



DRILL STEM TEST REPORT

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

250 N Water Suite 300
Wichita, KS 67202

ATTN: Bob Stolze

Jones 'A' #3-17

17-15s-37w Cheyenne,KS

Start Date: 2014.07.08 @ 23:06:00

End Date: 2014.07.09 @ 06:56:50

Job Ticket #: 57184 DST #: 1

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

Printed: 2014.07.17 @ 14:30:55

Murfin Drilling Co., Inc.

17-15s-37w Cheyenne,KS

Jones 'A' #3-17

DST # 1

Stotter Ls

2014.07.08



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.
250 N Water Suite 300
Wichita, KS 67202
ATTN: Bob Stolzle

17-15s-37w Cheyenne,KS
Jones 'A' #3-17
Job Ticket: 57184 **DST#: 1**
Test Start: 2014.07.08 @ 23:06:00

GENERAL INFORMATION:

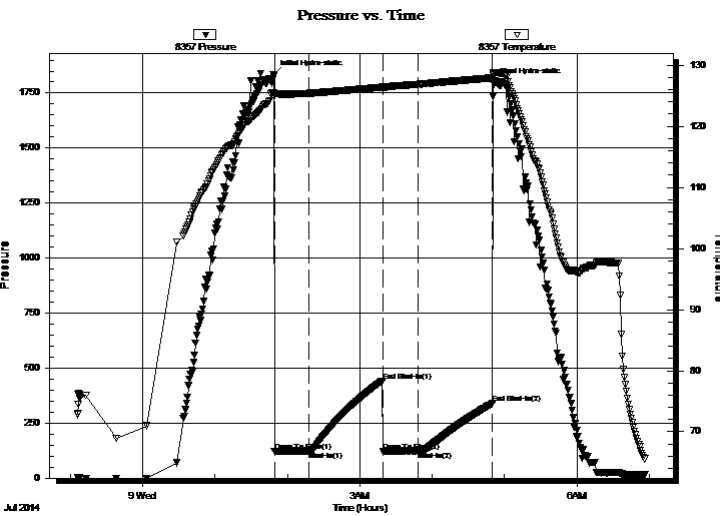
Formation: **Stotler Ls**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:49:10
Time Test Ended: 06:56:50
Interval: **3799.00 ft (KB) To 3865.00 ft (KB) (TVD)**
Total Depth: 3865.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Reference Elevations: 3141.00 ft (KB)
3136.00 ft (CF)
KB to GR/CF: 5.00 ft
Test Type: Conventional Bottom Hole (Initial)
Tester: Chuck Smith
Unit No: 62

Serial #: 8357

Inside

Press@RunDepth: 123.80 psig @ 3800.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.07.08 End Date: 2014.07.09 Last Calib.: 2014.07.09
Start Time: 23:06:02 End Time: 06:56:49 Time On Btm: 2014.07.09 @ 01:48:20
Time Off Btm: 2014.07.09 @ 04:50:50

TEST COMMENT: 30- Packer seat failed, reset tool, tool slid 8-10', 2" blow died @ 12 min.
60- No return.
30- No blow .
60- No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1832.81	125.47	Initial Hydro-static
1	122.89	125.00	Open To Flow (1)
30	123.84	125.42	Shut-In(1)
91	442.32	126.42	End Shut-In(1)
91	122.47	126.31	Open To Flow (2)
121	123.80	126.87	Shut-In(2)
182	340.17	127.93	End Shut-In(2)
183	1797.80	128.50	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
210.00	M 100m Some oil spots in tool with odor	1.25

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

17-15s-37w Cheyenne,KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 57184

DST#: 1

ATTN: Bob Stolzle

Test Start: 2014.07.08 @ 23:06:00

Tool Information

Drill Pipe:	Length: 3604.00 ft	Diameter: 3.82 inches	Volume: 51.09 bbl	Tool Weight: 2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.25 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: 75000.00 lb
			<u>Total Volume: 52.00 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.50 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3799.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	66.00 ft			
Tool Length:	93.50 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			3772.50	
Shut In Tool	5.00			3777.50	
Hydraulic tool	5.00			3782.50	
Jars	5.00			3787.50	
Safety Joint	2.50			3790.00	
Packer	5.00			3795.00	27.50 Bottom Of Top Packer
Packer	4.00			3799.00	
Stubb	1.00			3800.00	
Recorder	0.00	8357	Inside	3800.00	
Recorder	0.00	6751	Outside	3800.00	
Perforations	29.00			3829.00	
Change Over Sub	1.00			3830.00	
Drill Pipe	31.00			3861.00	
Change Over Sub	1.00			3862.00	
Bullnose	3.00			3865.00	66.00 Bottom Packers & Anchor

Total Tool Length: 93.50



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-15s-37w Cheyenne,KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 57184

DST#: 1

ATTN: Bob Stolzle

Test Start: 2014.07.08 @ 23:06:00

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: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 in³

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 bbbl
210.00	M 100m Some oil spots in tool w ith odor	1.255

Total Length: 210.00 ft Total Volume: 1.255 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

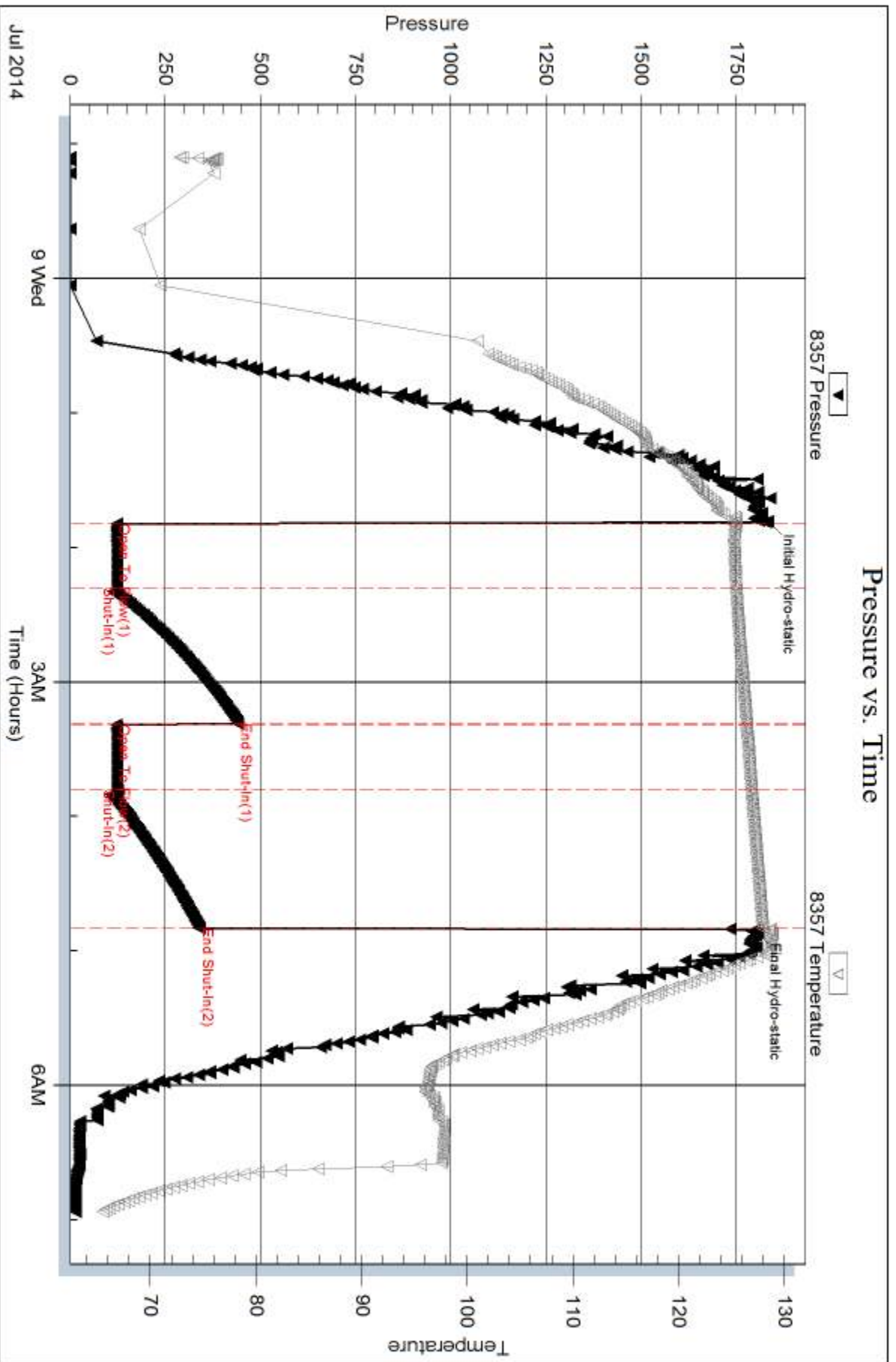
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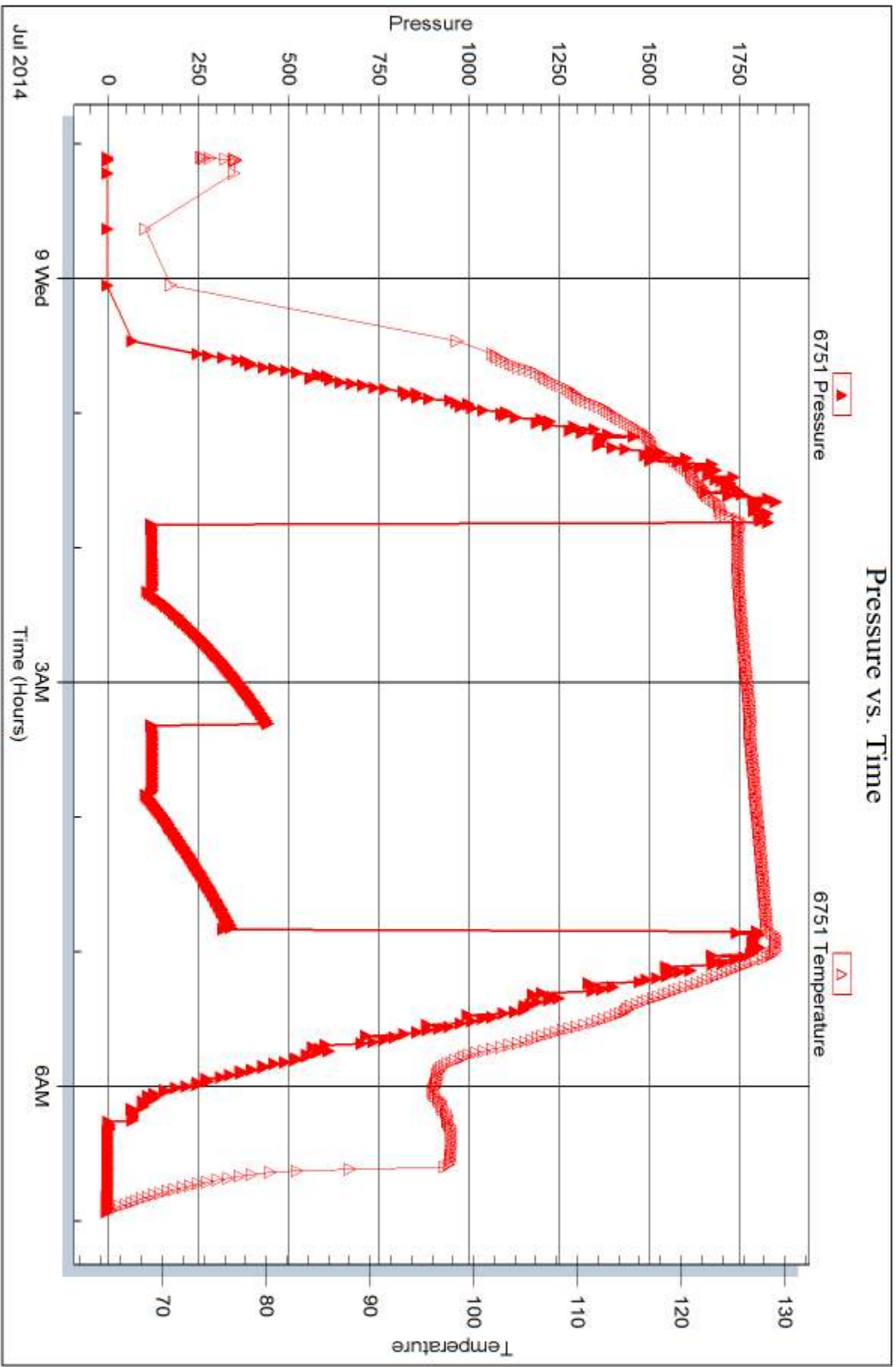
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

