



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N. Water STE 300
Wichita KS 67206

ATTN: Steve Miller

Jean #2-8

8-1s-37w Cheyenne,KS

Start Date: 2014.06.01 @ 10:23:00

End Date: 2014.06.01 @ 20:26:40

Job Ticket #: 58143 DST #: 1

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

Printed: 2014.06.09 @ 11:56:55



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58143

DST#: 1

ATTN: Steve Miller

Test Start: 2014.06.01 @ 10:23:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:25:20

Time Test Ended: 20:26:40

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Quintana

Unit No: 58

Interval: 4036.00 ft (KB) To 4098.00 ft (KB) (TVD)

Reference Elevations: 3212.00 ft (KB)

Total Depth: 4098.00 ft (KB) (TVD)

3207.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6752 Inside

Press@RunDepth: 168.69 psig @ 4037.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.01

End Date:

2014.06.01

Last Calib.:

2014.06.01

Start Time: 10:23:01

End Time:

20:26:40

Time On Btm:

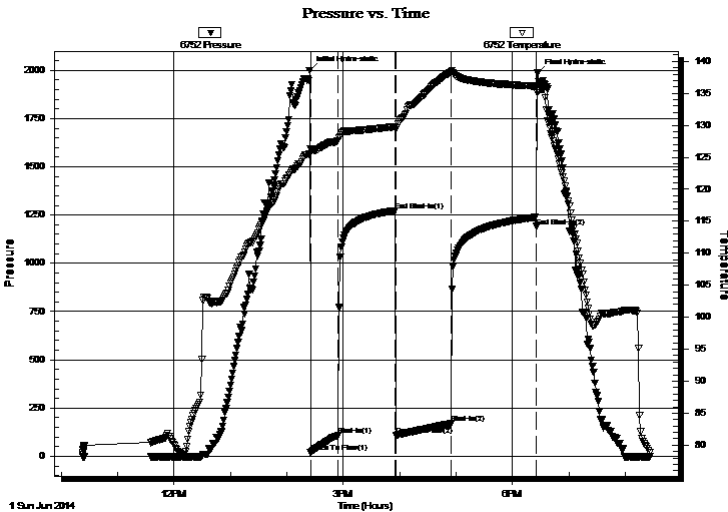
2014.06.01 @ 14:24:10

Time Off Btm:

2014.06.01 @ 18:26:50

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to 6 1/2"
60 - ISI - No Return
60 - FF - Opened w/ surface blow , built to 10 1/2"
90 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1999.86	125.50	Initial Hydro-static
2	18.46	126.25	Open To Flow (1)
31	106.77	127.57	Shut-In(1)
91	1273.11	129.78	End Shut-In(1)
93	108.77	129.57	Open To Flow (2)
151	168.69	138.38	Shut-In(2)
242	1191.38	136.09	End Shut-In(2)
243	1985.23	135.12	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
248.00	MW 68%w , 32%m	1.78
92.00	100%m	1.29

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
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Jean #2-8

Job Ticket: 58143

DST#: 1

ATTN: Steve Miller

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Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:25:20

Time Test Ended: 20:26:40

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Quintana

Unit No: 58

Interval: 4036.00 ft (KB) To 4098.00 ft (KB) (TVD)

Reference Elevations: 3212.00 ft (KB)

Total Depth: 4098.00 ft (KB) (TVD)

3207.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8322 Outside

Press@RunDepth: psig @ 4037.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.01

End Date:

2014.06.01

Last Calib.:

1899.12.30

Start Time: 10:23:01

End Time:

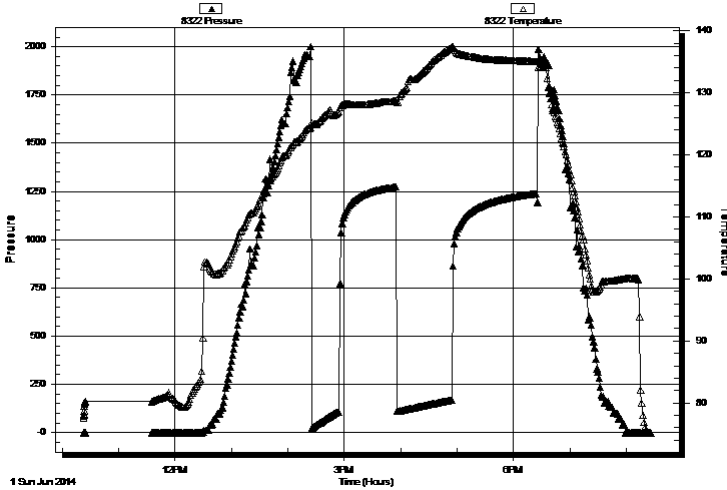
20:26:40

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to 6 1/2"
60 - ISI - No Return
60 - FF - Opened w/ surface blow , built to 10 1/2"
90 - FSI - No Return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
248.00	MW 68%w , 32%m	1.78
92.00	100%m	1.29

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58143

DST#: 1

ATTN: Steve Miller

Test Start: 2014.06.01 @ 10:23:00

Tool Information

Drill Pipe:	Length: 3856.00 ft	Diameter: 3.80 inches	Volume: 54.09 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 62000.00 lb
			<u>Total Volume: 55.00 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4036.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	62.00 ft			
Tool Length:	89.00 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			4010.00	
Shut In Tool	5.00			4015.00	
Hydraulic tool	5.00			4020.00	
Jars	5.00			4025.00	
Safety Joint	2.00			4027.00	
Packer	5.00			4032.00	27.00 Bottom Of Top Packer
Packer	4.00			4036.00	
Stubb	1.00			4037.00	
Recorder	0.00	6752	Inside	4037.00	
Recorder	0.00	8322	Outside	4037.00	
Perforations	25.00			4062.00	
Change Over Sub	1.00			4063.00	
Drill Pipe	31.00			4094.00	
Change Over Sub	1.00			4095.00	
Bullnose	3.00			4098.00	62.00 Bottom Packers & Anchor

Total Tool Length: 89.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58143

DST#: 1

ATTN: Steve Miller

Test Start: 2014.06.01 @ 10:23:00

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: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.19 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 bbbl
248.00	MW 68%w , 32%m	1.784
92.00	100%m	1.291

