



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Rocky Milford

### **Delay #1-21**

#### **21-1s-38w Cheyenne,KS**

Start Date: 2014.08.27 @ 23:43:00

End Date: 2014.08.28 @ 08:34:45

Job Ticket #: 58300                      DST #: 1

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

Printed: 2014.09.04 @ 13:48:11



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 58300

**DST#: 1**

ATTN: Rocky Milford

Test Start: 2014.08.27 @ 23:43:00

## GENERAL INFORMATION:

Formation: **Topeka**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:58:45

Time Test Ended: 08:34:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Ryan Nichols

Unit No: 78

**Interval: 3873.00 ft (KB) To 3968.00 ft (KB) (TVD)**

Reference Elevations: 3199.00 ft (KB)

Total Depth: 3968.00 ft (KB) (TVD)

3194.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6752 Inside**

Press@RunDepth: 24.91 psig @ 3874.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.08.27

End Date:

2014.08.28

Last Calib.: 2014.08.28

Start Time: 23:43:05

End Time:

08:34:45

Time On Btm: 2014.08.28 @ 02:57:45

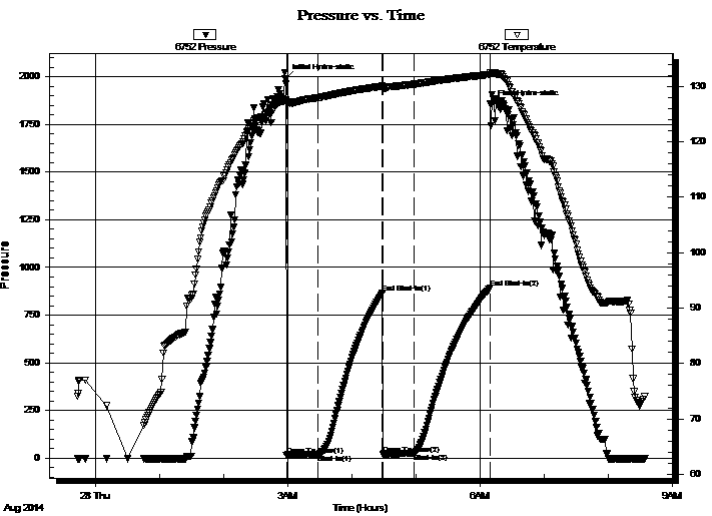
Time Off Btm: 2014.08.28 @ 06:10:00

TEST COMMENT: 30 IF - 1/4" blow built to 1/2"

60 ISI - No return

30 FF - No blow

60 FSI - No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1987.73	127.42	Initial Hydro-static
1	16.63	127.29	Open To Flow (1)
31	20.43	127.95	Shut-In(1)
91	865.49	130.03	End Shut-In(1)
92	22.33	129.77	Open To Flow (2)
121	24.91	130.39	Shut-In(2)
192	890.89	132.13	End Shut-In(2)
193	1855.68	132.44	Final Hydro-static

## Recovery

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

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 58300

**DST#: 1**

ATTN: Rocky Milford

Test Start: 2014.08.27 @ 23:43:00

## Tool Information

Drill Pipe:	Length: 3674.00 ft	Diameter: 3.80 inches	Volume: 51.54 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 52.45 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 67000.00 lb
Depth to Top Packer:	3873.00 ft			Final 67000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	95.00 ft			
Tool Length:	122.00 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			3847.00	
Shut In Tool	5.00			3852.00	
Hydraulic tool	5.00			3857.00	
Jars	5.00			3862.00	
Safety Joint	2.00			3864.00	
Packer	5.00			3869.00	27.00 Bottom Of Top Packer
Packer	4.00			3873.00	
Packer - Shale	0.00			3873.00	
Stubb	1.00			3874.00	
Recorder	0.00	6752	Inside	3874.00	
Recorder	0.00	8322	Outside	3874.00	
Perforations	26.00			3900.00	
Blank Spacing	65.00			3965.00	
Bullnose	3.00			3968.00	95.00 Bottom Packers & Anchor

**Total Tool Length: 122.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 58300

**DST#: 1**

ATTN: Rocky Milford

Test Start: 2014.08.27 @ 23:43:00

## 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: 88.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 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	Mud 100%m	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

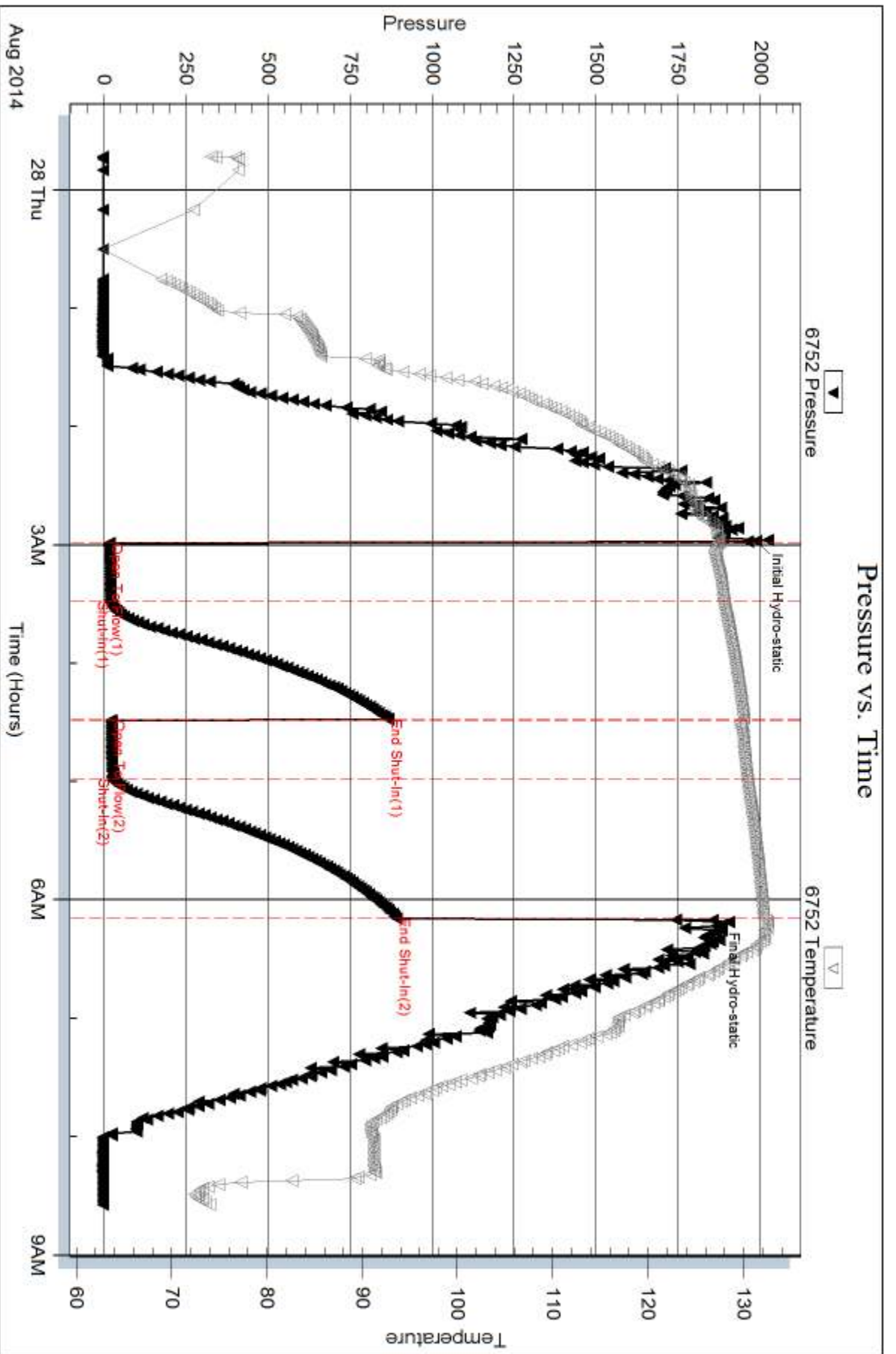
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

