



DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 West State Rd 4
Olmitz, KS 67564-8561

ATTN: Vern Schrag

Eaton #1-36

36-18s-31w Scott,KS

Start Date: 2013.12.09 @ 01:55:00

End Date: 2013.12.09 @ 09:34:00

Job Ticket #: 54585 DST #: 1

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

Printed: 2013.12.13 @ 14:39:27



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54585

DST#: 1

ATTN: Vern Schrag

Test Start: 2013.12.09 @ 01:55:00

GENERAL INFORMATION:

Formation: **LKC " L "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:06:30

Time Test Ended: 09:34:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Jace McKinney

Unit No: 46

Interval: 4269.00 ft (KB) To 4283.00 ft (KB) (TVD)

Reference Elevations: 2922.00 ft (KB)

Total Depth: 4283.00 ft (KB) (TVD)

2915.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8675

Inside

Press@RunDepth: 160.19 psig @ 4270.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.12.09

End Date:

2013.12.09

Last Calib.:

2013.12.09

Start Time: 01:55:15

End Time:

09:34:00

Time On Btm:

2013.12.09 @ 06:06:15

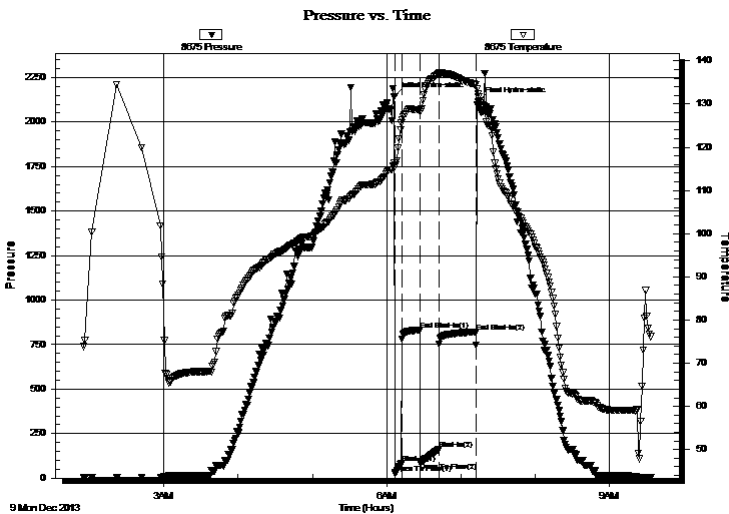
Time Off Btm:

2013.12.09 @ 07:13:45

TEST COMMENT:

Built to 7" blow
Bled off for 3 min. No return blow
B.O.B. in 9 1/2 min.
Bled off for 5 min. No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2143.87	116.46	Initial Hydro-static
1	25.14	115.52	Open To Flow (1)
6	82.28	125.58	Shut-In(1)
21	832.43	128.65	End Shut-In(1)
21	87.29	128.28	Open To Flow (2)
36	160.19	136.94	Shut-In(2)
66	820.96	134.49	End Shut-In(2)
68	2114.08	132.31	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
179.00	mcw 20% M 80% W	1.16
131.00	w cm 20%W 80%M w ith few oil spots	1.84

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54585

DST#: 1

ATTN: Vern Schrag

Test Start: 2013.12.09 @ 01:55:00

Tool Information

Drill Pipe:	Length: 4103.51 ft	Diameter: 3.80 inches	Volume: 57.56 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: 30000.00 lb
Drill Collar:	Length: 147.95 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 62000.00 lb
			<u>Total Volume: 58.29 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.96 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4269.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	41.50 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			4242.50	
Shut In Tool	5.00			4247.50	
Hydraulic tool	5.00			4252.50	
Jars	5.00			4257.50	
Safety Joint	2.50			4260.00	
Packer	5.00			4265.00	27.50 Bottom Of Top Packer
Packer	4.00			4269.00	
Stubb	1.00			4270.00	
Recorder	0.00	8675	Inside	4270.00	
Recorder	0.00	8650	Outside	4270.00	
Perforations	10.00			4280.00	
Change Over Sub	0.00			4280.00	
Drill Pipe	0.00			4280.00	
Change Over Sub	0.00			4280.00	
Bullnose	3.00			4283.00	14.00 Bottom Packers & Anchor

Total Tool Length: 41.50



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54585

DST#: 1

ATTN: Vern Schrag

Test Start: 2013.12.09 @ 01:55:00

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:

20000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
179.00	mcw 20% M 80% W	1.163
131.00	w cm 20%W 80%M w ith few oil spots	1.838

Total Length: 310.00 ft Total Volume: 3.001 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