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

250 N Water Suite 300
Wichita, KS 67202

ATTN: Bob Stolzle

Jones 'A' #3-17

17-15s-37w Cheyenne,KS

Start Date: 2014.07.10 @ 04:43:00

End Date: 2014.07.10 @ 12:49:30

Job Ticket #: 57185 DST #: 2

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

Printed: 2014.07.17 @ 14:30:34

Murfin Drilling Co., Inc.
17-15s-37w Cheyenne,KS
Jones 'A' #3-17
DST # 2
LKC 'A'
2014.07.10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.
250 N Water Suite 300
Wichita, KS 67202
ATTN: Bob Stolzle

17-15s-37w Cheyenne,KS
Jones 'A' #3-17
Job Ticket: 57185 **DST#: 2**
Test Start: 2014.07.10 @ 04:43:00

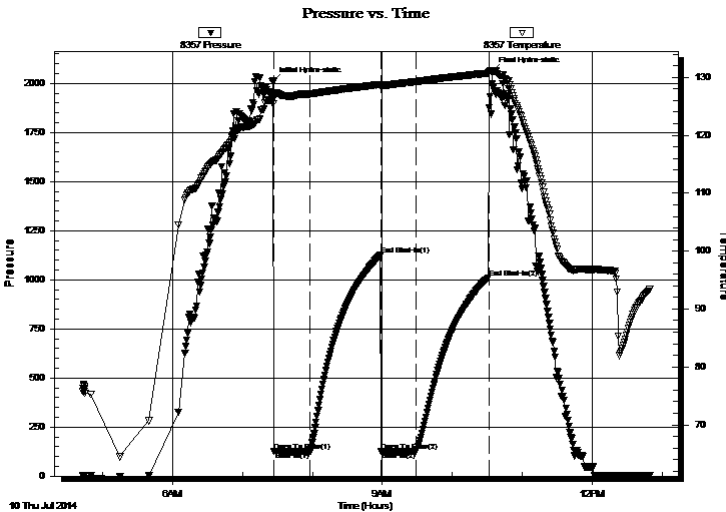
GENERAL INFORMATION:

Formation: **LKC 'A'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:27:00
Time Test Ended: 12:49:30
Interval: **4048.00 ft (KB) To 4130.00 ft (KB) (TVD)**
Total Depth: 4130.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Smith
Unit No: 62
Reference Elevations: 3141.00 ft (KB)
3136.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8357 Inside
Press@RunDepth: 124.92 psig @ 4049.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.07.10 End Date: 2014.07.10 Last Calib.: 2014.07.10
Start Time: 04:43:02 End Time: 12:49:30 Time On Btm: 2014.07.10 @ 07:25:40
Time Off Btm: 2014.07.10 @ 10:33:40

TEST COMMENT: Tool opened and slid 20', 10" blow died @ 10 min.
No return.
No blow.
No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2008.93	125.97	Initial Hydro-static
2	125.08	126.45	Open To Flow (1)
32	124.67	127.10	Shut-In(1)
93	1125.19	128.79	End Shut-In(1)
93	126.72	128.46	Open To Flow (2)
123	124.92	129.26	Shut-In(2)
186	1011.17	130.73	End Shut-In(2)
188	2061.68	130.95	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
61.00	OSM 100m	0.30
124.00	SGOCM 1g 1o 98m	0.61
20.00	GOCM 2g 3o 95m	0.27

* 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.

17-15s-37w Cheyenne,KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 57185

DST#: 2

ATTN: Bob Stolzle

Test Start: 2014.07.10 @ 04:43:00

Tool Information

Drill Pipe:	Length: 3852.00 ft	Diameter: 3.82 inches	Volume: 54.60 bbl	Tool Weight: 2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.25 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: 80000.00 lb
			<u>Total Volume: 55.51 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.50 ft			String Weight: Initial 61000.00 lb
Depth to Top Packer:	4048.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	82.00 ft			
Tool Length:	109.50 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			4021.50	
Shut In Tool	5.00			4026.50	
Hydraulic tool	5.00			4031.50	
Jars	5.00			4036.50	
Safety Joint	2.50			4039.00	
Packer	5.00			4044.00	27.50 Bottom Of Top Packer
Packer	4.00			4048.00	
Stubb	1.00			4049.00	
Recorder	0.00	8357	Inside	4049.00	
Recorder	0.00	6751	Outside	4049.00	
Perforations	13.00			4062.00	
Change Over Sub	1.00			4063.00	
Drill Pipe	63.00			4126.00	
Change Over Sub	1.00			4127.00	
Bullnose	3.00			4130.00	82.00 Bottom Packers & Anchor

Total Tool Length: 109.50



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-15s-37w Cheyenne,KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 57185

DST#: 2

ATTN: Bob Stolzle

Test Start: 2014.07.10 @ 04:43:00

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: 67.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.38 in³

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
61.00	OSM 100m	0.300
124.00	SGOCM 1g 1o 98m	0.610
20.00	GOCM 2g 3o 95m	0.274

Total Length: 205.00 ft Total Volume: 1.184 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