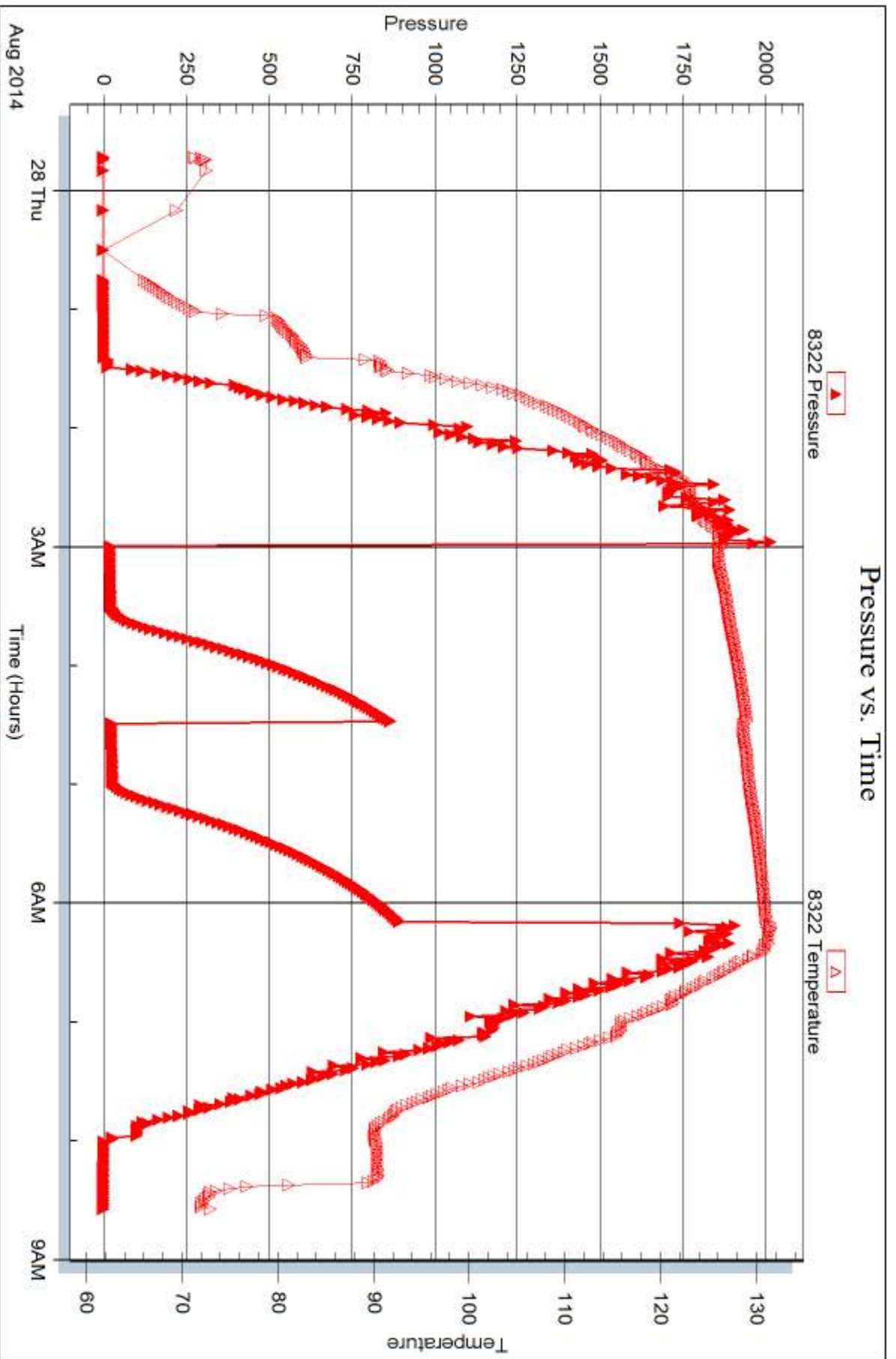


Serial #: 8322

Outside Murfin Drilling Co. Inc.

Delay #1-21

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 58300

Printed: 2014.09.04 @ 13:48:12



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Rocky Milford

### **Delay #1-21**

#### **21-1s-38w Cheyenne,KS**

Start Date: 2014.08.28 @ 23:41:00

End Date: 2014.08.29 @ 07:25:15

Job Ticket #: 60001                      DST #: 2

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

Printed: 2014.09.04 @ 13:47:46

Murfin Drilling Co. Inc. 21-1s-38w Cheyenne,KS Delay #1-21 DST # 2 Oread 2014.08.28





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60001

**DST#: 2**

ATTN: Rocky Milford

Test Start: 2014.08.28 @ 23:41:00

## GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:15:30

Time Test Ended: 07:25:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 78

**Interval: 4026.00 ft (KB) To 4095.00 ft (KB) (TVD)**

Reference Elevations: 3199.00 ft (KB)

Total Depth: 4095.00 ft (KB) (TVD)

3194.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6752 Inside**

Press@RunDepth: 97.26 psig @ 4027.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.08.28

End Date:

2014.08.29

Last Calib.:

2014.08.29

Start Time: 23:41:05

End Time:

07:25:14

Time On Btm:

2014.08.29 @ 02:15:15

Time Off Btm:

2014.08.29 @ 05:15:45

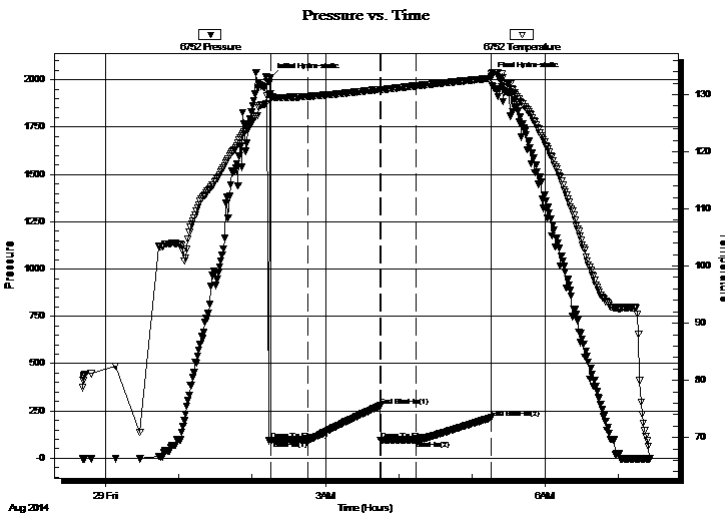
**TEST COMMENT:** 30 IF - Surface blow tool opened up 4' off bottom going through a bridge, reset tool

60 ISI - No return

30 FF - No blow

60 FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2010.58	130.18	Initial Hydro-static
1	94.09	129.44	Open To Flow (1)
31	93.59	129.67	Shut-In(1)
90	277.15	130.91	End Shut-In(1)
90	94.69	130.85	Open To Flow (2)
119	97.26	131.52	Shut-In(2)
180	213.53	132.85	End Shut-In(2)
181	2015.79	133.58	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
130.00	Mud 100% m	0.64

\* 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.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60001

**DST#: 2**

ATTN: Rocky Milford

Test Start: 2014.08.28 @ 23:41:00

## Tool Information

Drill Pipe:	Length: 3833.00 ft	Diameter: 3.80 inches	Volume: 53.77 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 650000.0 lb
			<u>Total Volume: 54.68 bbl</u>	Tool Chased 4.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 57000.00 lb
Depth to Top Packer:	4026.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	69.00 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			4000.00	
Shut In Tool	5.00			4005.00	
Hydraulic tool	5.00			4010.00	
Jars	5.00			4015.00	
Safety Joint	2.00			4017.00	
Packer	5.00			4022.00	27.00 Bottom Of Top Packer
Packer	4.00			4026.00	
Packer - Shale	0.00			4026.00	
Stubb	1.00			4027.00	
Recorder	0.00	6752	Inside	4027.00	
Recorder	0.00	8322	Outside	4027.00	
Perforations	31.00			4058.00	
Blank Spacing	34.00			4092.00	
Bullnose	3.00			4095.00	69.00 Bottom Packers & Anchor

**Total Tool Length: 96.00**



**TRILOBITE  
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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60001

**DST#: 2**

ATTN: Rocky Milford

Test Start: 2014.08.28 @ 23:41:00

## 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: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
130.00	Mud 100%m	0.639