Total Length: 340.00 ft Total Volume: 3.075 bbl

Num Fluid Samples: 0

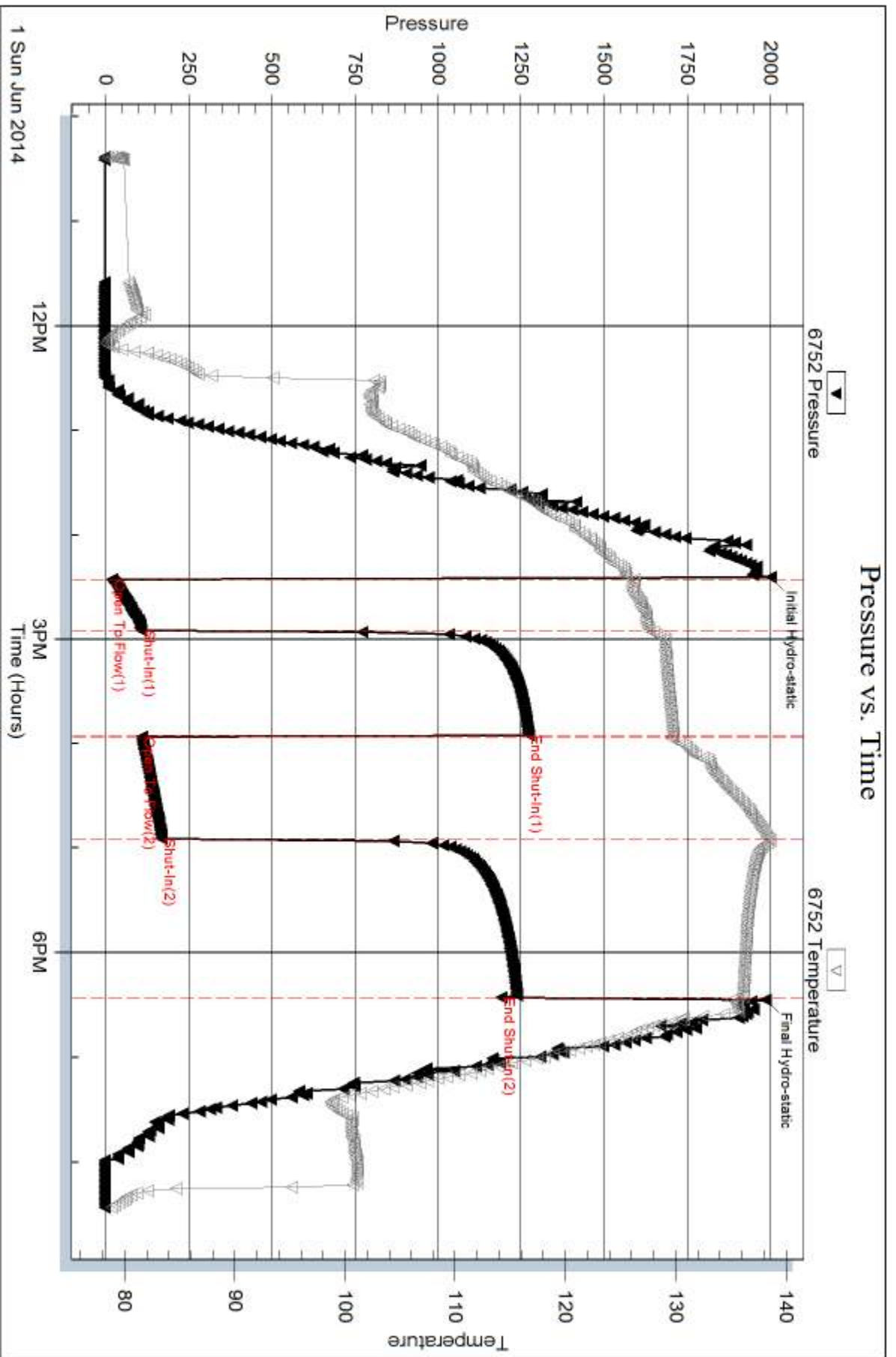
Num Gas Bombs: 0

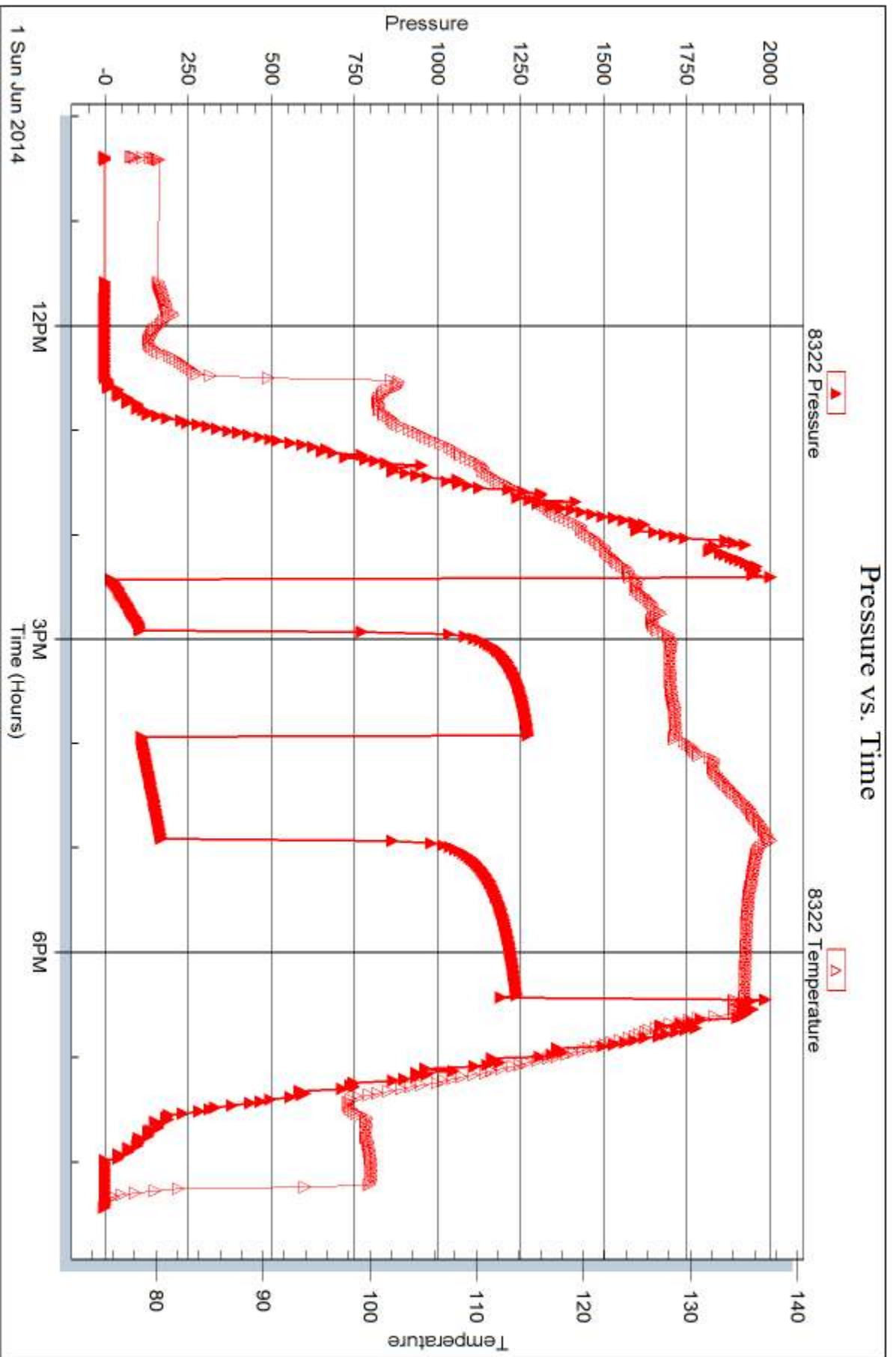
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API RW .23 @ 75.3 Chlorides = 28000 ppm







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N. Water STE 300
Wichita KS 67206

ATTN: Steve Miller

Jean #2-8

8-1s-37w Cheyenne,KS

Start Date: 2014.06.02 @ 09:49:00

End Date: 2014.06.02 @ 18:49:10

Job Ticket #: 58252 DST #: 2

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

Printed: 2014.06.09 @ 11:55:16



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Company
250 N. Water STE 300
Wichita KS 67206
ATTN: Steve Miller

8-1s-37w Cheyenne,KS

Jean #2-8

Job Ticket: 58252

DST#: 2

Test Start: 2014.06.02 @ 09:49:00

GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:26:40

Time Test Ended: 18:49:10

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 58

Interval: 4114.00 ft (KB) To 4234.00 ft (KB) (TVD)

Reference Elevations: 3212.00 ft (KB)

Total Depth: 4234.00 ft (KB) (TVD)

3207.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 6752

Inside

Press@RunDepth: 93.90 psig @ 4115.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.02

End Date:

2014.06.02

Last Calib.:

2014.06.02

Start Time: 09:49:01

End Time:

18:49:10

Time On Btm:

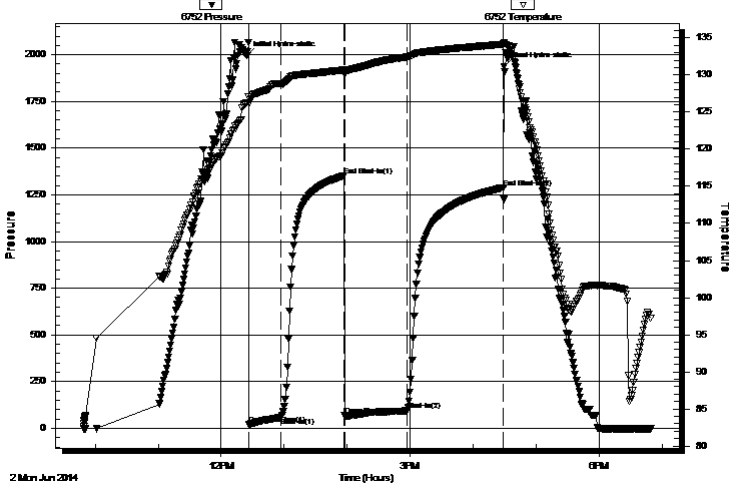
2014.06.02 @ 12:24:40

Time Off Btm:

2014.06.02 @ 16:29:40

TEST COMMENT: 30 IF - 1/2" blow built to 5"
60 ISI - No return
60 FF - Surface blow built to BoB @ 35 mins
90 FSI - Surface blow built to 2"

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1994.18	126.28	Initial Hydro-static
2	18.97	126.22	Open To Flow (1)
32	57.19	128.85	Shut-In(1)
93	1352.58	130.67	End Shut-In(1)
93	69.68	130.13	Open To Flow (2)
152	93.90	132.41	Shut-In(2)
245	1288.50	134.15	End Shut-In(2)
245	1938.02	134.39	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
121.00	GOCM - 15%G - 25%o - 60%M	0.60
95.00	GO - 40%G - 60%o	0.74
0.00	158' GIP	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Company

8-1s-37w Cheyenne, KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58252

DST#: 2

ATTN: Steve Miller

Test Start: 2014.06.02 @ 09:49:00

GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:26:40

Time Test Ended: 18:49:10

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 58

Interval: 4114.00 ft (KB) To 4234.00 ft (KB) (TVD)

Reference Elevations: 3212.00 ft (KB)

Total Depth: 4234.00 ft (KB) (TVD)

3207.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8322 Outside

Press@RunDepth: psig @ 4115.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.02 End Date: 2014.06.02

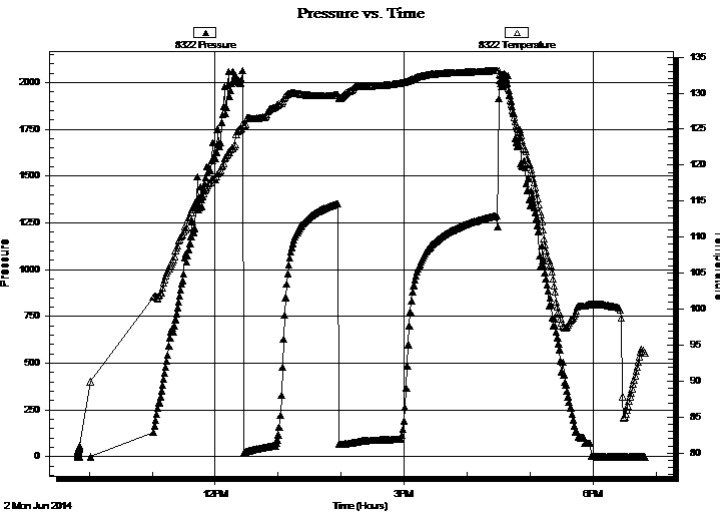
Last Calib.: 2014.06.02

Start Time: 09:49:01 End Time: 18:49:10

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF - 1/2" blow built to 5"
60 ISI - No return
60 FF - Surface blow built to BoB @ 35 mins
90 FSI - Surface blow built to 2"



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
121.00	GOCM - 15%G - 25%o - 60%M	0.60
95.00	GO - 40%G - 60%o	0.74
0.00	158' GIP	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 Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58252

DST#: 2

ATTN: Steve Miller

Test Start: 2014.06.02 @ 09:49:00

Tool Information

Drill Pipe:	Length: 3916.00 ft	Diameter: 3.80 inches	Volume: 54.93 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: 55.84 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 67000.00 lb
Depth to Top Packer:	4114.00 ft			Final 67000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	120.00 ft			
Tool Length:	147.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4088.00	
Shut In Tool	5.00			4093.00	
Hydraulic tool	5.00			4098.00	
Jars	5.00			4103.00	
Safety Joint	2.00			4105.00	
Packer	5.00			4110.00	27.00 Bottom Of Top Packer
Packer	4.00			4114.00	
Stubb	1.00			4115.00	
Recorder	0.00	6752	Inside	4115.00	
Recorder	0.00	8322	Outside	4115.00	
Perforations	20.00			4135.00	
Change Over Sub	1.00			4136.00	
Drill Pipe	94.00			4230.00	
Change Over Sub	1.00			4231.00	
Bullnose	3.00			4234.00	120.00 Bottom Packers & Anchor

Total Tool Length: 147.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58252

DST#: 2

ATTN: Steve Miller

Test Start: 2014.06.02 @ 09:49:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

31 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 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 bbbl
121.00	GOCM - 15%G - 25%o - 60%M	0.595
95.00	GO - 40%G - 60%o	0.740
0.00	158' GIP	0.000

