



DRILL STEM TEST REPORT

Prepared For: **Baird Oil Co LLC.**

PO Box 428
Logan KS 67646

ATTN: Richard Bell

13-7s-22w Graham,KS

Esther Worcester #3-13

Start Date: 2013.10.26 @ 18:29:00

End Date: 2013.10.26 @ 22:48:30

Job Ticket #: 53649 DST #: 1

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

Printed: 2013.10.29 @ 14:44:51



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

ATTN: Richard Bell

Job Ticket: 53649

DST#: 1

Test Start: 2013.10.26 @ 18:29:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended: 22:48:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Andy Carreira

Unit No: 68

Interval: 3659.00 ft (KB) To 3672.00 ft (KB) (TVD)

Reference Elevations: 2125.00 ft (KB)

Total Depth: 3672.00 ft (KB) (TVD)

ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: ft

Serial #: 8372 Inside

Press @ Run Depth: psig @ 3660.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.10.26

End Date:

2013.10.26

Last Calib.: 2013.10.26

Start Time: 18:29:01

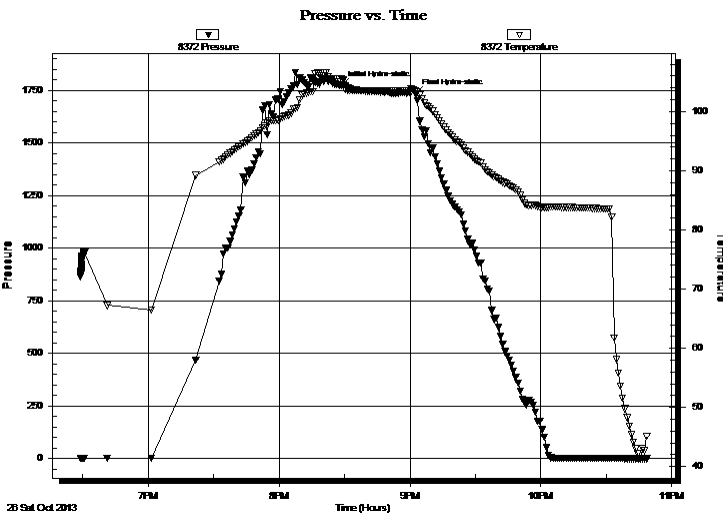
End Time:

22:48:30

Time On Btm: 2013.10.26 @ 20:28:30

Time Off Btm: 2013.10.26 @ 21:02:30

TEST COMMENT: IF: Mis-run. Packer Failure



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1774.40	105.49	Initial Hydro-static
34	1736.23	103.51	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
190.00	Drilling Mud Misrun- Packer failure	1.56

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 53649

DST#: 1

ATTN: Richard Bell

Test Start: 2013.10.26 @ 18:29:00

Tool Information

Drill Pipe:	Length: 3548.00 ft	Diameter: 3.80 inches	Volume: 49.77 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 24000.00 lb
Drill Collar:	Length: 121.21 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 62000.00 lb
			<u>Total Volume: 50.37 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.21 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3659.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	13.00 ft			
Tool Length:	33.00 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			3640.00	
Shut In Tool	5.00			3645.00	
Hydraulic tool	5.00			3650.00	
Packer	5.00			3655.00	20.00 Bottom Of Top Packer
Packer	4.00			3659.00	
Stubb	1.00			3660.00	
Recorder	0.00	8372	Inside	3660.00	
Recorder	0.00	8321	Outside	3660.00	
Perforations	9.00			3669.00	
Bullnose	3.00			3672.00	13.00 Bottom Packers & Anchor
Total Tool Length:	33.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 53649

DST#: 1

ATTN: Richard Bell

Test Start: 2013.10.26 @ 18:29:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1400.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
190.00	Drilling Mud Misrun- Packer failure	1.561

Total Length: 190.00 ft Total Volume: 1.561 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

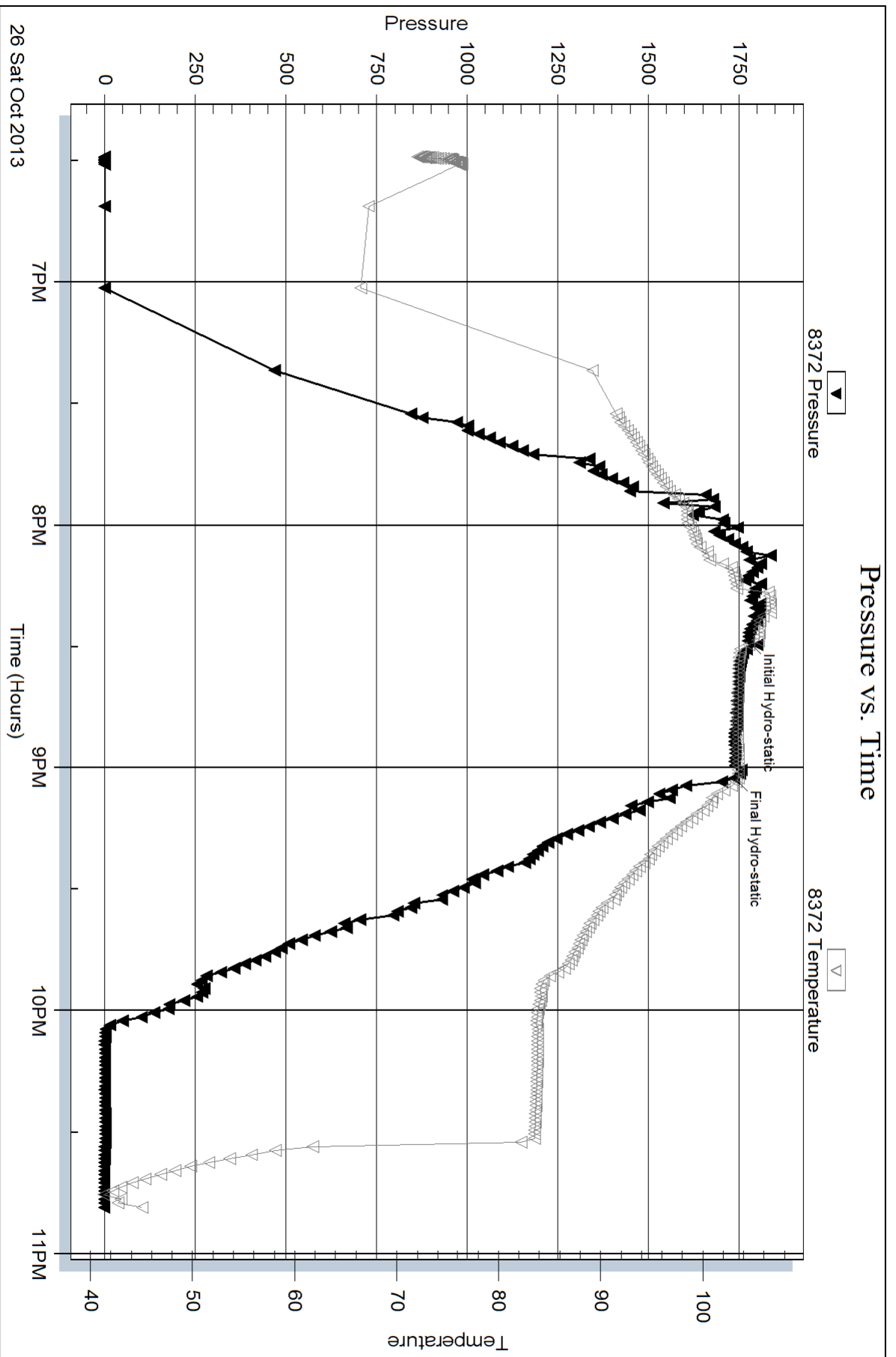
Serial #: 8372

Inside

Baird Oil Co LLC.