Total Length: 130.00 ft      Total Volume: 0.639 bbl

Num Fluid Samples: 0

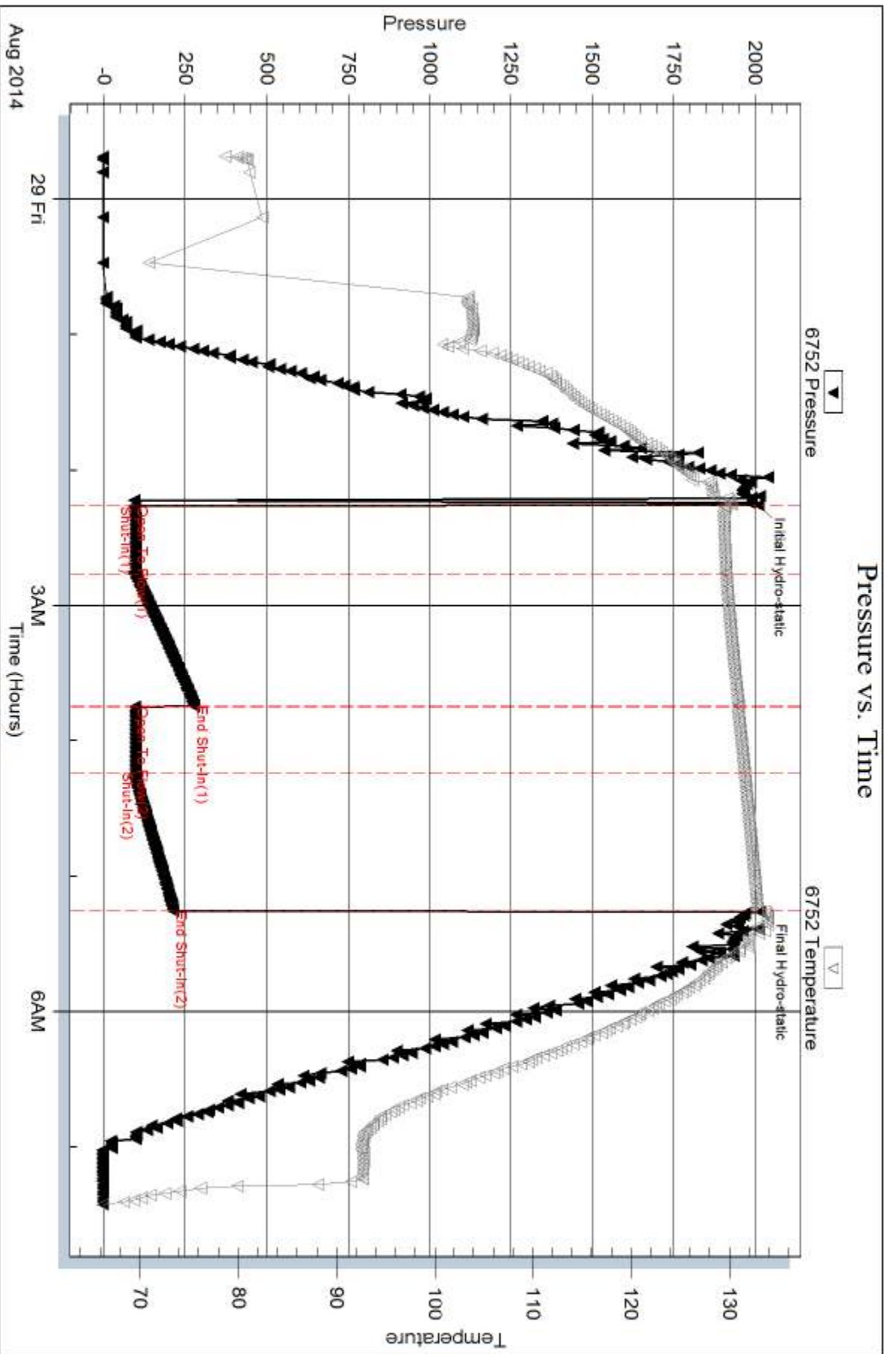
Num Gas Bombs: 0

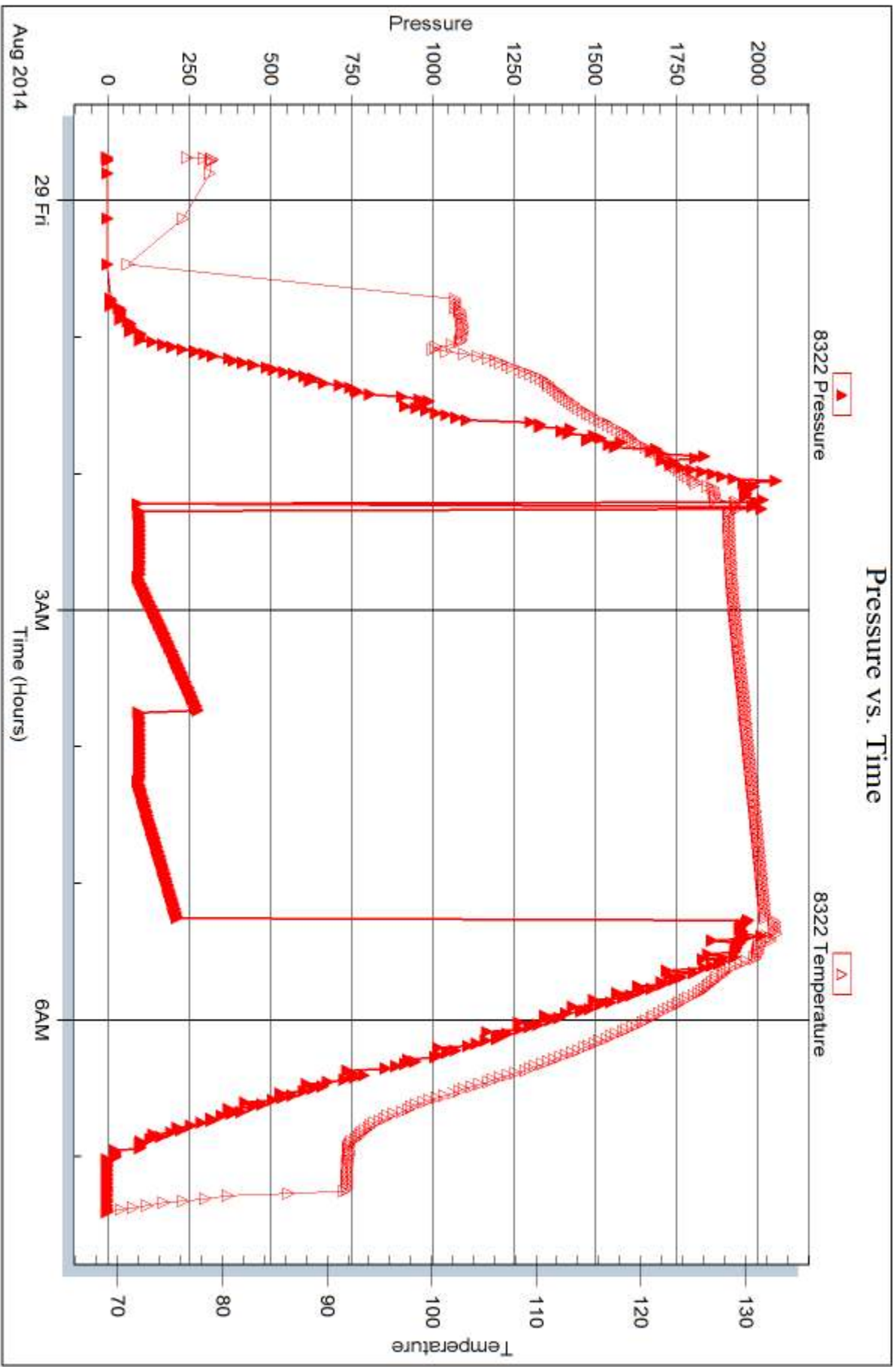
Serial #:

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: Rocky Milford

### **Delay #1-21**

#### **21-1s-38w Cheyenne,KS**

Start Date: 2014.08.29 @ 21:02:00

End Date: 2014.08.30 @ 06:55:15

Job Ticket #: 60002                      DST #: 3

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

Printed: 2014.09.04 @ 13:47:16



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60002

**DST#: 3**

ATTN: Rocky Milford

Test Start: 2014.08.29 @ 21:02:00

## GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:14:30

Time Test Ended: 06:55:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 78

**Interval: 4092.00 ft (KB) To 4220.00 ft (KB) (TVD)**

Reference Elevations: 3199.00 ft (KB)

Total Depth: 4220.00 ft (KB) (TVD)

3194.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6752**

**Inside**

Press@RunDepth: 112.11 psig @ 4093.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.08.29

End Date:

2014.08.30

Last Calib.: 2014.08.30

Start Time: 21:02:05

End Time:

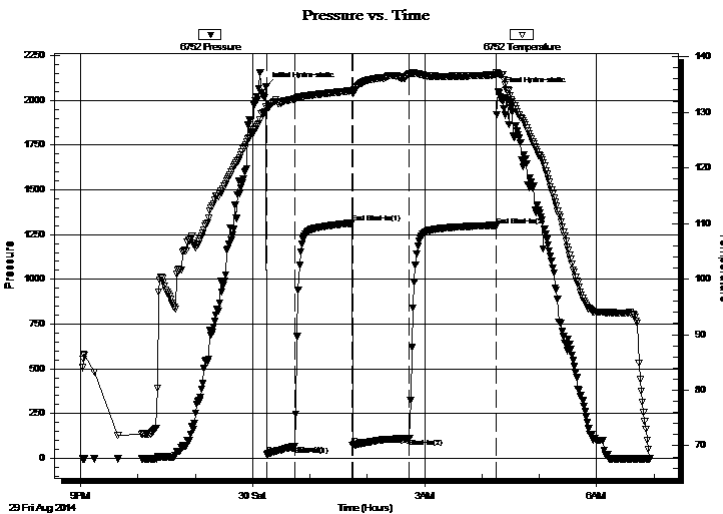
06:55:15

Time On Btm: 2014.08.30 @ 00:14:00

Time Off Btm: 2014.08.30 @ 04:16:30

**TEST COMMENT:** 30 IF - 1/4" blow built to 4"  
60 ISI - No return  
60 FF - Surface blow started @ 13 mins built to 3"  
90 FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2077.38	130.92	Initial Hydro-static
1	21.19	130.71	Open To Flow (1)
30	67.34	132.38	Shut-In(1)
90	1314.25	133.87	End Shut-In(1)
91	72.91	133.66	Open To Flow (2)
150	112.11	136.88	Shut-In(2)
241	1301.73	136.75	End Shut-In(2)
243	2048.23	136.94	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	OCM - 25%o - 75%M	0.02
186.00	OCM - 15%o - 85%M	0.96

\* 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.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60002

**DST#: 3**

ATTN: Rocky Milford

Test Start: 2014.08.29 @ 21:02:00

## Tool Information

Drill Pipe:	Length: 3889.00 ft	Diameter: 3.80 inches	Volume: 54.55 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 55.46 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	4092.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	128.00 ft				
Tool Length:	155.00 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			4066.00	
Shut In Tool	5.00			4071.00	
Hydraulic tool	5.00			4076.00	
Jars	5.00			4081.00	
Safety Joint	2.00			4083.00	
Packer	5.00			4088.00	27.00 Bottom Of Top Packer
Packer	4.00			4092.00	
Packer - Shale	0.00			4092.00	
Stubb	1.00			4093.00	
Recorder	0.00	6752	Inside	4093.00	
Recorder	0.00	8322	Outside	4093.00	
Perforations	28.00			4121.00	
Blank Spacing	96.00			4217.00	
Bullnose	3.00			4220.00	128.00 Bottom Packers & Anchor

**Total Tool Length: 155.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60002

**DST#: 3**

ATTN: Rocky Milford

Test Start: 2014.08.29 @ 21:02:00

## 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: 45.00 sec/qt

Cushion Volume:

bbf

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
5.00	OCM - 25%o - 75%M	0.025
186.00	OCM - 15%o - 85%M	0.960