Total Length: 216.00 ft Total Volume: 1.335 bbl

Num Fluid Samples: 0

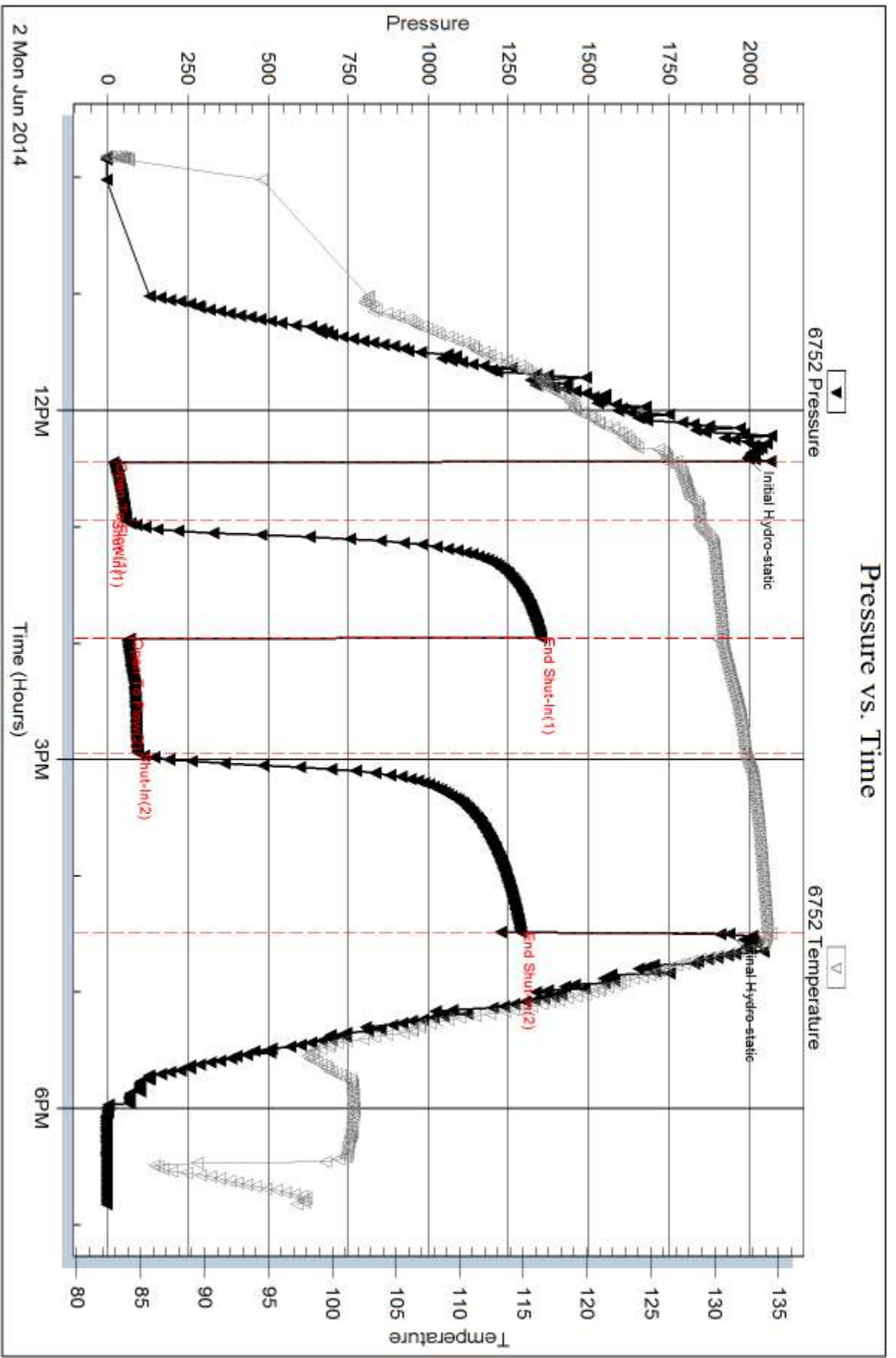
Num Gas Bombs: 0

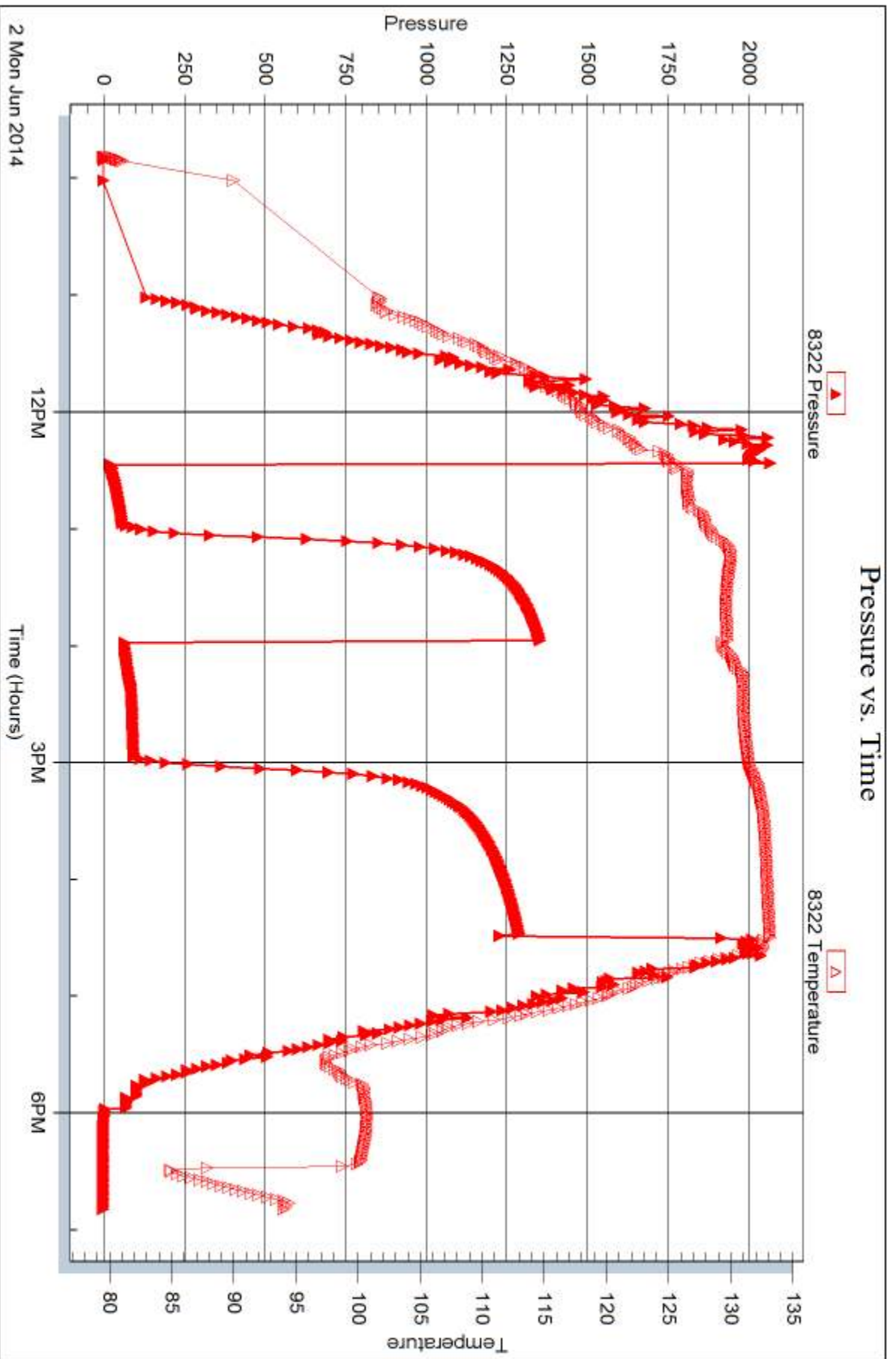
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: OIL API = 35 @ 100 DEG F = 31 COR 60 DEG F







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N. Water STE 300
Wichita KS 67206

ATTN: Steve Miller

Jean #2-8

8-1s-37w Cheyenne,KS

Start Date: 2014.06.03 @ 11:06:00

End Date: 2014.06.03 @ 19:15:20

Job Ticket #: 58253 DST #: 3

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

Printed: 2014.06.09 @ 11:54:55



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Company
250 N. Water STE 300
Wichita KS 67206
ATTN: Steve Miller

8-1s-37w Cheyenne,KS

Jean #2-8

Job Ticket: 58253

DST#: 3

Test Start: 2014.06.03 @ 11:06:00

GENERAL INFORMATION:

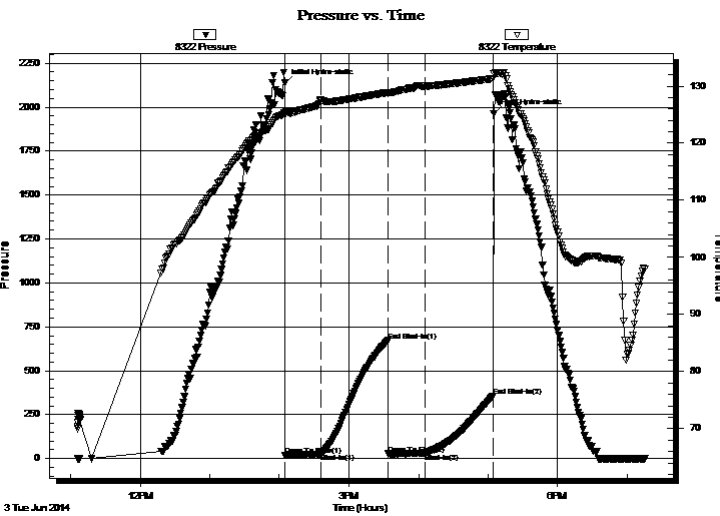
Formation: **LKC "G - J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 14:05:00
 Time Test Ended: 19:15:20
 Interval: **4244.00 ft (KB) To 4376.00 ft (KB) (TVD)**
 Total Depth: 4376.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ryan Nichols
 Unit No: 58
 Reference Elevations: 3212.00 ft (KB)
 3207.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8322

Outside

Press@RunDepth: 32.07 psig @ 4245.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.06.03 End Date: 2014.06.03 Last Calib.: 2014.06.03
 Start Time: 11:06:01 End Time: 19:15:20 Time On Btm: 2014.06.03 @ 14:04:30
 Time Off Btm: 2014.06.03 @ 17:05:00

TEST COMMENT: 30 IF - 1/2" blow built to 1 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	2136.61	125.14	Initial Hydro-static
1	19.37	125.02	Open To Flow (1)
31	30.22	127.54	Shut-In(1)
89	671.25	128.88	End Shut-In(1)
90	27.06	128.76	Open To Flow (2)
122	32.07	129.99	Shut-In(2)
180	356.82	131.29	End Shut-In(2)
181	1964.43	132.20	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM - 10%o - 90%M	0.05

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company
250 N. Water STE 300
Wichita KS 67206
ATTN: Steve Miller

8-1s-37w Cheyenne, KS

Jean #2-8

Job Ticket: 58253

DST#: 3

Test Start: 2014.06.03 @ 11:06:00

GENERAL INFORMATION:

Formation: LKC "G - J"
Deviated: No **Whipstock:** ft (KB)
Time Tool Opened: 14:05:00
Time Test Ended: 19:15:20
Interval: 4244.00 ft (KB) To 4376.00 ft (KB) (TVD)
Total Depth: 4376.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches **Hole Condition:** Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 58
Reference Elevations: 3212.00 ft (KB)
3207.00 ft (CF)
KB to GR/CF: 5.00 ft

