



DRILL STEM TEST REPORT

Prepared For: **Liberty Operating**

308 W. Mill
Plainville, Ks 67663

ATTN: Tony Richardson

23-9S-17W Rooks, KS

Muir #1

Start Date: 2010.08.05 @ 09:41:58

End Date: 2010.08.05 @ 19:06:28

Job Ticket #: 39026 DST #: 1

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

Printed: 2014.06.20 @ 09:50:35



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39026

DST#: 1

ATTN: Tony Richardson

Test Start: 2010.08.05 @ 09:41:58

GENERAL INFORMATION:

Formation: **Toront - A**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:10:58

Time Test Ended: 19:06:28

Test Type: Conventional Bottom Hole (Initial)

Tester: Dustin Rash

Unit No: 32

Interval: 3238.00 ft (KB) To 3301.00 ft (KB) (TVD)

Reference Elevations: 2122.00 ft (KB)

Total Depth: 3301.00 ft (KB) (TVD)

2114.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 8.00 ft

Serial #: 8360 Outside

Press@RunDepth: 59.95 psig @ 3273.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2010.08.05 End Date: 2010.08.05

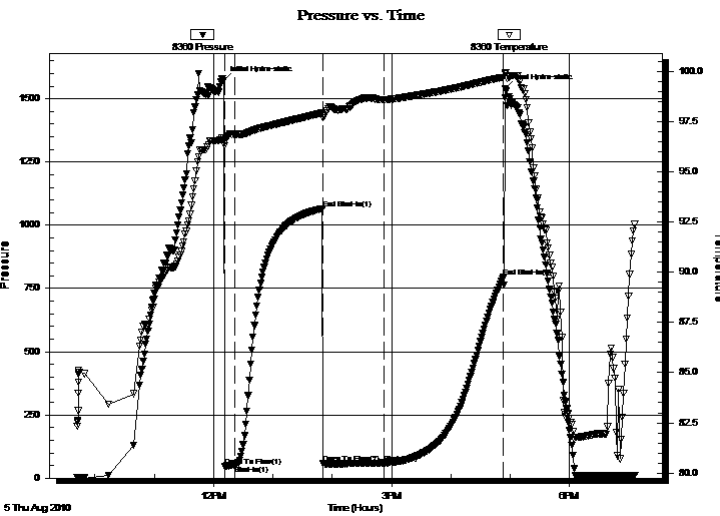
Last Calib.: 2010.08.05

Start Time: 09:42:00 End Time: 19:06:28

Time On Btm: 2010.08.05 @ 12:10:13

Time Off Btm: 2010.08.05 @ 16:55:13

TEST COMMENT: IF-Weak surface blow .
IS-No Return.
FF-Weak surface blow after 26 minutes. Died after 12 minutes.
FSI-No Return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1573.12	96.69	Initial Hydro-static
1	47.61	96.29	Open To Flow (1)
12	50.79	96.86	Shut-In(1)
100	1066.40	97.93	End Shut-In(1)
101	56.64	97.71	Open To Flow (2)
162	59.95	98.58	Shut-In(2)
283	793.98	99.71	End Shut-In(2)
285	1538.47	99.93	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
50.00	100%Mud	0.42

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39026

DST#: 1

ATTN: Tony Richardson

Test Start: 2010.08.05 @ 09:41:58

GENERAL INFORMATION:

Formation: **Toront - A**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:10:58

Time Test Ended: 19:06:28

Test Type: Conventional Bottom Hole (Initial)

Tester: Dustin Rash

Unit No: 32

Interval: 3238.00 ft (KB) To 3301.00 ft (KB) (TVD)

Reference Elevations: 2122.00 ft (KB)

Total Depth: 3301.00 ft (KB) (TVD)

2114.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 8.00 ft

Serial #: 6755 Inside

Press@RunDepth: psig @ 3273.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2010.08.05 End Date: 2010.08.05

Last Calib.: 2010.08.05

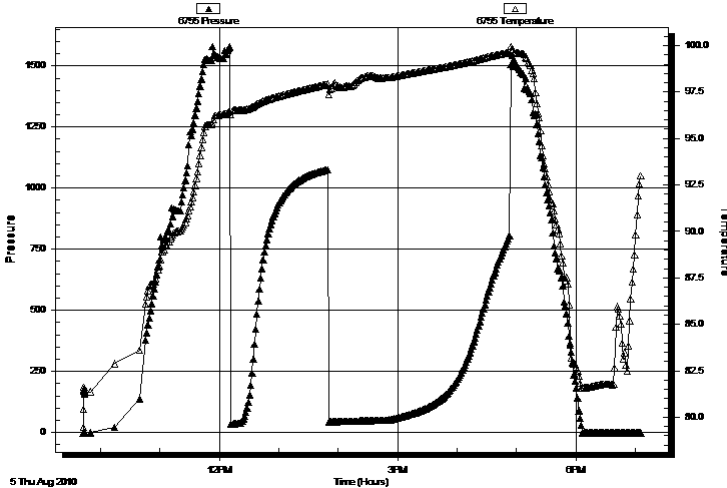
Start Time: 09:42:30 End Time: 19:06:28

Time On Btm:

Time Off Btm:

TEST COMMENT: IF-Weak surface blow .
IS-No Return.
FF-Weak surface blow after 26 minutes. Died after 12 minutes.
FS-No Return.

