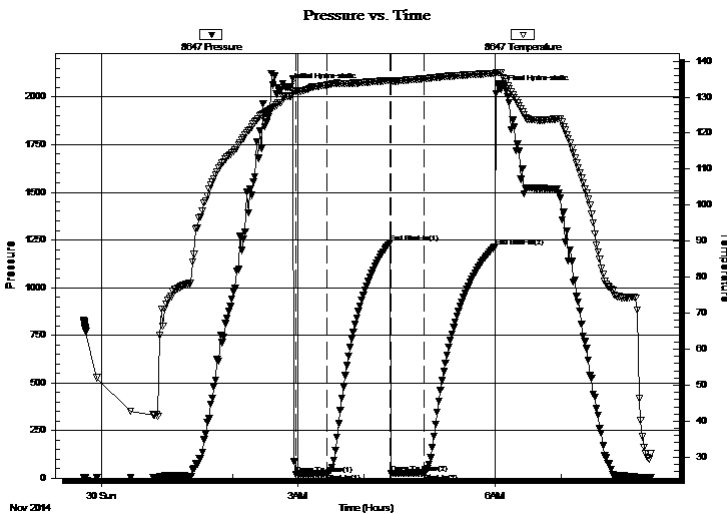
Last Calib.: 2014.11.30

Time On Btm: 2014.11.30 @ 02:50:30

Time Off Btm: 2014.11.30 @ 06:05:30

TEST COMMENT: 30 - IF - Opened w/ surface blow , didn't build
60 - ISI - No Return
30 - FF - No Blow
60 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2050.90	130.22	Initial Hydro-static
8	21.39	131.62	Open To Flow (1)
36	23.25	133.31	Shut-In(1)
93	1235.69	134.60	End Shut-In(1)
95	25.66	134.38	Open To Flow (2)
125	27.79	135.11	Shut-In(2)
189	1215.15	136.61	End Shut-In(2)
195	2037.53	136.70	Final Hydro-static

Recovery

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

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61038

DST#: 2

ATTN: Kent Matson

Test Start: 2014.11.29 @ 23:44:00

Tool Information

Drill Pipe:	Length: 3923.00 ft	Diameter: 3.80 inches	Volume: 55.03 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 183.06 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.06 ft			String Weight: Initial 66000.00 lb
Depth to Top Packer:	4116.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	74.00 ft			
Tool Length:	102.00 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			4089.00	
Shut In Tool	5.00			4094.00	
Hydraulic tool	5.00		Inside	4099.00	
Jars	5.00			4104.00	
Safety Joint	3.00			4107.00	
Packer	5.00			4112.00	28.00 Bottom Of Top Packer
Packer	4.00			4116.00	
Stubb	1.00			4117.00	
Recorder	0.00	8647	Inside	4117.00	
Recorder	0.00	8372	Outside	4117.00	
Perforations	36.00			4153.00	
Change Over Sub	1.00			4154.00	
Drill Pipe	32.00			4186.00	
Change Over Sub	1.00			4187.00	
Bullnose	3.00			4190.00	74.00 Bottom Packers & Anchor

Total Tool Length: 102.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61038

DST#: 2

ATTN: Kent Matson

Test Start: 2014.11.29 @ 23:44:00

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.18 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	100% mud	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

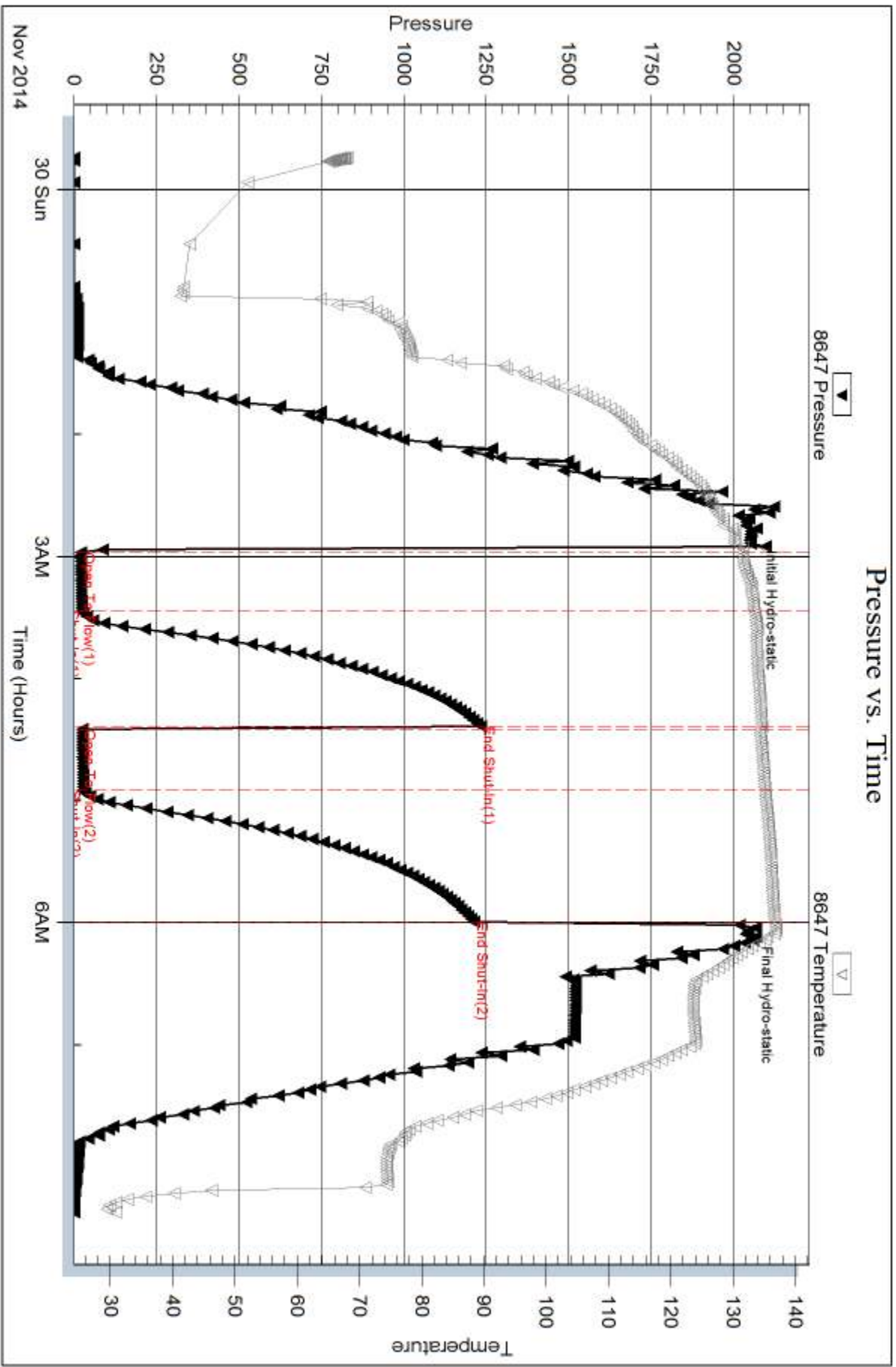
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