13-7/s-22w Graham,KS

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 53649

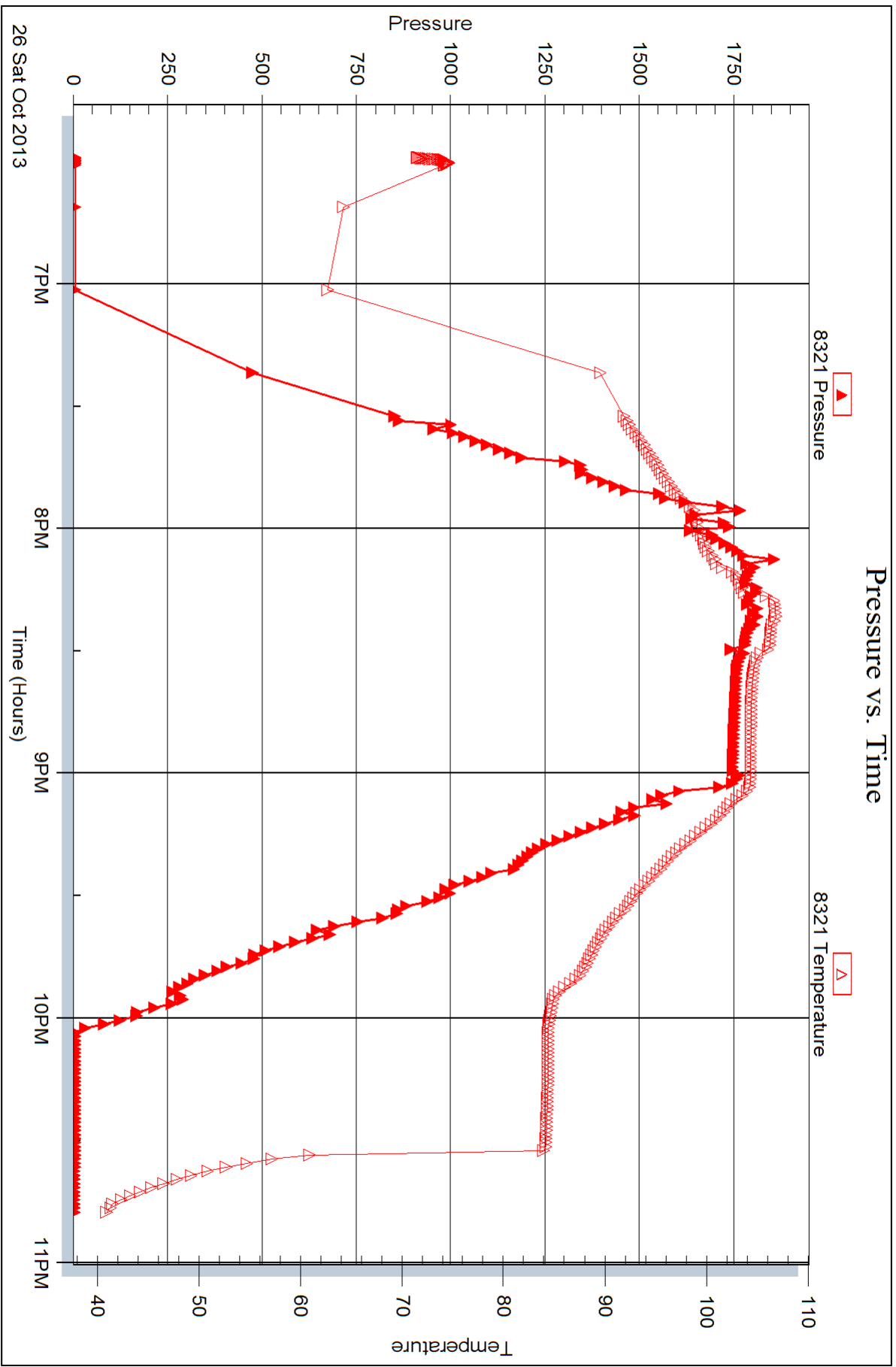
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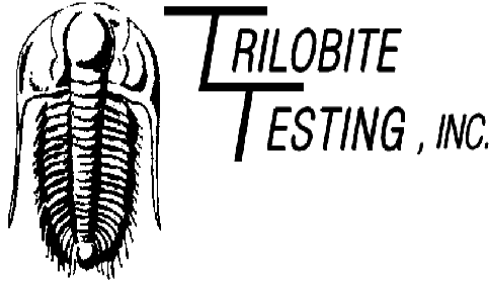
Serial #: 8321

Outside Baird Oil Co.LLC.

13-7/s-22w Graham,KS

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Baird Oil Co LLC.**

PO Box 428
Logan KS 67646

ATTN: Richard Bell

13-7s-22w Graham,KS

Esther Worcester #3-13

Start Date: 2013.10.26 @ 23:12:01

End Date: 2013.10.27 @ 06:01:00

Job Ticket #: 63650 DST #: 2

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

Printed: 2013.10.29 @ 14:44:30



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

ATTN: Richard Bell

Job Ticket: 63650

DST#: 2

Test Start: 2013.10.26 @ 23:12:01

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:52:30

Time Test Ended: 06:01:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Andy Carreira

Unit No: 68

Interval: 3631.00 ft (KB) To 3672.00 ft (KB) (TVD)

Reference Elevations: 2125.00 ft (KB)

Total Depth: 3672.00 ft (KB) (TVD)

ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: ft

Serial #: 8372

Inside

Press @ Run Depth: 55.69 psig @ 3636.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.10.26

End Date:

2013.10.27

Last Calib.: 2013.10.27

Start Time: 23:12:01

End Time:

06:01:00

Time On Btm: 2013.10.27 @ 00:52:00

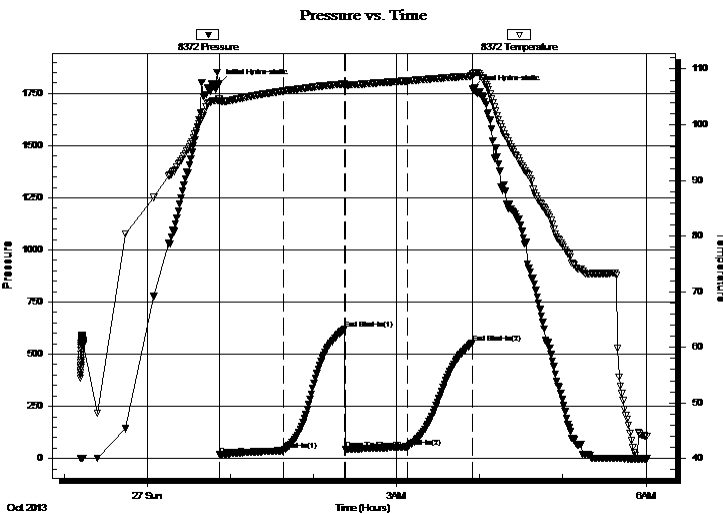
Time Off Btm: 2013.10.27 @ 03:55:00

TEST COMMENT: IF:(45min) 1" blow in 7 min. Built to 1 1/2"

IS:(45min) No Return

FF:(45min) Built to 1"

FS:(45min) No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1796.63	104.60	Initial Hydro-static
1	17.37	104.09	Open To Flow (1)
46	38.14	106.04	Shut-In(1)
91	619.73	107.30	End Shut-In(1)
91	44.43	107.13	Open To Flow (2)
136	55.69	107.87	Shut-In(2)
183	552.52	108.72	End Shut-In(2)
183	1770.66	109.16	Final Hydro-static

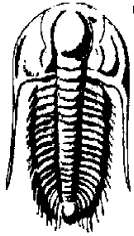
Recovery

Length (ft)	Description	Volume (bbl)
60.00	HOCM o=40% m=60%	0.30
30.00	CO o=100%	0.15

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

ATTN: Richard Bell

Job Ticket: 63650

DST#: 2

Test Start: 2013.10.26 @ 23:12:01

Tool Information

Drill Pipe:	Length: 3517.00 ft	Diameter: 3.80 inches	Volume: 49.33 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 24000.00 lb
Drill Collar:	Length: 121.21 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 49.93 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.21 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3631.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	41.00 ft			
Tool Length:	61.00 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			3612.00	
Shut In Tool	5.00			3617.00	
Hydraulic tool	5.00			3622.00	
Packer	5.00			3627.00	20.00 Bottom Of Top Packer
Packer	4.00			3631.00	
Stubb	1.00			3632.00	
Perforations	3.00			3635.00	
Change Over Sub	1.00			3636.00	
Recorder	0.00	8372	Inside	3636.00	
Recorder	0.00	8321	Outside	3636.00	
Drill Pipe	32.00			3668.00	
Change Over Sub	1.00			3669.00	
Bullnose	3.00			3672.00	41.00 Bottom Packers & Anchor

Total Tool Length: 61.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 63650

DST#: 2

ATTN: Richard Bell

Test Start: 2013.10.26 @ 23:12:01

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1400.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	HOCM o=40% m=60%	0.295
30.00	CO o=100%	0.148