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
50.00	100%Mud	0.42

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39026

DST#: 1

ATTN: Tony Richardson

Test Start: 2010.08.05 @ 09:41:58

Tool Information

Drill Pipe:	Length: 3193.00 ft	Diameter: 3.80 inches	Volume: 44.79 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 31.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	6000.00 lb
			<u>Total Volume: 44.94 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial	42000.00 lb
Depth to Top Packer:	3238.00 ft			Final	44000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	63.00 ft				
Tool Length:	84.00 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			3218.00	
Shut In Tool	5.00			3223.00	
Hydraulic tool	5.00			3228.00	
Packer	5.00			3233.00	21.00 Bottom Of Top Packer
Packer	5.00			3238.00	
Stubb	1.00			3239.00	
Change Over Sub	1.00			3240.00	
Drill Pipe	32.00			3272.00	
Change Over Sub	1.00			3273.00	
Recorder	0.00	6755	Inside	3273.00	
Recorder	0.00	8360	Outside	3273.00	
Perforations	25.00			3298.00	
Bullnose	3.00			3301.00	63.00 Bottom Packers & Anchor

Total Tool Length: 84.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39026

DST#: 1

ATTN: Tony Richardson

Test Start: 2010.08.05 @ 09:41:58

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: 42.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
50.00	100%Mud	0.419