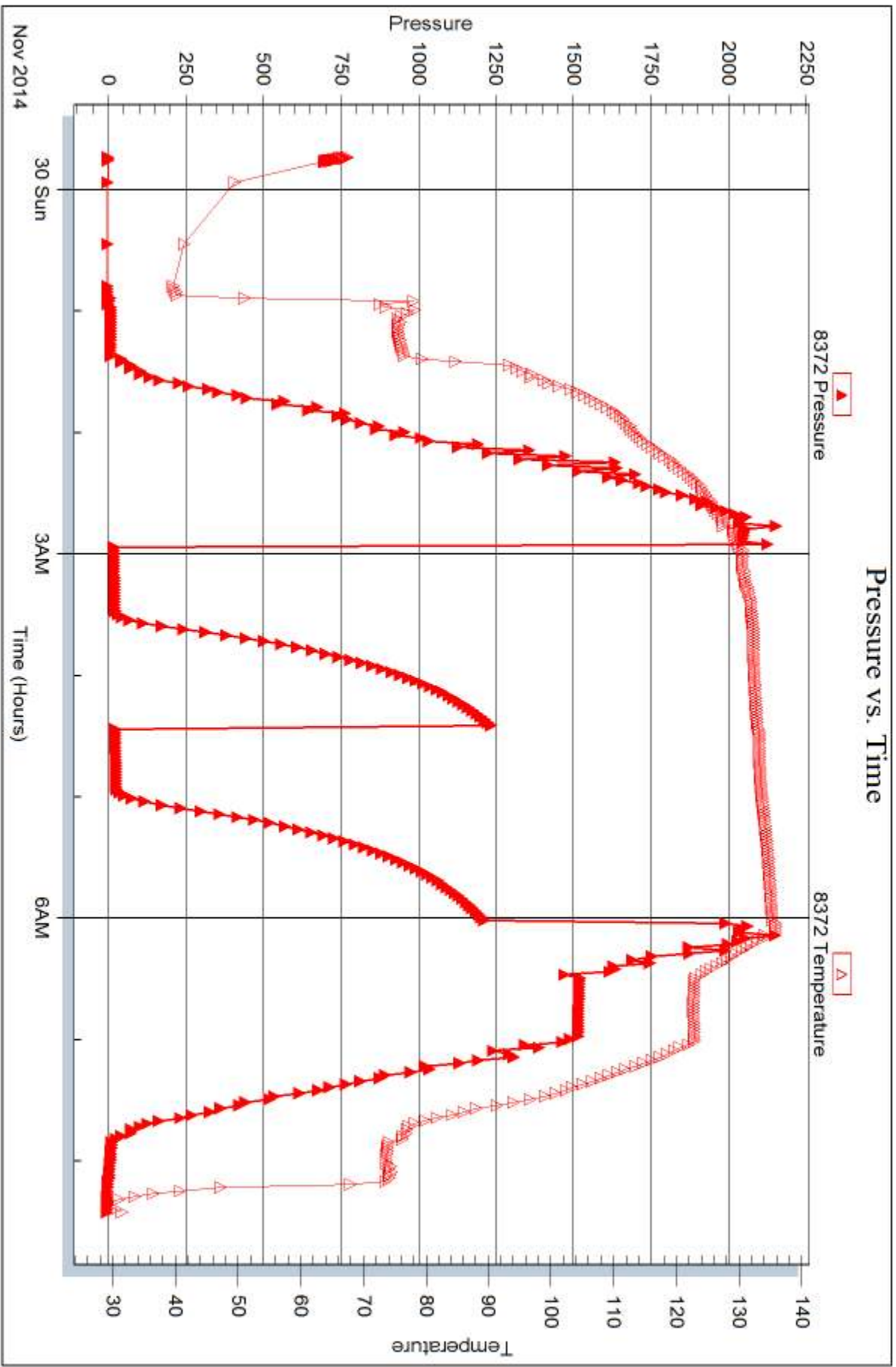


Serial #: 8372

Outside Murfin Drtg. Co., Inc.

Krug "A" #1-8

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 61038

Printed: 2014, 12:05 @ 16:17:54



DRILL STEM TEST REPORT

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

250 N. Water, STE 300
Wichita, KS 67202

ATTN: Kent Matson

Krug "A" #1-8

8-1s-38w Cheyenne,KS

Start Date: 2014.11.30 @ 19:47:00

End Date: 2014.12.01 @ 04:11:00

Job Ticket #: 61039 DST #: 3

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.12.11 @ 10:34:05



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.
 250 N. Water, STE 300
 Wichita, KS 67202
 ATTN: Kent Matson

8-1s-38w Cheyenne,KS

Krug "A" #1-8

Job Ticket: 61039

DST#: 3

Test Start: 2014.11.30 @ 19:47:00

GENERAL INFORMATION:

Formation: **LKC "D"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 21:37:00
 Time Test Ended: 04:11:00
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brandon Quintana
 Unit No: 46
 Interval: **4182.00 ft (KB) To 4245.00 ft (KB) (TVD)**
 Total Depth: 4245.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 Reference Elevations: 3203.00 ft (KB)
 3192.00 ft (CF)
 KB to GR/CF: 11.00 ft

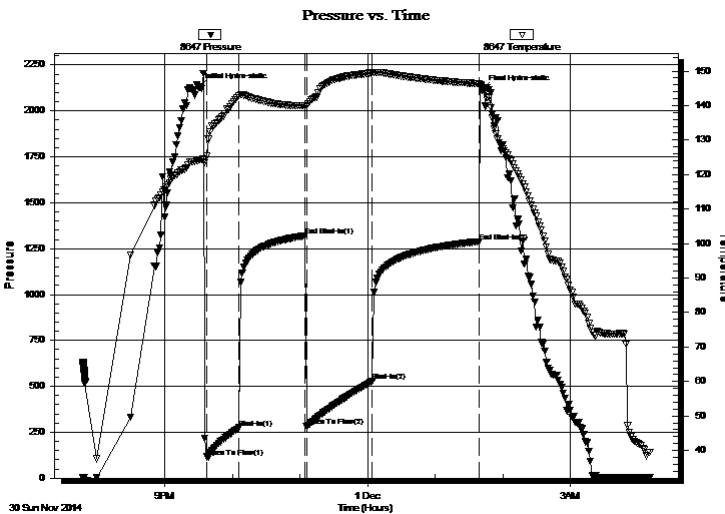
Serial #: 8647

Inside

Press@RunDepth: 526.74 psig @ 4183.00 ft (KB)
 Start Date: 2014.11.30 End Date: 2014.12.01
 Start Time: 19:47:01 End Time: 04:11:00
 Capacity: 8000.00 psig
 Last Calib.: 2014.12.01
 Time On Btm: 2014.11.30 @ 21:29:30
 Time Off Btm: 2014.12.01 @ 01:41:30

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to B.o.B in 6 min.
 60 - ISI - No Return
 60 - FF - Blow built to B.o.B in 8 min.
 90 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2129.04	124.10	Initial Hydro-static
8	115.28	125.28	Open To Flow (1)
36	273.92	142.88	Shut-In(1)
95	1319.07	139.96	End Shut-In(1)
96	284.35	139.88	Open To Flow (2)
155	526.74	149.52	Shut-In(2)
249	1288.39	146.35	End Shut-In(2)
252	2114.51	144.29	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1143.00	MW 73%w , 27%m	14.37