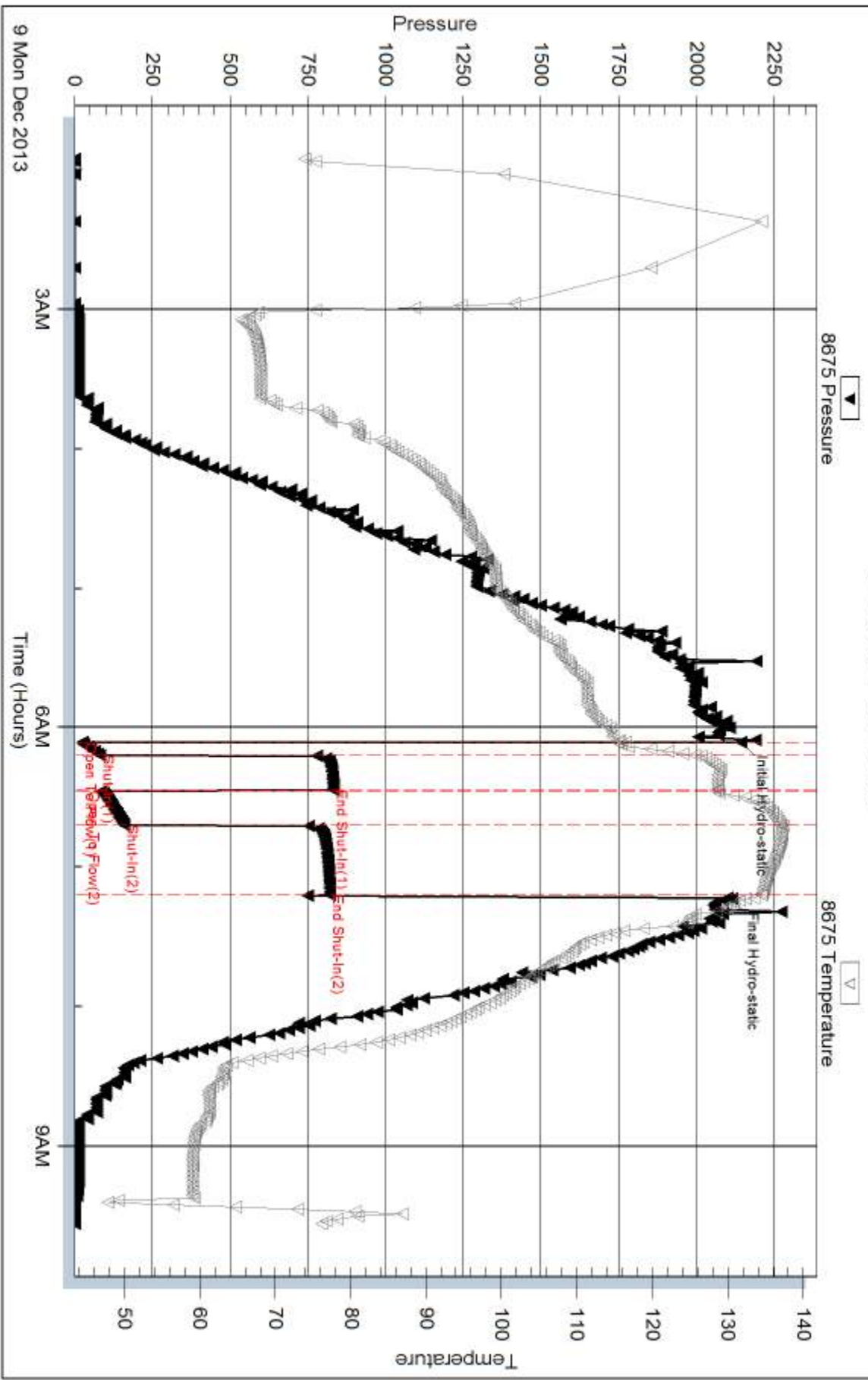
Serial #:

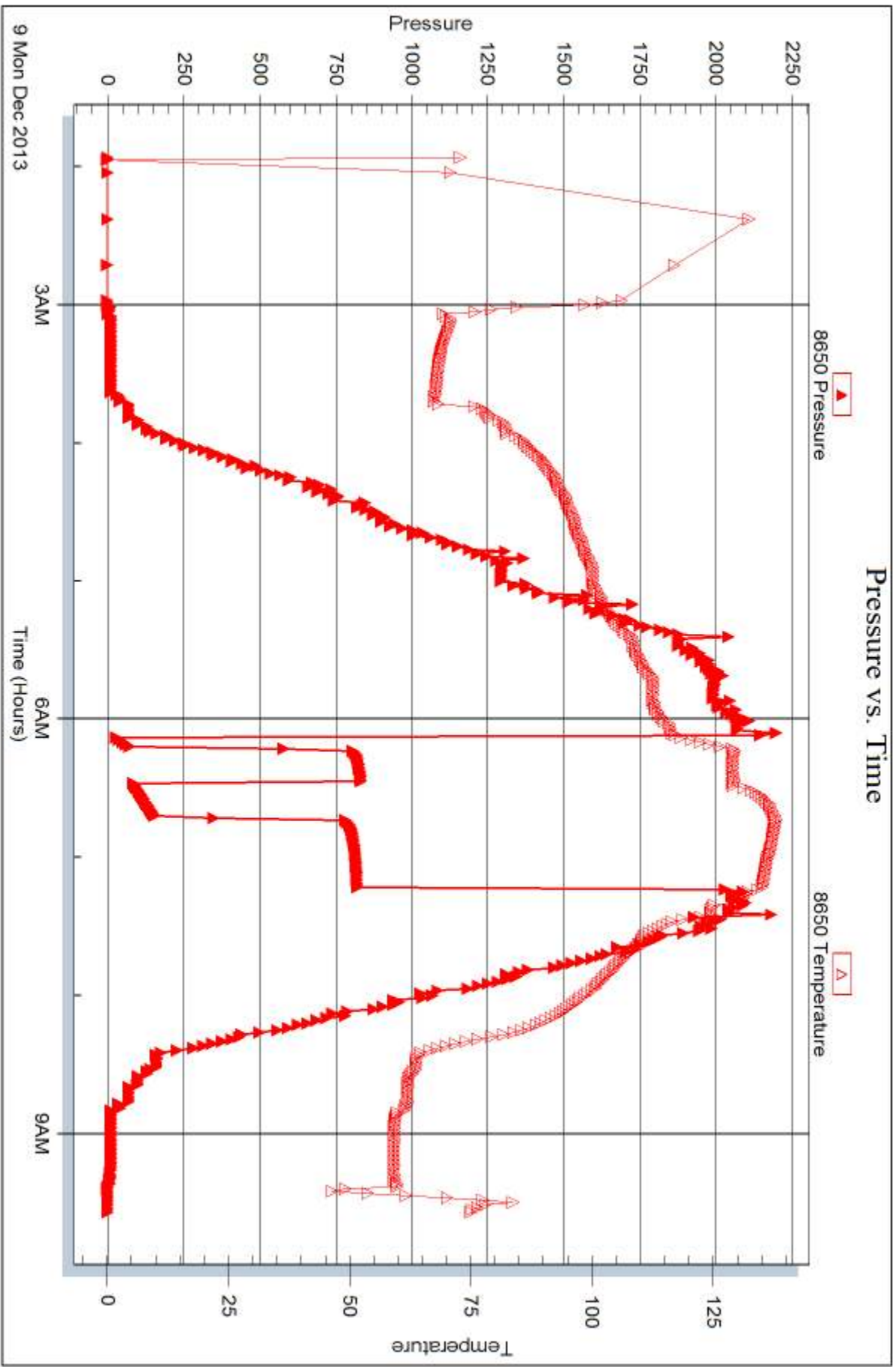
Laboratory Name:

Laboratory Location:

Recovery Comments: RW 1.0 @ 00 F = 20,000

Pressure vs. Time







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 West State Rd 4
Olmitz, KS 67564-8561

ATTN: Vern Schrag

Eaton #1-36

36-18s-31w Scott,KS

Start Date: 2013.12.10 @ 02:00:00

End Date: 2013.12.10 @ 07:53:30

Job Ticket #: 54586 DST #: 2

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
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TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

36-18s-31w Scott, KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54586

DST#: 2

ATTN: Vern Schrag

Test Start: 2013.12.10 @ 02:00:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended: 07:53:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

Interval: 4372.00 ft (KB) To 4390.00 ft (KB) (TVD)

Reference Elevations: 2922.00 ft (KB)

Total Depth: 4390.00 ft (KB) (TVD)

2915.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8675 Inside

Press@RunDepth: psig @ 4377.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.12.10

End Date:

2013.12.10

Last Calib.: 2013.12.10

Start Time: 02:00:15

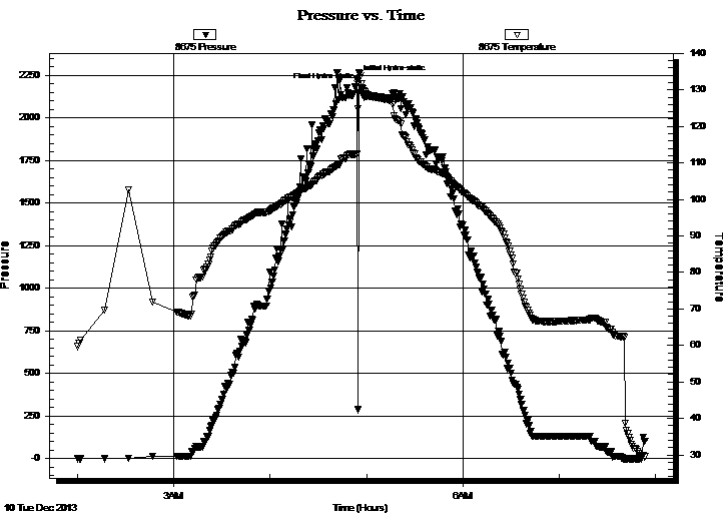
End Time:

07:53:30

Time On Btm: 2013.12.10 @ 04:53:45

Time Off Btm: 2013.12.10 @ 04:56:45

TEST COMMENT: PACKER FAILURE



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2226.12	112.43	Initial Hydro-static
3	2177.80	131.79	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
350.00	100% Mud	3.56

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54586

DST#: 2

ATTN: Vern Schrag

Test Start: 2013.12.10 @ 02:00:00

Tool Information

Drill Pipe:	Length: 4233.28 ft	Diameter: 3.80 inches	Volume: 59.38 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: 30000.00 lb
Drill Collar:	Length: 147.95 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 56000.00 lb
			<u>Total Volume: 60.11 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.73 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4372.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	18.00 ft			
Tool Length:	41.50 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			4349.50	
Shut In Tool	5.00			4354.50	
Hydraulic tool	5.00			4359.50	
Jars	5.00			4364.50	
Safety Joint	2.50			4367.00	
Packer	5.00			4372.00	23.50 Bottom Of Top Packer
Packer - Shale	4.00			4376.00	
Stubb	1.00			4377.00	
Recorder	0.00	8675	Inside	4377.00	
Recorder	0.00	8650	Outside	4377.00	
Perforations	10.00			4387.00	
Change Over Sub	0.00			4387.00	
Drill Pipe	0.00			4387.00	
Change Over Sub	0.00			4387.00	
Bullnose	3.00			4390.00	18.00 Anchor Tool

Total Tool Length: 41.50



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DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54586

DST#: 2

ATTN: Vern Schrag

Test Start: 2013.12.10 @ 02:00:00

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: 46.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2100.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
350.00	100% Mud	3.562