Total Length: 50.00 ft Total Volume: 0.419 bbl

Num Fluid Samples: 0

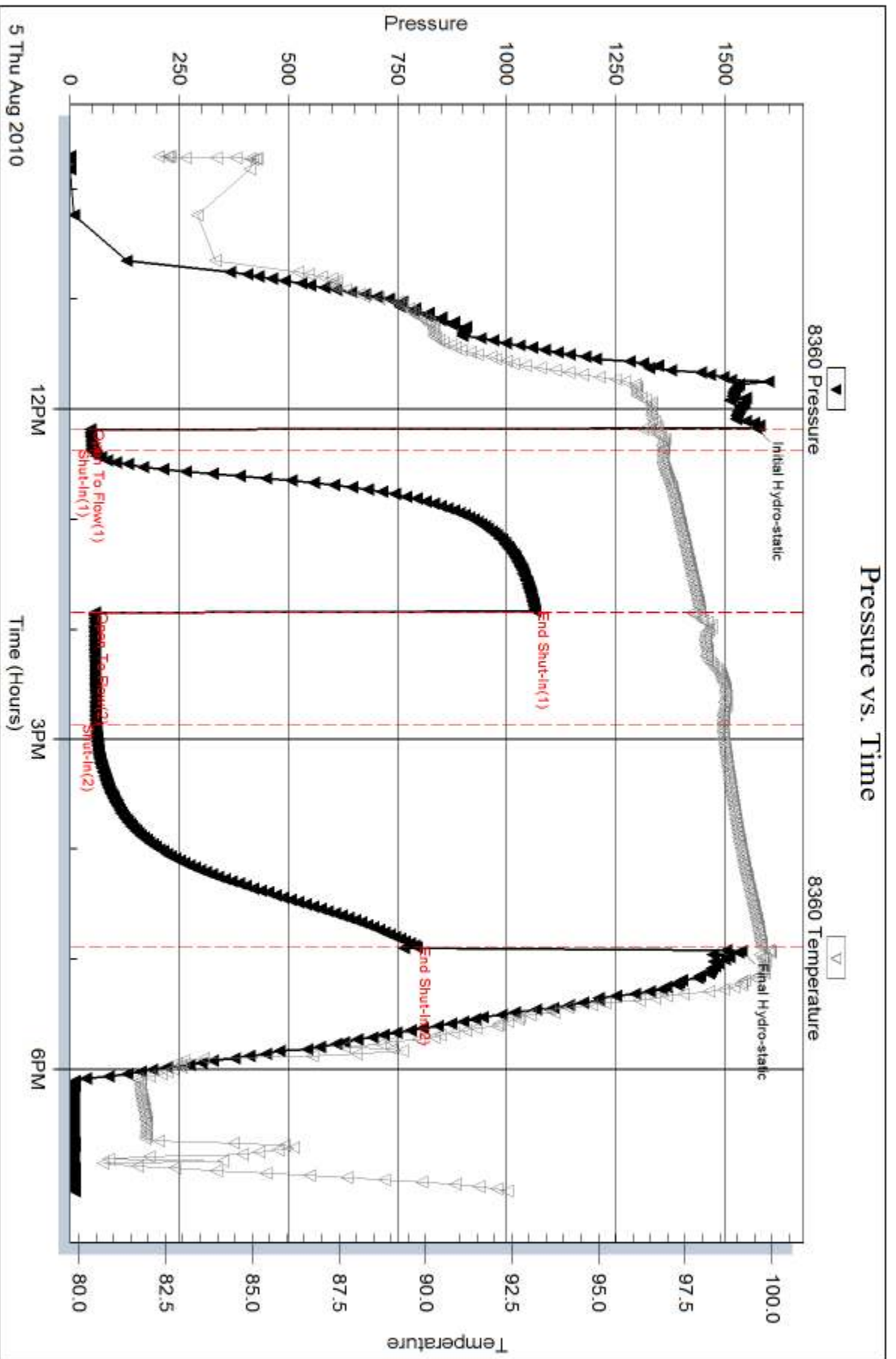
Num Gas Bombs: 0

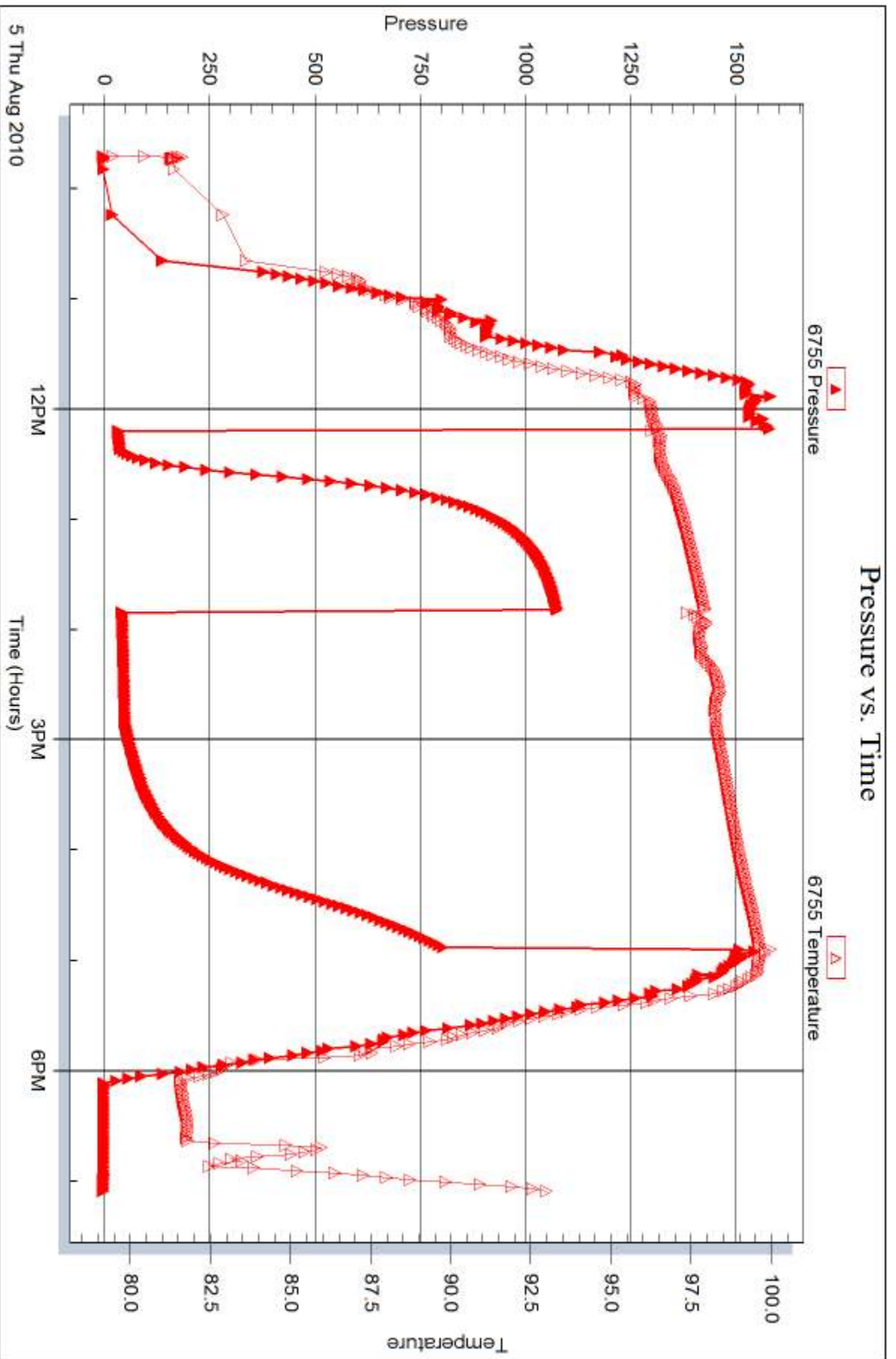
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Liberty Operating**

308 W. Mill
Plainville, Ks 67663

ATTN: Tony Richardson

23-9S-17W Rooks, KS

Muir #1

Start Date: 2010.08.06 @ 03:56:18

End Date: 2010.08.06 @ 14:05:33

Job Ticket #: 39027 DST #: 2

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

Printed: 2014.06.20 @ 09:50:13



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

ATTN: Tony Richardson

Job Ticket: 39027

DST#: 2

Test Start: 2010.08.06 @ 03:56:18

GENERAL INFORMATION:

Formation: **Toronto C&D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:38:03

Time Test Ended: 14:05:33

Test Type: Conventional Bottom Hole (Initial)