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61039

DST#: 3

ATTN: Kent Matson

Test Start: 2014.11.30 @ 19:47:00

Tool Information

Drill Pipe:	Length: 3987.00 ft	Diameter: 3.80 inches	Volume: 55.93 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 183.06 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.06 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4182.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	63.00 ft			
Tool Length:	91.00 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			4155.00	
Shut In Tool	5.00			4160.00	
Hydraulic tool	5.00		Inside	4165.00	
Jars	5.00			4170.00	
Safety Joint	3.00			4173.00	
Packer	5.00			4178.00	28.00 Bottom Of Top Packer
Packer	4.00			4182.00	
Stubb	1.00			4183.00	
Recorder	0.00	8647	Inside	4183.00	
Recorder	0.00	8372	Outside	4183.00	
Perforations	26.00			4209.00	
Change Over Sub	1.00			4210.00	
Drill Pipe	31.00			4241.00	
Change Over Sub	1.00			4242.00	
Bullnose	3.00			4245.00	63.00 Bottom Packers & Anchor

Total Tool Length: 91.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61039

DST#: 3

ATTN: Kent Matson

Test Start: 2014.11.30 @ 19:47:00

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:

70000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1143.00	MW 73%w , 27%m	14.366

Total Length: 1143.00 ft Total Volume: 14.366 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

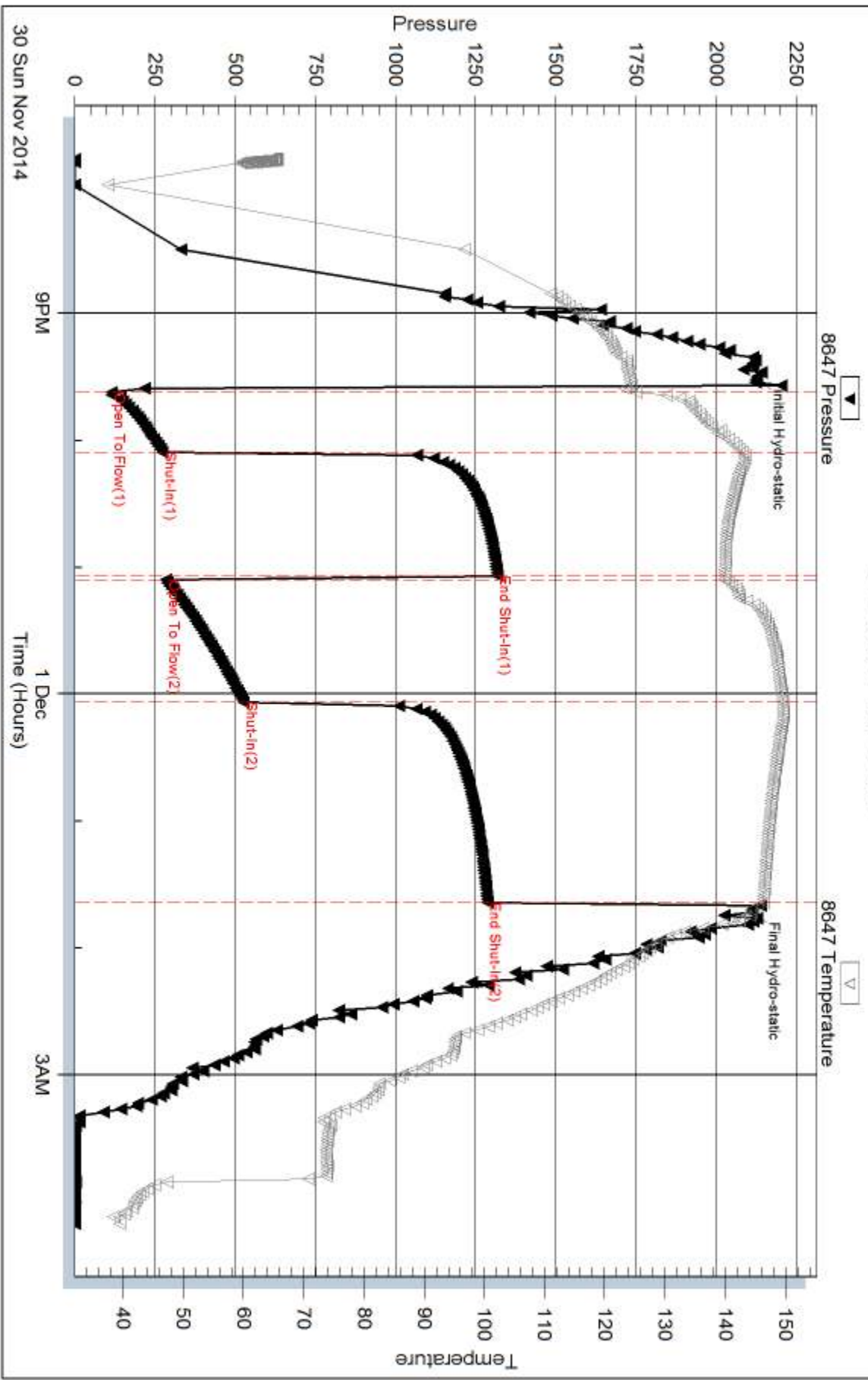
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .403 @ 16F Chlorides 70,000ppm