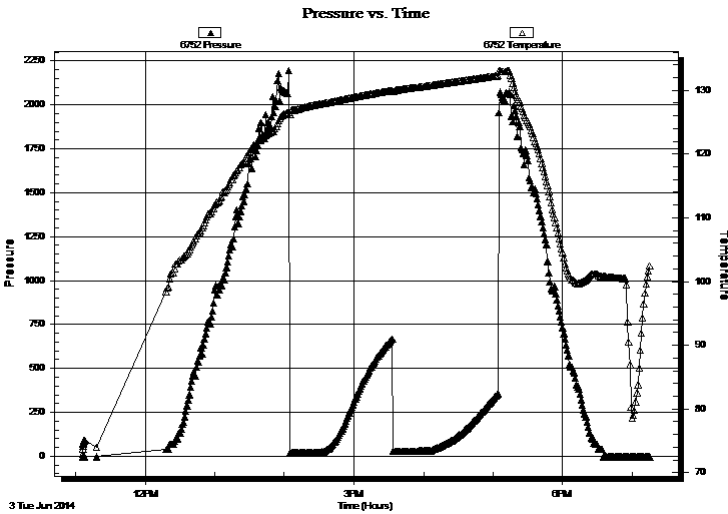
Serial #: 6752

Inside

Press@RunDepth: psig @ 4245.00 ft (KB) **Capacity:** 8000.00 psig
Start Date: 2014.06.03 **End Date:** 2014.06.03 **Last Calib.:** 2014.06.03
Start Time: 11:06:01 **End Time:** 19:15:20 **Time On Btm:**
Time Off Btm:

TEST COMMENT: 30 IF - 1/2" blow built to 1 1/2"
60 ISI - No return
30 FF - No blow
60 FSI - No return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM - 10%o - 90%M	0.05

* 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 Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58253

DST#: 3

ATTN: Steve Miller

Test Start: 2014.06.03 @ 11:06:00

Tool Information

Drill Pipe:	Length: 4041.00 ft	Diameter: 3.80 inches	Volume: 56.68 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: 57.59 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4244.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	132.00 ft			
Tool Length:	159.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

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	2.00			4235.00	
Packer	5.00			4240.00	27.00 Bottom Of Top Packer
Packer	4.00			4244.00	
Stubb	1.00			4245.00	
Recorder	0.00	6752	Inside	4245.00	
Recorder	0.00	8322	Outside	4245.00	
Perforations	32.00			4277.00	
Change Over Sub	1.00			4278.00	
Drill Pipe	94.00			4372.00	
Change Over Sub	1.00			4373.00	
Bullnose	3.00			4376.00	132.00 Bottom Packers & Anchor

Total Tool Length: 159.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58253

DST#: 3

ATTN: Steve Miller

Test Start: 2014.06.03 @ 11:06:00

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: 67.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 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
10.00	OCM - 10%o - 90%M	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