Tester: Dustin Rash

Unit No: 32

Interval: 3295.00 ft (KB) To 3360.00 ft (KB) (TVD)

Reference Elevations: 2122.00 ft (KB)

Total Depth: 3360.00 ft (KB) (TVD)

2114.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 8.00 ft

Serial #: 8360 Outside

Press@RunDepth: 54.26 psig @ 3328.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2010.08.06

End Date: 2010.08.06

Last Calib.: 2010.08.06

Start Time: 03:56:20

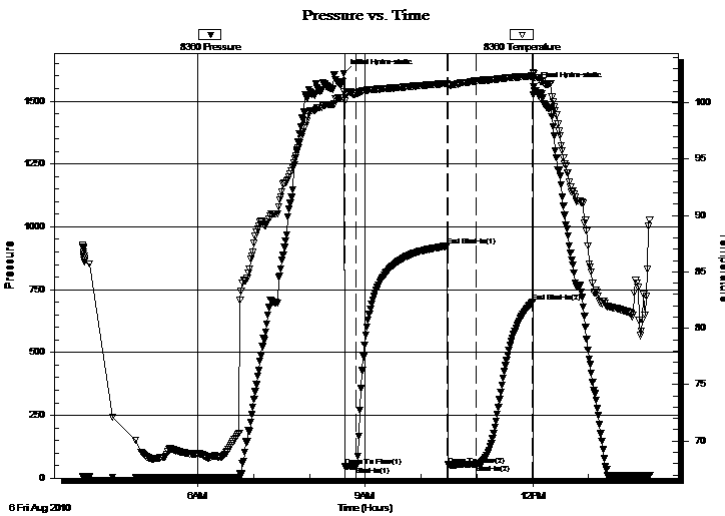
End Time: 14:05:33

Time On Btm: 2010.08.06 @ 08:36:48

Time Off Btm: 2010.08.06 @ 12:01:03

TEST COMMENT: IF-Weak surface blow . No build.
IS-No Return.
FF-No blow .
FS-No Return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1610.75	100.98	Initial Hydro-static
2	48.34	100.12	Open To Flow (1)
13	48.49	100.77	Shut-In(1)
112	923.87	101.71	End Shut-In(1)
112	52.63	101.50	Open To Flow (2)
143	54.26	101.94	Shut-In(2)
203	701.69	102.36	End Shut-In(2)
205	1557.30	102.61	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	100%Mud	0.27

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Liberty Operating
308 W. Mill
Plainville, Ks 67663
ATTN: Tony Richardson

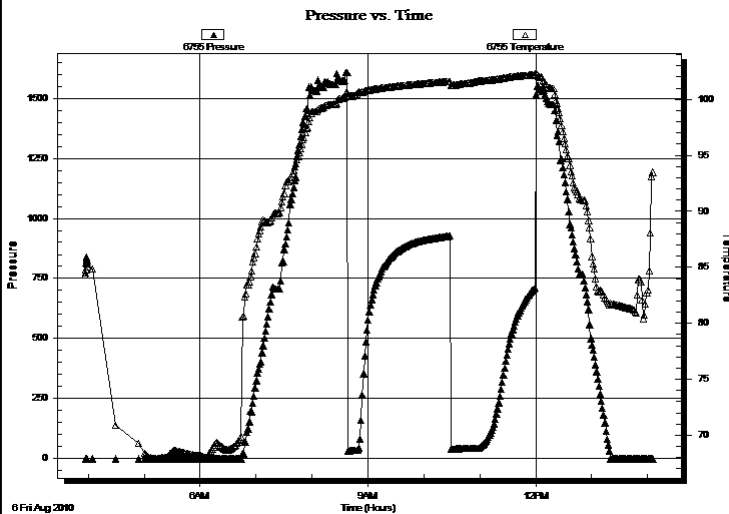
Muir #1
23-9S-17W Rooks, KS
Job Ticket: 39027 **DST#: 2**
Test Start: 2010.08.06 @ 03:56:18

GENERAL INFORMATION:

Formation: **Toronto C&D**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 08:38:03
Time Test Ended: 14:05:33
Interval: 3295.00 ft (KB) To 3360.00 ft (KB) (TVD)
Total Depth: 3360.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor
Test Type: Conventional Bottom Hole (Initial)
Tester: Dustin Rash
Unit No: 32
Reference Elevations: 2122.00 ft (KB)
2114.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 6755 Inside
Press@RunDepth: psig @ 3328.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2010.08.06 End Date: 2010.08.06 Last Calib.: 2010.08.06
Start Time: 03:57:20 End Time: 14:05:33 Time On Btm:
Time Off Btm:

TEST COMMENT: IF-Weak surface blow . No build.
IS-No Return.
FF-No blow .
FS-No Return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
40.00	100%Mud	0.27