Total Length: 350.00 ft Total Volume: 3.562 bbl

Num Fluid Samples: 0

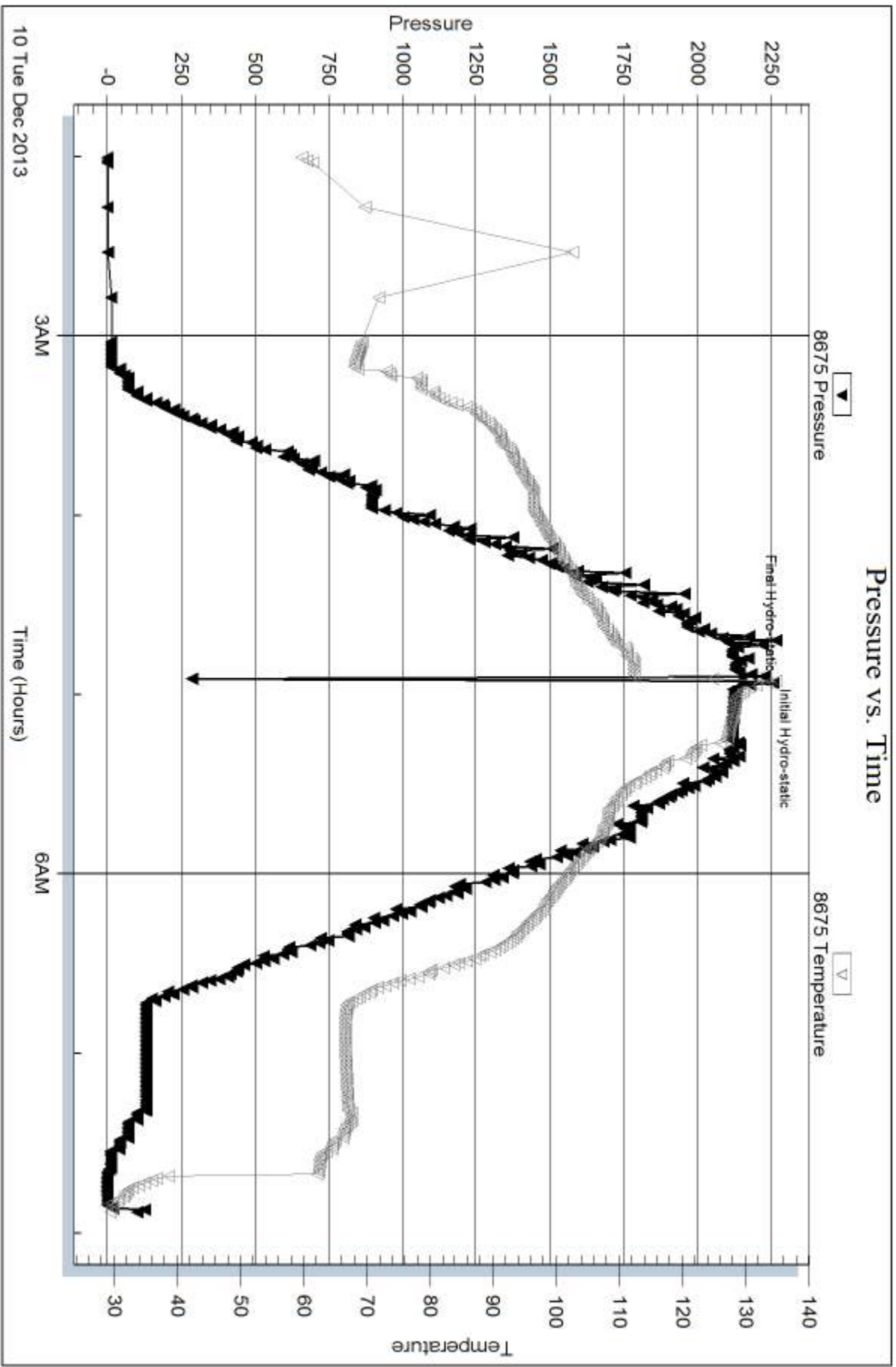
Num Gas Bombs: 0

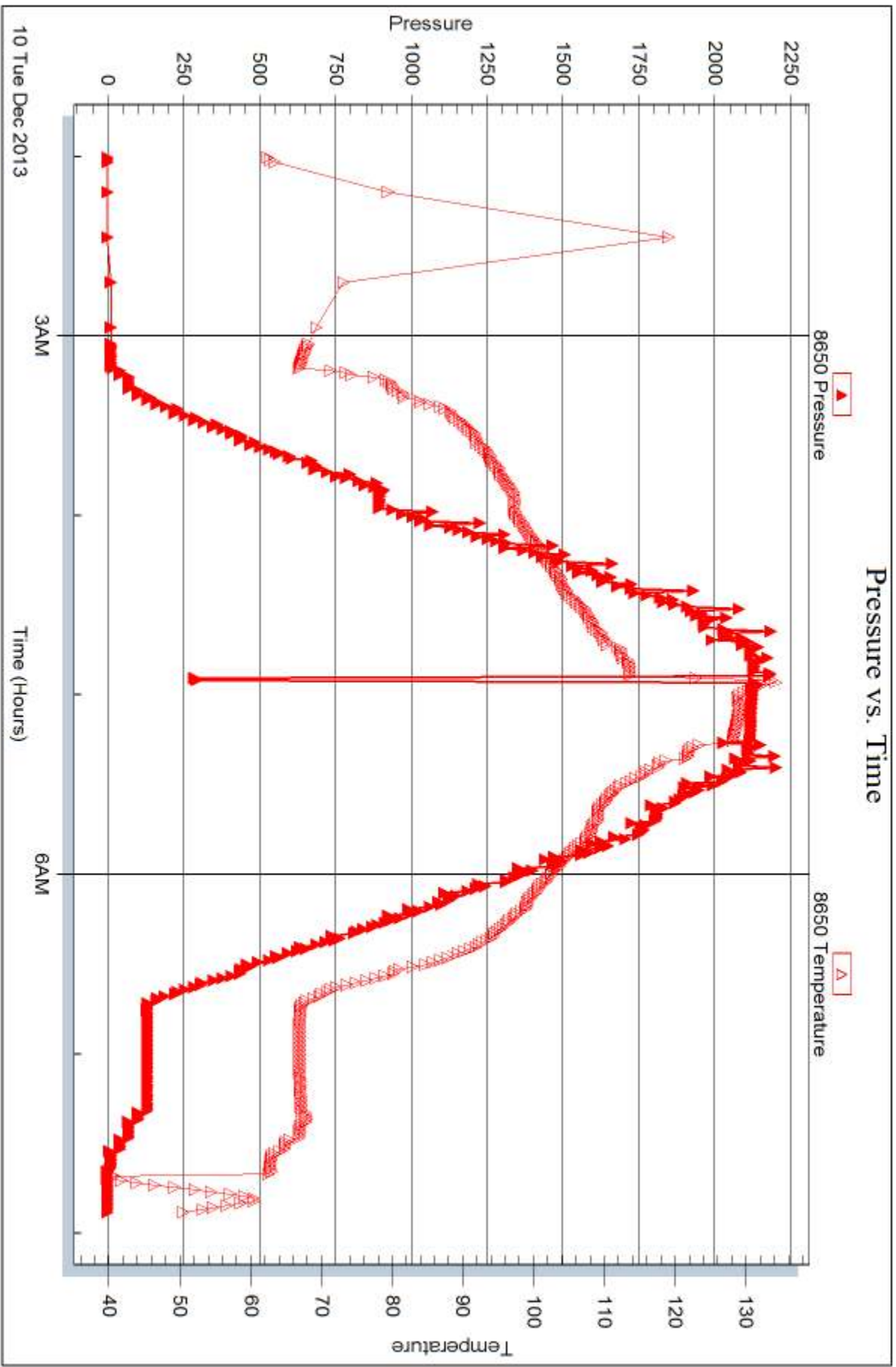
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 West State Rd 4
Olmitz, KS 67564-8561