Total Length: 90.00 ft Total Volume: 0.443 bbl

Num Fluid Samples: 0

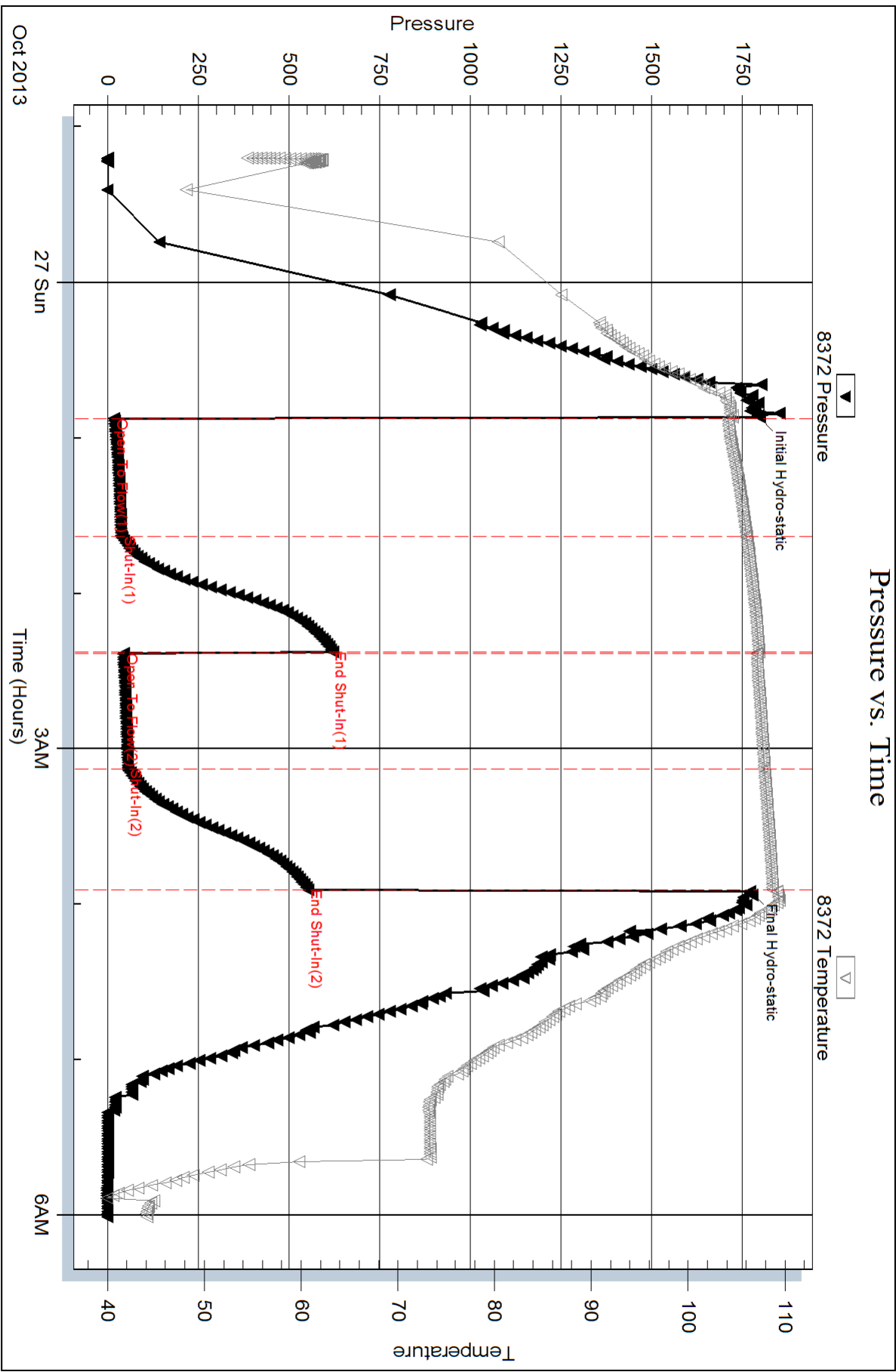
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

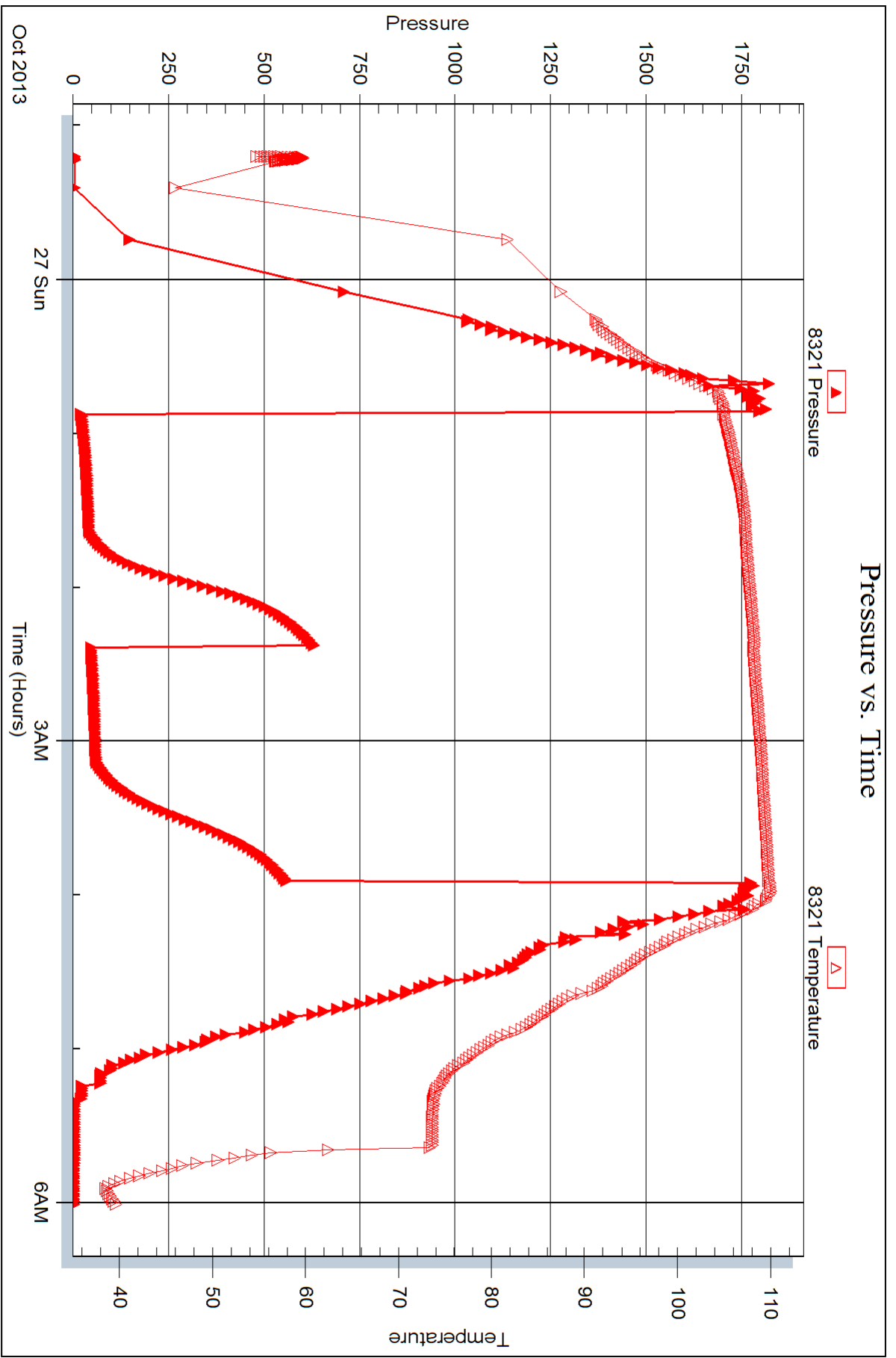


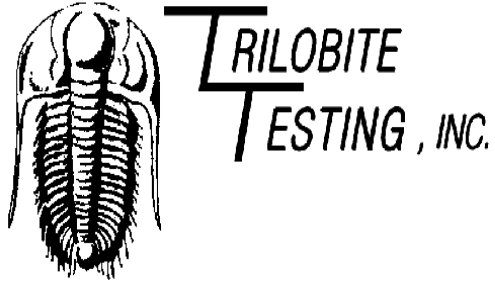
Serial #: 8321

Outside Baird Oil Co LLC.