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39027

DST#: 2

ATTN: Tony Richardson

Test Start: 2010.08.06 @ 03:56:18

Tool Information

Drill Pipe:	Length: 3255.00 ft	Diameter: 3.80 inches	Volume: 45.66 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 32.00 ft	Diameter: 2.25 inches	Volume: 0.16 bbl	Weight to Pull Loose:	4000.00 lb
			<u>Total Volume: 45.82 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial	45000.00 lb
Depth to Top Packer:	3295.00 ft			Final	45000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	65.00 ft				
Tool Length:	86.00 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			3275.00	
Shut In Tool	5.00			3280.00	
Hydraulic tool	5.00			3285.00	
Packer	5.00			3290.00	21.00 Bottom Of Top Packer
Packer	5.00			3295.00	
Stubb	1.00			3296.00	
Change Over Sub	1.00			3297.00	
Drill Pipe	31.00			3328.00	
Recorder	0.00	6755	Inside	3328.00	
Recorder	0.00	8360	Outside	3328.00	
Change Over Sub	1.00			3329.00	
Perforations	28.00			3357.00	
Bullnose	3.00			3360.00	65.00 Bottom Packers & Anchor

Total Tool Length: 86.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39027

DST#: 2

ATTN: Tony Richardson

Test Start: 2010.08.06 @ 03:56:18

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: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	100%Mud	0.270