Total Length: 191.00 ft      Total Volume: 0.985 bbf

Num Fluid Samples: 0

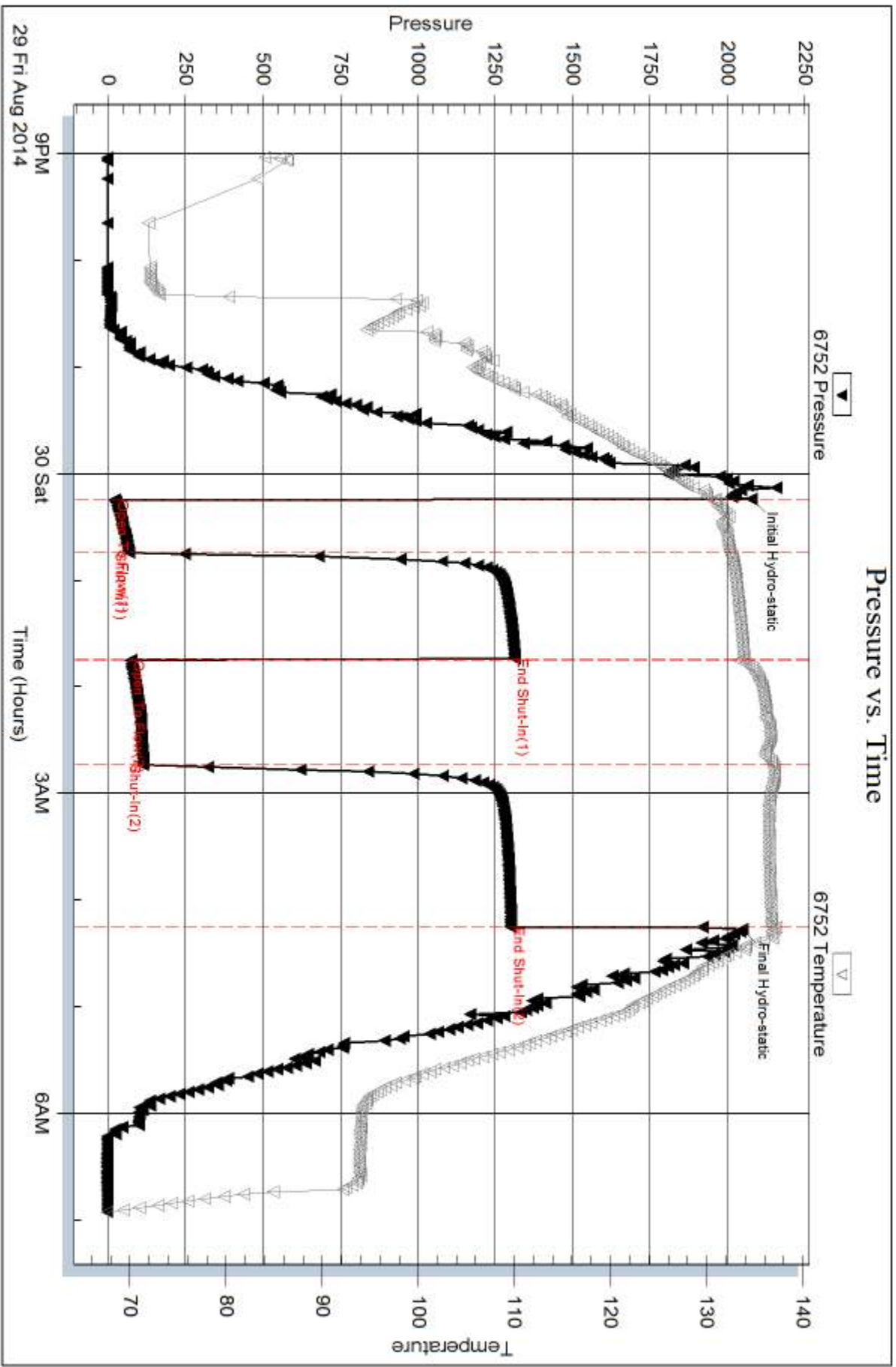
Num Gas Bombs: 0

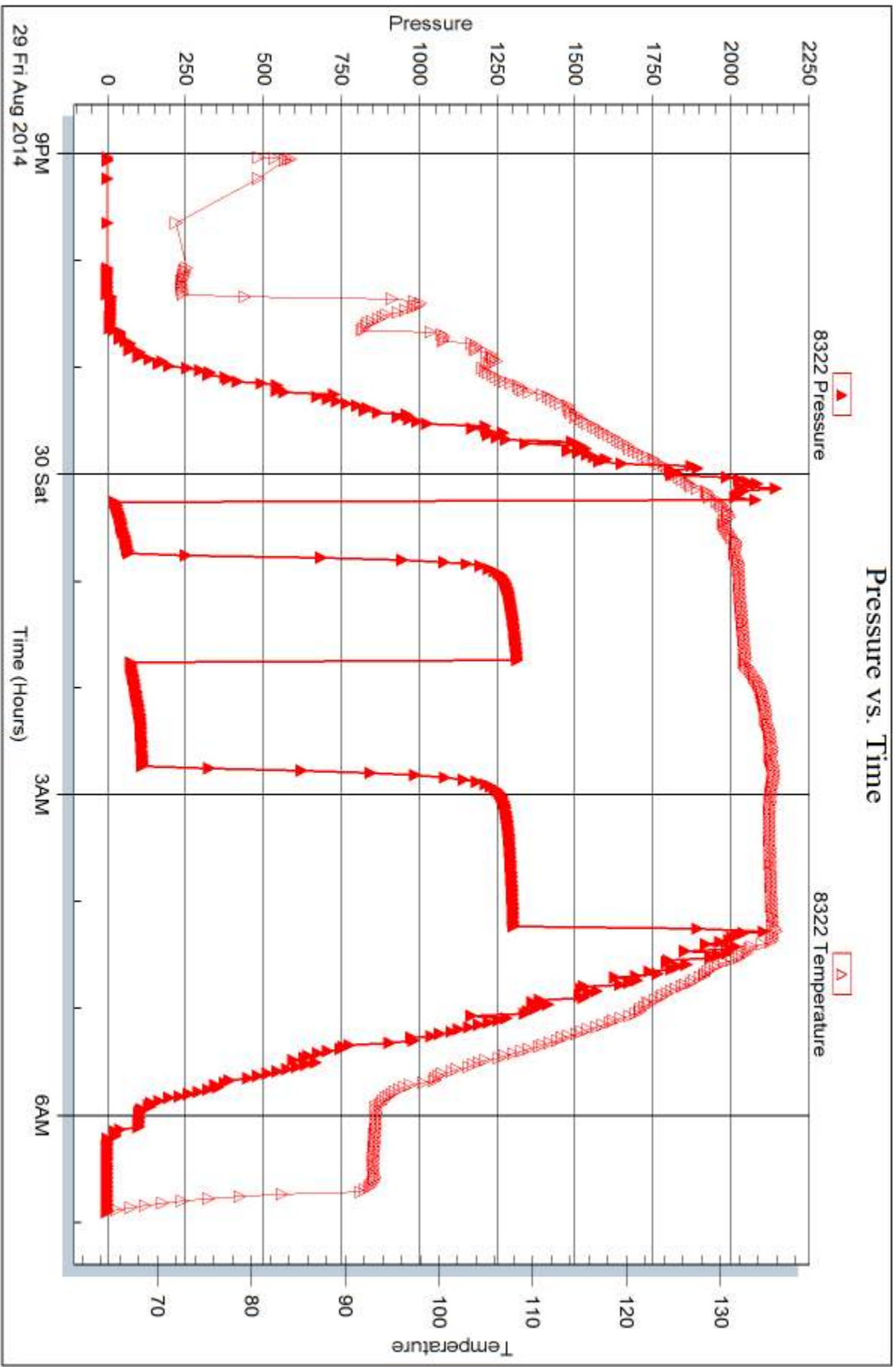
Serial #:

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: Rocky Milford

### **Delay #1-21**

#### **21-1s-38w Cheyenne,KS**

Start Date: 2014.08.30 @ 18:42:00

End Date: 2014.08.31 @ 05:04:30

Job Ticket #: 60003                      DST #: 4

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

Printed: 2014.09.04 @ 13:46:52

Murfin Drilling Co. Inc.  
21-1s-38w Cheyenne,KS  
Delay #1-21  
DST # 4  
LKC " G - H "  
2014.08.30



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60003

**DST#: 4**

ATTN: Rocky Milford

Test Start: 2014.08.30 @ 18:42:00

## GENERAL INFORMATION:

Formation: **LKC " G - H "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:27:00

Time Test Ended: 05:04:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 78

**Interval: 4215.00 ft (KB) To 4310.00 ft (KB) (TVD)**

Reference Elevations: 3199.00 ft (KB)

Total Depth: 4310.00 ft (KB) (TVD)

3194.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6752**

**Inside**

Press@RunDepth: 48.61 psig @ 4216.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.08.30

End Date:

2014.08.31

Last Calib.:

2014.08.31

Start Time:

18:42:05

End Time:

05:04:30

Time On Btm:

2014.08.30 @ 23:26:30

Time Off Btm:

2014.08.31 @ 02:25:00

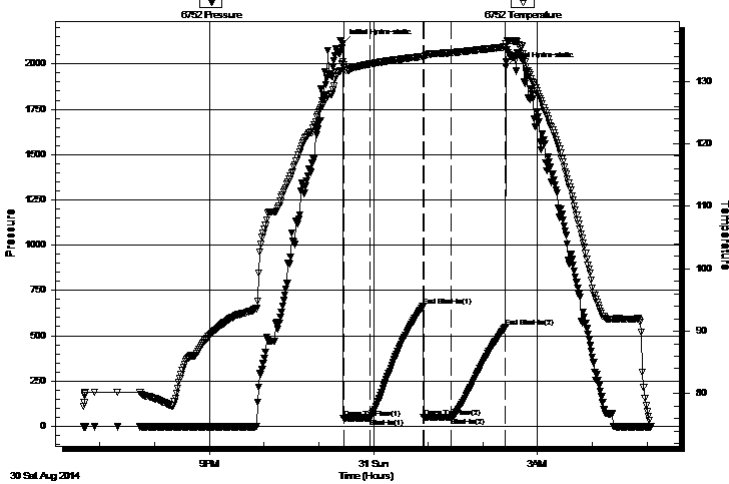
**TEST COMMENT:** 30 IF - Surface blow built to 1/4" -- tool opened up going through a bridge 5' off bottom

60 ISI - No return

30 FF - No blow

60 FSI - No return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2113.49	133.15	Initial Hydro-static
1	44.38	132.70	Open To Flow (1)
30	46.35	132.75	Shut-In(1)
88	664.20	133.98	End Shut-In(1)
89	47.78	133.85	Open To Flow (2)
119	48.61	134.56	Shut-In(2)
179	546.33	135.48	End Shut-In(2)
179	1986.49	135.96	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
65.00	Mud w / oil spots	0.32

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.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60003

**DST#: 4**

ATTN: Rocky Milford

Test Start: 2014.08.30 @ 18:42:00

## Tool Information

Drill Pipe:	Length: 4022.00 ft	Diameter: 3.80 inches	Volume: 56.42 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 57.33 bbl</u>	Tool Chased 5.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4215.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	95.00 ft			
Tool Length:	122.00 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			4189.00	
Shut In Tool	5.00			4194.00	
Hydraulic tool	5.00			4199.00	
Jars	5.00			4204.00	
Safety Joint	2.00			4206.00	
Packer	5.00			4211.00	27.00 Bottom Of Top Packer
Packer	4.00			4215.00	
Stubb	1.00			4216.00	
Recorder	0.00	6752	Inside	4216.00	
Recorder	0.00	8322	Outside	4216.00	
Perforations	26.00			4242.00	
Change Over Sub	1.00			4243.00	
Drill Pipe	63.00			4306.00	
Change Over Sub	1.00			4307.00	
Bullnose	3.00			4310.00	95.00 Bottom Packers & Anchor