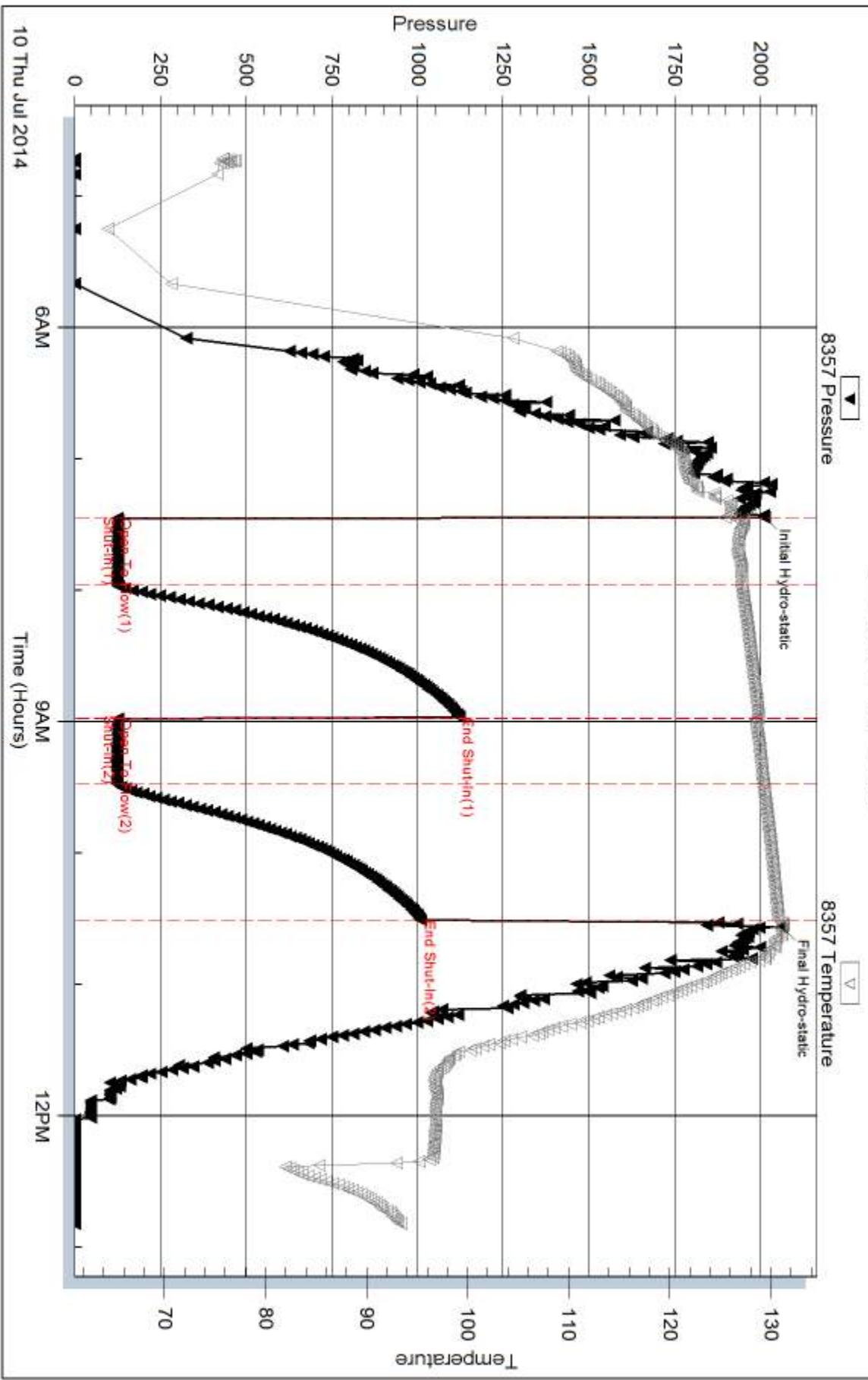
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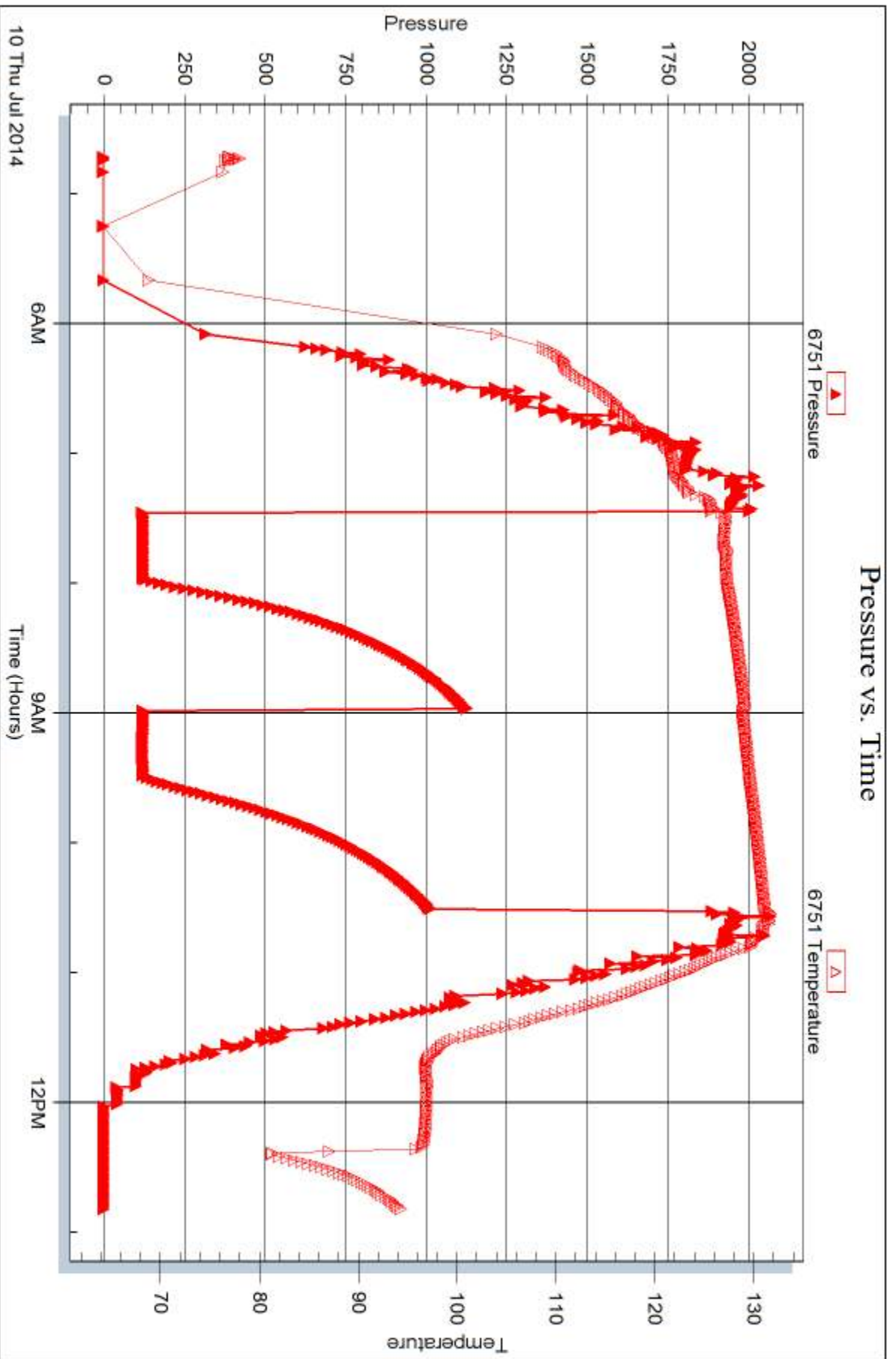
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

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

250 N Water Suite 300
Wichita, KS 67202

ATTN: Bob Stolze

Jones 'A' #3-17

17-15s-37w Cheyenne,KS

Start Date: 2014.07.10 @ 21:11:00

End Date: 2014.07.11 @ 06:10:10

Job Ticket #: 57186 DST #: 3

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

Printed: 2014.07.17 @ 14:30:12

Murfin Drilling Co., Inc.
17-15s-37w Cheyenne,KS
Jones 'A' #3-17
DST # 3
LKC 'A-D'
2014.07.10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.
250 N Water Suite 300
Wichita, KS 67202
ATTN: Bob Stolzle

17-15s-37w Cheyenne,KS

Jones 'A' #3-17

Job Ticket: 57186 **DST#: 3**
Test Start: 2014.07.10 @ 21:11:00

GENERAL INFORMATION:

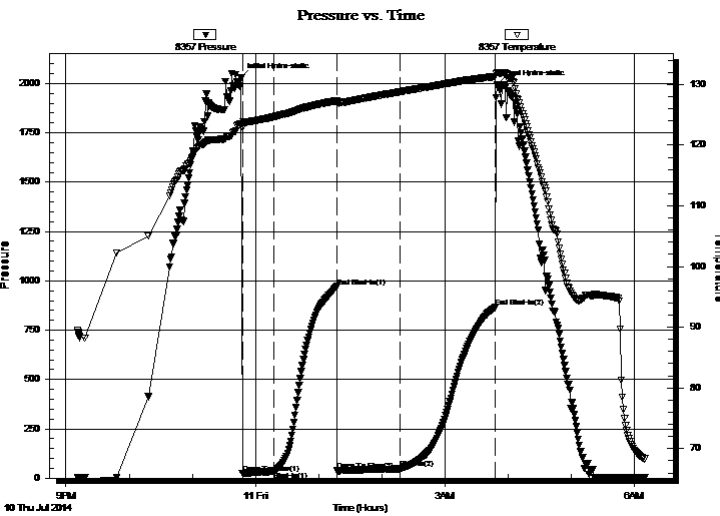
Formation: **LKC 'A-D'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:47:20
Time Test Ended: 06:10:10
Interval: **4105.00 ft (KB) To 4180.00 ft (KB) (TVD)**
Total Depth: 4180.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Smith
Unit No: 62
Reference Elevations: 3141.00 ft (KB)
3136.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8357