ATTN: Vern Schrag

Eaton #1-36

36-18s-31w Scott,KS

Start Date: 2013.12.10 @ 08:20:00

End Date: 2013.12.10 @ 14:05:00

Job Ticket #: 54587 DST #: 3

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

Printed: 2013.12.13 @ 14:38:25



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.
 562 West State Rd 4
 Olmitz, KS 67564-8561
 ATTN: Vern Schrag

36-18s-31w Scott,KS

Eaton #1-36

Job Ticket: 54587

DST#: 3

Test Start: 2013.12.10 @ 08:20:00

GENERAL INFORMATION:

Formation: **Marmaton**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 10:03:45
 Tester: Jace McKinney
 Time Test Ended: 14:05:00
 Unit No: 46
 Interval: **4300.00 ft (KB) To 4390.00 ft (KB) (TVD)**
 Reference Elevations: 2922.00 ft (KB)
 Total Depth: 4390.00 ft (KB) (TVD)
 2915.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 7.00 ft

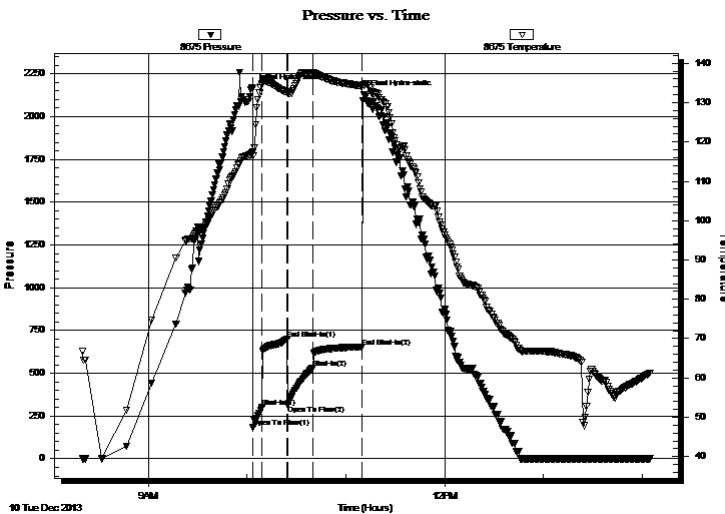
Serial #: 8675

Inside

Press@RunDepth: 528.30 psig @ 4301.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.12.10 End Date: 2013.12.10 Last Calib.: 2013.12.10
 Start Time: 08:20:15 End Time: 14:05:00 Time On Btm: 2013.12.10 @ 10:03:30
 Time Off Btm: 2013.12.10 @ 11:11:15

TEST COMMENT: B.O.B. in 1 min
 Bled off for 5 min. No return blow
 B.O.B. in 1 1/2 min.
 Bled off for 5 min. Built to 1" return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2163.16	117.37	Initial Hydro-static
1	183.01	116.46	Open To Flow (1)
6	302.88	134.69	Shut-In(1)
21	701.78	132.66	End Shut-In(1)
22	312.58	132.35	Open To Flow (2)
37	528.30	137.63	Shut-In(2)
67	655.14	134.13	End Shut-In(2)
68	2129.83	134.48	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
179.00	ocgmw 5%O 10%G 30%M 55%W	1.16
186.00	ocgw m 5%O 30%G 30%W 35%M	2.61
186.00	gcow m 10%G 10%O 20%W 60%M	2.61
248.00	ocgw m 5%O 10%G 35%W 50%M	3.48
236.00	gcow m 5%G 10%O 40%W 45%M	3.31
0.00	258 Feet Weak Gas	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54587

DST#: 3

ATTN: Vern Schrag

Test Start: 2013.12.10 @ 08:20:00

Tool Information

Drill Pipe:	Length: 4134.78 ft	Diameter: 3.80 inches	Volume: 58.00 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: 30000.00 lb
Drill Collar:	Length: 147.95 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 58.73 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.23 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4300.00 ft			Final 59000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	90.00 ft			
Tool Length:	117.50 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			4273.50	
Shut In Tool	5.00			4278.50	
Hydraulic tool	5.00			4283.50	
Jars	5.00			4288.50	
Safety Joint	2.50			4291.00	
Packer	5.00			4296.00	27.50 Bottom Of Top Packer
Packer	4.00			4300.00	
Stubb	1.00			4301.00	
Recorder	0.00	8675	Inside	4301.00	
Recorder	0.00	8650	Outside	4301.00	
Perforations	21.00			4322.00	
Change Over Sub	1.00			4323.00	
Drill Pipe	63.00			4386.00	
Change Over Sub	1.00			4387.00	
Bullnose	3.00			4390.00	90.00 Bottom Packers & Anchor

Total Tool Length: 117.50



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DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54587