Total Length: 40.00 ft Total Volume: 0.270 bbl

Num Fluid Samples: 0

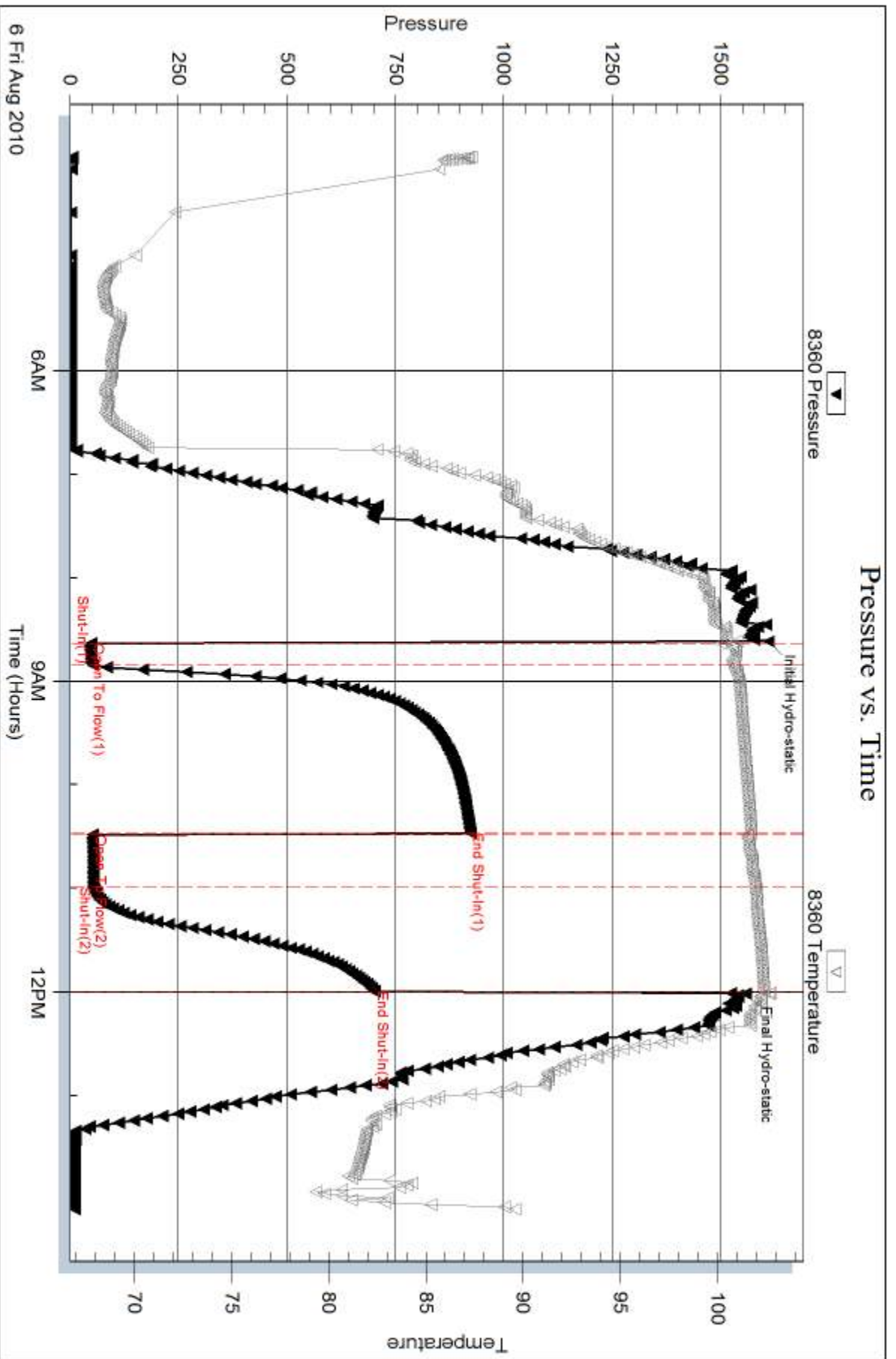
Num Gas Bombs: 0

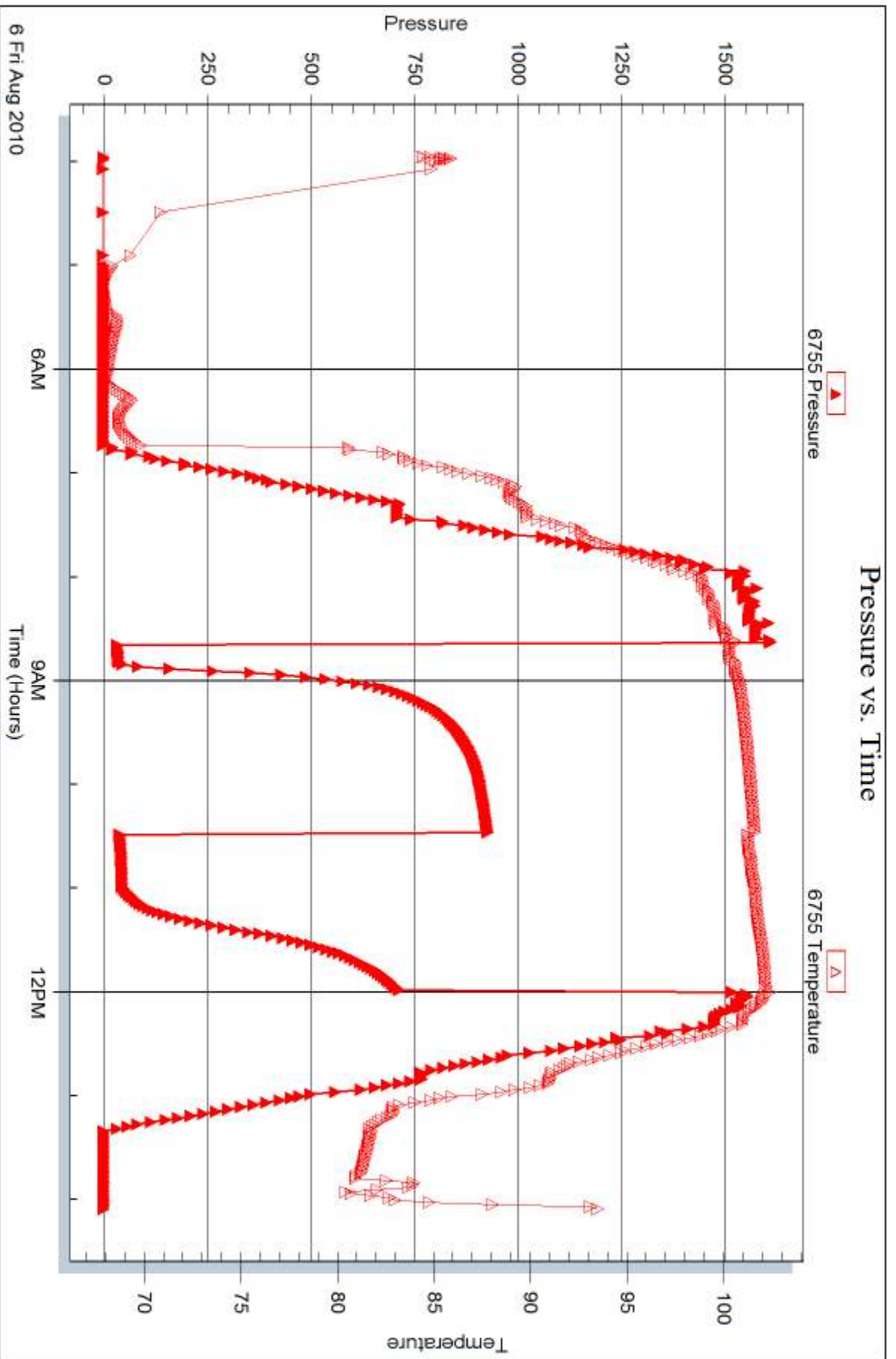
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Liberty Operating**

308 W. Mill
Plainville, Ks 67663

ATTN: Tony Richardson

23-9S-17W Rooks, KS

Muir #1

Start Date: 2010.08.07 @ 06:05:17

End Date: 2010.08.07 @ 15:29:47

Job Ticket #: 39028 DST #: 3

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

Printed: 2014.06.20 @ 09:49:15

Liberty Operating
Muir #1
23-9S-17W Rooks, KS
DST # 3
I-L
2010.08.07



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39028

DST#: 3

ATTN: Tony Richardson

Test Start: 2010.08.07 @ 06:05:17

GENERAL INFORMATION:

Formation: **I-L**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:16:32
 Time Test Ended: 15:29:47
 Interval: **3410.00 ft (KB) To 3516.00 ft (KB) (TVD)**
 Total Depth: 3516.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Dustin Rash
 Unit No: 32
 Reference Elevations: 2122.00 ft (KB)
 2114.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8360