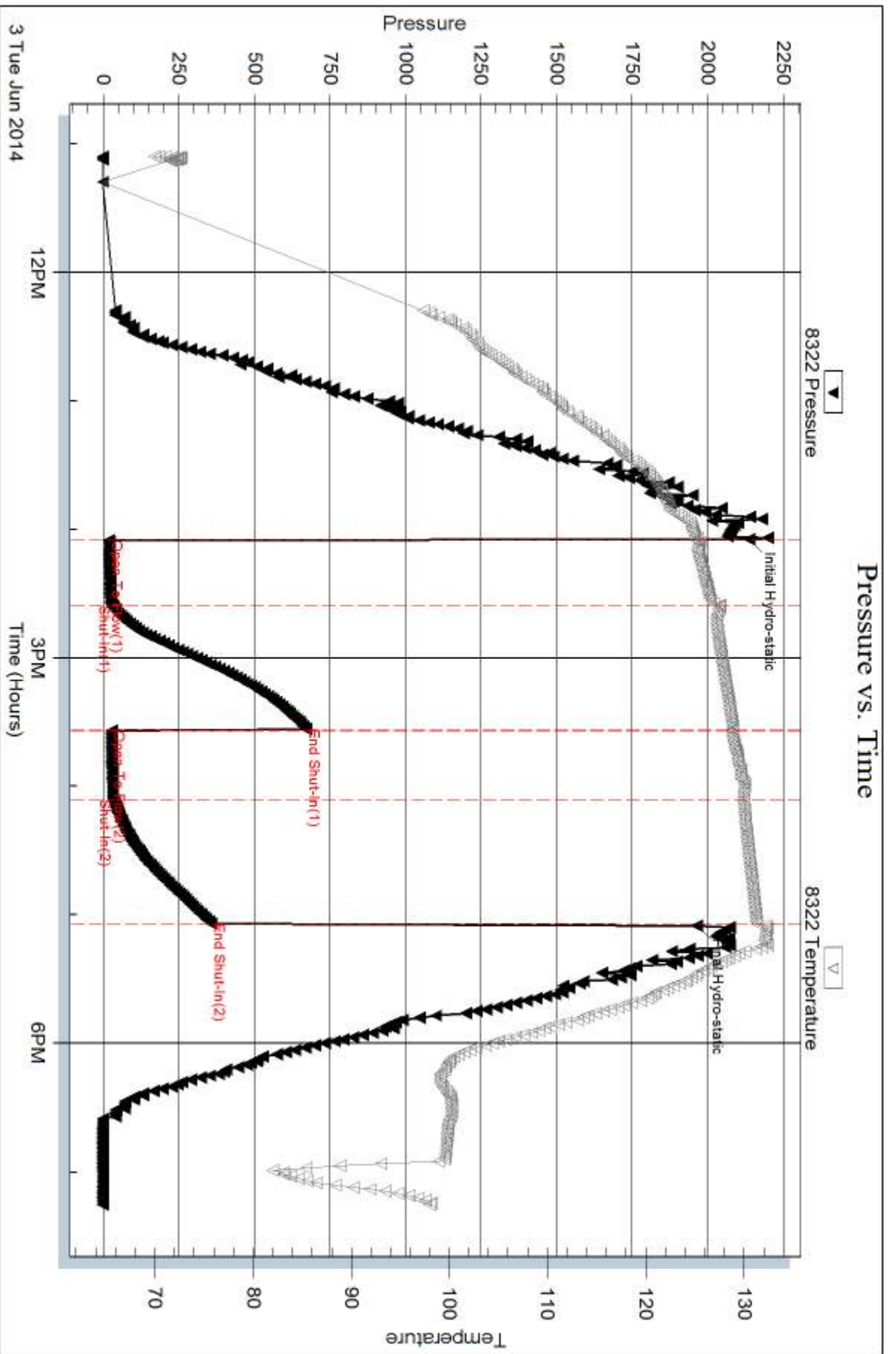
Num Gas Bombs: 0

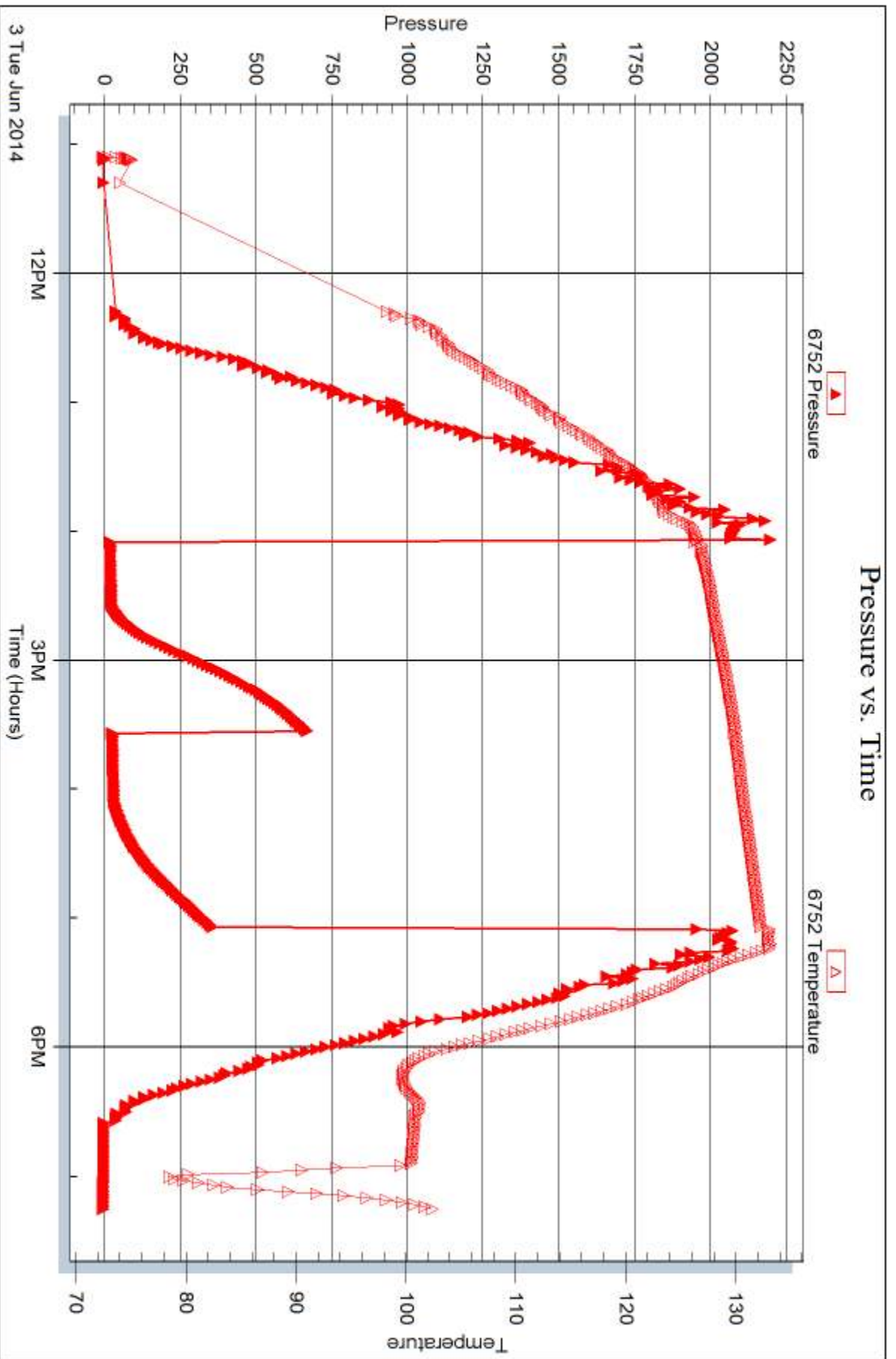
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N. Water STE 300
Wichita KS 67206

ATTN: Steve Miller

Jean #2-8

8-1s-37w Cheyenne,KS

Start Date: 2014.06.04 @ 16:02:00

End Date: 2014.06.05 @ 02:56:10

Job Ticket #: 58254 DST #: 4

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

Printed: 2014.06.09 @ 11:54:19



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Company
 250 N. Water STE 300
 Wichita KS 67206
 ATTN: Steve Miller

8-1s-37w Cheyenne,KS

Jean #2-8

Job Ticket: 58254

DST#: 4

Test Start: 2014.06.04 @ 16:02:00

GENERAL INFORMATION:

Formation: **Pawnee**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 18:34:00
 Time Test Ended: 02:56:10
 Interval: **4535.00 ft (KB) To 4574.00 ft (KB) (TVD)**
 Total Depth: 4574.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ryan Nichols
 Unit No: 58
 Reference Elevations: 3212.00 ft (KB)
 3207.00 ft (CF)
 KB to GR/CF: 5.00 ft

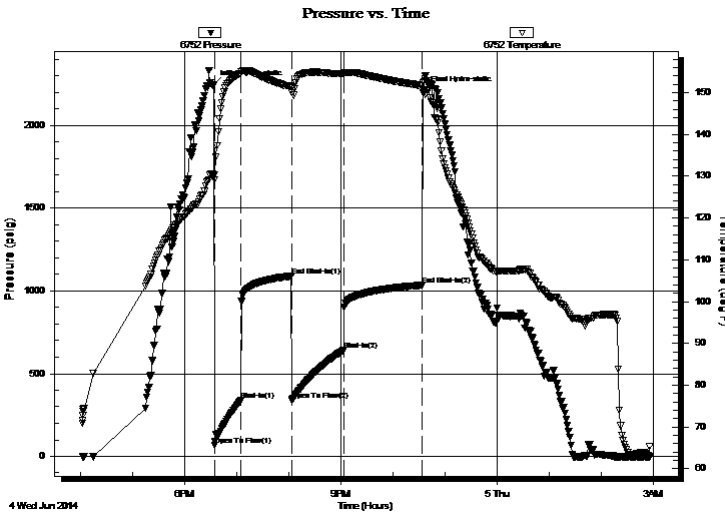
Serial #: 6752

Inside

Press@RunDepth: 640.93 psig @ 4536.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.06.04 End Date: 2014.06.05 Last Calib.: 2014.06.05
 Start Time: 16:02:01 End Time: 02:56:10 Time On Btm: 2014.06.04 @ 18:33:20
 Time Off Btm: 2014.06.04 @ 22:35:20

TEST COMMENT: 30 IF - 1" blow built to BoB @ 3 mins
 60 ISI - Surface blow built to BoB @ 12 mins
 60 FF - Surface blow built to BoB @ 4 mins
 90 FSI - Surface blow built to BoB @ 20 mins

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2246.60	130.40	Initial Hydro-static
1	67.27	129.14	Open To Flow (1)
31	337.17	154.60	Shut-In(1)
90	1090.23	151.47	End Shut-In(1)
90	340.21	151.07	Open To Flow (2)
150	640.93	154.47	Shut-In(2)
240	1034.51	151.67	End Shut-In(2)
243	2209.20	152.68	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1850.00	GO - 40%G - 60%o	24.26

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58254

DST#: 4

ATTN: Steve Miller

Test Start: 2014.06.04 @ 16:02:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:34:00

Time Test Ended: 02:56:10

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 58

Interval: 4535.00 ft (KB) To 4574.00 ft (KB) (TVD)

Total Depth: 4574.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3212.00 ft (KB)

3207.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8322 Outside

Press@RunDepth: psig @ 4536.00 ft (KB)

Start Date: 2014.06.04

End Date:

2014.06.05

Start Time: 16:02:01

End Time:

02:56:10

Capacity: 8000.00 psig

Last Calib.:

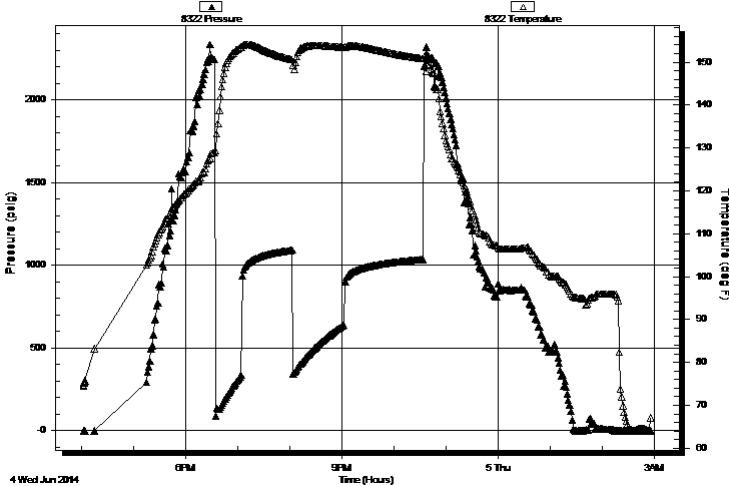
2014.06.05

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF - 1" blow built to BoB @ 3 mins
60 ISI - Surface blow built to BoB @ 12 mins
60 FF - Surface blow built to BoB @ 4 mins
90 FSI - Surface blow built to BoB @ 20 mins

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1850.00	GO - 40%G - 60%o	24.26

* 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 Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58254

DST#: 4

ATTN: Steve Miller

Test Start: 2014.06.04 @ 16:02:00

Tool Information

Drill Pipe:	Length: 4354.00 ft	Diameter: 3.80 inches	Volume: 61.08 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: 110000.0 lb
			<u>Total Volume: 61.99 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4535.00 ft			Final 73000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	39.00 ft			
Tool Length:	66.00 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			4509.00	
Shut In Tool	5.00			4514.00	
Hydraulic tool	5.00			4519.00	
Jars	5.00			4524.00	
Safety Joint	2.00			4526.00	
Packer	5.00			4531.00	27.00 Bottom Of Top Packer
Packer	4.00			4535.00	
Stubb	1.00			4536.00	
Recorder	0.00	6752	Inside	4536.00	
Recorder	0.00	8322	Outside	4536.00	
Perforations	35.00			4571.00	
Bullnose	3.00			4574.00	39.00 Bottom Packers & Anchor