Inside

Press@RunDepth: 47.44 psig @ 4106.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.07.10 End Date: 2014.07.11 Last Calib.: 2014.07.11
Start Time: 21:11:02 End Time: 06:10:10 Time On Btm: 2014.07.10 @ 23:46:10
Time Off Btm: 2014.07.11 @ 03:49:10

TEST COMMENT: 1 1/2" Blow . Tool slid 5' w hile still closed.
No return.
1/2" Blow .
No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2029.00	123.59	Initial Hydro-static
2	23.13	122.91	Open To Flow (1)
32	33.40	124.67	Shut-In(1)
91	971.28	127.32	End Shut-In(1)
92	37.42	127.06	Open To Flow (2)
151	47.44	128.79	Shut-In(2)
242	866.24	131.30	End Shut-In(2)
243	1994.62	131.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
62.00	OCM 35o 65m	0.30

* 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.

17-15s-37w Cheyenne,KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 57186

DST#: 3

ATTN: Bob Stolzle

Test Start: 2014.07.10 @ 21:11:00

Tool Information

Drill Pipe:	Length: 3910.00 ft	Diameter: 3.82 inches	Volume: 55.43 bbl	Tool Weight: 2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.25 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: 70000.00 lb
			<u>Total Volume: 56.34 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.50 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4105.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	75.00 ft			
Tool Length:	102.50 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			4078.50	
Shut In Tool	5.00			4083.50	
Hydraulic tool	5.00			4088.50	
Jars	5.00			4093.50	
Safety Joint	2.50			4096.00	
Packer	5.00			4101.00	27.50 Bottom Of Top Packer
Packer	4.00			4105.00	
Stubb	1.00			4106.00	
Recorder	0.00	8357	Inside	4106.00	
Recorder	0.00	6751	Outside	4106.00	
Perforations	6.00			4112.00	
Change Over Sub	1.00			4113.00	
Drill Pipe	63.00			4176.00	
Change Over Sub	1.00			4177.00	
Bullnose	3.00			4180.00	75.00 Bottom Packers & Anchor

Total Tool Length: 102.50



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-15s-37w Cheyenne, KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 57186

DST#: 3

ATTN: Bob Stolzle

Test Start: 2014.07.10 @ 21:11:00

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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

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
62.00	OCM 35o 65m	0.305

Total Length: 62.00 ft Total Volume: 0.305 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

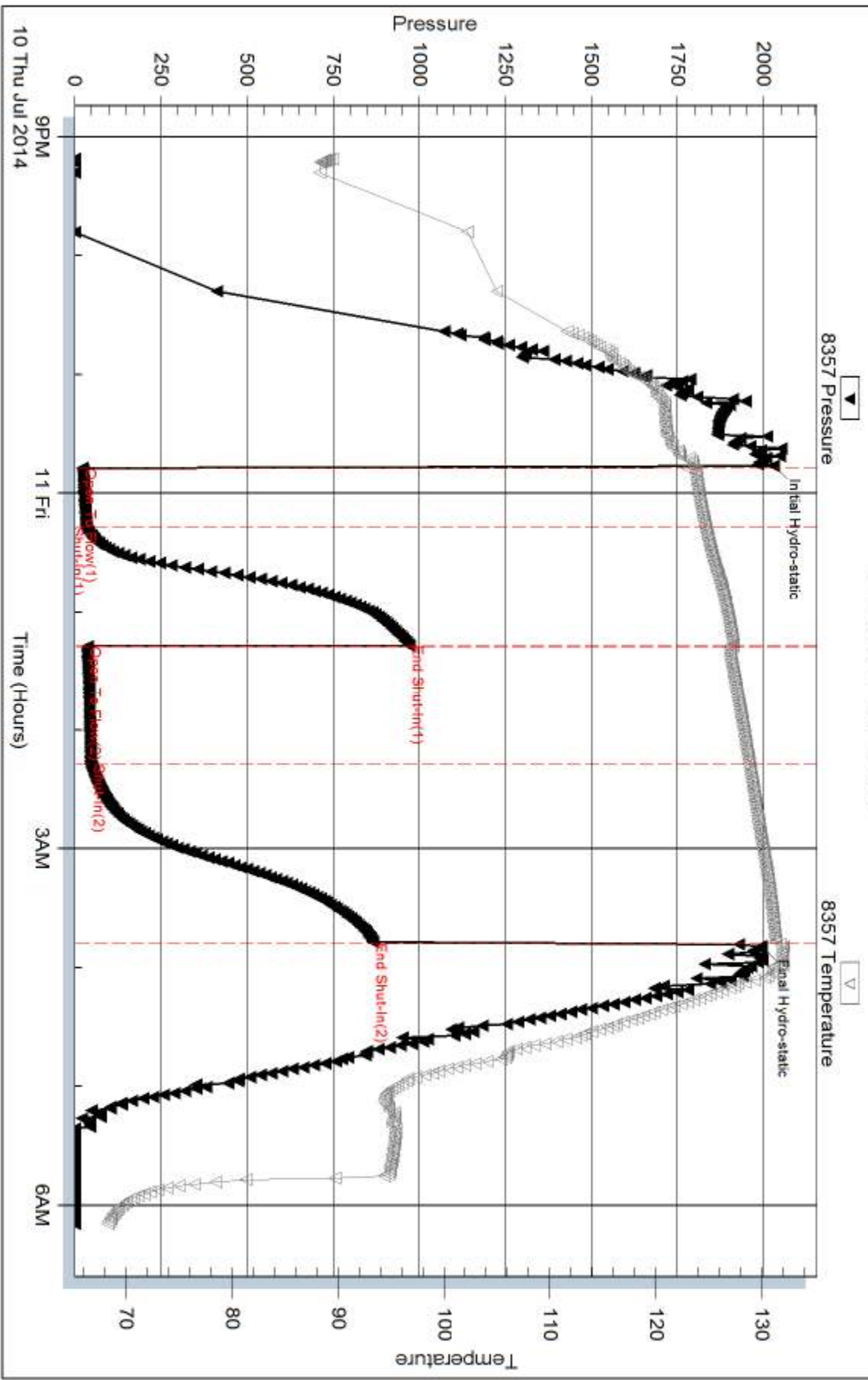
Serial #:

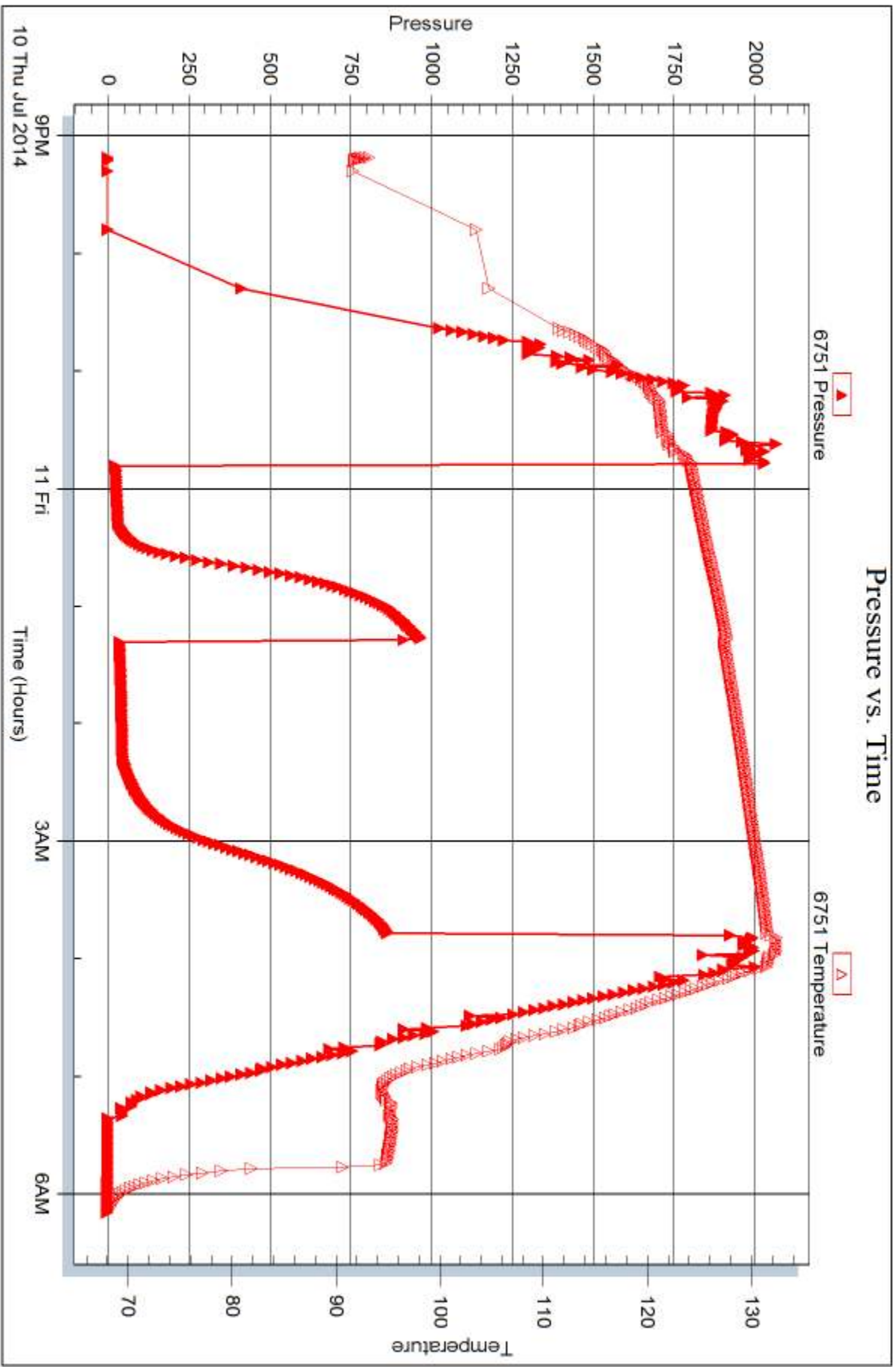
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