**Total Tool Length: 122.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60003

**DST#: 4**

ATTN: Rocky Milford

Test Start: 2014.08.30 @ 18:42:00

### 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: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

#### Recovery Table

Length ft	Description	Volume bbl
65.00	Mud w / oil spots	0.320

Total Length: 65.00 ft      Total Volume: 0.320 bbl

Num Fluid Samples: 0

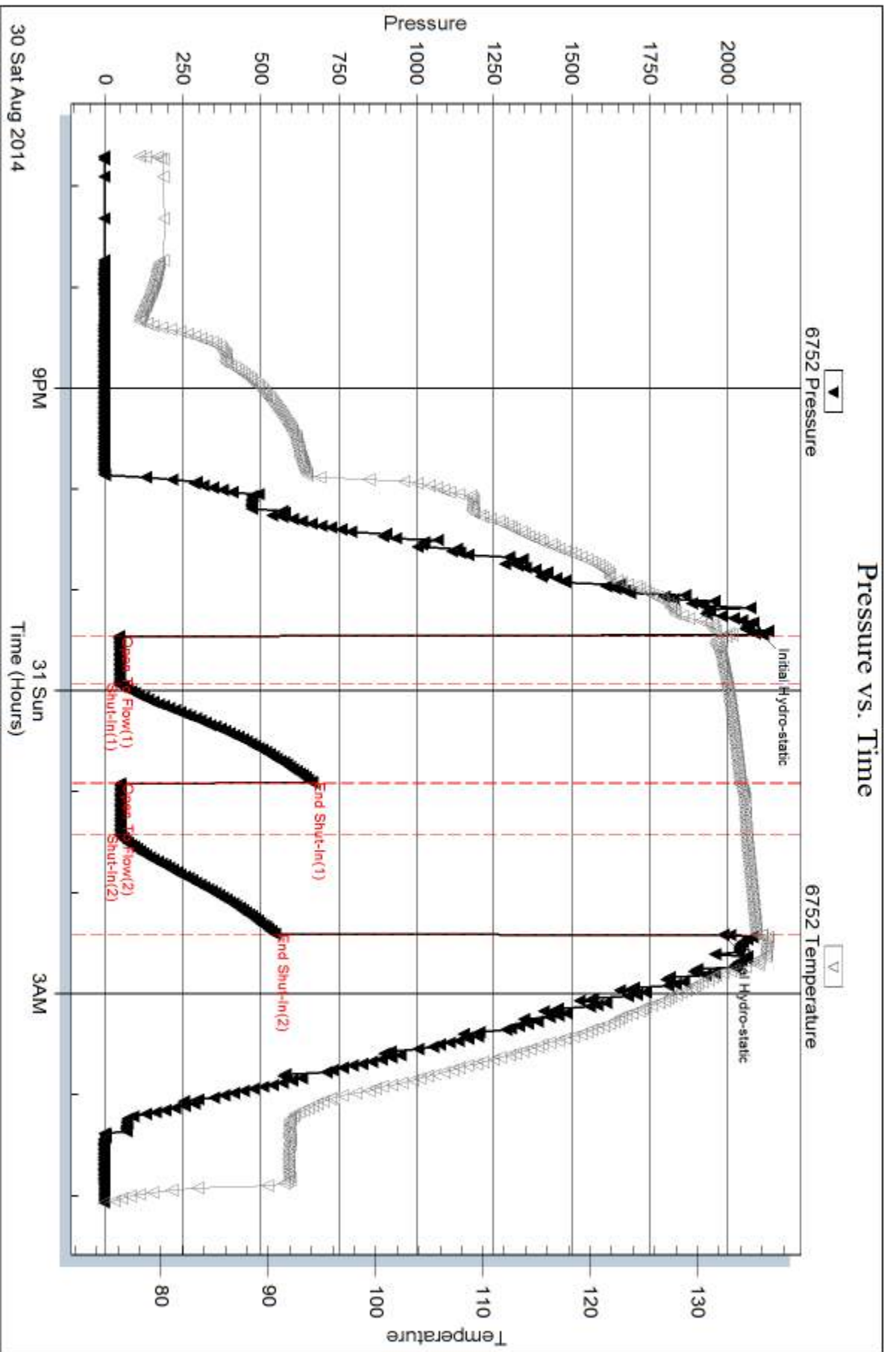
Num Gas Bombs: 0

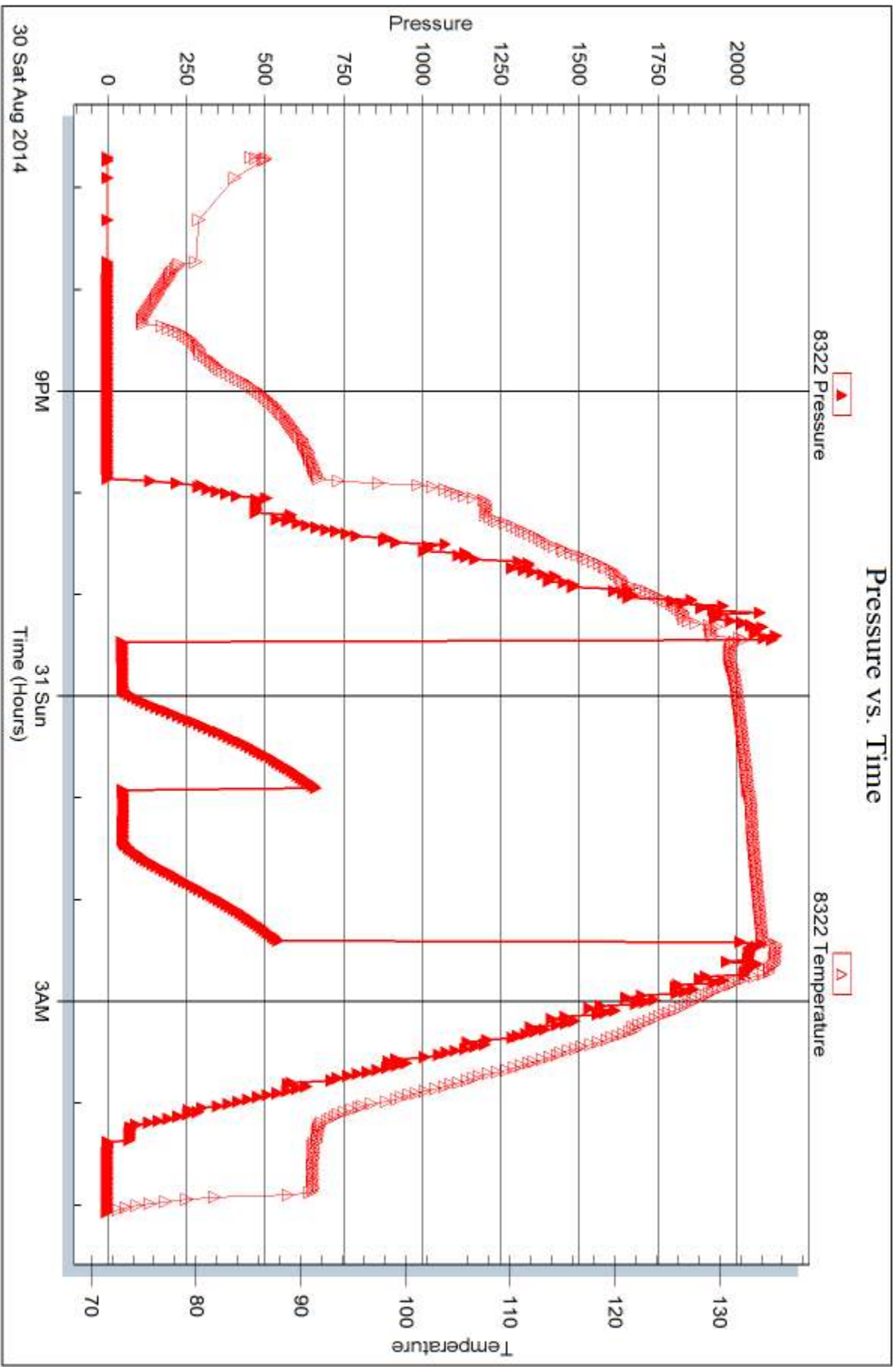
Serial #:

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: Rocky Milford

### **Delay #1-21**

#### **21-1s-38w Cheyenne,KS**

Start Date: 2014.08.31 @ 20:48:00

End Date: 2014.09.01 @ 05:22:00

Job Ticket #: 60004                      DST #: 5

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

Printed: 2014.09.04 @ 13:46:13



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60004

**DST#: 5**

ATTN: Rocky Milford

Test Start: 2014.08.31 @ 20:48:00

## GENERAL INFORMATION:

Formation: **LKC "J-L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:44:30

Time Test Ended: 05:22:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 78

**Interval: 4303.00 ft (KB) To 4430.00 ft (KB) (TVD)**

Reference Elevations: 3199.00 ft (KB)

Total Depth: 4430.00 ft (KB) (TVD)

3194.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6752 Inside**

Press@RunDepth: 33.89 psig @ 4304.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.08.31

End Date:

2014.09.01

Last Calib.: 2014.09.01

Start Time: 20:48:05

End Time:

05:22:00

Time On Btm: 2014.08.31 @ 23:43:45

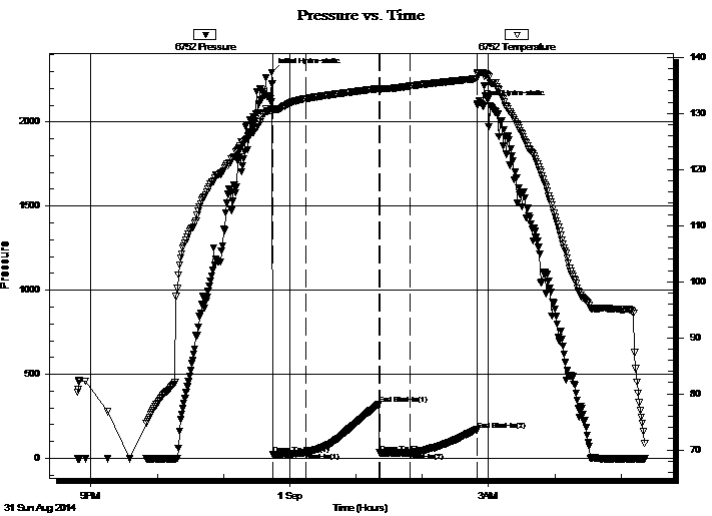
Time Off Btm: 2014.09.01 @ 02:50:00

TEST COMMENT: 30 IF - Surface blow built to 1/4"

60 ISI - No return

30 FF - No blow

60 FSI - No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2294.93	130.79	Initial Hydro-static
1	22.23	130.52	Open To Flow (1)
31	33.75	132.62	Shut-In(1)
97	322.00	134.42	End Shut-In(1)
98	31.97	134.36	Open To Flow (2)
126	33.89	134.90	Shut-In(2)
186	165.95	136.20	End Shut-In(2)
187	2101.36	137.13	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud w/oil spots 100%M	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.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60004

**DST#: 5**

ATTN: Rocky Milford

Test Start: 2014.08.31 @ 20:48:00

## Tool Information

Drill Pipe:	Length: 4118.00 ft	Diameter: 3.80 inches	Volume: 57.76 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 58.67 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4303.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	127.00 ft				
Tool Length:	154.00 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			4277.00	
Shut In Tool	5.00			4282.00	
Hydraulic tool	5.00			4287.00	
Jars	5.00			4292.00	
Safety Joint	2.00			4294.00	
Packer	5.00			4299.00	27.00 Bottom Of Top Packer
Packer	4.00			4303.00	
Stubb	1.00			4304.00	
Recorder	0.00	6752	Inside	4304.00	
Recorder	0.00	8322	Outside	4304.00	
Perforations	27.00			4331.00	
Change Over Sub	1.00			4332.00	
Drill Pipe	94.00			4426.00	
Change Over Sub	1.00			4427.00	
Bullnose	3.00			4430.00	127.00 Bottom Packers & Anchor

**Total Tool Length: 154.00**





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60004

**DST#: 5**

ATTN: Rocky Milford

Test Start: 2014.08.31 @ 20:48:00

## 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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 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	Mud w /oil spots 100%M	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

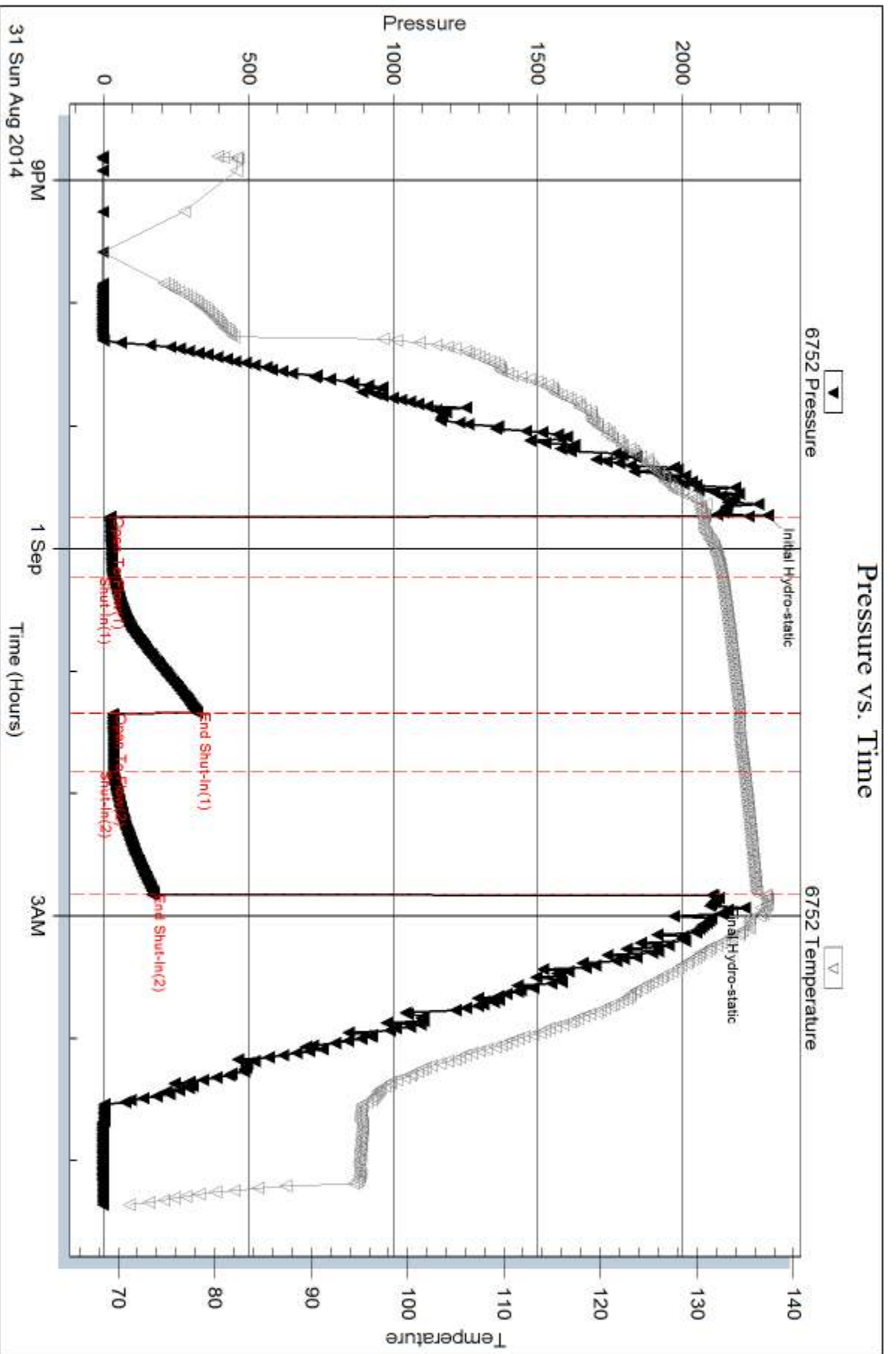
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



31 Sun Aug 2014 9PM

1 Sep

3AM

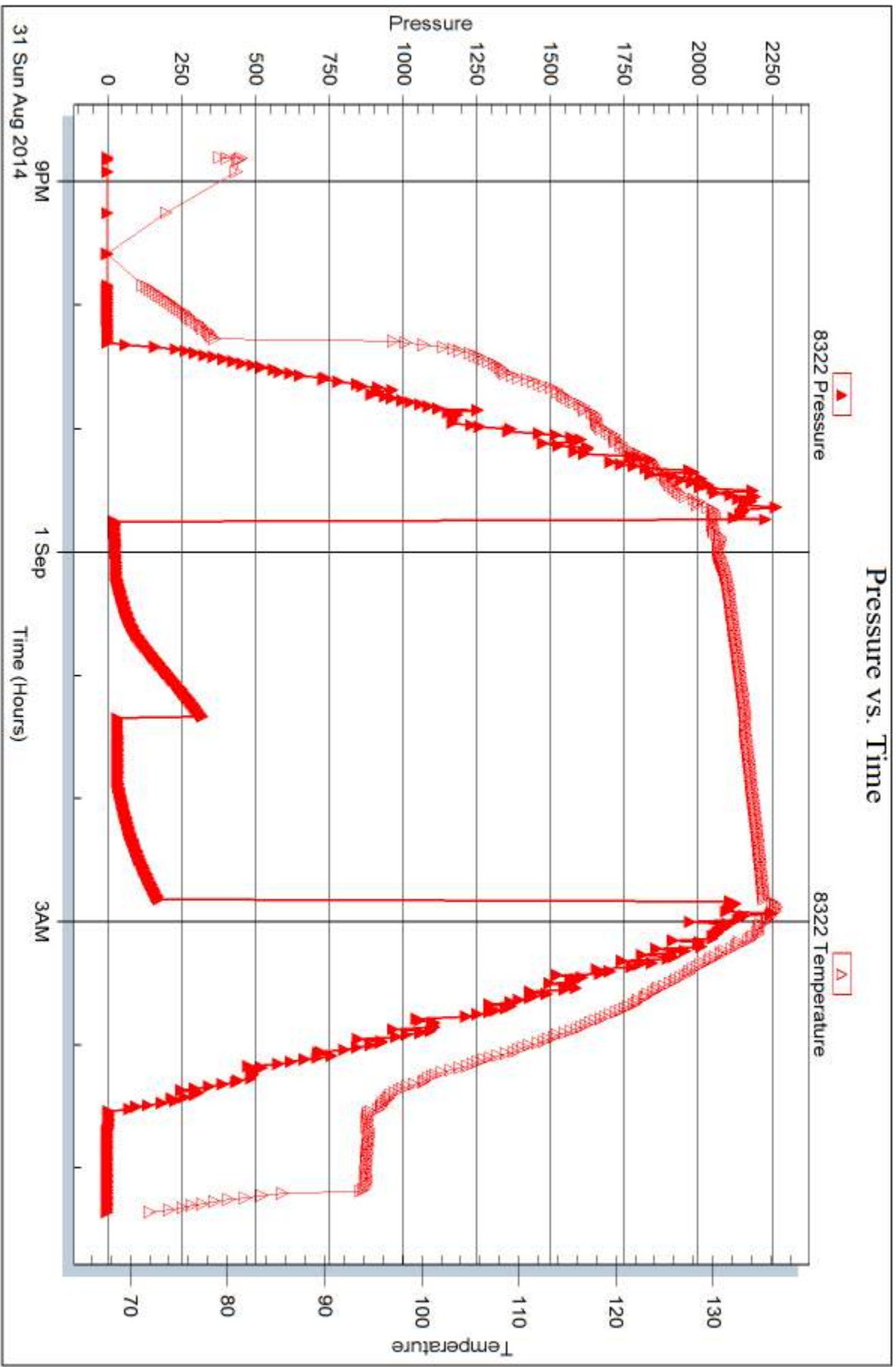
Time (Hours)

Serial #: 8322

Outside Murfin Drilling Co. Inc.