Pressure vs. Time

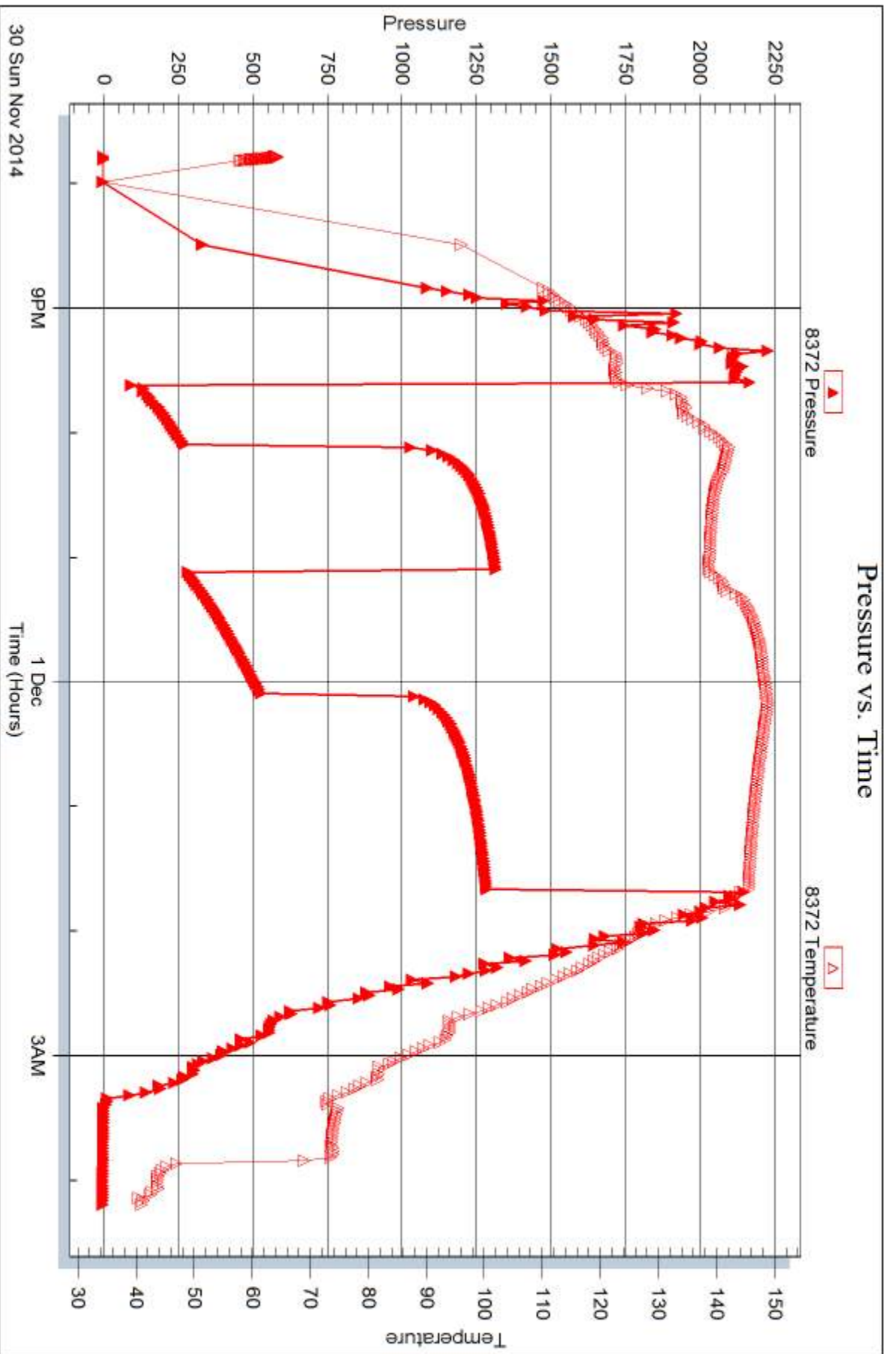


Serial #: 8372

Outside Marfin Drfg. Co., Inc.

Krug "A" #1-8

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 61039

Printed: 2014.12.11 @ 10:34:07



DRILL STEM TEST REPORT

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

250 N. Water, STE 300
Wichita, KS 67202

ATTN: Kent Matson

Krug "A" #1-8

8-1s-38w Cheyenne,KS

Start Date: 2014.12.01 @ 16:12:00

End Date: 2014.12.02 @ 01:05:30

Job Ticket #: 61040 DST #: 4

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.12.05 @ 16:15:54

Murfin Drlg. Co., Inc. 8-1s-38w Cheyenne,KS Krug "A" #1-8 DST # 4 LKC "G" 2014.12.01



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.
250 N. Water, STE 300
Wichita, KS 67202
ATTN: Kent Matson

8-1s-38w Cheyenne,KS

Krug "A" #1-8

Job Ticket: 61040

DST#: 4

Test Start: 2014.12.01 @ 16:12:00

GENERAL INFORMATION:

Formation: **LKC "G"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 18:45:30
 Time Test Ended: 01:05:30
 Interval: **4242.00 ft (KB) To 4300.00 ft (KB) (TVD)**
 Total Depth: 4300.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brandon Quintana
 Unit No: 46
 Reference Elevations: 3203.00 ft (KB)
 3192.00 ft (CF)
 KB to GR/CF: 11.00 ft

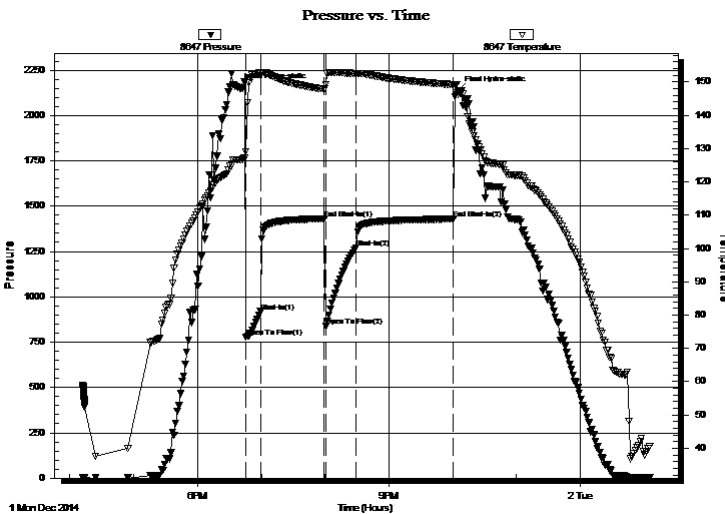
Serial #: 8647

Inside

Press@RunDepth: 1270.17 psig @ 4243.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.12.01 End Date: 2014.12.02 Last Calib.: 2014.12.02
 Start Time: 16:12:01 End Time: 01:05:30 Time On Btm: 2014.12.01 @ 18:38:00
 Time Off Btm: 2014.12.01 @ 22:05:00

TEST COMMENT: 15 - IF - Opened w/ surface blow , built to B.o.B in 35 sec.
 60 - ISI - No Return
 30 - FF - Blow built to B.o.B in 35 sec.
 90 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2154.89	126.66	Initial Hydro-static
8	778.46	129.03	Open To Flow (1)
21	919.29	152.66	Shut-In(1)
81	1430.89	147.80	End Shut-In(1)
83	836.07	149.16	Open To Flow (2)
111	1270.17	152.49	Shut-In(2)
203	1429.38	149.17	End Shut-In(2)
207	2134.58	146.35	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2871.00	MW 86%w , 14%m	38.60

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61040

DST#: 4

ATTN: Kent Matson

Test Start: 2014.12.01 @ 16:12:00

Tool Information

Drill Pipe:	Length: 4049.00 ft	Diameter: 3.80 inches	Volume: 56.80 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 183.06 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 100000.0 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.06 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4242.00 ft			Final 78000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	58.00 ft			
Tool Length:	86.00 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			4215.00	
Shut In Tool	5.00			4220.00	
Hydraulic tool	5.00		Inside	4225.00	
Jars	5.00			4230.00	
Safety Joint	3.00			4233.00	
Packer	5.00			4238.00	28.00 Bottom Of Top Packer
Packer	4.00			4242.00	
Stubb	1.00			4243.00	
Packer - Shale	0.00			4243.00	
Recorder	0.00	8647	Inside	4243.00	
Recorder	0.00	8372	Outside	4243.00	
Perforations	21.00			4264.00	
Change Over Sub	1.00			4265.00	
Drill Pipe	31.00			4296.00	
Change Over Sub	1.00			4297.00	
Bullnose	3.00			4300.00	58.00 Bottom Packers & Anchor
Total Tool Length:	86.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61040

DST#: 4

ATTN: Kent Matson

Test Start: 2014.12.01 @ 16:12:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

61000 ppm

Viscosity: 70.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2871.00	MW 86%w , 14%m	38.605

Total Length: 2871.00 ft Total Volume: 38.605 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