DST#: 3

ATTN: Vern Schrag

Test Start: 2013.12.10 @ 08:20:00

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 46.00 sec/qt
Water Loss: 6.79 in³
Resistivity: ohm.m
Salinity: 2100.00 ppm
Filter Cake: 2.00 inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psig

Oil API: deg API
Water Salinity: 32000 ppm

Recovery Information

Recovery Table

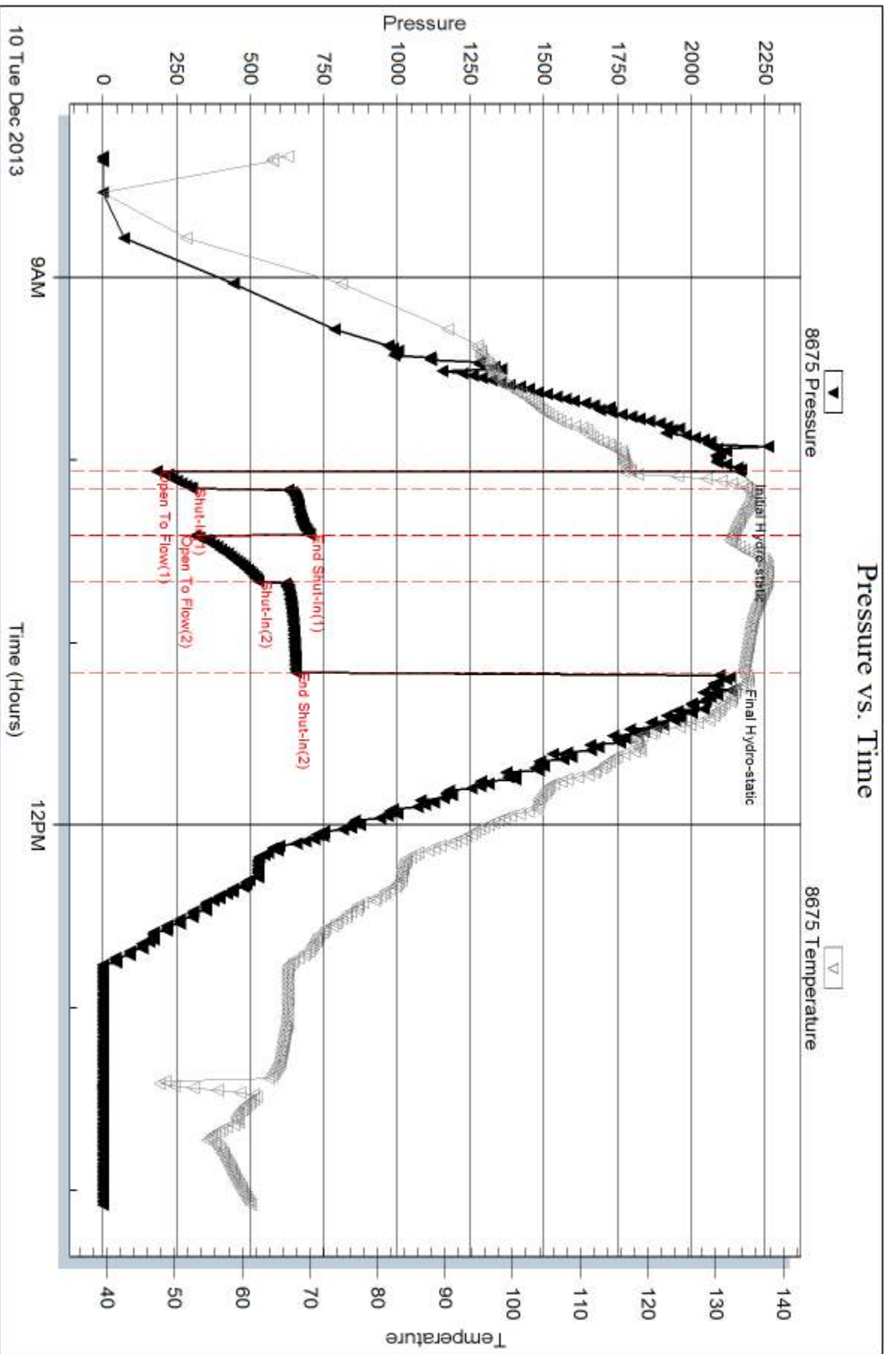
Length ft	Description	Volume bbl
179.00	ocgmw 5%O 10%G 30%M 55%W	1.163
186.00	ocgw m 5%O 30%G 30%W 35%M	2.609
186.00	gcow m 10%G 10%O 20%W 60%M	2.609
248.00	ocgw m 5%O 10%G 35%W 50%M	3.479
236.00	gcow m 5%G 10%O 40%W 45%M	3.310
0.00	258 Feet Weak Gas	0.000