Delay #1-21

DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 60004

Printed: 2014.09.04 @ 13:46:14



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Rocky Milford

### **Delay #1-21**

#### **21-1s-38w Cheyenne,KS**

Start Date: 2014.09.02 @ 00:24:00

End Date: 2014.09.02 @ 09:12:30

Job Ticket #: 60005                      DST #: 6

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

Printed: 2014.09.04 @ 13:43:05



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
 250 N. Water STE 300  
 Wichita KS 67202  
 ATTN: Rocky Milford

**21-1s-38w Cheyenne,KS**

**Delay #1-21**

Job Ticket: 60005

**DST#: 6**

Test Start: 2014.09.02 @ 00:24:00

## GENERAL INFORMATION:

Formation: **Marm. C - Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:33:00

Time Test Ended: 09:12:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 78

**Interval: 4423.00 ft (KB) To 4570.00 ft (KB) (TVD)**

Total Depth: 4570.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3199.00 ft (KB)

3194.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8322 Outside**

Press@RunDepth: 35.53 psig @ 4424.00 ft (KB)

Start Date: 2014.09.02

End Date:

2014.09.02

Start Time: 00:24:05

End Time:

09:12:30

Capacity: 8000.00 psig

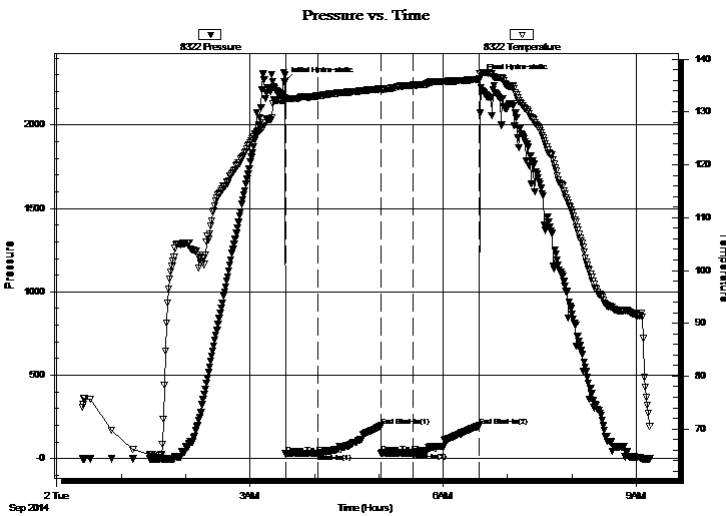
Last Calib.: 2014.09.02

Time On Btm: 2014.09.02 @ 03:32:00

Time Off Btm: 2014.09.02 @ 06:34:00

**TEST COMMENT:** 30 IF - 1" blow built to 1 1/4" @ 12 mins died back to 1"  
 60 ISI - No return  
 30 FF - No blow  
 60 FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2257.83	132.59	Initial Hydro-static
1	28.42	132.32	Open To Flow (1)
31	32.43	133.03	Shut-In(1)
90	196.91	134.40	End Shut-In(1)
91	32.45	134.36	Open To Flow (2)
121	35.53	135.09	Shut-In(2)
182	196.17	136.20	End Shut-In(2)
182	2279.24	137.29	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud	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.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60005

**DST#: 6**

ATTN: Rocky Milford

Test Start: 2014.09.02 @ 00:24:00

## Tool Information

Drill Pipe:	Length: 4242.00 ft	Diameter: 3.80 inches	Volume: 59.50 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 700000.0 lb
			<u>Total Volume: 60.41 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 61000.00 lb
Depth to Top Packer:	4423.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	147.00 ft			
Tool Length:	174.00 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			4397.00	
Shut In Tool	5.00			4402.00	
Hydraulic tool	5.00			4407.00	
Jars	5.00			4412.00	
Safety Joint	2.00			4414.00	
Packer	5.00			4419.00	27.00 Bottom Of Top Packer
Packer	4.00			4423.00	
Packer - Shale	0.00			4423.00	
Stubb	1.00			4424.00	
Recorder	0.00	6752	Inside	4424.00	
Recorder	0.00	8322	Outside	4424.00	
Perforations	14.00			4438.00	
Blank Spacing	129.00			4567.00	
Bullnose	3.00			4570.00	147.00 Bottom Packers & Anchor

**Total Tool Length: 174.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**21-1s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Delay #1-21**

Job Ticket: 60005

**DST#: 6**

ATTN: Rocky Milford

Test Start: 2014.09.02 @ 00:24:00

### 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: 73.00 sec/qt

Cushion Volume:

bbf

Water Loss: 6.40 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbf
5.00	Mud	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbf

Num Fluid Samples: 0

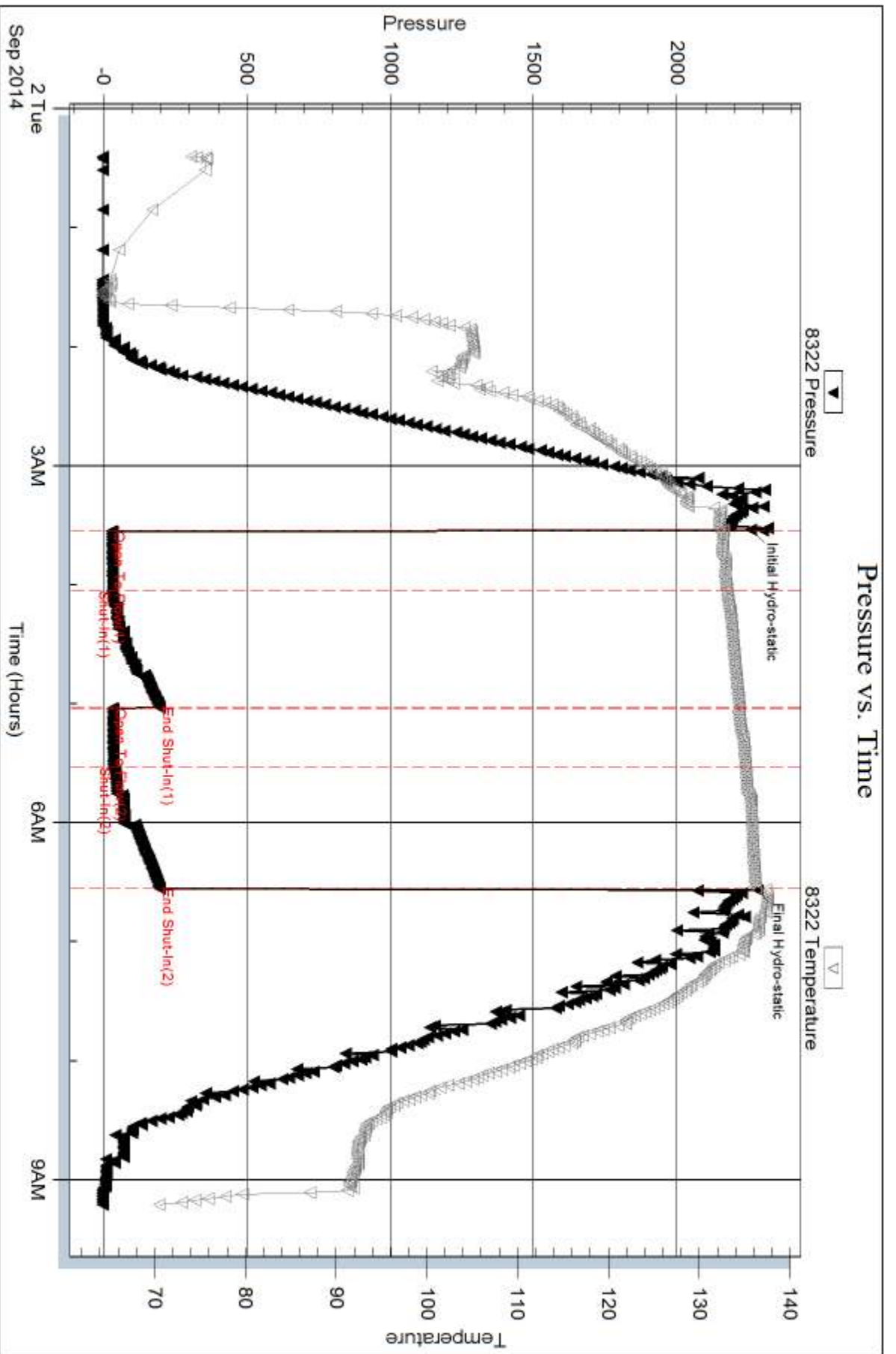
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **58300**

4/10

Well Name & No. Delay # 1-21 Test No. 1 Date 8/27/14  
 Company Murfin Drilling Co. Inc. Elevation 3199 KB 3194 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Rocky Milford Rig Murfin # 7  
 Location: Sec. 21 Twp. 15 Rge. 38W Co. Cheyenne State KS

Interval Tested 3873 - 3968 Zone Tested Topeka  
 Anchor Length 95' Drill Pipe Run 3674' Mud Wt. 9.0  
 Top Packer Depth 3868 Drill Collars Run 1860' Vis 88  
 Bottom Packer Depth 3873 Wt. Pipe Run 0' WL 6.8  
 Total Depth 3968 Chlorides 600 ppm System LCM 3  
 Blow Description IF - 1/4" blow built to 1/2"  
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 1320 Gravity — API RW — @ — F Chlorides — ppm  
 (A) Initial Hydrostatic 1988  Test 1150 T-On Location 22:30  
 (B) First Initial Flow 17  Jars 250 T-Started 23:43  
 (C) First Final Flow 20  Safety Joint 75 T-Open 02:58  
 (D) Initial Shut-In 865  Circ Sub NC T-Pulled 05:58  
 (E) Second Initial Flow 22  Hourly Standby \_\_\_\_\_ T-Out 08:34  
 (F) Second Final Flow 25  Mileage 143 RT 221.65 Comments \_\_\_\_\_  
 (G) Final Shut-In 891  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1856  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer 250  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1946.65  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1946.65