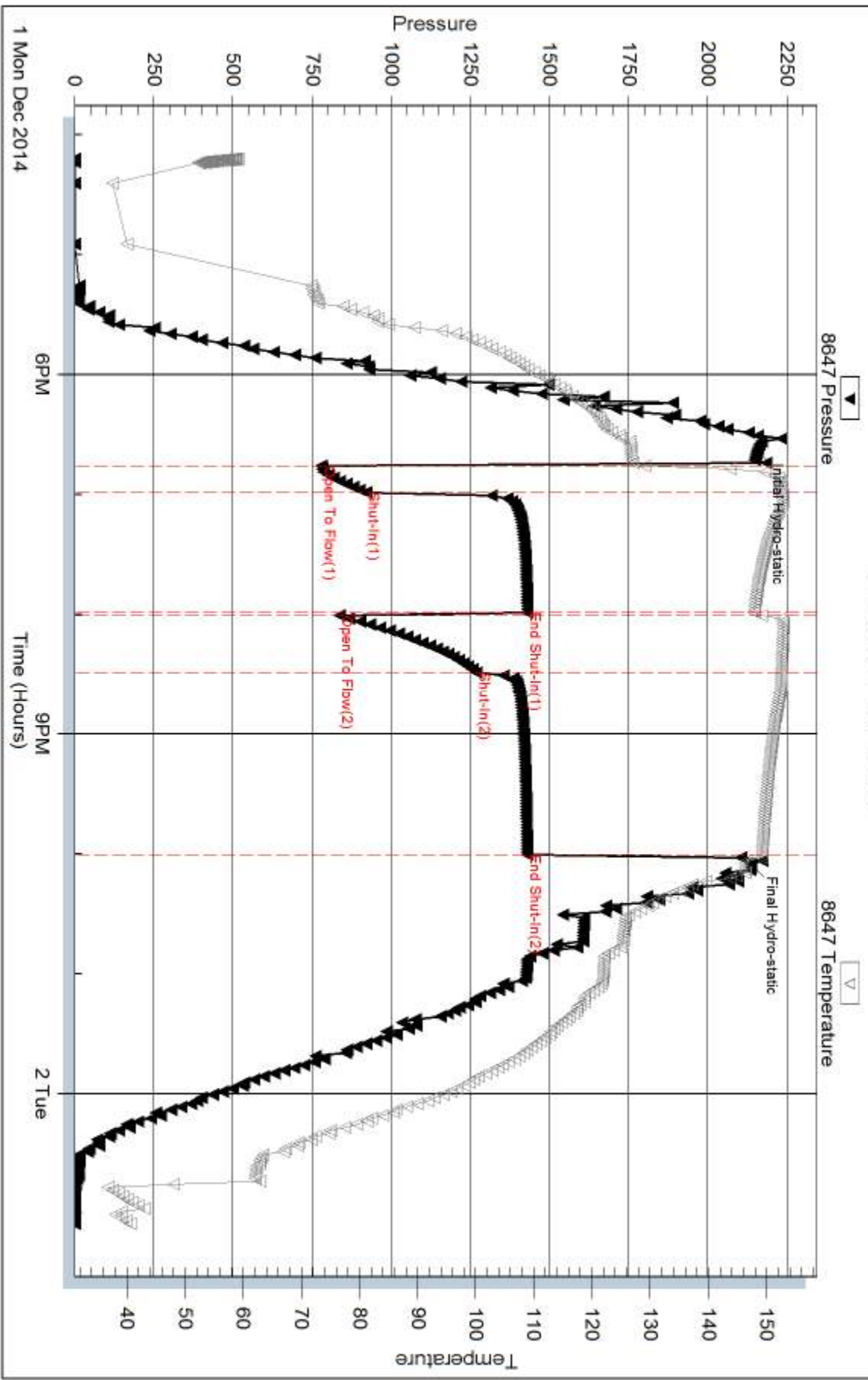
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .436 @ 20F Chlorides 61000ppm

Pressure vs. Time

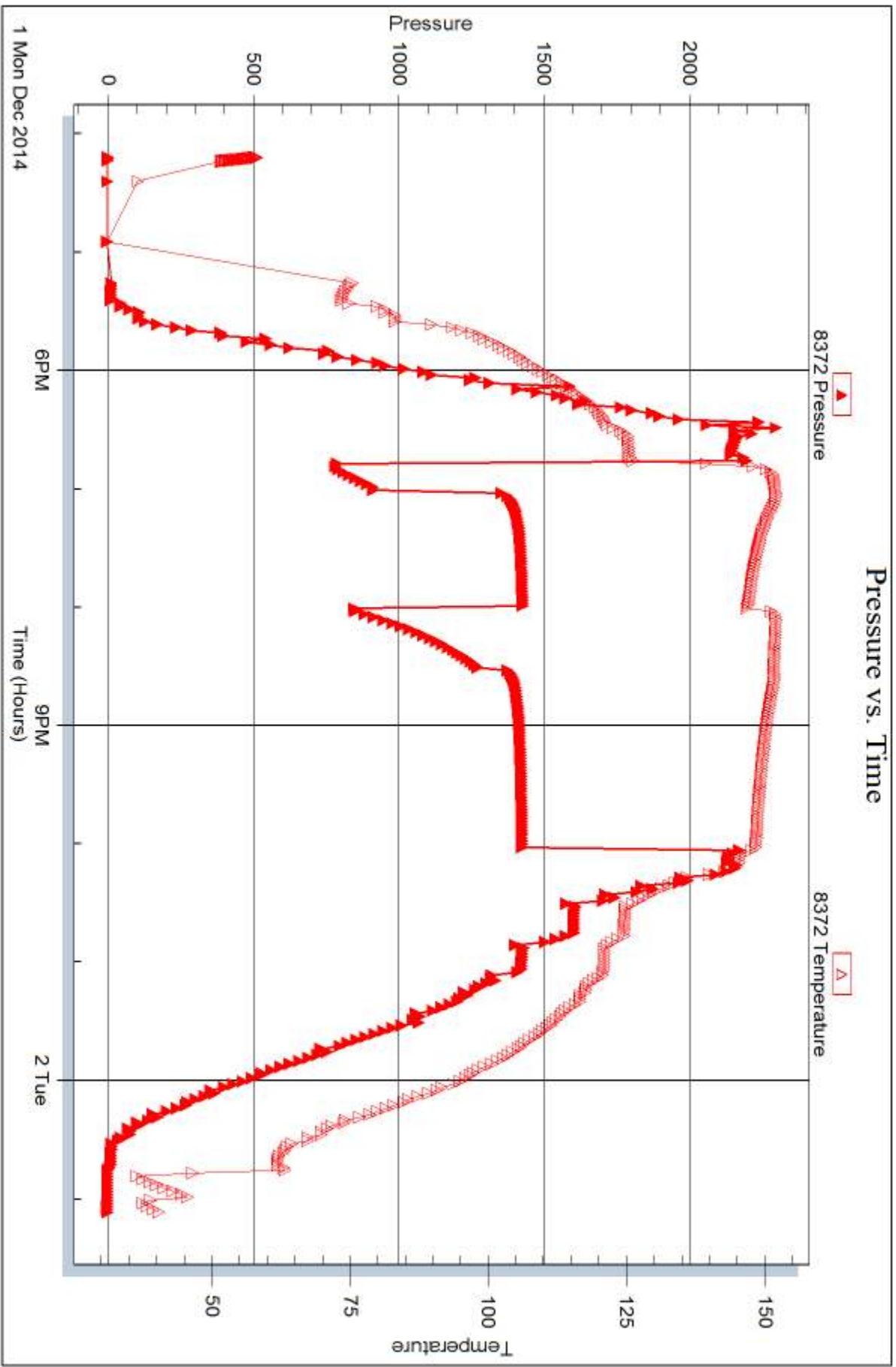


Serial #: 8372

Outside Marfin Dtg. Co., Inc.