13-/s-22w Graham,KS

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Baird Oil Co LLC.**

PO Box 428
Logan KS 67646

ATTN: Richard Bell

13-7s-22w Graham,KS

Esther Worcester #3-13

Start Date: 2013.10.27 @ 21:06:01

End Date: 2013.10.28 @ 04:32:00

Job Ticket #: 54326 DST #: 3

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

Printed: 2013.10.29 @ 14:44:06



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

ATTN: Richard Bell

Job Ticket: 54326

DST#: 3

Test Start: 2013.10.27 @ 21:06:01

GENERAL INFORMATION:

Formation: **LKC"K"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:41:30

Time Test Ended: 04:32:00

Test Type: Conventional Straddle (Reset)

Tester: Andy Carreira

Unit No: 68

Interval: 3526.00 ft (KB) To 3554.00 ft (KB) (TVD)

Reference Elevations: 2125.00 ft (KB)

Total Depth: 3730.00 ft (KB) (TVD)

ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: ft

Serial #: 8372

Inside

Press @ Run Depth: 42.38 psig @ 3527.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.10.27

End Date:

2013.10.28

Last Calib.: 2013.10.28

Start Time: 21:06:01

End Time:

04:32:00

Time On Btm: 2013.10.27 @ 22:41:00

Time Off Btm: 2013.10.28 @ 01:34:00

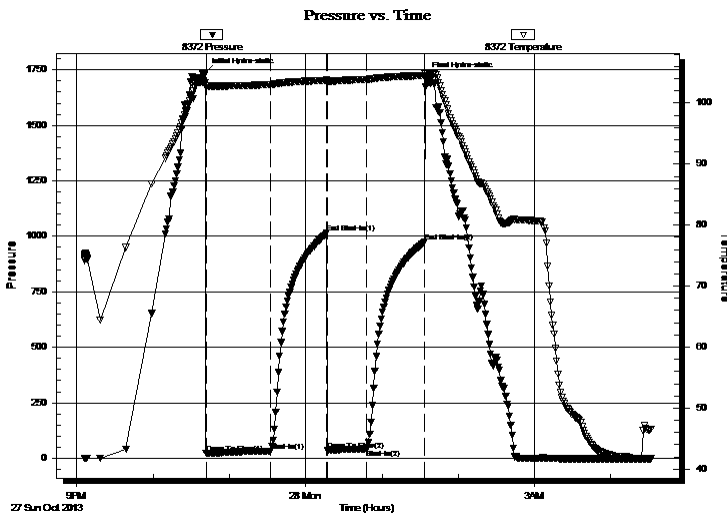
TEST COMMENT: IF:(45min) 1" blow in 19 min. Decreased to 1/4"

ISl:(45min) No Return

FF:(30min) Surface blow died in 15 min.

FSl:(45min) No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1738.82	103.33	Initial Hydro-static
1	21.29	102.83	Open To Flow (1)
52	31.45	103.03	Shut-In(1)
96	1016.21	103.73	End Shut-In(1)
96	36.32	103.27	Open To Flow (2)
127	42.38	103.87	Shut-In(2)
173	974.12	104.52	End Shut-In(2)
173	1721.61	104.77	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	OSM	0.15

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 54326

DST#: 3

ATTN: Richard Bell

Test Start: 2013.10.27 @ 21:06:01

Tool Information

Drill Pipe:	Length: 3389.00 ft	Diameter: 3.80 inches	Volume: 47.54 bbl	Tool Weight: 3500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 26000.00 lb
Drill Collar:	Length: 121.21 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 48.14 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.21 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3526.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	3554.00 ft			
Interval between Packers:	28.00 ft			
Tool Length:	236.00 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			3499.00	
Shut In Tool	5.00			3504.00	
Hydraulic tool	5.00			3509.00	
Jars	5.00			3514.00	
Safety Joint	3.00			3517.00	
Packer	5.00			3522.00	28.00 Bottom Of Top Packer
Packer	4.00			3526.00	
Stubb	1.00			3527.00	
Recorder	0.00	8372	Inside	3527.00	
Recorder	0.00	8321	Outside	3527.00	
Perforations	22.00			3549.00	
Blank Off Sub	1.00			3550.00	
Blank Spacing	4.00			3554.00	28.00 Tool Interval
Packer	4.00			3558.00	
Stubb	1.00			3559.00	
Perforations	10.00			3569.00	
Change Over Sub	1.00			3570.00	
Recorder	0.00	8647	Below	3570.00	
Drill Pipe	159.00			3729.00	
Change Over Sub	1.00			3730.00	
Perforations	1.00			3731.00	
Bullnose	3.00			3734.00	180.00 Bottom Packers & Anchor
Total Tool Length:	236.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 54326

DST#: 3

ATTN: Richard Bell

Test Start: 2013.10.27 @ 21:06:01

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1400.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	OSM	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

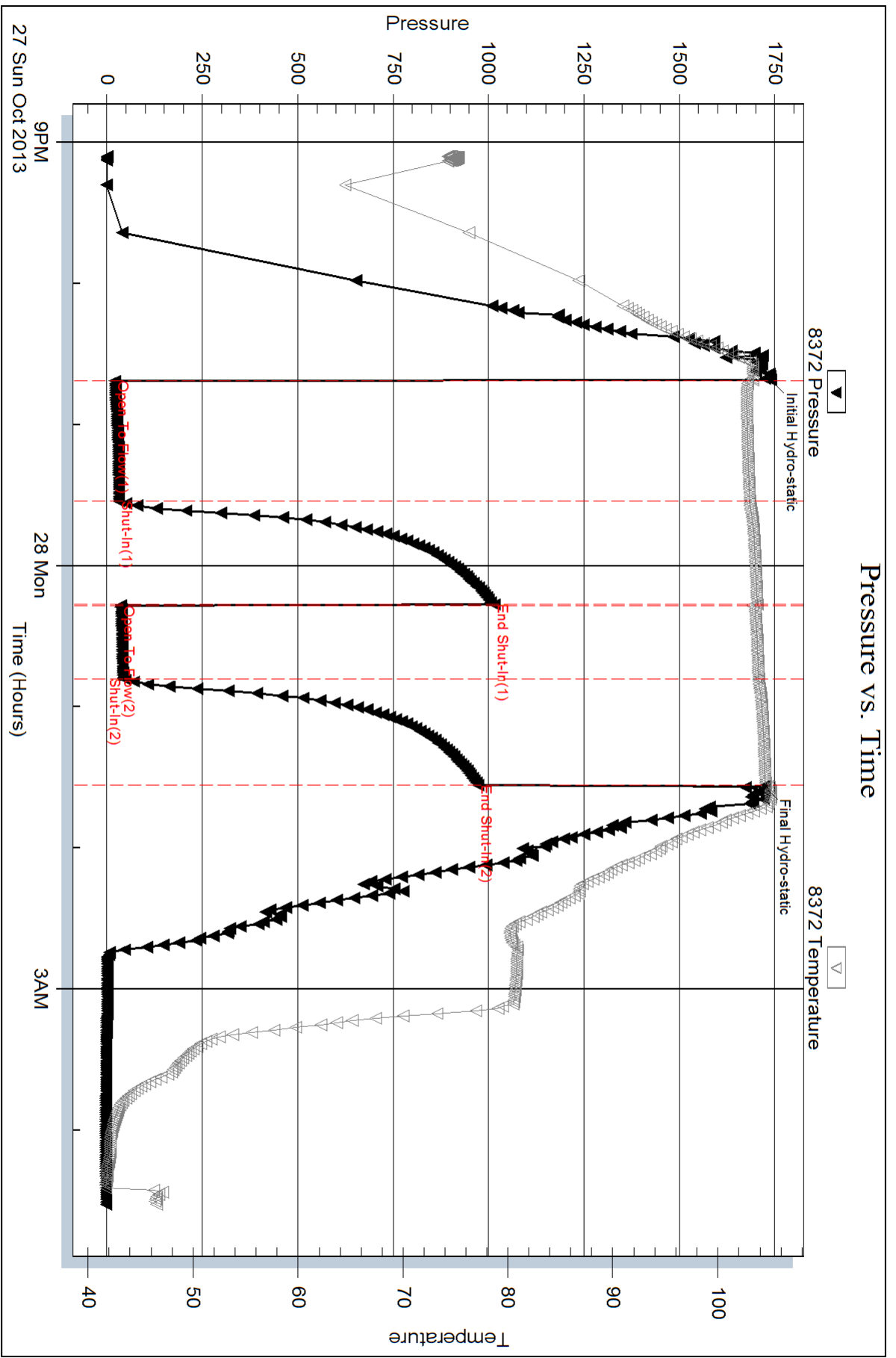
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