Approved By \_\_\_\_\_ Our Representative Rocky Milford

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60001

Well Name & No. Delay # 1-21 Test No. 2 Date 8/28/14  
 Company Martin Drilling Co. Inc. Elevation 3199 KB 3194 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Ricky Milford Rig Martin # 7  
 Location: Sec. 21 Twp. 15 Rge. 38W Co. Cheyenne State KS

Interval Tested 4026 - 4095 Zone Tested Oread  
 Anchor Length 69' Drill Pipe Run 3833' Mud Wt. 9.3  
 Top Packer Depth 4021 Drill Collars Run 186' Vis 48  
 Bottom Packer Depth 4026 Wt. Pipe Run 0' WL 7.2  
 Total Depth 4095 Chlorides 600 ppm System LCM 3

Blow Description IF - Surface blow  
ISI - No return  
FF - No blow  
FBI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>130'</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 Total 130' BHT 133' Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2011</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>23:15</u>
(B) First Initial Flow <u>94</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>23:41</u>
(C) First Final Flow <u>94</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>02:15</u>
(D) Initial Shut-In <u>277</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>05:15</u>
(E) Second Initial Flow <u>95</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>07:25</u>
(F) Second Final Flow <u>97</u>	<input checked="" type="checkbox"/> Mileage <u>143 RT</u> 221.65	Comments <u>tool opened</u>
(G) Final Shut-In <u>214</u>	<input type="checkbox"/> Sampler	<u>4' off bottom going</u>
(H) Final Hydrostatic <u>2016</u>	<input type="checkbox"/> Straddle	<u>through a bridge</u>
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>2046.65</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>2046.65</u>	

Approved By \_\_\_\_\_ Our Representative Ricky Milford

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60002

Well Name & No. Delay # 1-21 Test No. 3 Date 8/29/14  
 Company Murfin Drilling Co. Inc. Elevation 3199 KB 3194 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Rocky Mifford Rig Murfin # 7  
 Location: Sec. 21 Twp. 15 Rge. 38 W Co. Cheyenne State KS

Interval Tested 4092 - 4220 Zone Tested LKC "A-D"  
 Anchor Length 128' Drill Pipe Run 3589' Mud Wt. 9.2  
 Top Packer Depth 4087 Drill Collars Run 186' Vis 45  
 Bottom Packer Depth 4092 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4220 Chlorides 600 ppm System LCM 3

Blow Description IF - 1/4" blow built to 4"  
ISI - No return  
FF - Surface blow started @ 13 mins built to 3"  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>OCM</u>	<u>25</u>		<u>75</u>	
<u>186'</u>	<u>OCM</u>	<u>15</u>		<u>85</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 191' BHT 737° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2077  Test 1250 T-On Location 20:30  
 (B) First Initial Flow 21  Jars 250 T-Started 21:02  
 (C) First Final Flow 67  Safety Joint 75 T-Open 00:14  
 (D) Initial Shut-In 1314  Circ Sub NC T-Pulled 004:14  
 (E) Second Initial Flow 73  Hourly Standby x 1/2 T-Out 06:55  
 (F) Second Final Flow 112  Mileage 143 RT 221.65 Comments \_\_\_\_\_  
 (G) Final Shut-In 1302  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2048  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer 250  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90  
 Sub Total 2046.65  
 Total 2046.65  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Rocky Mifford

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60003

Well Name & No. Delay #1-21 Test No. 4 Date 8/30/14  
 Company ~~XXXXXXXXXX~~ Murfin Drilling Co Inc Elevation 3199 KB 3194 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Rocky Milford Rig Murfin #7  
 Location: Sec. 21 Twp. 15 Rge. 38W Co. Cheyenne State KS

Interval Tested 4215 - 4310 Zone Tested 2KC "G-H"  
 Anchor Length 95' Drill Pipe Run 4022' Mud Wt. 9.3  
 Top Packer Depth 4210 Drill Collars Run 186' Vis 69  
 Bottom Packer Depth 4215 Wt. Pipe Run 0' WL 8.0  
 Total Depth 4310 Chlorides 800 ppm System LCM 4

Blow Description IF - Surface blow built to 1/4"  
IST - No return  
FF - No blow  
FST - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>65'</u>	<u>Mud w/oil spots</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 65' BHT 136° Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2113</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>18:30</u>
(B) First Initial Flow <u>44</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>18:42</u>
(C) First Final Flow <u>46</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>23:24</u>
(D) Initial Shut-In <u>864</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>02:24</u>
(E) Second Initial Flow <u>48</u>	<input checked="" type="checkbox"/> Hourly Standby <u>X 1/2 .25</u> 25	T-Out <u>05:04</u>
(F) Second Final Flow <u>49</u>	<input checked="" type="checkbox"/> Mileage <u>143 RT</u> 221.65	Comments <u>tool opened going through bridge 5' off bottom</u>
(G) Final Shut-In <u>546</u>	<input type="checkbox"/> Sampler	<input type="checkbox"/> Ruined Shale Packer
(H) Final Hydrostatic <u>1986</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Packer

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

Sub Total 1821.65

Total 1821.65  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Rocky Milford

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60004

Well Name & No. Delay # 1-21 Test No. 5 Date 8/31/14  
 Company Martin Drilling Co. Inc. Elevation 3199 KB 3194 GL  
 Address 250 N. Water STE 300 Wichita KS 67203  
 Co. Rep / Geo. Rocky Milford Rig Martin # 7  
 Location: Sec. 21 Twp. 15 Rge. 39W Co. Cheyenne State KS

Interval Tested 4303 - 4430 Zone Tested LKC "J-L"  
 Anchor Length 127' Drill Pipe Run 4118' Mud Wt. 9.2  
 Top Packer Depth 42098 Drill Collars Run 186' Vis 60  
 Bottom Packer Depth 4303 Wt. Pipe Run 0' WL 6.0  
 Total Depth 4430 Chlorides 600 ppm System LCM 4  
 Blow Description IF - Surface blow built to 1/4"  
ISI - No return  
FF - No blow  
FST - No return

Rec	Feet of	%gas	%oil	%water	%mud
5'	Mud w/oil spots				100%

Rec Total 5' BHT 236° Gravity            API RW            @            °F Chlorides            ppm

(A) Initial Hydrostatic <u>2295</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>20:15</u>
(B) First Initial Flow <u>22</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>20:48</u>
(C) First Final Flow <u>34</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>23:40</u>
(D) Initial Shut-In <u>322</u>	<input checked="" type="checkbox"/> Circ Sub <u>N2</u>	T-Pulled <u>02:40</u>
(E) Second Initial Flow <u>32</u>	<input type="checkbox"/> Hourly Standby <u>          </u>	T-Out <u>05:22</u>
(F) Second Final Flow <u>34</u>	<input checked="" type="checkbox"/> Mileage <u>143 RT 221.65</u>	Comments <u>          </u>
(G) Final Shut-In <u>166</u>	<input type="checkbox"/> Sampler <u>          </u>	
(H) Final Hydrostatic <u>2101</u>	<input type="checkbox"/> Straddle <u>          </u>	<input type="checkbox"/> Ruined Shale Packer <u>          </u>
	<input type="checkbox"/> Shale Packer <u>          </u>	<input type="checkbox"/> Ruined Packer <u>          </u>
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer <u>          </u>	<input type="checkbox"/> Extra Copies <u>          </u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder <u>          </u>	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby <u>          </u>	Total <u>1796.65</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility <u>          </u>	MP/DST Disc't <u>          </u>
	Sub Total <u>1796.65</u>	

Approved By            Our Representative Rocky Milford

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60005

Well Name & No. Delay #1-21 Test No. 6 Date 9/01/14  
 Company Martin Drilling Co. Inc. Elevation 3199 KB 3194 GL  
 Address 250 N. Water, STE 300 Wichita KS 67202  
 Co. Rep / Geo. Rocky Milford Rig Martin #7  
 Location: Sec. 27 Twp. 15 Rge. 38W Co. Cherokee State KS

Interval Tested 4423 - 4570 Zone Tested Marm. "C" - Pawnee  
 Anchor Length 147' Drill Pipe Run 4242' Mud Wt. 9.3  
 Top Packer Depth 4418 Drill Collars Run 186' Vis 73  
 Bottom Packer Depth 4423 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4570 Chlorides 800 ppm System LCM 4  
 Blow Description IF - 1" blow built to 1 1/4" @ 12 mins died back to 1"  
ISI - No return  
FF - No blow  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
5'	Mud			100	

Rec Total 5' BHT 136° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2258</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>23:45</u>
(B) First Initial Flow <u>28</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>00:24</u>
(C) First Final Flow <u>32</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>03:32</u>
(D) Initial Shut-In <u>197</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>06:32</u>
(E) Second Initial Flow <u>32</u>	<input type="checkbox"/> Hourly Standby <u>—</u>	T-Out <u>09:12</u>
(F) Second Final Flow <u>36</u>	<input checked="" type="checkbox"/> Mileage <u>143 RT</u> 221.65	Comments <u>loaded tools @ 11:30 on 9/3/14</u>
(G) Final Shut-In <u>196</u>	<input type="checkbox"/> Sampler <u>—</u> 221.65	
(H) Final Hydrostatic <u>2279</u>	<input type="checkbox"/> Straddle <u>—</u>	<input type="checkbox"/> Ruined Shale Packer <u>—</u>
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Packer <u>—</u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer <u>—</u>	<input type="checkbox"/> Extra Copies <u>—</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder <u>—</u>	Sub Total <u>800</u>
Final Shut-In <u>60</u>	<input checked="" type="checkbox"/> Day Standby <u>1d 2.25h</u>	Total <u>3068.30</u>
	<input type="checkbox"/> Accessibility <u>—</u>	MP/DST Disc't <u>—</u>
	Sub Total <u>2268.30</u>	

Approved By \_\_\_\_\_ Our Representative [Signature]  
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