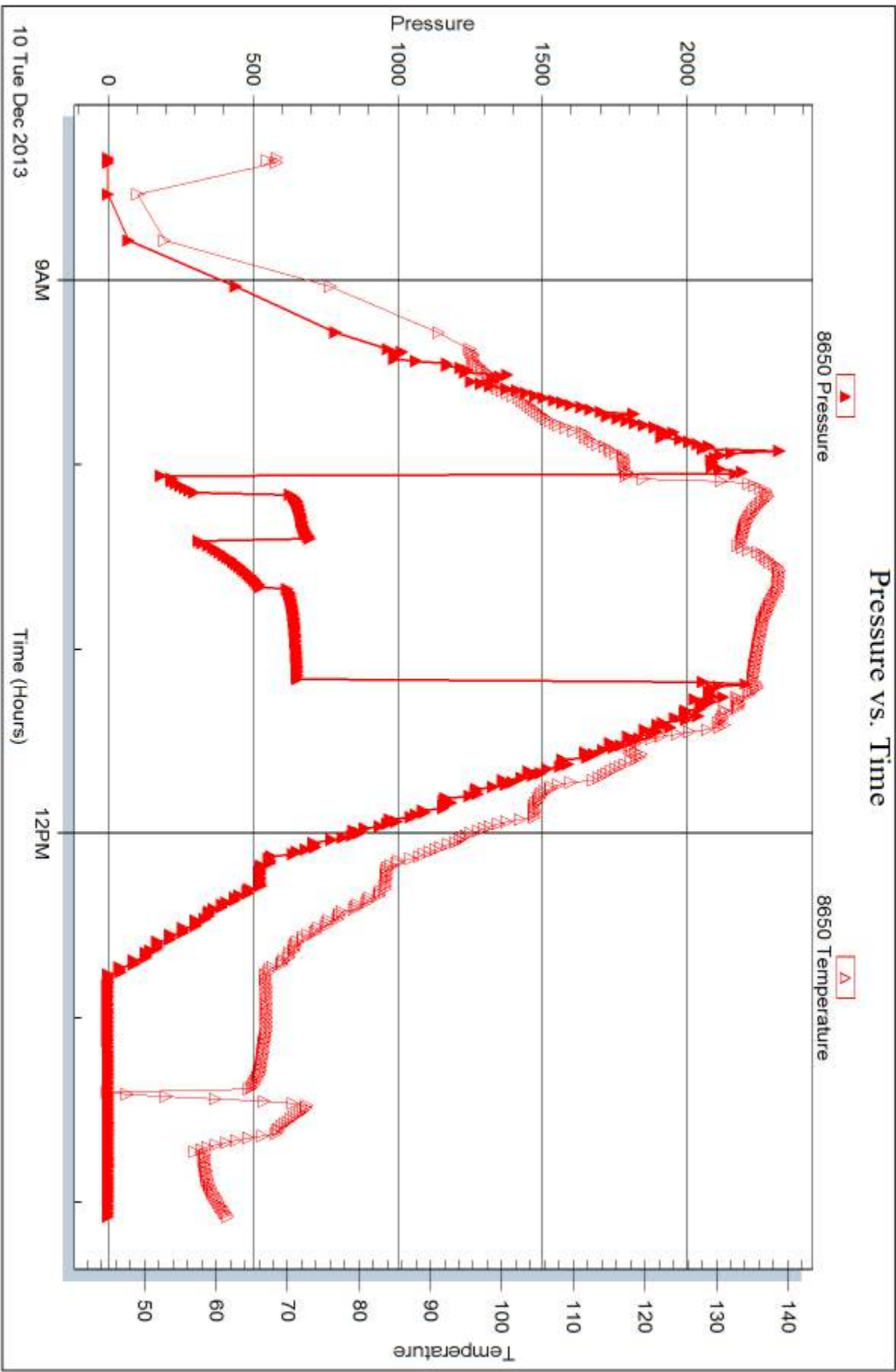
Total Length: 1035.00 ft Total Volume: 13.170 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW: .25 @ 60 F = 32,000







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 West State Rd 4
Olmitz, KS 67564-8561

ATTN: Vern Schrag

Eaton #1-36

36-18s-31w Scott,KS

Start Date: 2013.12.11 @ 06:40:00

End Date: 2013.12.11 @ 11:51:30

Job Ticket #: 54588 DST #: 4

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

Printed: 2013.12.13 @ 14:38:00



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.
 562 West State Rd 4
 Olmitz, KS 67564-8561
 ATTN: Vern Schrag

36-18s-31w Scott,KS
Eaton #1-36
 Job Ticket: 54588 **DST#: 4**
 Test Start: 2013.12.11 @ 06:40:00

GENERAL INFORMATION:

Formation: **Pawnee - Fort Scott**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:00:00
 Time Test Ended: 11:51:30
 Interval: **4427.00 ft (KB) To 4500.00 ft (KB) (TVD)**
 Total Depth: 4500.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Jace McKinney
 Unit No: 46
 Reference Elevations: 2922.00 ft (KB)
 2915.00 ft (CF)
 KB to GR/CF: 7.00 ft

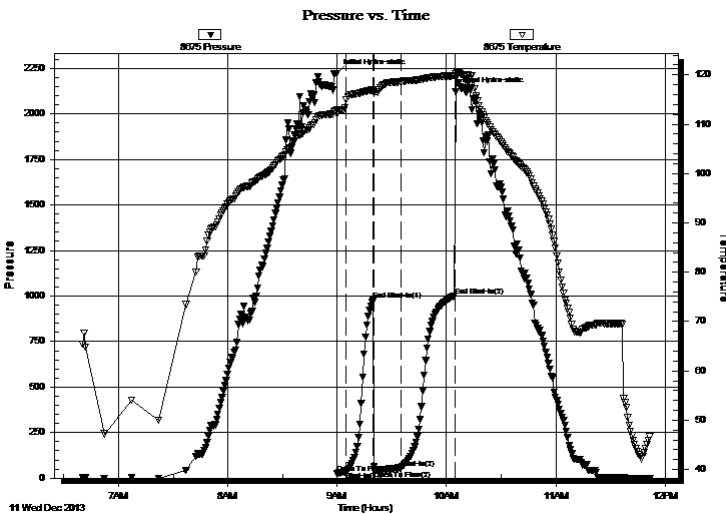
Serial #: 8675

Inside

Press@RunDepth: 56.67 psig @ 4428.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.12.11 End Date: 2013.12.11 Last Calib.: 2013.12.11
 Start Time: 06:40:15 End Time: 11:51:30 Time On Btm: 2013.12.11 @ 08:59:45
 Time Off Btm: 2013.12.11 @ 10:05:00