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

250 N Water Suite 300
Wichita, KS 67202

ATTN: Bob Stolze

Jones 'A' #3-17

17-15s-37w Cheyenne,KS

Start Date: 2014.07.11 @ 23:18:00

End Date: 2014.07.12 @ 07:14:00

Job Ticket #: 58270 DST #: 4

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

Printed: 2014.07.17 @ 14:29:44



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.
250 N Water Suite 300
Wichita, KS 67202
ATTN: Bob Stolzle

17-15s-37w Cheyenne,KS
Jones 'A' #3-17
Job Ticket: 58270 **DST#: 4**
Test Start: 2014.07.11 @ 23:18:00

GENERAL INFORMATION:

Formation: **LKC " G - J "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:03:30
Time Test Ended: 07:14:00
Interval: **4172.00 ft (KB) To 4330.00 ft (KB) (TVD)**
Total Depth: 4330.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 78
Reference Elevations: 3141.00 ft (KB)
3136.00 ft (CF)
KB to GR/CF: 5.00 ft

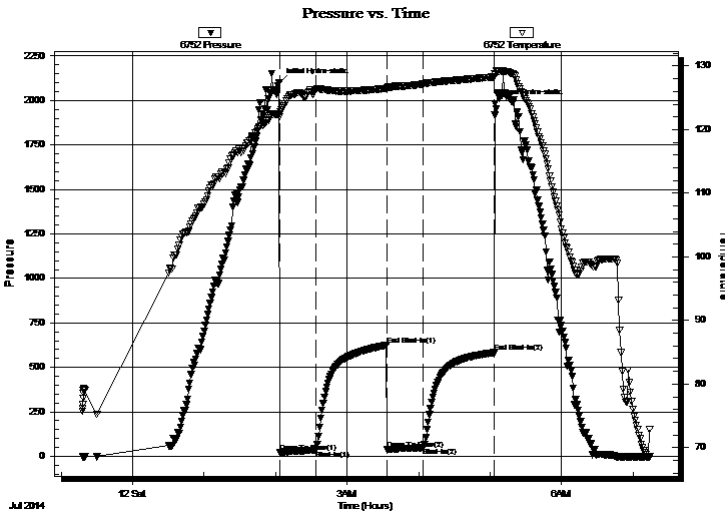
Serial #: 6752

Inside

Press@RunDepth: 49.36 psig @ 4173.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.07.11 End Date: 2014.07.12 Last Calib.: 2014.07.12
Start Time: 23:18:01 End Time: 07:14:00 Time On Btm: 2014.07.12 @ 02:03:10
Time Off Btm: 2014.07.12 @ 05:04:09

TEST COMMENT: 30 IF - 1" blow built to 1 1/4" @ 20 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	2101.90	122.45	Initial Hydro-static
1	20.55	122.08	Open To Flow (1)
31	35.68	126.25	Shut-In(1)
90	625.72	126.47	End Shut-In(1)
91	38.03	126.33	Open To Flow (2)
121	49.36	127.16	Shut-In(2)
181	583.50	128.29	End Shut-In(2)
181	1981.99	128.66	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
62.00	Mud 100%M	0.30

* 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.

17-15s-37w Cheyenne,KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 58270

DST#: 4

ATTN: Bob Stolzle

Test Start: 2014.07.11 @ 23:18:00

Tool Information

Drill Pipe:	Length: 3976.00 ft	Diameter: 3.82 inches	Volume: 56.36 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.25 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: 57.27 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4172.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	158.00 ft			
Tool Length:	185.00 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			4146.00	
Shut In Tool	5.00			4151.00	
Hydraulic tool	5.00			4156.00	
Jars	5.00			4161.00	
Safety Joint	2.00			4163.00	
Packer	5.00			4168.00	27.00 Bottom Of Top Packer
Packer	4.00			4172.00	
Stubb	1.00			4173.00	
Recorder	0.00	6752	Inside	4173.00	
Recorder	0.00	8322	Outside	4173.00	
Perforations	26.00			4199.00	
Change Over Sub	1.00			4200.00	
Drill Pipe	126.00			4326.00	
Change Over Sub	1.00			4327.00	
Bullnose	3.00			4330.00	158.00 Bottom Packers & Anchor

Total Tool Length: 185.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-15s-37w Cheyenne,KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 58270

DST#: 4

ATTN: Bob Stolzle

Test Start: 2014.07.11 @ 23:18:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