Total Tool Length: 66.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

8-1s-37w Cheyenne,KS

250 N. Water STE 300
Wichita KS 67206

Jean #2-8

Job Ticket: 58254

DST#: 4

ATTN: Steve Miller

Test Start: 2014.06.04 @ 16:02:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

36 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 72.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.79 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
1850.00	GO - 40%G - 60%o	24.256

Total Length: 1850.00 ft Total Volume: 24.256 bbl

Num Fluid Samples: 0

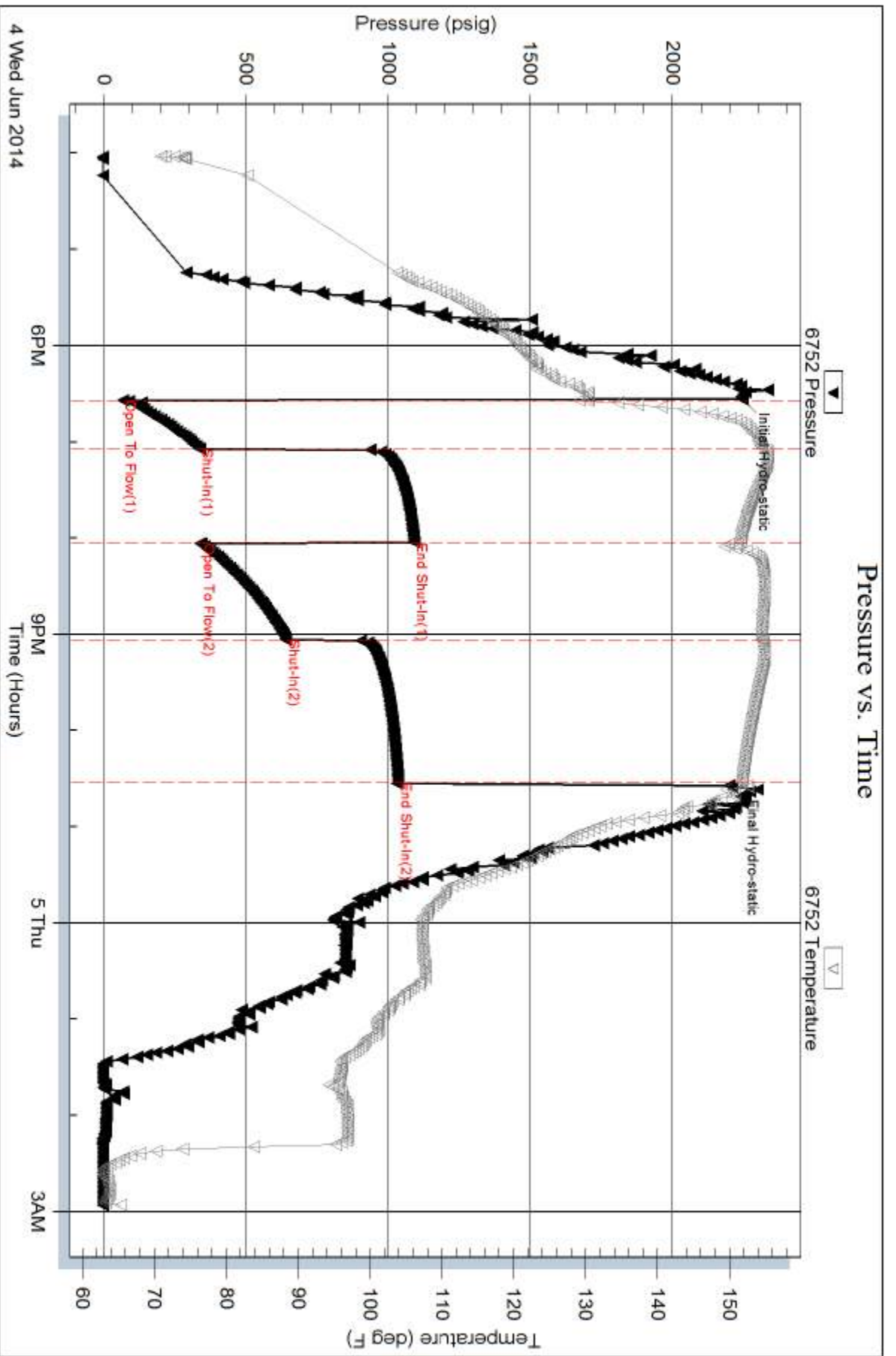
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: OIL API = 37 @ 70 DEG F = 36 COR 60 DEG F

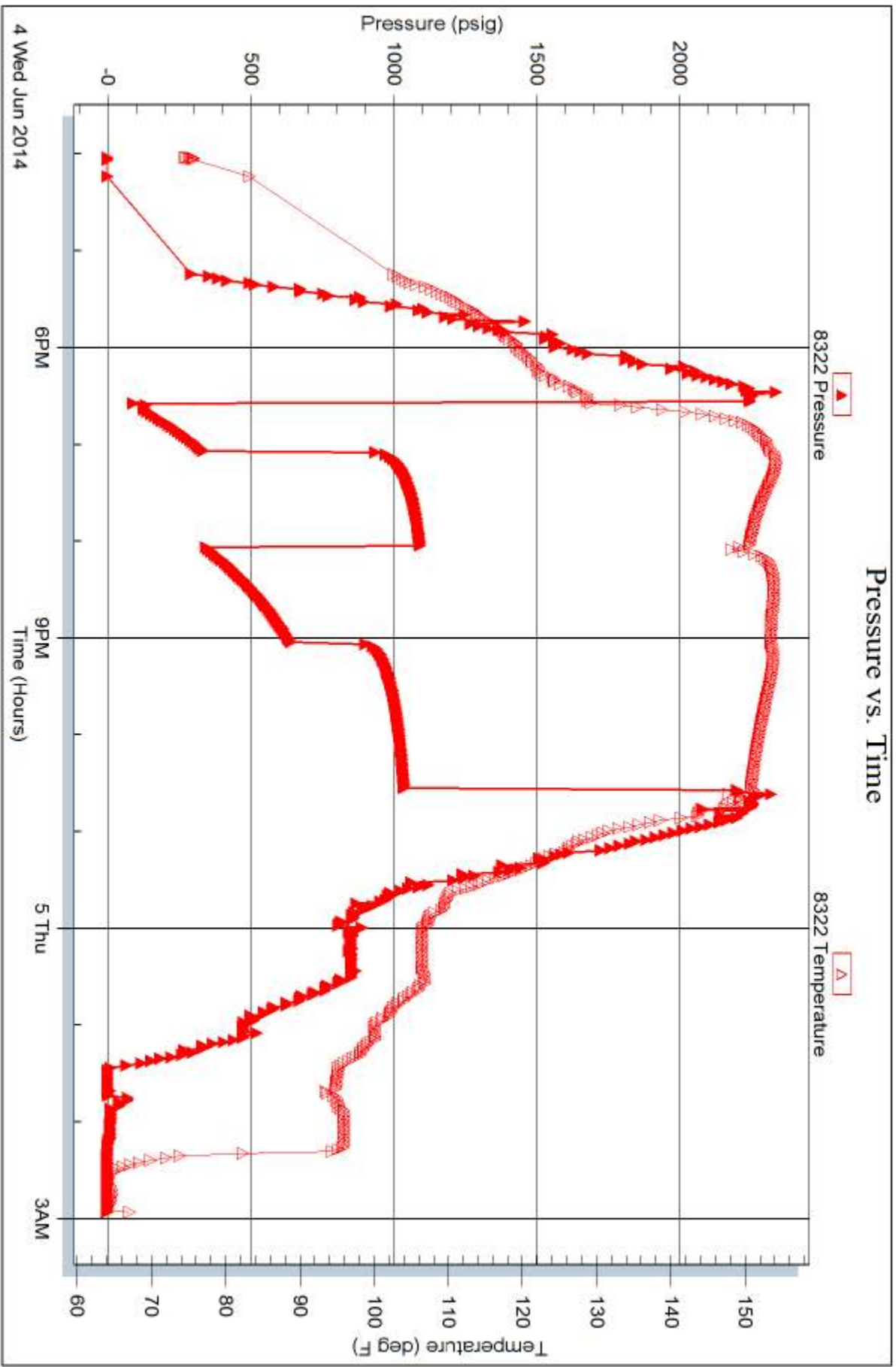


Serial #: 8322

Outside Murfin Drilling Company

Jean #2-8

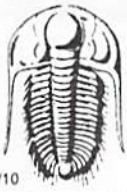
DST Test Number: 4



Triobite Testing, Inc

Ref. No: 58254

Printed: 2014.06.09 @ 11:54:21



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 58143

4/10

Well Name & No. Jean #2-8 Test No. 1 Date 6-1-14
 Company Murfin Drilling Co., Inc. Elevation 3212 KB 3207 GL
 Address 250 N. Water, STE 300 Wichita, KS 67202
 Co. Rep / Geo. Steve Miller Rig Murfin #8
 Location: Sec. 8 Twp. 1S Rge. 37W Co. Cheyenne State KS