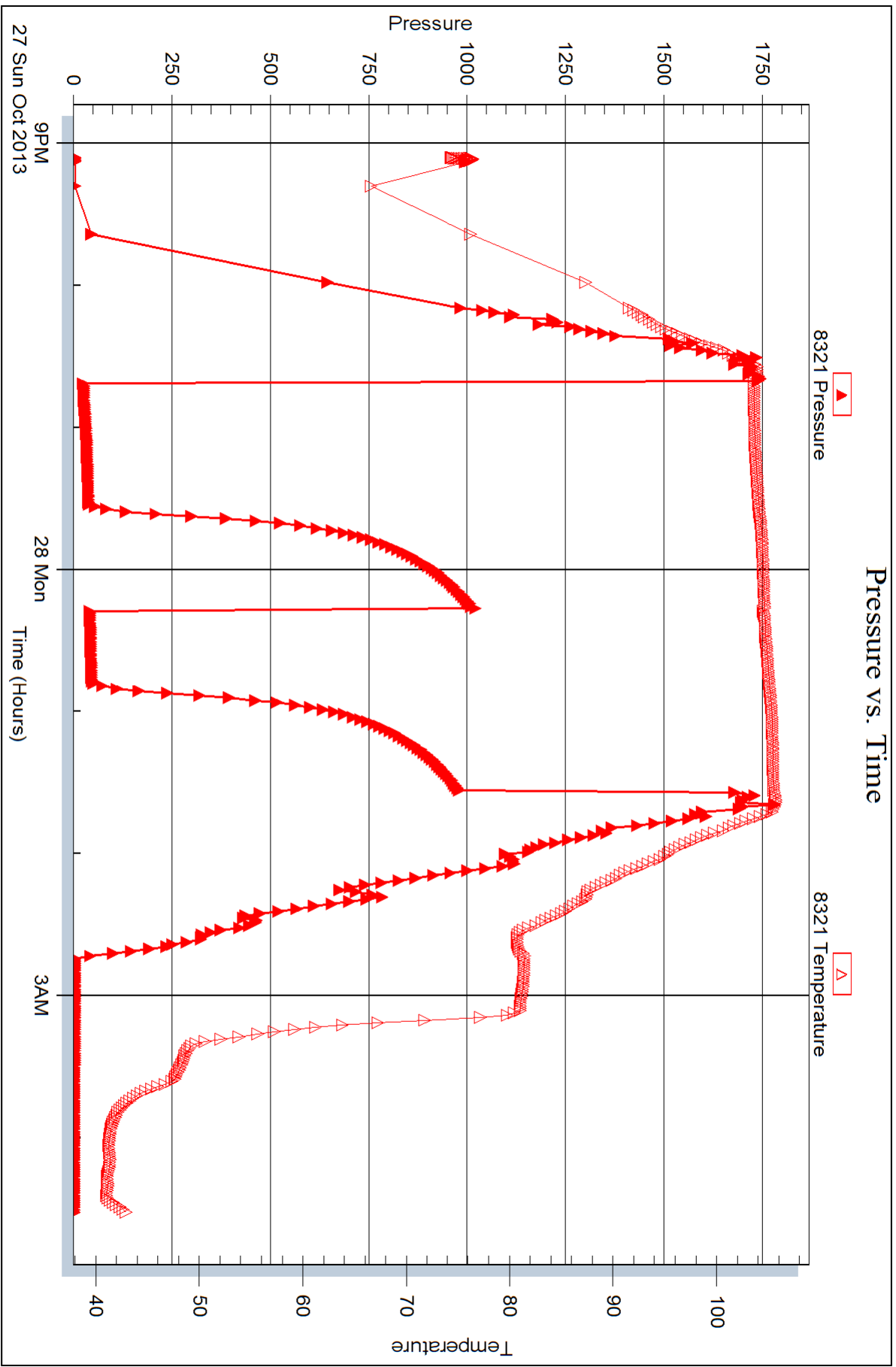


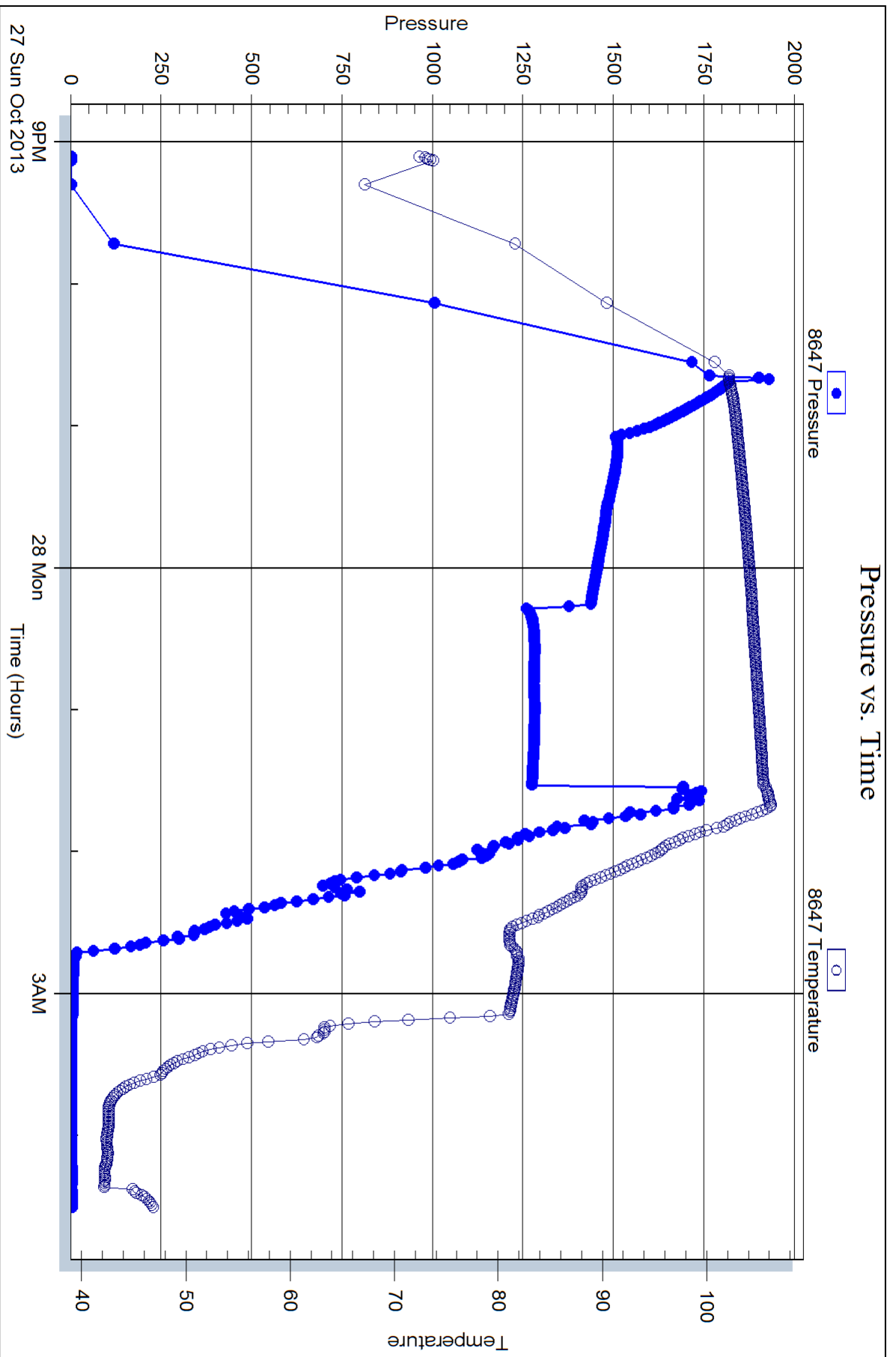
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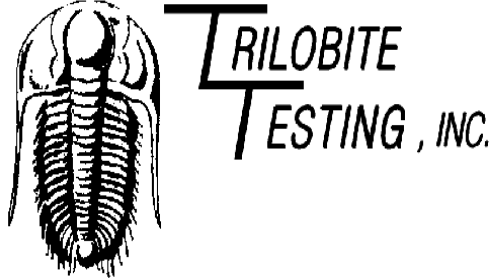
Outside Baird Oil Co LLC.