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
62.00	Mud 100%M	0.305

Total Length: 62.00 ft Total Volume: 0.305 bbl

Num Fluid Samples: 0

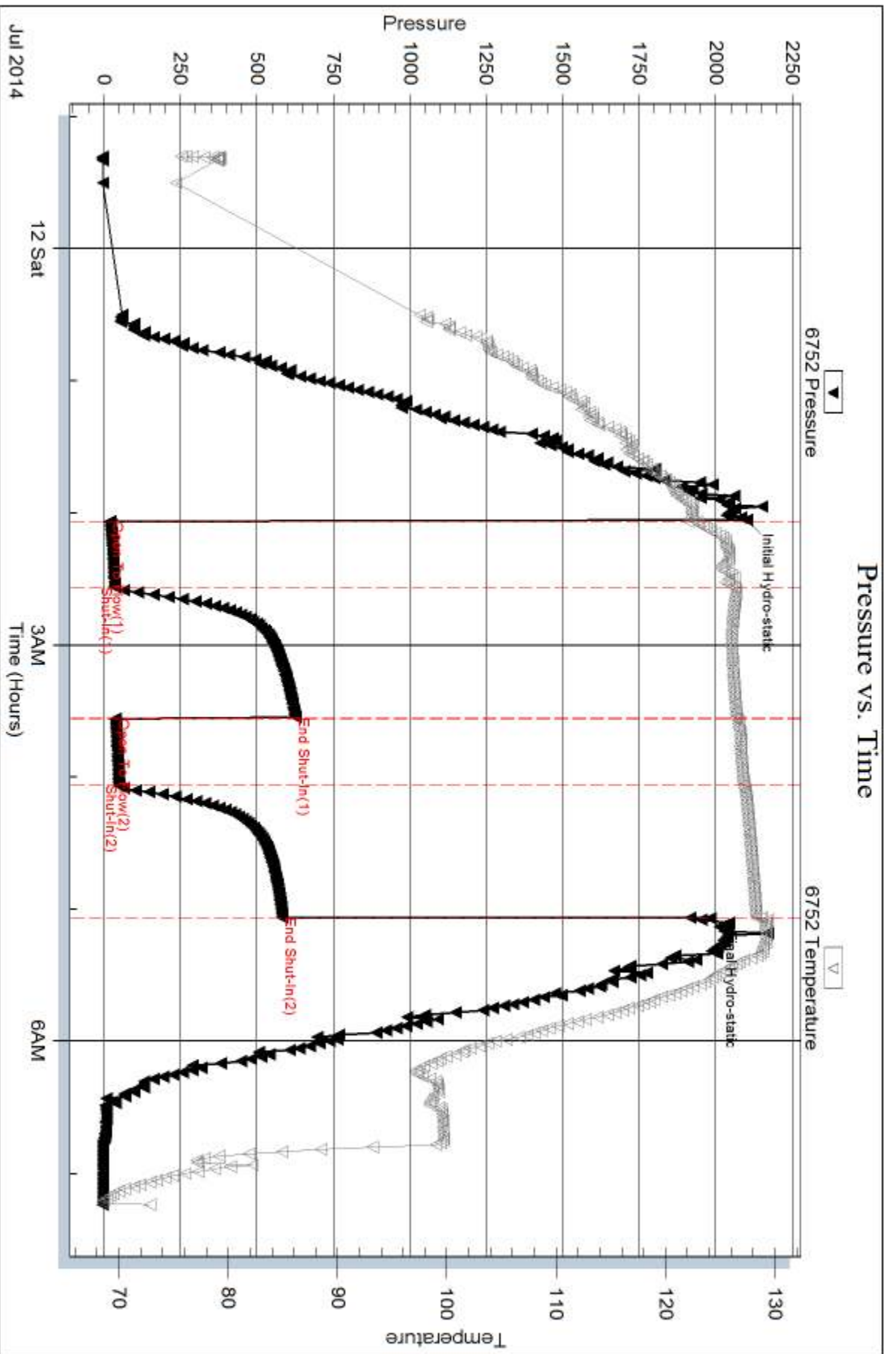
Num Gas Bombs: 0

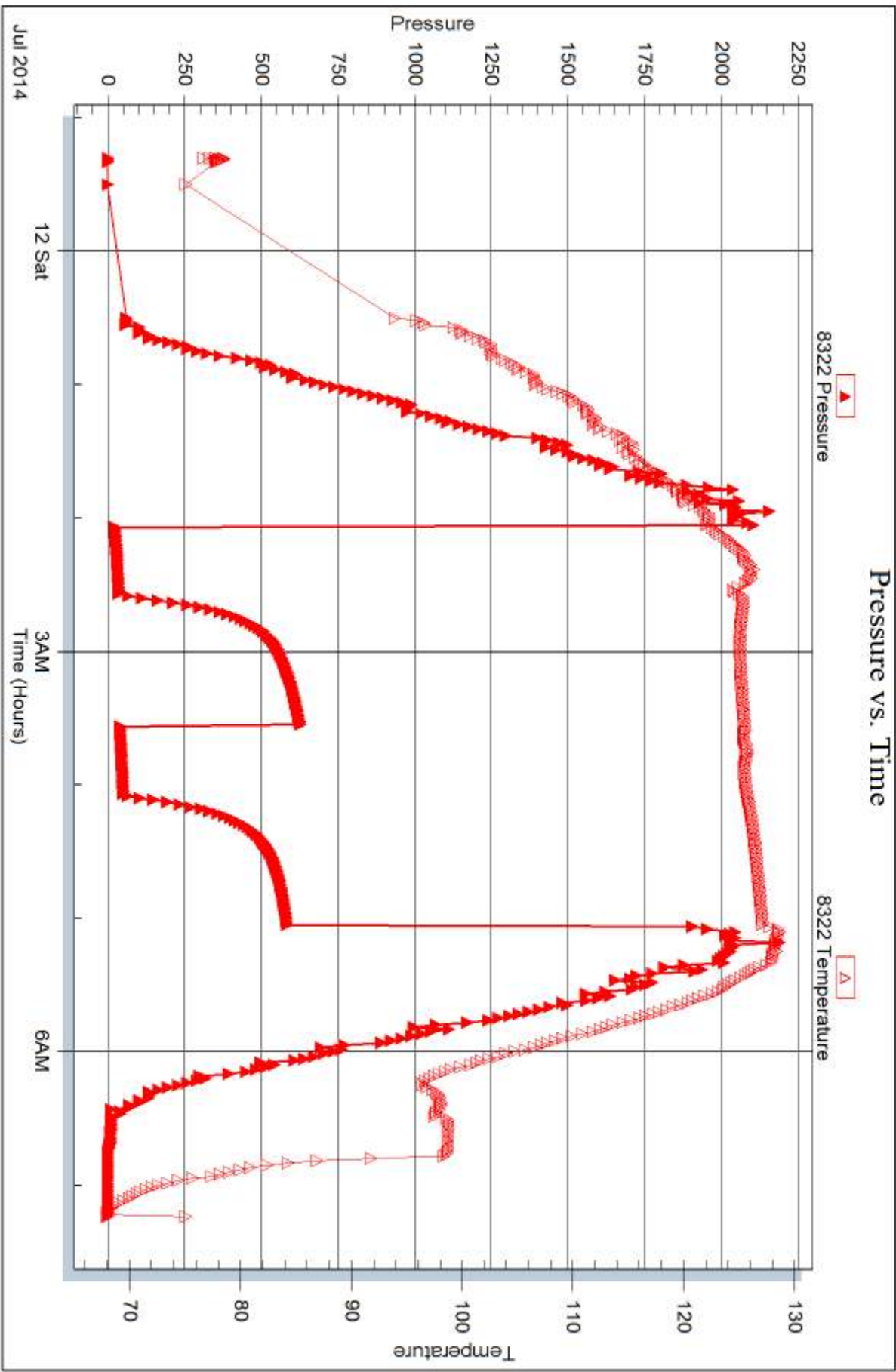
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

250 N Water Suite 300
Wichita, KS 67202

ATTN: Bob Stolzle

Jones 'A' #3-17

17-15s-37w Cheyenne,KS

Start Date: 2014.07.13 @ 03:50:00

End Date: 2014.07.13 @ 12:17:39

Job Ticket #: 58271 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.07.17 @ 14:29:07



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.
250 N Water Suite 300
Wichita, KS 67202
ATTN: Bob Stolzle

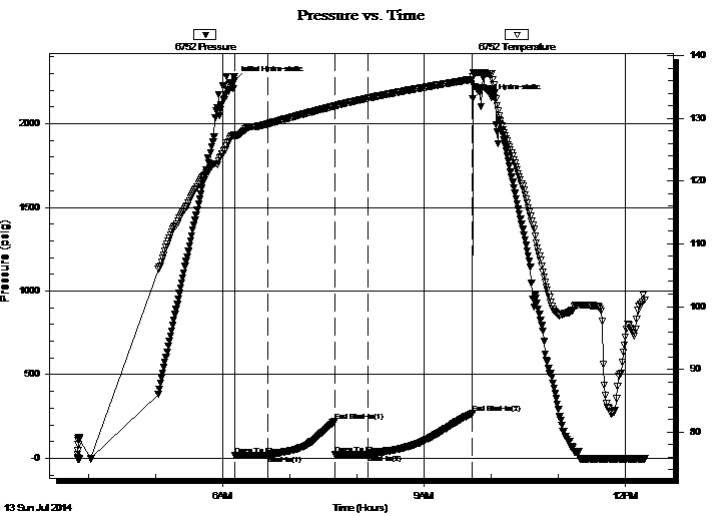
17-15s-37w Cheyenne, KS
Jones 'A' #3-17
Job Ticket: 58271 **DST#: 5**
Test Start: 2014.07.13 @ 03:50:00

GENERAL INFORMATION:

Formation: **Upper Pawnee LS.**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:10:50
Time Test Ended: 12:17:39
Interval: **4475.00 ft (KB) To 4525.00 ft (KB) (TVD)**
Total Depth: 4525.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 78
Reference Elevations: 3141.00 ft (KB)
3136.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6752 Inside
Press@RunDepth: 22.74 psig @ 4476.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.07.13 End Date: 2014.07.13 Last Calib.: 2014.07.13
Start Time: 03:50:01 End Time: 12:17:40 Time On Btm: 2014.07.13 @ 06:10:20
Time Off Btm: 2014.07.13 @ 09:43:20

TEST COMMENT: 30 IF - 1/4" blow built to 1"
60 ISI - No return
30 FF - No blow
90 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2258.08	127.43	Initial Hydro-static
1	16.40	127.12	Open To Flow (1)
30	19.83	129.15	Shut-In(1)
90	222.40	131.99	End Shut-In(1)
90	21.54	131.94	Open To Flow (2)
120	22.74	133.26	Shut-In(2)
213	268.67	136.26	End Shut-In(2)
213	2151.25	136.75	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM - 30%o - 70%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 Co., Inc.