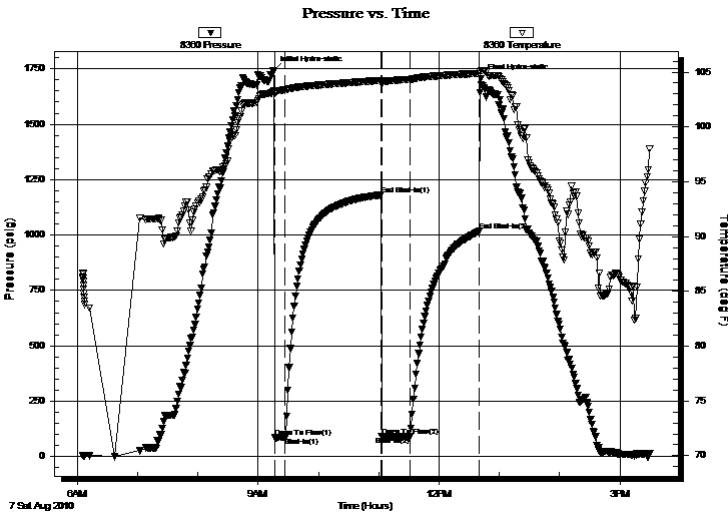
Outside

Press@RunDepth: 91.90 psig @ 3506.00 ft (KB)
 Start Date: 2010.08.07 End Date: 2010.08.07
 Start Time: 06:05:19 End Time: 15:29:47

Capacity: 8000.00 psig
 Last Calib.: 2010.08.07
 Time On Btm: 2010.08.07 @ 09:15:32
 Time Off Btm: 2010.08.07 @ 12:41:47

TEST COMMENT: IF-Weak surface blow . Built to 1/4 inch.
 IS-No return.
 FF-No blow .
 FS-No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1740.23	103.32	Initial Hydro-static
1	86.00	103.06	Open To Flow (1)
12	86.36	103.36	Shut-In(1)
107	1180.48	104.24	End Shut-In(1)
108	92.32	103.90	Open To Flow (2)
136	91.90	104.30	Shut-In(2)
205	1018.41	104.89	End Shut-In(2)
207	1706.78	105.14	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	100%Mud	0.27

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39028

DST#: 3

ATTN: Tony Richardson

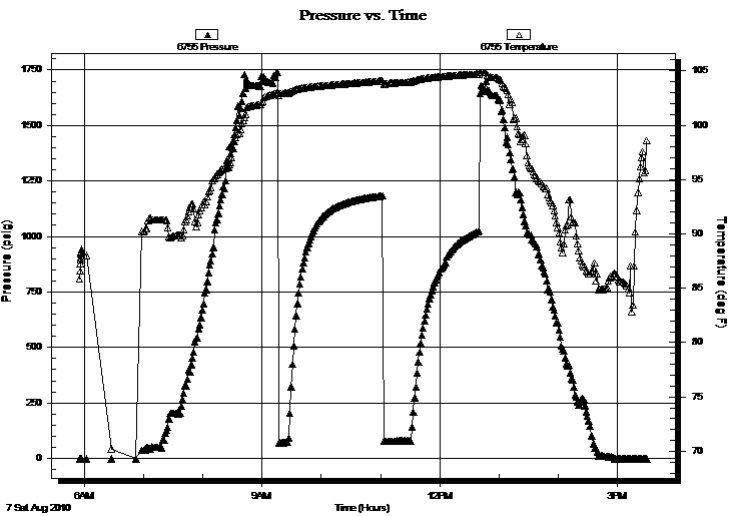
Test Start: 2010.08.07 @ 06:05:17

GENERAL INFORMATION:

Formation:	I-L	Test Type:	Conventional Bottom Hole (Initial)	
Deviated:	No Whipstock:	ft (KB)		
Time Tool Opened:	09:16:32		Tester:	Dustin Rash
Time Test Ended:	15:29:47		Unit No:	32
Interval:	3410.00 ft (KB) To 3516.00 ft (KB) (TVD)	Reference Elevations:	2122.00 ft (KB)	
Total Depth:	3516.00 ft (KB) (TVD)		2114.00 ft (CF)	
Hole Diameter:	7.88 inches	Hole Condition:	Poor	
		KB to GR/CF:	8.00 ft	

Serial #: 6755	Inside				
Press@RunDepth:	psig @	3506.00 ft (KB)	Capacity:	8000.00 psig	
Start Date:	2010.08.07	End Date:	2010.08.07	Last Calib.:	2010.08.07
Start Time:	05:55:19	End Time:	15:29:47	Time On Btm:	
				Time Off Btm:	

TEST COMMENT: IF-Weak surface blow . Built to 1/4 inch.
IS-No return.
FF-No blow .
FS-No return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
40.00	100% Mud	0.27