Krug "A" #1-8

DST Test Number: 4





DRILL STEM TEST REPORT

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

250 N. Water, STE 300
Wichita, KS 67202

ATTN: Kent Matson

Krug "A" #1-8

8-1s-38w Cheyenne,KS

Start Date: 2014.12.03 @ 08:58:00

End Date: 2014.12.03 @ 16:48:30

Job Ticket #: 61041 DST #: 5

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.12.05 @ 16:15:09



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.
250 N. Water, STE 300
Wichita, KS 67202
ATTN: Kent Matson

8-1s-38w Cheyenne,KS

Krug "A" #1-8

Job Ticket: 61041

DST#: 5

Test Start: 2014.12.03 @ 08:58:00

GENERAL INFORMATION:

Formation: **Pawnee**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:39:30
 Time Test Ended: 16:48:30
 Interval: **4535.00 ft (KB) To 4580.00 ft (KB) (TVD)**
 Total Depth: 4580.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brandon Quintana
 Unit No: 46
 Reference Elevations: 3203.00 ft (KB)
 3192.00 ft (CF)
 KB to GR/CF: 11.00 ft

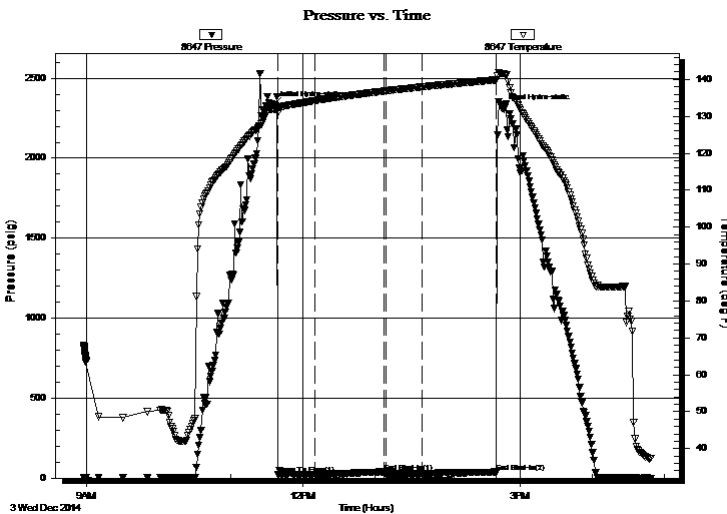
Serial #: 8647

Inside

Press@RunDepth: 25.26 psig @ 4536.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.12.03 End Date: 2014.12.03 Last Calib.: 2014.12.03
 Start Time: 08:58:01 End Time: 16:48:30 Time On Btm: 2014.12.03 @ 11:35:30
 Time Off Btm: 2014.12.03 @ 14:45:30

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to 3/4"
 60 - ISI - No Return
 30 - FF - No Blow
 60 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2331.49	131.95	Initial Hydro-static
4	21.41	130.98	Open To Flow (1)
34	23.37	134.23	Shut-In(1)
92	39.61	136.82	End Shut-In(1)
93	24.32	136.88	Open To Flow (2)
123	25.26	137.96	Shut-In(2)
185	38.83	139.87	End Shut-In(2)
190	2312.07	141.59	Final Hydro-static

Recovery

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

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61041

DST#: 5

ATTN: Kent Matson

Test Start: 2014.12.03 @ 08:58:00

Tool Information

Drill Pipe:	Length: 4334.00 ft	Diameter: 3.80 inches	Volume: 60.79 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 183.06 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.06 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4535.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	45.00 ft			
Tool Length:	73.00 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			4508.00	
Shut In Tool	5.00			4513.00	
Hydraulic tool	5.00		Inside	4518.00	
Jars	5.00			4523.00	
Safety Joint	3.00			4526.00	
Packer	5.00			4531.00	28.00 Bottom Of Top Packer
Packer	4.00			4535.00	
Stubb	1.00			4536.00	
Packer - Shale	0.00			4536.00	
Recorder	0.00	8647	Inside	4536.00	
Recorder	0.00	8372	Outside	4536.00	
Perforations	8.00			4544.00	
Change Over Sub	1.00			4545.00	
Drill Pipe	31.00			4576.00	
Change Over Sub	1.00			4577.00	
Bullnose	3.00			4580.00	45.00 Bottom Packers & Anchor
Total Tool Length:	73.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drlg. Co., Inc.

8-1s-38w Cheyenne,KS

250 N. Water, STE 300
Wichita, KS 67202

Krug "A" #1-8

Job Ticket: 61041

DST#: 5

ATTN: Kent Matson

Test Start: 2014.12.03 @ 08:58:00

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: 58.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
5.00	100% mud	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

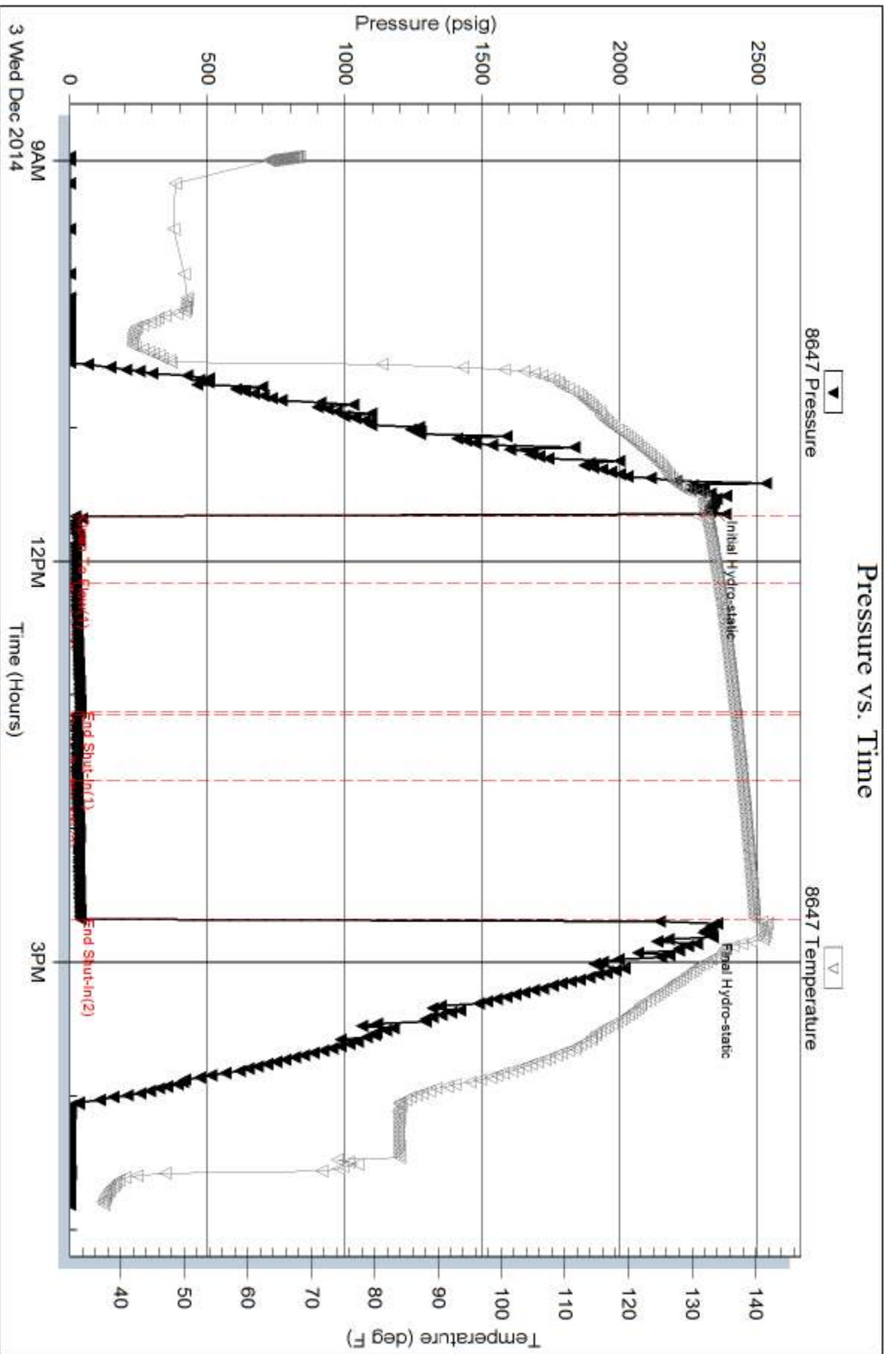
Serial #: 8647

Inside

Murfin Drtg. Co., Inc.