17-15s-37w Cheyenne,KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 58271

DST#: 5

ATTN: Bob Stolzle

Test Start: 2014.07.13 @ 03:50:00

Tool Information

Drill Pipe:	Length: 4291.00 ft	Diameter: 3.82 inches	Volume: 60.83 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.25 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: 61.74 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial 67000.00 lb
Depth to Top Packer:	4475.00 ft			Final 67000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	50.00 ft			
Tool Length:	77.00 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			4449.00	
Shut In Tool	5.00			4454.00	
Hydraulic tool	5.00			4459.00	
Jars	5.00			4464.00	
Safety Joint	2.00			4466.00	
Packer	5.00			4471.00	27.00 Bottom Of Top Packer
Packer	4.00			4475.00	
Stubb	1.00			4476.00	
Recorder	0.00	6752	Inside	4476.00	
Recorder	0.00	8322	Outside	4476.00	
Perforations	13.00			4489.00	
Change Over Sub	1.00			4490.00	
Drill Pipe	31.00			4521.00	
Change Over Sub	1.00			4522.00	
Bullnose	3.00			4525.00	50.00 Bottom Packers & Anchor

Total Tool Length: 77.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-15s-37w Cheyenne,KS

250 N Water Suite 300
Wichita, KS 67202

Jones 'A' #3-17

Job Ticket: 58271

DST#: 5

ATTN: Bob Stolzle

Test Start: 2014.07.13 @ 03:50:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbl

Water Loss: 6.39 in³

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
10.00	OCM - 30%o - 70%M	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

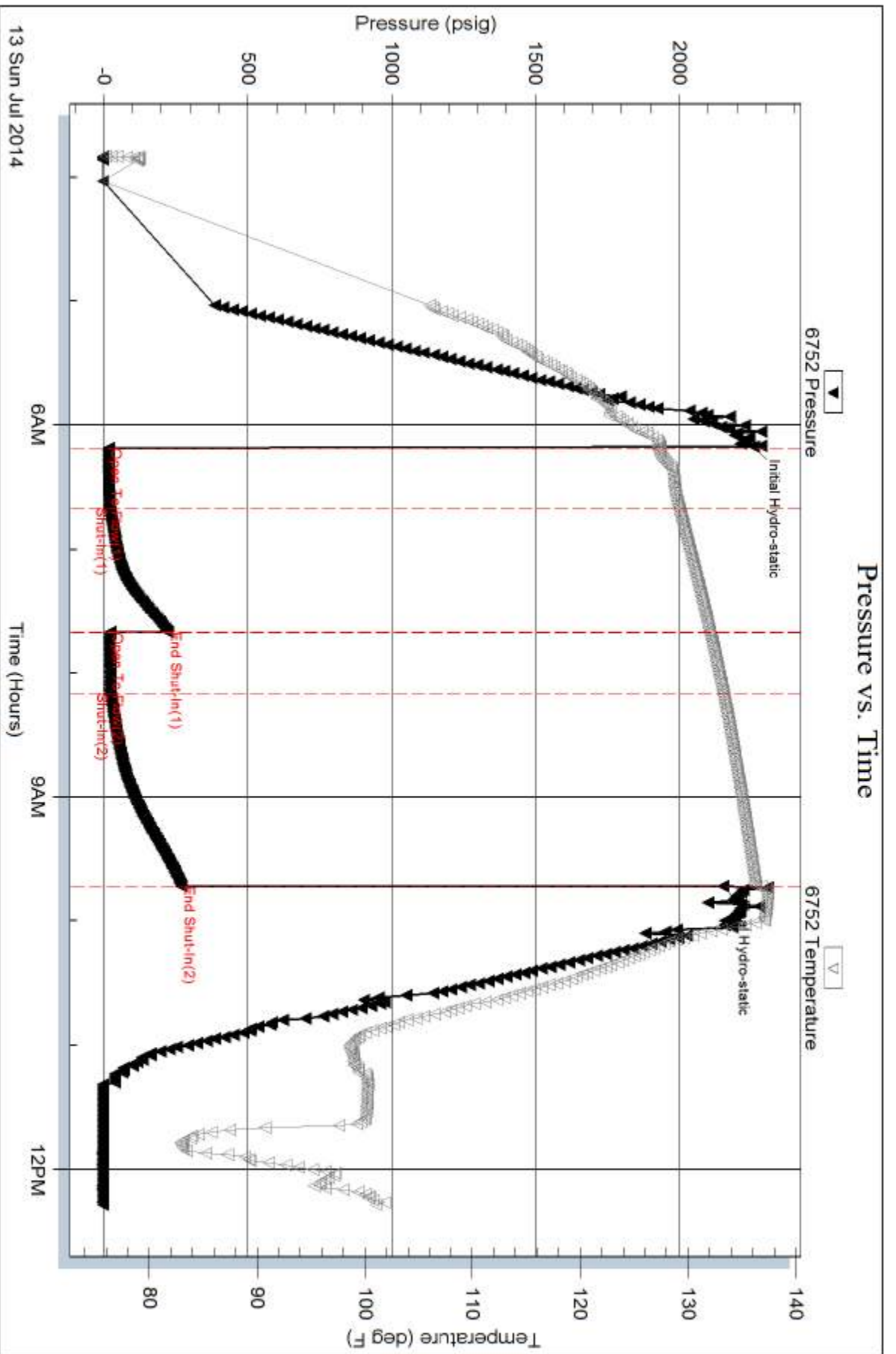
Num Gas Bombs: 0

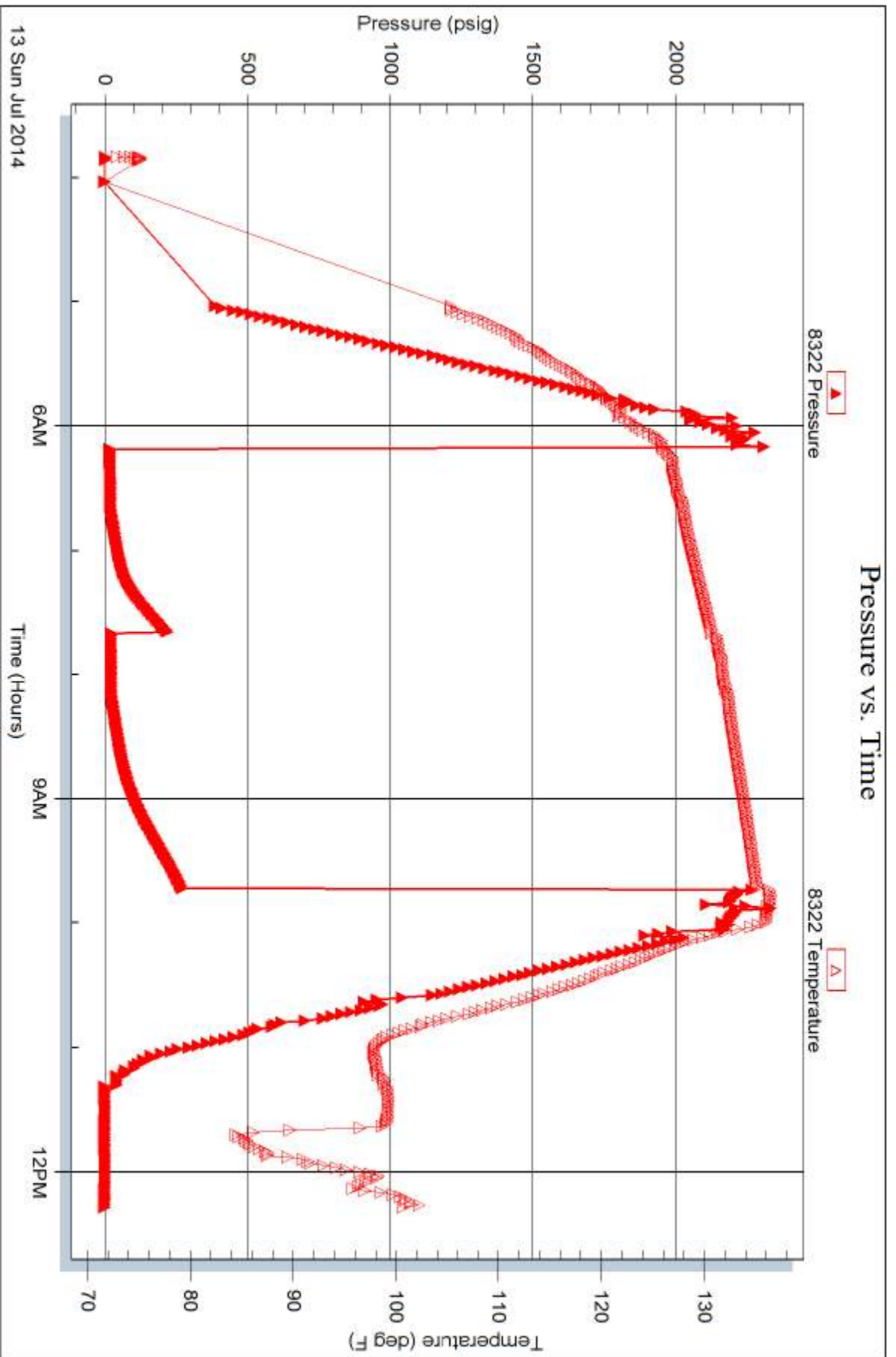
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57184

4/10

Well Name & No. Jones A # 3-17 Test No. 1 Date 7-8-14
 Company Murfin Drilling Co., Inc Elevation 3141 KB 3136 GL
 Address 250 N. Water St. 300 Wichita, KS 67202
 Co. Rep / Geo. Bob Stolzle Rig M.D.C. #8
 Location: Sec. 17 Twp. 15 Rge. 37 Co. Cheyenne State Ks

Interval Tested 3799-3865 Zone Tested Stoker Ls
 Anchor Length 866 Drill Pipe Run 3604 Mud Wt. 8.9
 Top Packer Depth 3795 Drill Collars Run 186 Vis 52
 Bottom Packer Depth 3799 Wt. Pipe Run 0 WL 6.0
 Total Depth 3865 Chlorides 600 ppm System LCM 4*
 Blow Description Packer seat failed, reset tool, Tool slid 8-10 feet, 2" blow died @ 12 min.
No blow.
No blow.
No return.