13-7/s-22w Graham,KS

DST Test Number: 3







DRILL STEM TEST REPORT

Prepared For: **Baird Oil Co LLC.**

PO Box 428
Logan KS 67646

ATTN: Richard Bell

13-7s-22w Graham,KS

Esther Worcester #3-13

Start Date: 2013.10.28 @ 07:58:01

End Date: 2013.10.28 @ 16:13:30

Job Ticket #: 54327 DST #: 4

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

Printed: 2013.10.29 @ 14:43:28

Baird Oil Co LLC.
Esther Worcester #3-13
13-7s-22w Graham,KS
DST # 4
LKC"Fi"
2013.10.28



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

ATTN: Richard Bell

Job Ticket: 54327

DST#: 4

Test Start: 2013.10.28 @ 07:58:01

GENERAL INFORMATION:

Formation: **LKC"F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:01:00

Time Test Ended: 16:13:30

Test Type: Conventional Straddle (Reset)

Tester: Andy Carreira

Unit No: 68

Interval: 3420.00 ft (KB) To 3466.00 ft (KB) (TVD)

Total Depth: 3730.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2125.00 ft (KB)

ft (CF)

KB to GR/CF: ft

Serial #: 8372

Inside

Press @ Run Depth: 188.15 psig @ 3423.00 ft (KB)

Start Date: 2013.10.28

End Date: 2013.10.28

Start Time: 07:58:01

End Time: 16:13:30

Capacity: 8000.00 psig

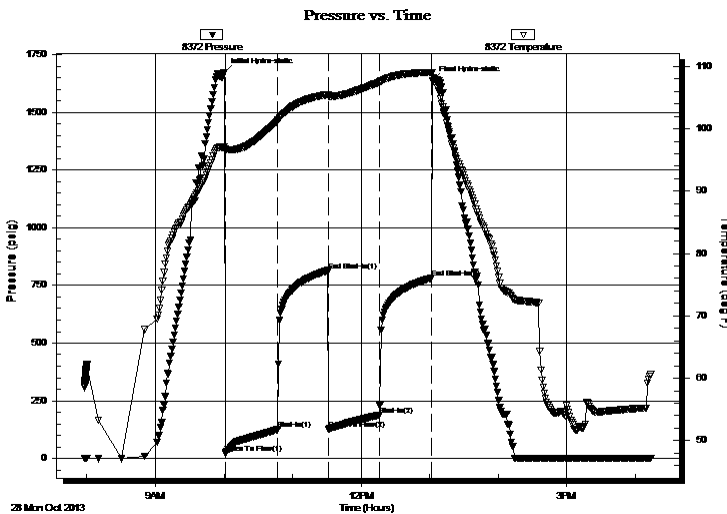
Last Calib.: 2013.10.28

Time On Btm: 2013.10.28 @ 10:00:30

Time Off Btm: 2013.10.28 @ 13:02:30

TEST COMMENT: IF:(45min) 2" blow in 3 min. 6" in 11 min. BOB in 23 min.
ISl:(45min) No Return
FF:(45min) 2" blow in 5 min. 6" in 16 min. BOB in 31 min.
FSl:(45min) No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1673.53	97.06	Initial Hydro-static
1	20.89	96.55	Open To Flow (1)
47	126.14	101.24	Shut-In(1)
91	814.65	105.46	End Shut-In(1)
91	127.64	105.23	Open To Flow (2)
136	188.15	107.42	Shut-In(2)
181	782.47	108.97	End Shut-In(2)
182	1636.23	109.03	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
385.00	MW w / oil spks in tool	4.30

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

ATTN: Richard Bell

Job Ticket: 54327

DST#: 4

Test Start: 2013.10.28 @ 07:58:01

Tool Information

Drill Pipe:	Length: 3296.00 ft	Diameter: 3.80 inches	Volume: 46.23 bbl	Tool Weight: 4000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 121.21 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 72000.00 lb
			<u>Total Volume: 46.83 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.21 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3420.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	3466.00 ft			
Interval between Packers:	46.00 ft			
Tool Length:	342.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3393.00	
Shut In Tool	5.00			3398.00	
Hydraulic tool	5.00			3403.00	
Jars	5.00			3408.00	
Safety Joint	3.00			3411.00	
Packer	5.00			3416.00	28.00 Bottom Of Top Packer
Packer	4.00			3420.00	
Stubb	1.00			3421.00	
Perforations	1.00			3422.00	
Change Over Sub	1.00			3423.00	
Recorder	0.00	8372	Inside	3423.00	
Recorder	0.00	8321	Outside	3423.00	
Drill Pipe	32.00			3455.00	
Change Over Sub	1.00			3456.00	
Perforations	5.00			3461.00	
Blank Off Sub	1.00			3462.00	
Blank Spacing	4.00			3466.00	46.00 Tool Interval
Packer	4.00			3470.00	
Stubb	1.00			3471.00	
Perforations	4.00			3475.00	
Change Over Sub	1.00			3476.00	
Recorder	0.00	8647	Below	3476.00	
Drill Pipe	252.00			3728.00	
Change Over Sub	1.00			3729.00	
Perforations	2.00			3731.00	
Bullnose	3.00			3734.00	268.00 Bottom Packers & Anchor

Total Tool Length: 342.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Baird Oil Co LLC.

Esther Worcester #3-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 54327

DST#: 4

ATTN: Richard Bell

Test Start: 2013.10.28 @ 07:58:01

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:

78000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1400.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
385.00	MW w / oil spks in tool	4.296

Total Length: 385.00 ft Total Volume: 4.296 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

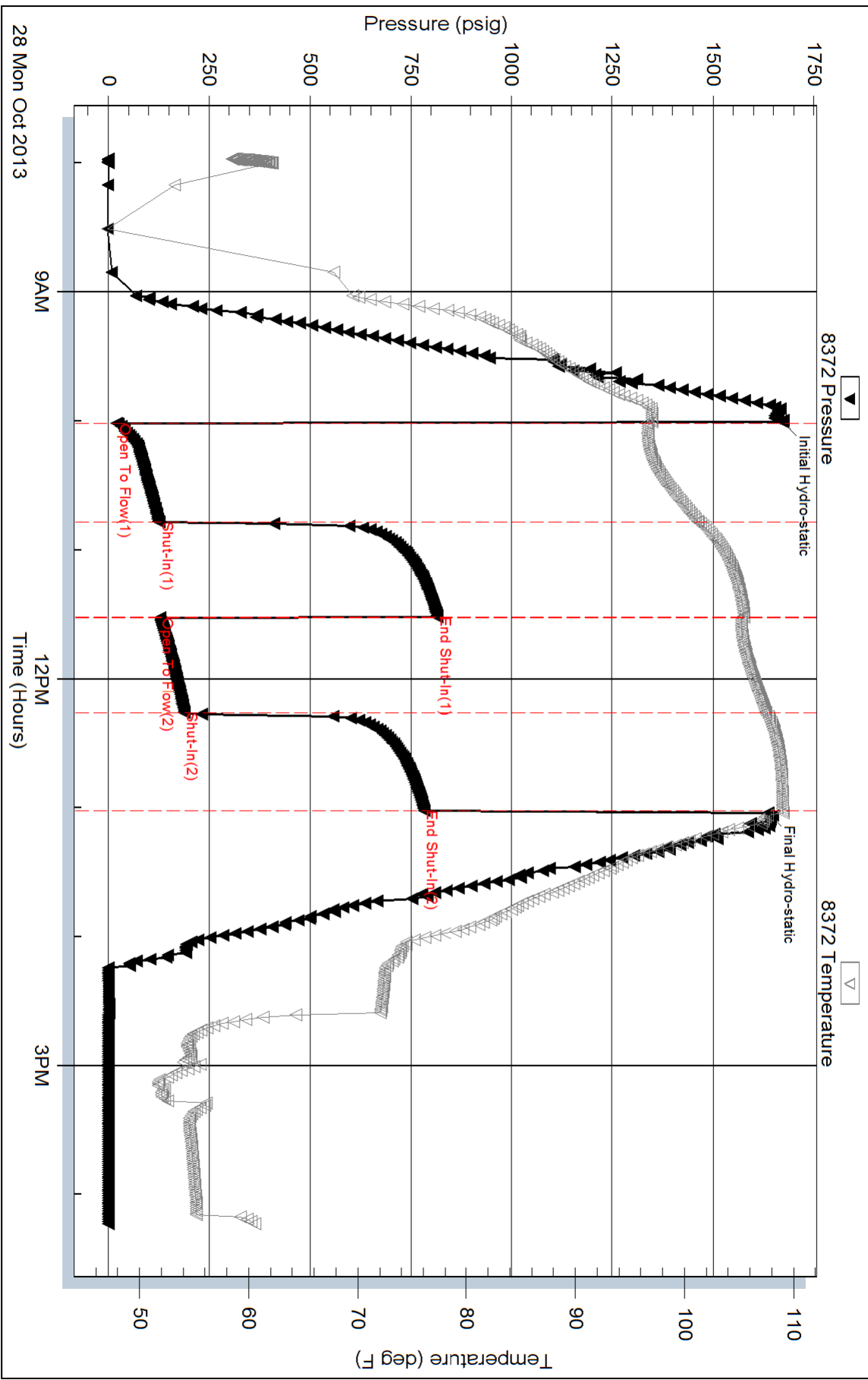
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Resistivity- .150 @ 52 deg = 78000