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39028

DST#: 3

ATTN: Tony Richardson

Test Start: 2010.08.07 @ 06:05:17

Tool Information

Drill Pipe:	Length: 3377.00 ft	Diameter: 3.80 inches	Volume: 47.37 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 32.00 ft	Diameter: 2.25 inches	Volume: 0.16 bbl	Weight to Pull Loose:	2000.00 lb
			<u>Total Volume: 47.53 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	45000.00 lb
Depth to Top Packer:	3410.00 ft			Final	45000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	106.00 ft				
Tool Length:	127.00 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			3390.00	
Shut In Tool	5.00			3395.00	
Hydraulic tool	5.00			3400.00	
Packer	5.00			3405.00	21.00 Bottom Of Top Packer
Packer	5.00			3410.00	
Stubb	1.00			3411.00	
Change Over Sub	1.00			3412.00	
Drill Pipe	93.00			3505.00	
Change Over Sub	1.00			3506.00	
Recorder	0.00	6755	Inside	3506.00	
Recorder	0.00	8360	Outside	3506.00	
Perforations	7.00			3513.00	
Bullnose	3.00			3516.00	106.00 Bottom Packers & Anchor

Total Tool Length: 127.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Liberty Operating

Muir #1

308 W. Mill
Plainville, Ks 67663

23-9S-17W Rooks, KS

Job Ticket: 39028

DST#: 3

ATTN: Tony Richardson

Test Start: 2010.08.07 @ 06:05:17

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: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	100%Mud	0.270

Total Length: 40.00 ft Total Volume: 0.270 bbl

Num Fluid Samples: 0

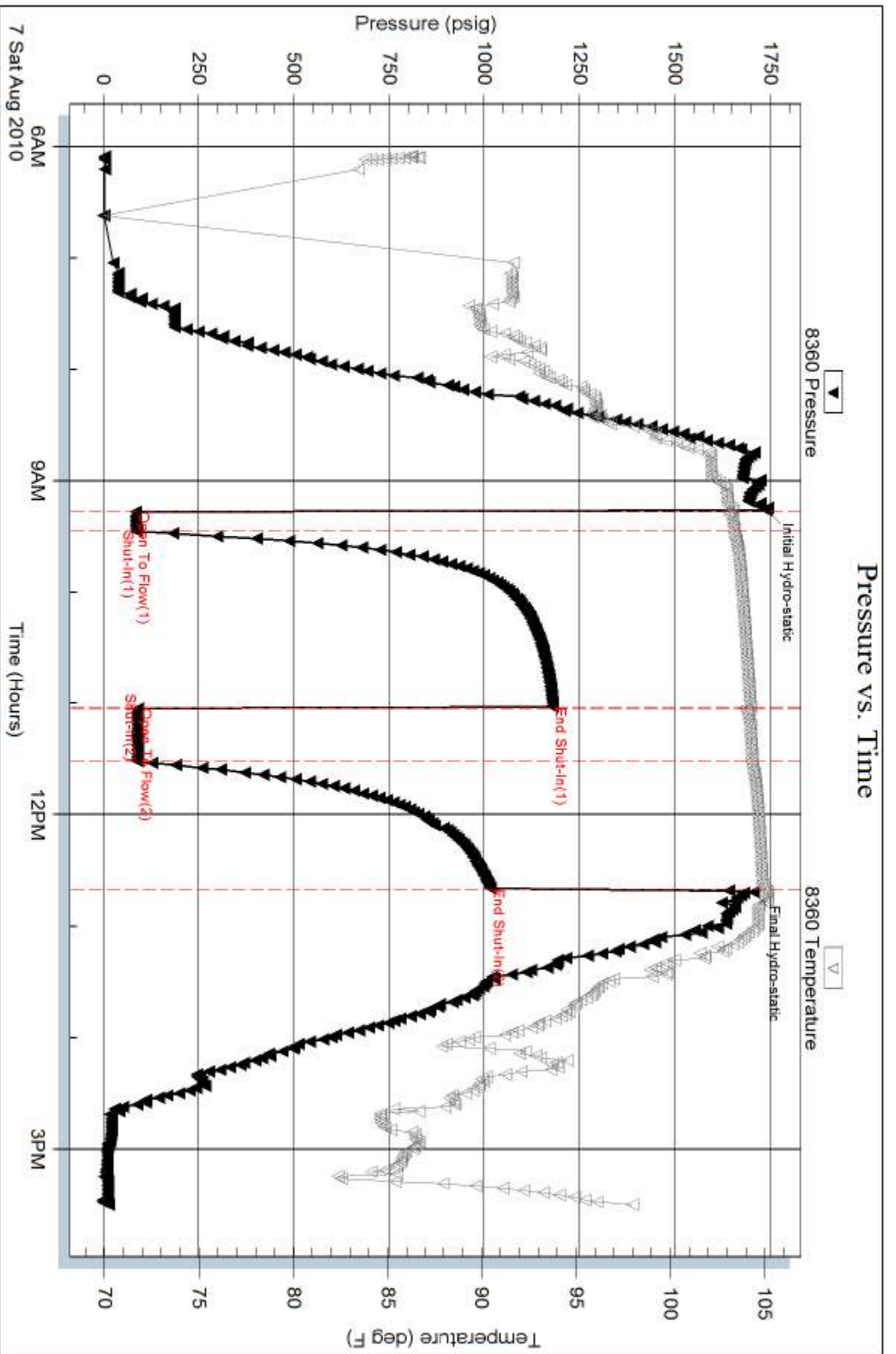
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



Serial #: 6755

Inside

Liberty Operating

23-9S-17W Roods, KS

DST Test Number: 3