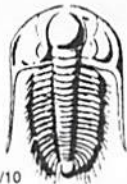
Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>210</u>	Feet of <u>M Some oil spots in tool with odac</u>	%gas	%oil	%water <u>100</u>	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 210 BHT 128 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1833</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>23:05</u>
(B) First Initial Flow <u>123</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>23:06</u>
(C) First Final Flow <u>124</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1:49</u>
(D) Initial Shut-In <u>442</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>4:50</u>
(E) Second Initial Flow <u>122</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>6:57</u>
(F) Second Final Flow <u>124</u>	<input checked="" type="checkbox"/> Mileage <u>132</u> rt <u>204.60</u>	Comments
(G) Final Shut-In <u>340</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1798</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>1679.60</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1679.60</u>	

Approved By _____ Our Representative Chuck Amich

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. 57185

Well Name & No. Jones 'A' # 3-17 Test No. 2 Date 7-10-14
 Company Murfin Drilling Co., Inc. Elevation 3141 KB 3136 GL
 Address POB 250 N. Water St. 300 Wichita, KS 67202
 Co. Rep / Geo. Bob Stolze Rig MDC #8
 Location: Sec. 17 Twp. 15 Rge. 37W Co. Cheyenne State KS

Interval Tested 4048 - 4130 Zone Tested Lansing 'A'
 Anchor Length 82 Drill Pipe Run 3852 Mud Wt. 9.1
 Top Packer Depth 4044 Drill Collars Run 186 Vis 67
 Bottom Packer Depth 4048 Wt. Pipe Run 0 WL 6.4
 Total Depth 4130 Chlorides 600 ppm System LCM 2nd

Blow Description Tool opened and slid 20', 10" blow died @ 10 min.
No return.
No blow.
No return.

Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>20</u>	Feet of <u>GOCM</u>	<u>2</u>	<u>3</u>	<u>95</u>	<u>95</u>
Rec <u>124</u>	Feet of <u>SGOCM</u>	<u>1</u>	<u>1</u>	<u>98</u>	<u>98</u>
Rec <u>61</u>	Feet of <u>OSM</u>			<u>100</u>	<u>100</u>
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 205 BHT 131 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2009 Test 1250 T-On Location 4:35
 (B) First Initial Flow 125 Jars 250 T-Started 4:43
 (C) First Final Flow 125 Safety Joint 75 T-Open 7:27
 (D) Initial Shut-In 1125 Circ Sub NIC T-Pulled 10:31
 (E) Second Initial Flow 127 Hourly Standby _____ T-Out 12:50
 (F) Second Final Flow 125 Mileage 204.60 Comments _____
 (G) Final Shut-In 1011 Sampler _____
 (H) Final Hydrostatic 2062 Straddle _____

Ruined Shale Packer _____
 Ruined Packer 320
 Extra Packer _____
 Extra Copies _____
 Extra Recorder _____
 Sub Total 320
 Day Standby _____
 Total 2099.60
 Accessibility _____
 Sub Total 1779.60
 MP/DST Disc't _____

Approved By _____ Our Representative Chuck Smith

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57186

Well Name & No. Jones 'A' #3-17 Test No. 3 Date 7-10-14
 Company Martin Drilling Co., Inc. Elevation 3141 KB 3136 GL
 Address 250 N. Water Ste. 300 Wichita, KS 67202
 Co. Rep / Geo. Bob Stojzle Rig MDC #8
 Location: Sec. 17 Twp. 15 Rge. 37w Co. Cheyenne State KS

Interval Tested 4105 - 4180 Zone Tested Lansing 'A-D'
 Anchor Length 75 Drill Pipe Run 3910 Mud Wt. 9.0
 Top Packer Depth 4101 Drill Collars Run 186 Vis 55
 Bottom Packer Depth 4105 Wt. Pipe Run 0 WL 6.0
 Total Depth 4180 Chlorides 600 ppm System LCM 4#
 Blow Description 1 1/2" Blow. Tool slid 5' while still closed.
No return.
1/2" Blow.
No return.

Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>62</u>	Feet of <u>OCM</u>	%gas	<u>35%</u> oil	%water	<u>65%</u> mud

Rec Total 62 BHT 131 Gravity - API RW - @ - °F Chlorides - ppm
 (A) Initial Hydrostatic 2029 Test 1250 T-On Location 21:10
 (B) First Initial Flow 23 Jars 250 T-Started 21:11
 (C) First Final Flow 33 Safety Joint 75 T-Open 23:46
 (D) Initial Shut-In 971 Circ Sub N/C T-Pulled 3:49
 (E) Second Initial Flow 37 Hourly Standby _____ T-Out 68:10
 (F) Second Final Flow 47 Mileage 204.60 Comments _____
 (G) Final Shut-In 866 Sampler _____
 (H) Final Hydrostatic 1995 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 1779.60
 Final Flow 60 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 90 Sub Total 1779.60

Approved By _____ Our Representative Chuck Smith

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. **58270**

Well Name & No. Jones A #3-17 Test No. 4 Date 7/11/14
 Company Martin Drilling Co. Elevation 3141 KB 3136 GL
 Address 250 N. Water STE 300 Wichita KS 67206
 Co. Rep / Geo. Bob Stalze Rig Martin #8
 Location: Sec. 17 Twp. 1S Rge. 37W Co. Cheyenne State KS

Interval Tested 4172 - 4330 Zone Tested LKC "G-J"
 Anchor Length 158' Drill Pipe Run 3976' Mud Wt. 9.1
 Top Packer Depth 4167 Drill Collars Run 186' Vis 64
 Bottom Packer Depth 4172 Wt. Pipe Run 0 WL 6.0
 Total Depth 4330 Chlorides 600 ppm System LCM 3
 Blow Description IF - 1" blow built to 1 1/4" @ 20 mins died back to 1"
ISI - No return
FF - No blow
FSI - No return

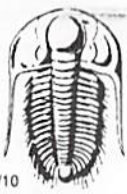
Rec	Feet of	%gas	%oil	%water	%mud
<u>62'</u>	<u>Mud</u>			<u>100%</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 62' BHT 128° Gravity — API RW — @ —° F Chlorides — ppm

(A) Initial Hydrostatic <u>2102</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>22:30</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>23:18</u>
(C) First Final Flow <u>36</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>02:04</u>
(D) Initial Shut-In <u>626</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>05:04</u>
(E) Second Initial Flow <u>38</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>07:14</u>
(F) Second Final Flow <u>49</u>	<input checked="" type="checkbox"/> Mileage <u>0.132 RT</u> 204.60	Comments
(G) Final Shut-In <u>584</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1982</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>30</u>	<input type="checkbox"/> Day Standby	Total <u>1779.60</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1779.60</u>	

Approved By _____ Our Representative [Signature]

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. 58271

Well Name & No. Jones A #3-17 Test No. 5 Date 7/13/14
 Company Murkin Drilling Co. Elevation 3141 KB 3136 GL
 Address 250 N. Water STE 300 Wichita KS 67206
 Co. Rep / Geo. Bob Stalze Rig Murkin #8
 Location: Sec. 17 Twp. 1S Rge. 37W Co. Cheyenne State KS

Interval Tested 4475 - 4525 Zone Tested Upper Pawnee LS.
 Anchor Length 50' Drill Pipe Run 4291' Mud Wt. 8.9
 Top Packer Depth 4470 Drill Collars Run 186' Vis 62
 Bottom Packer Depth 4475 Wt. Pipe Run 0' WL 6.4
 Total Depth 4525 Chlorides 100 ppm System LCM 2

Blow Description IF - 1/4" blow built to 1"
ISI - No return
FF - No blow
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10'</u>	<u>OCM</u>	<u>30</u>		<u>70</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 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>03:15</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>03:50</u>
(C) First Final Flow <u>20</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>06:10</u>
(D) Initial Shut-In <u>222</u>	<input checked="" type="checkbox"/> Circ Sub <u>—</u>	T-Pulled <u>09:40</u>
(E) Second Initial Flow <u>22</u>	<input type="checkbox"/> Hourly Standby <u>—</u>	T-Out <u>12:17</u>
(F) Second Final Flow <u>23</u>	<input checked="" type="checkbox"/> Mileage <u>132 RT</u> 204.60	Comments <u>—</u>
(G) Final Shut-In <u>269</u>	<input type="checkbox"/> Sampler <u>—</u>	
(H) Final Hydrostatic <u>2151</u>	<input type="checkbox"/> Straddle <u>—</u>	<input type="checkbox"/> Ruined Shale Packer <u>—</u>

Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer <u>—</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>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby <u>—</u>	Total <u>1779.60</u>
	<input type="checkbox"/> Accessibility <u>—</u>	MP/DST Disc't <u>—</u>
	Sub Total <u>1779.60</u>	

Approved By _____

Our Representative Roger Nichols

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