Pressure vs. Time

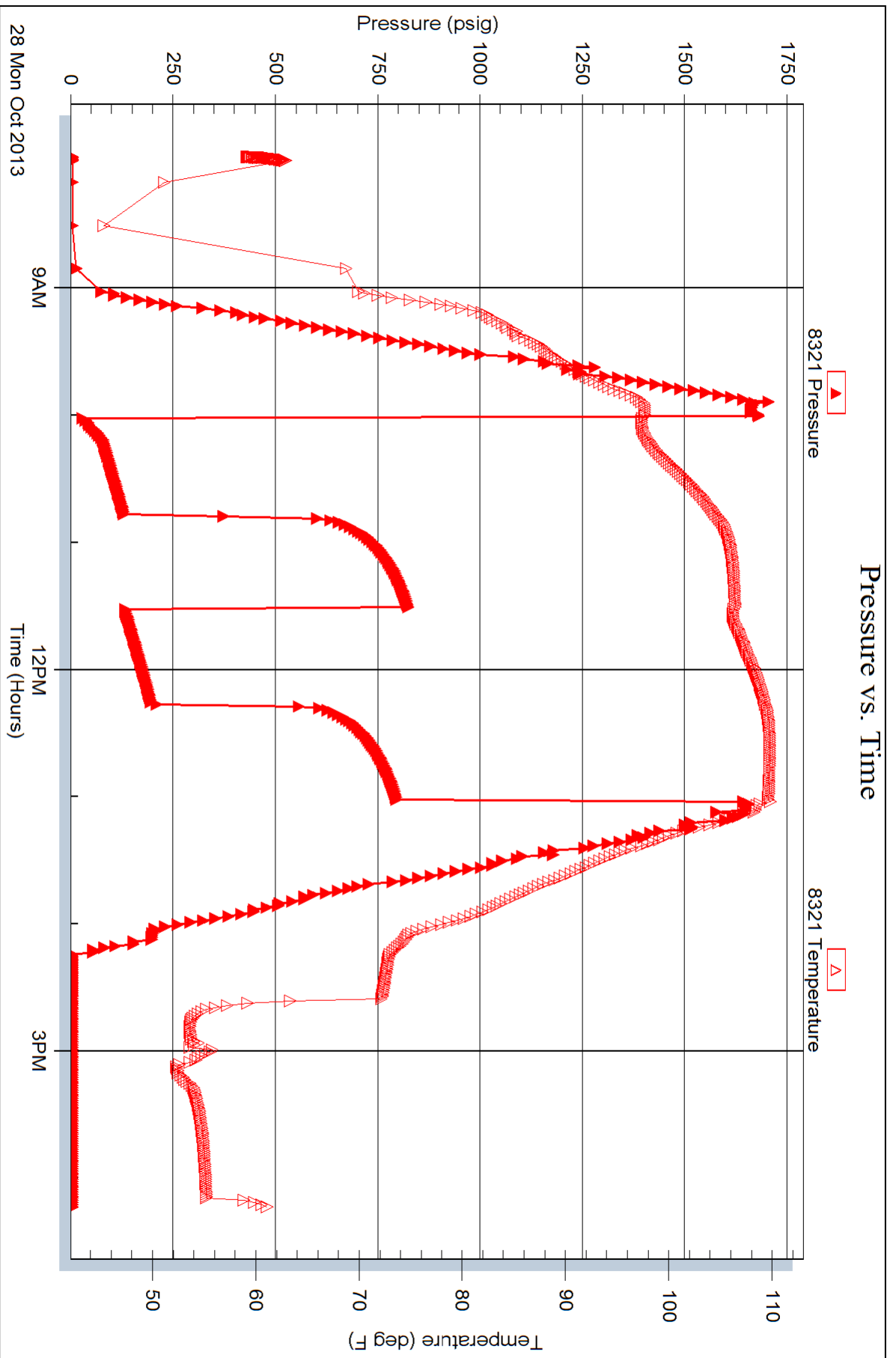


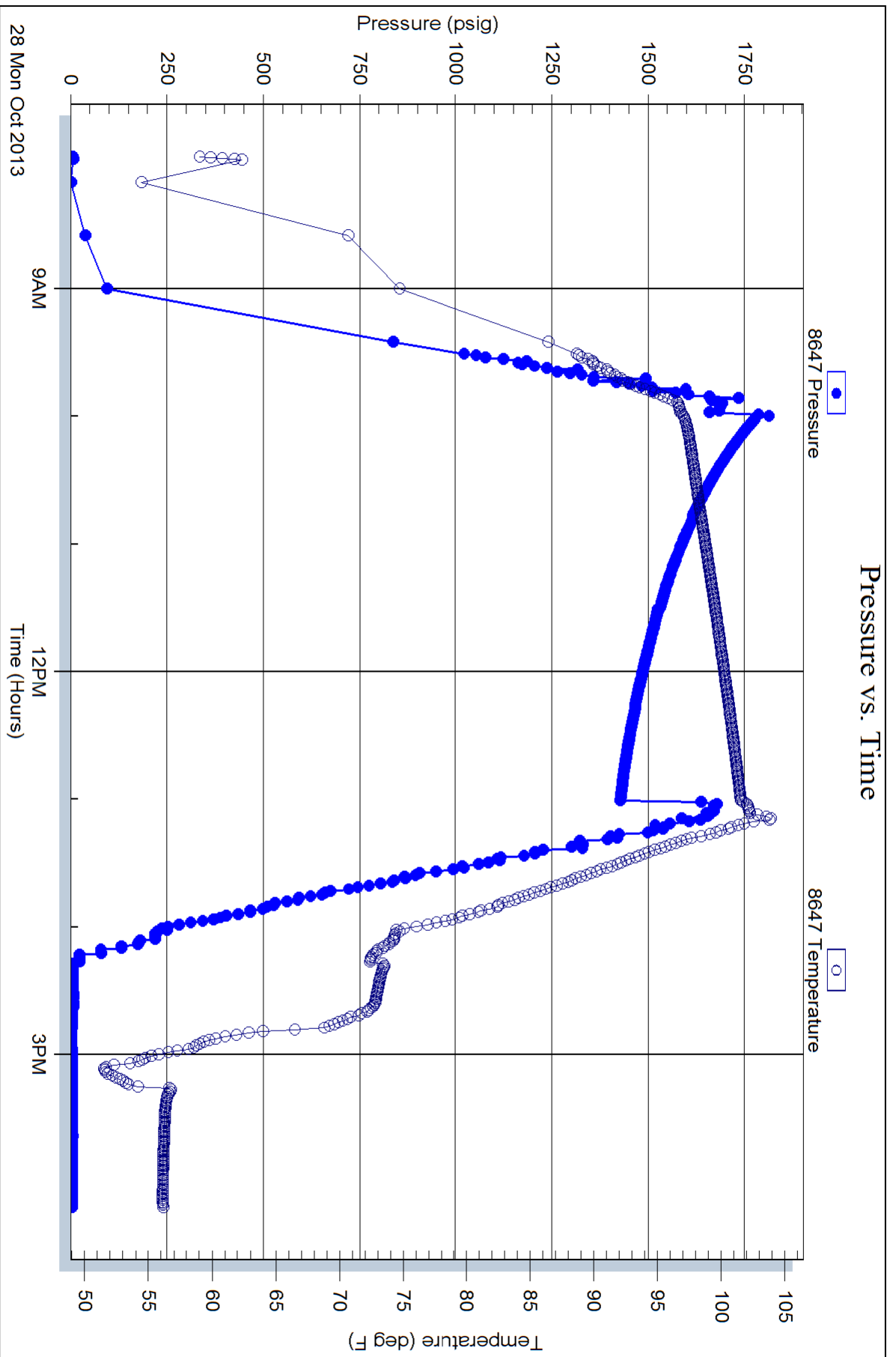
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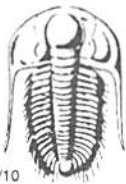
Outside Baird Oil Co LLC.