Krug "A" #1-8

DST Test Number: 5



Tribble Testing, Inc

Ref. No: 61041

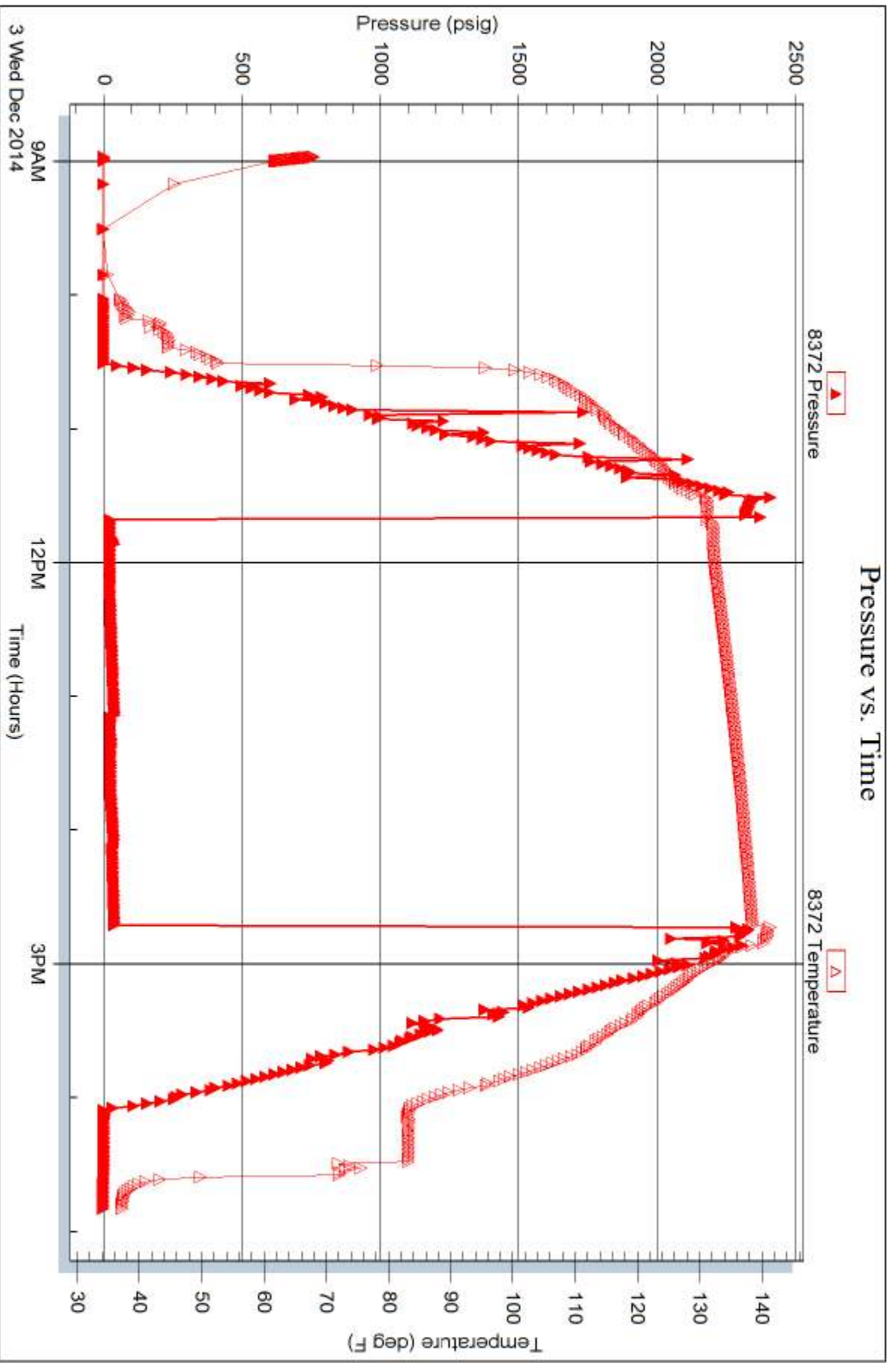
Printed: 2014, 12, 05 @ 16:15:10

Serial #: 8372

Outside Marlin Drfg. Co., Inc.

Krug "A" #1-8

DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 61041

Printed: 2014, 12:05 @ 16:15:10



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61037

Well Name & No. Krug "A" #1-8 Test No. 1 Date 11-29-14
 Company Murfin Drilg. Co., Inc. Elevation 3263 KB 3192 GL
 Address 250 N. Water, STE 300 Wichita, KS 67202
 Co. Rep / Geo. Kent Matson Rig Murfin #20
 Location: Sec. 8 Twp. 15 Rge. 38 W Co. Cheyenne State KS

Interval Tested 4040-4108 Zone Tested Le Compton + Oread
 Anchor Length 68 Drill Pipe Run 3860.32 Mud Wt. 9
 Top Packer Depth 4035 Drill Collars Run 183.06 Vis 49
 Bottom Packer Depth 4040 Wt. Pipe Run — WL 7.2
 Total Depth 4108 Chlorides 600 ppm System LCM 4

Blow Description IF- Opened w/ surface blow. ~~did~~ built to 1/4" died back to nothing
ISI- No Return
FF- No Blow
FSI- No Return

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 134 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2060 Test 1250 T-On Location 1:22 AM
 (B) First Initial Flow 36 Jars 250 T-Started 1:55 AM
 (C) First Final Flow 30 Safety Joint 75 T-Open 4:47 AM
 (D) Initial Shut-In 101 Circ Sub _____ T-Pulled 7:47 AM
 (E) Second Initial Flow 32 Hourly Standby _____ T-Out 10:02 AM
 (F) Second Final Flow 31 Mileage 152 R.T. 235.60 Comments _____
 (G) Final Shut-In 79 Sampler _____
 (H) Final Hydrostatic 1953 Straddle _____ Ruined Shale Packer _____

Initial Open 30 Shale Packer N/A Ruined Packer X1 320
 Initial Shut-In 60 Extra Packer _____ Extra Copies _____
 Final Flow 30 Extra Recorder _____ Sub-Total 320
 Final Shut-In 60 Day Standby _____ Total 2130.60
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1810.60

Approved By _____ Our Representative Bud Ot

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61038

Well Name & No. Krug "A" #1-8 Test No. 2 Date 11-29-14
 Company Murfin Drlg. Co., Inc. Elevation 3203 KB 3192 GL
 Address 250 N. Water, STE 300 Wichita, KS 67202
 Co. Rep / Geo. Kent Matson Rig Murfin #20
 Location: Sec. 8 Twp. 1S Rge. 38W Co. Cheyenne State KS