Interval Tested 4036-4098 Zone Tested Oread
 Anchor Length '62' Drill Pipe Run 3856 Mud Wt. 9.1
 Top Packer Depth 4032 Drill Collars Run 186 Vis 57
 Bottom Packer Depth 4036 Wt. Pipe Run - WL 5.2
 Total Depth 4098 Chlorides 700 ppm System LCM 3
 Blow Description IF- Opened w/ surface blow, built to 6 1/2"
Ist- No Return
FF- Opened w/ surface blow, built to 10 1/2"
Fst- No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>92</u>	<u>Mud</u>			<u>100</u>	
<u>248</u>	<u>MW</u>			<u>68</u>	<u>32</u>

Rec Total 340 BHT 136 Gravity _____ API RW .23 @ 75.3 °F Chlorides 28,000 ppm

(A) Initial Hydrostatic 1999 Test 1250 T-On Location 8:40 AM
 (B) First Initial Flow 18 Jars 250 T-Started 10:23 AM
 (C) First Final Flow 106 Safety Joint 75 T-Open 2:26 PM
 (D) Initial Shut-In 1273 Circ Sub _____ T-Pulled 6:26 PM
 (E) Second Initial Flow 108 Hourly Standby _____ T-Out 8:28 PM
 (F) Second Final Flow 168 Mileage 146 226.30 Comments _____
 (G) Final Shut-In 1191 Sampler _____
 (H) Final Hydrostatic 1985 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 30 Extra Recorder _____ Sub Total 0
 Initial Shut-In 60 Day Standby _____ Total 1801.30
 Final Flow 60 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 90 Sub Total 1801.30

Approved By _____ Our Representative Bud O'K

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 58252

Well Name & No. Jean #2-8 Test No. 2 Date 6/2/14
 Company Murfin Drilling Co. Elevation 3212 KB 3207 GL
 Address 250 N Water STE 300 Wichita KS 67206
 Co. Rep / Geo. Steve Miller Rig Murfin #8
 Location: Sec. 8 Twp. 15 Rge. 37 W Co. Cheyenne State KS

Interval Tested 4114 - 4234 Zone Tested LKC "A-D"
 Anchor Length 120' Drill Pipe Run 3916' Mud Wt. 9.2
 Top Packer Depth 4109 Drill Collars Run 186' Vis 55
 Bottom Packer Depth 4114 Wt. Pipe Run 0' WL 5.6
 Total Depth 4234 Chlorides 900 ppm System LCM 2

Blow Description IF - 1/2" blow built to 5"
ISI - No return
FF - Surface blow built to BoB @ 35 mins
FSI - Surface blow built to 2"

Rec	Feet of	%gas	%oil	%water	%mud
<u>95'</u>	<u>60</u>	<u>40</u>	<u>60</u>		
<u>121'</u>	<u>GOCM</u>	<u>15</u>	<u>25</u>		<u>60</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

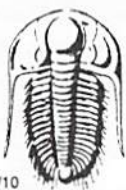
Rec Total 216' BHT 135° Gravity 31 API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic 1994 Test 1250 T-On Location 09:15
 (B) First Initial Flow 19 Jars 250 T-Started 09:49
 (C) First Final Flow 57 Safety Joint 75 T-Open 12:27
 (D) Initial Shut-In 1353 Circ Sub NC T-Pulled 16:27
 (E) Second Initial Flow 70 Hourly Standby _____ T-Out 18:49
 (F) Second Final Flow 94 Mileage 146 RT 226.30 Comments 158' GIP
 (G) Final Shut-In 1289 Sampler _____
 (H) Final Hydrostatic 1938 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1801.30
 Accessibility _____ MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90
 Sub Total 1801.30

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 58253

Well Name & No. Jean #2-8 Test No. 3 Date 6/3/14
 Company Martin Drilling Co. Elevation 3212 KB 3207 GL
 Address 250 N. Water STE 300 Wichita KS 67206
 Co. Rep / Geo. Steve Miller Rig Martin #8
 Location: Sec. 8 Twp. 15 Rge. 37W Co. Cherokee State KS

Interval Tested 4244 - 4376 Zone Tested LKC "G-J"
 Anchor Length 132' Drill Pipe Run 4041' Mud Wt. 9.2
 Top Packer Depth 4239 Drill Collars Run 186' Vis 67
 Bottom Packer Depth 4244 Wt. Pipe Run 0' WL 8.8
 Total Depth 4376 Chlorides 700 ppm System LCM 2
 Blow Description IF - 1/2 blow built to 1 1/2"
ISI - No return
FF - No blow
FBI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10'</u>	<u>OCM</u>	<u>10</u>		<u>90</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 10' BHT 131° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2137</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>10:45</u>
(B) First Initial Flow <u>19</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>11:06</u>
(C) First Final Flow <u>30</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>14:05</u>
(D) Initial Shut-In <u>671</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>17:05</u>
(E) Second Initial Flow <u>27</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>19:15</u>
(F) Second Final Flow <u>32</u>	<input checked="" type="checkbox"/> Mileage <u>146 RT</u> 226.30	Comments
(G) Final Shut-In <u>357</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1964</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>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>1801.30</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1801.30</u>	

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 58254

Well Name & No. Jean #2-8 Test No. 4 Date 6/4/14
 Company Martin Drilling Co. Elevation 3212 KB 3207 GL
 Address 250 N. Water STE 300 Wichita KS 67206
 Co. Rep / Geo. Steve Miller Rig Martin #8
 Location: Sec. 8 Twp. 1S Rge. 37W Co. Cheyenne State KS

Interval Tested 4535 - 4574 Zone Tested Pawnee
 Anchor Length 39' Drill Pipe Run 4354' Mud Wt. 9.3
 Top Packer Depth 4530 Drill Collars Run 186' Vis 72
 Bottom Packer Depth 4535 Wt. Pipe Run 0' WL 8.8
 Total Depth 4574 Chlorides 600 ppm System LCM 2

Blow Description IF - 1" bbw built to BoB @ 3 mins
ISI - Surface blow built to BoB @ 12 mins
FF - Surface blow built to BoB @ 4 mins
FSI - Surface blow built to BoB @ 20 mins

Rec	Feet of	%gas	%oil	%water	%mud
<u>1850</u>	<u>GO</u>	<u>40</u>	<u>40</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 1850 BHT 152° Gravity 36 API RW @ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2247</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>15:00</u>
(B) First Initial Flow <u>67</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>16:02</u>
(C) First Final Flow <u>337</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>18:33</u>
(D) Initial Shut-In <u>1090</u>	<input checked="" type="checkbox"/> Circ Sub <u>used 50</u>	T-Pulled <u>22:33</u>
(E) Second Initial Flow <u>340</u>	<input checked="" type="checkbox"/> Hourly Standby <u>X 2 1h 100</u>	T-Out <u>02:56</u>
(F) Second Final Flow <u>641</u>	<input checked="" type="checkbox"/> Mileage <u>146 RT 226.30</u>	Comments <u>1600' GIP</u>
(G) Final Shut-In <u>1035</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2209</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Flow <u>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1951.30</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1951.30</u>	

Approved By _____

Our Representative [Signature]

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