13-7-s-22w Graham,KS

DST Test Number: 4







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53649

4/10

Well Name & No. Esther Worcester #3-13 Test No. 1 Date 10-26-13
 Company Baird Oil Co LLC Elevation 2125 KB _____ GL _____
 Address PO Box 428 Logan Ks 67646
 Co. Rep / Geo. Richard Bell Rig WW #12
 Location: Sec. 13 Twp. 7s Rge. 22W Co. Graham State Ks

Interval Tested 3659-3672 Zone Tested Arbuckle
 Anchor Length 13' Drill Pipe Run 3548 Mud Wt. 9.1
 Top Packer Depth 3654 Drill Collars Run 121.21 Vis 6.0
 Bottom Packer Depth 3659 Wt. Pipe Run 0 WL 6.8
 Total Depth 3672 Chlorides 1400 ppm System LCM 3^{lb}

Blow Description ISF: MISRUN packer failure
ISI:
FIS:
FSI:

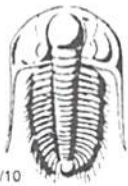
Rec	Feet of	%gas	%oil	%water	%mud
<u>190</u>	<u>Drilling Mud</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 190 BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1774 Test @ 950 T-On Location 17:42
 (B) First Initial Flow _____ Jars _____ T-Started 18:29
 (C) First Final Flow _____ Safety Joint _____ T-Open _____
 (D) Initial Shut-In _____ Circ Sub _____ T-Pulled 20:45
 (E) Second Initial Flow _____ Hourly Standby _____ T-Out 22:48
 (F) Second Final Flow _____ Mileage 120RT 186 Comments _____
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic 1736 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Initial Open _____ Extra Packer _____ Extra Copies _____
 Initial Shut-In _____ Extra Recorder _____ Sub Total 0
 Final Flow _____ Day Standby _____ Total 1136
 Final Shut-In _____ Accessibility _____ MP/DST Disc't _____
 Sub Total 1136

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. 53650

Well Name & No. Esther Worcester #3-13 Test No. 2 Date 10-26-13
 Company BIRD Oil Co. LLC Elevation 2125 KB _____ GL _____
 Address PO Box 428 Logan Ks 67646
 Co. Rep / Geo. Richard Bell Rig WW42
 Location: Sec. 13 Twp. 7s Rge. 22w Co. Graham State Ks

Interval Tested 3631-3672 Zone Tested Arbucklir
 Anchor Length 41 Drill Pipe Run 3517 Mud Wt. 9.1
 Top Packer Depth 3626 Drill Collars Run 121.21 Vis 60
 Bottom Packer Depth 3631 Wt. Pipe Run 0 WL 6.8
 Total Depth 3672 Chlorides 1400 ppm System LCM 3#

Blow Description IF: 1" blow in 7 min. Built to 1 1/2"
ISI: No Return
FF: Built to 1"
FBI: No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>CO</u>		<u>100</u>		
<u>60</u>	<u>HOCM</u>		<u>40</u>		<u>60</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

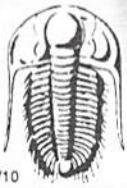
Rec Total 90 BHT 108° Gravity 27 API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1796 Test @ 1150 T-On Location 17:42
 (B) First Initial Flow 17 Jars _____ T-Started 23:12
 (C) First Final Flow 38 Safety Joint _____ T-Open 00:53
 (D) Initial Shut-In 619 Circ Sub _____ T-Pulled 03:53
 (E) Second Initial Flow 44 Hourly Standby _____ T-Out 06:01
 (F) Second Final Flow 55 Mileage _____
 (G) Final Shut-In 552 Sampler _____
 (H) Final Hydrostatic 1770 Straddle _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Packer _____
 Extra Copies _____
 Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 45
 Day Standby _____
 Accessibility _____
 Sub Total 1150
 Sub Total 1150

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54326

Well Name & No. Esther Worcester #3-13 Test No. 3 Date 10-27-13
 Company Baird Oil Co. LLC Elevation 2125 KB _____ GL _____
 Address PO Box 428 Logan Ks 67646
 Co. Rep / Geo. Richard Bell Rig WW #12
 Location: Sec. 13 Twp. 7s Rge. 22w Co. Graham State Ks

Interval Tested 3526-3554 Zone Tested LKC "K"
 Anchor Length 28' Drill Pipe Run 3389 Mud Wt. 9.1
 Top Packer Depth 3526 Drill Collars Run 121.21 Vis 60
 Bottom Packer Depth 3534 Wt. Pipe Run 0 WL 6.8
 Total Depth 3730 Chlorides 1400 ppm System LCM 3#

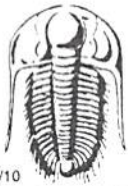
Blow Description IF: 1" Blow in 19 min. Decreased to 1/4"
ISI: NO Return
FF: SURFACE blow sized in 15 min.
FSI NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>OSM</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 30 BHT 104° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1738 Test ← 1150 T-On Location 19:39
 (B) First Initial Flow 21 Jars ← 250 T-Started 21:06
 (C) First Final Flow 31 Safety Joint ← 75 T-Open 22:42
 (D) Initial Shut-In 1016 Circ Sub _____ T-Pulled 01:37
 (E) Second Initial Flow 36 Hourly Standby _____ T-Out 04:32
 (F) Second Final Flow 42 Mileage 26.47 Hill City 40.30 Comments _____
 (G) Final Shut-In 974 Sampler _____
 (H) Final Hydrostatic 1721 Straddle ← 600 Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 45 Extra Recorder _____ Sub Total 0
 Initial Shut-In 45 Day Standby _____ Total 2115.30
 Final Flow 30 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 45 Sub Total 2115.30

Approved By _____ Our Representative _____
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54327

Well Name & No. Esther Worcester #3-13 Test No. 114 Date 10-28-13
 Company Baird Oil Co LLC Elevation 2125 KB _____ GL _____
 Address PO BOX 428, LOGAN Ks. 67646
 Co. Rep / Geo. Richard Bell Rig WW #12
 Location: Sec. 13 Twp. 7s Rge. 22W Co. Geaham State Ks

Interval Tested 3420 - 3466 Zone Tested LKC "F"
 Anchor Length 46' Drill Pipe Run 3296 Mud Wt. 9.1
 Top Packer Depth 3420 Drill Collars Run 121.21 Vis 60
 Bottom Packer Depth 3466 Wt. Pipe Run 0 WL 6.8
 Total Depth 3730 Chlorides 1400 ppm System LCM 3^{1/2}

Blow Description IF: 2" blow in 3 min. 6" in 11 min. BOB in 23 min.
ISI: No Return
FF: 2" blow in 5 min. 6" in 16 min. BOB in 31 min.
FSI: No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>385</u>	<u>MW w/ oil spks in tool</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 385 BHT _____ Gravity _____ API RW 150 @ 52 °F Chlorides 78000 ppm

(A) Initial Hydrostatic <u>1673</u>	<input checked="" type="checkbox"/> Test ← 1150	T-On Location <u>11:42 07:40</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars ← 2520	T-Started <u>07:58</u>
(C) First Final Flow <u>126</u>	<input checked="" type="checkbox"/> Safety Joint ← 75	T-Open <u>10:03</u>
(D) Initial Shut-In <u>814</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>13:03</u>
(E) Second Initial Flow <u>127</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>16:15</u>
(F) Second Final Flow <u>188</u>	<input checked="" type="checkbox"/> Mileage <u>26 RT Hill City</u> 40.30	Comments _____
(G) Final Shut-In <u>782</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1636</u>	<input checked="" type="checkbox"/> Straddle ← 600	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>45</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby _____	Total <u>2115.30</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>2115.30</u>	

Approved By _____ Our Representative Andy Cox
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