Interval Tested 4116 - 4190 Zone Tested LKC "A"
 Anchor Length 74' Drill Pipe Run 3923 Mud Wt. 9.3
 Top Packer Depth 4111 Drill Collars Run 183.06 Vis 50
 Bottom Packer Depth 4116 Wt. Pipe Run — WL 9.2
 Total Depth 4190 Chlorides 700 ppm System LCM 4

Blow Description IF- Opened w/ surface blow, didn't build
ISI- No Return
FF- No Blow
FSI- No Return

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 136 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2050 Test 1250 T-On Location 10:55 PM
 (B) First Initial Flow 21 Jars 250 T-Started 11:44 PM
 (C) First Final Flow 23 Safety Joint 75 T-Open 2:57 AM
 (D) Initial Shut-In 1235 Circ Sub — T-Pulled 5:57 AM
 (E) Second Initial Flow 25 Hourly Standby — T-Out 8:25 AM
 (F) Second Final Flow 27 Mileage 152 R.T. 235.60 Comments —
 (G) Final Shut-In 1215 Sampler —
 (H) Final Hydrostatic 2037 Straddle —
 Shale Packer —
 Ruined Shale Packer —
 Ruined Packer —
 Extra Packer —
 Extra Copies —

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 0
 Total 1810.60
 MP/DST Disc't —
 Sub Total 1810.60

Approved By _____ Our Representative Bruce O'F

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61039

Well Name & No. Krug "A" #1-8 Test No. 3 Date 11-30-14
 Company Murfin Drlg. Co., Inc. Elevation 3203 KB 3192 GL
 Address 250 N. Water, STE 300 Wichita, KS 67202
 Co. Rep / Geo. Kent Matson Rig Murfin #20
 Location: Sec. 8 Twp. 15 Rge. 38W Co. Cheyenne State KS

Interval Tested 4182 - 4245 Zone Tested LKC "D"
 Anchor Length 63' Drill Pipe Run 3987 Mud Wt. 9.2
 Top Packer Depth 4177 Drill Collars Run 183.06 Vis 53
 Bottom Packer Depth 4182 Wt. Pipe Run — WL 7.6
 Total Depth 4245 Chlorides 500 ppm System LCM 4
 Blow Description IF-Opened w/ surface blow, built to B.O.B in 6 min.
ISI- No Return
FF- Blow built to B.O.B in 8 min
FSI-

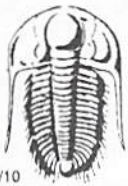
Rec	Feet of	%gas	%oil	%water	%mud
<u>1143</u>	<u>MW</u>			<u>73%</u>	<u>27%</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1143 BHT 146 Gravity — API RW .463 @ 16 °F Chlorides 70,000 ppm

(A) Initial Hydrostatic <u>2129</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>7:16 PM</u>
(B) First Initial Flow <u>115</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>7:47 PM</u>
(C) First Final Flow <u>273</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>9:37 PM</u>
(D) Initial Shut-In <u>1319</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>1:37 AM</u>
(E) Second Initial Flow <u>284</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>4:13 AM</u>
(F) Second Final Flow <u>526</u>	<input checked="" type="checkbox"/> Mileage <u>152 R.T.</u> <u>235.60</u>	Comments
(G) Final Shut-In <u>1288</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2114</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Total <u>1810.60</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub-Total <u>1810.60</u>	

Approved By _____ Our Representative Bud Q't

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61040

Well Name & No. Krug "A" #1-8 Test No. 4 Date 12-1-14
 Company Murfin Drlg. Co., Inc. Elevation 3203 KB 3192 GL
 Address 250 N. Water, STE 300 Wichita, KS 67202
 Co. Rep / Geo. Kent Matson Rig Murfin #20
 Location: Sec. 8 Twp. 15 Rge. 38W Co. Cheyenne State KS

Interval Tested 4242 - 4300 Zone Tested LKC "G1"
 Anchor Length 58' Drill Pipe Run 4049 Mud Wt. 9.5
 Top Packer Depth 4237 Drill Collars Run 183.06 Vis 70
 Bottom Packer Depth 4242 Wt. Pipe Run — WL 7.6
 Total Depth 4300 Chlorides 900 ppm System LCM 2
 Blow Description IF- Opened w/ surface blow. built to B.o.B in 35 sec.
ISI- No Return
FF- Blow built to B.o.B in 35 sec.
FSI- No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>2871</u>	<u>MW</u>			<u>86%</u>	<u>14%</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 2871 BHT 149 Gravity — API RW .436 @ 20 ° F Chlorides 61000 ppm
 (A) Initial Hydrostatic 2154 Test 1250 T-On Location 3:43 PM
 (B) First Initial Flow 778 Jars 250 T-Started 4:12 PM
 (C) First Final Flow 919 Safety Joint 75 T-Open 6:47 PM
 (D) Initial Shut-In 1430 Circ Sub _____ T-Pulled 10:02 PM
 (E) Second Initial Flow 836 Hourly Standby _____ T-Out 1:08 AM
 (F) Second Final Flow 1270 Mileage 152 RT. 235.60 Comments _____
 (G) Final Shut-In 1429 Sampler _____
 (H) Final Hydrostatic 2134 Straddle _____ Ruined Shale Packer _____
 Shale Packer X1 250 Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 2060.60
 Accessibility _____ MP/DST Disc't _____
 Sub Total 2060.60

Approved By _____ Our Representative Brian Olt

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61041

Well Name & No. Krug "A" #1-8 Test No. 5 Date 12-3-14
 Company Murfin Drilg. Co., Inc. Elevation 3203 KB 3192 GL
 Address 250 N. Water. STE 300 Wichita, KS 67202
 Co. Rep / Geo. Kent Matson Rig Murfin #20
 Location: Sec. 8 Twp. 1S Rge. 38w Co. Cheyenne State KS

Interval Tested 4535-4580 Zone Tested Pawnee
 Anchor Length 45 Drill Pipe Run 4334 Mud Wt. 9.3
 Top Packer Depth 4530 Drill Collars Run 183.06 Vis 58
 Bottom Packer Depth 4535 Wt. Pipe Run — WL 7.2
 Total Depth 4580 Chlorides 800 ppm System LCM 3

Blow Description IF - Opened w/ surface blow, built to 3/4"
ISI - No Return
FF - No Blow
FSI - No Return

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 139 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2331 Test 1250 T-On Location 8:26 AM
 (B) First Initial Flow 21 Jars 250 T-Started 8:58 AM
 (C) First Final Flow 23 Safety Joint 75 T-Open 11:41 AM
 (D) Initial Shut-In 39 Circ Sub _____ T-Pulled 2:41 PM
 (E) Second Initial Flow 24 Hourly Standby _____ T-Out 4:50 PM
 (F) Second Final Flow 25 Mileage 152 R.T. 235.60 Comments Picked up tool
 (G) Final Shut-In 38 Sampler _____ 235.60 @ 8:15 PM on
 (H) Final Hydrostatic 2312 Straddle _____ 12-4-14.

Ruined Shale Packer X1 350
 Ruined Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby X1 d 7.25h
 Accessibility _____
 Sub Total 2296.20
 Sub Total 241.67
 Total 2537.87
 MP/DST Disc't _____

Approved By _____ Our Representative Bruce Oitz

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