TEST COMMENT: Built to 2 1/2" blow
 No return blow
 Built to 10" blow
 No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2222.94	112.88	Initial Hydro-static
1	24.24	112.15	Open To Flow (1)
6	35.17	115.03	Shut-In(1)
20	976.14	116.96	End Shut-In(1)
21	41.12	116.65	Open To Flow (2)
35	56.67	118.64	Shut-In(2)
65	1002.42	119.84	End Shut-In(2)
66	2124.11	120.20	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	154 feet gas in pipe	0.00
60.00	ocgm 20%O 30%G 50%M	0.30
30.00	gcom 5%G 10%O 85%M	0.15

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54588

DST#: 4

ATTN: Vern Schrag

Test Start: 2013.12.11 @ 06:40:00

Tool Information

Drill Pipe:	Length: 4260.61 ft	Diameter: 3.80 inches	Volume: 59.77 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 147.95 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 60.50 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.06 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4427.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	73.00 ft			
Tool Length:	100.50 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			4400.50	
Shut In Tool	5.00			4405.50	
Hydraulic tool	5.00			4410.50	
Jars	5.00			4415.50	
Safety Joint	2.50			4418.00	
Packer	5.00			4423.00	27.50 Bottom Of Top Packer
Packer	4.00			4427.00	
Stubb	1.00			4428.00	
Recorder	0.00	8675	Inside	4428.00	
Recorder	0.00	8650	Outside	4428.00	
Perforations	36.00			4464.00	
Change Over Sub	1.00			4465.00	
Drill Pipe	31.00			4496.00	
Change Over Sub	1.00			4497.00	
Bullnose	3.00			4500.00	73.00 Bottom Packers & Anchor

Total Tool Length: 100.50



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54588

DST#: 4

ATTN: Vern Schrag

Test Start: 2013.12.11 @ 06:40:00

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 49.00 sec/qt
Water Loss: 6.79 in³
Resistivity: ohm.m
Salinity: 2200.00 ppm
Filter Cake: 2.00 inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psig

Oil API: deg API
Water Salinity: ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	154 feet gas in pipe	0.000
60.00	ocgm 20%O 30%G 50%M	0.295
30.00	gcom 5%G 10%O 85%M	0.148

Total Length: 90.00 ft Total Volume: 0.443 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

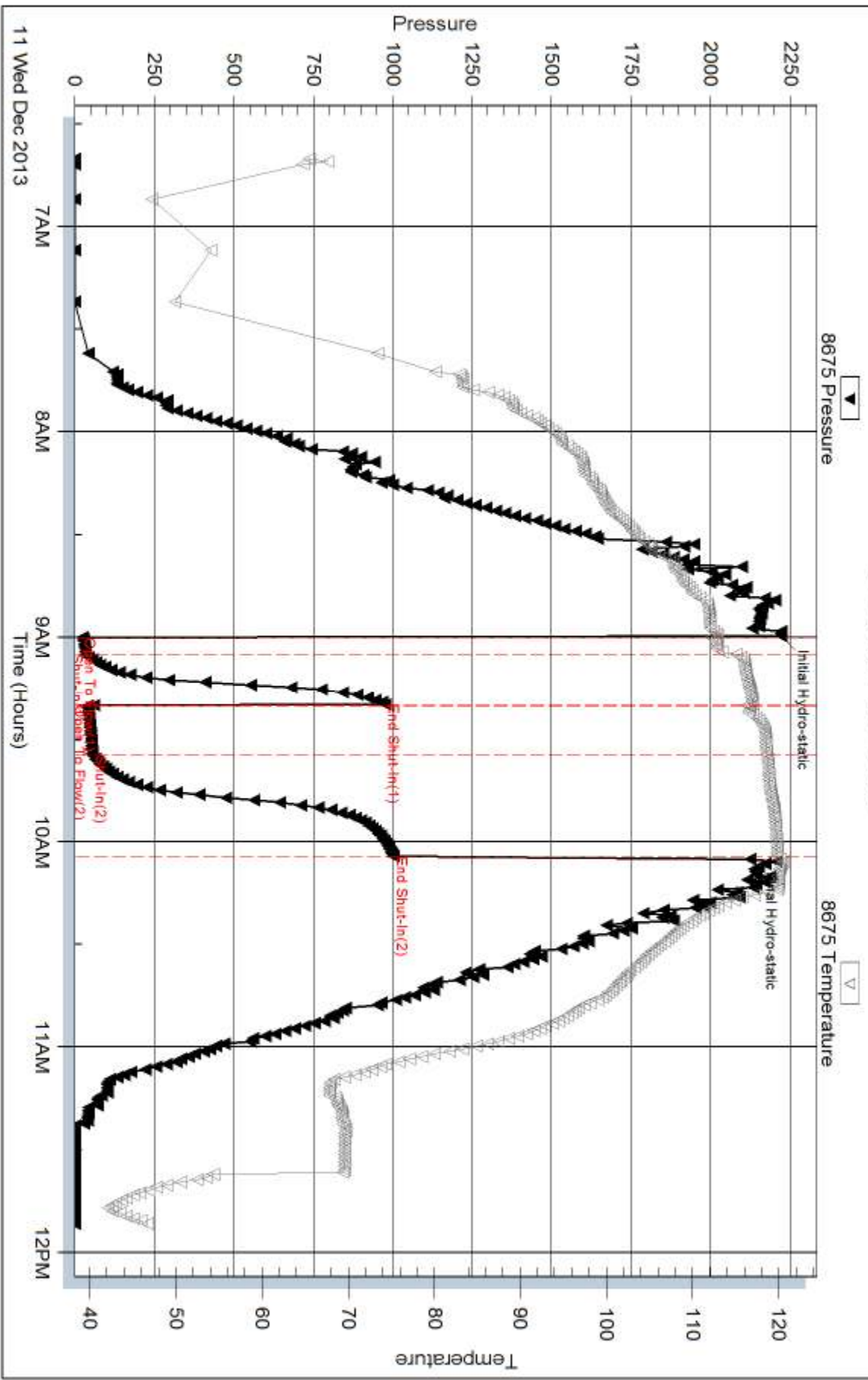
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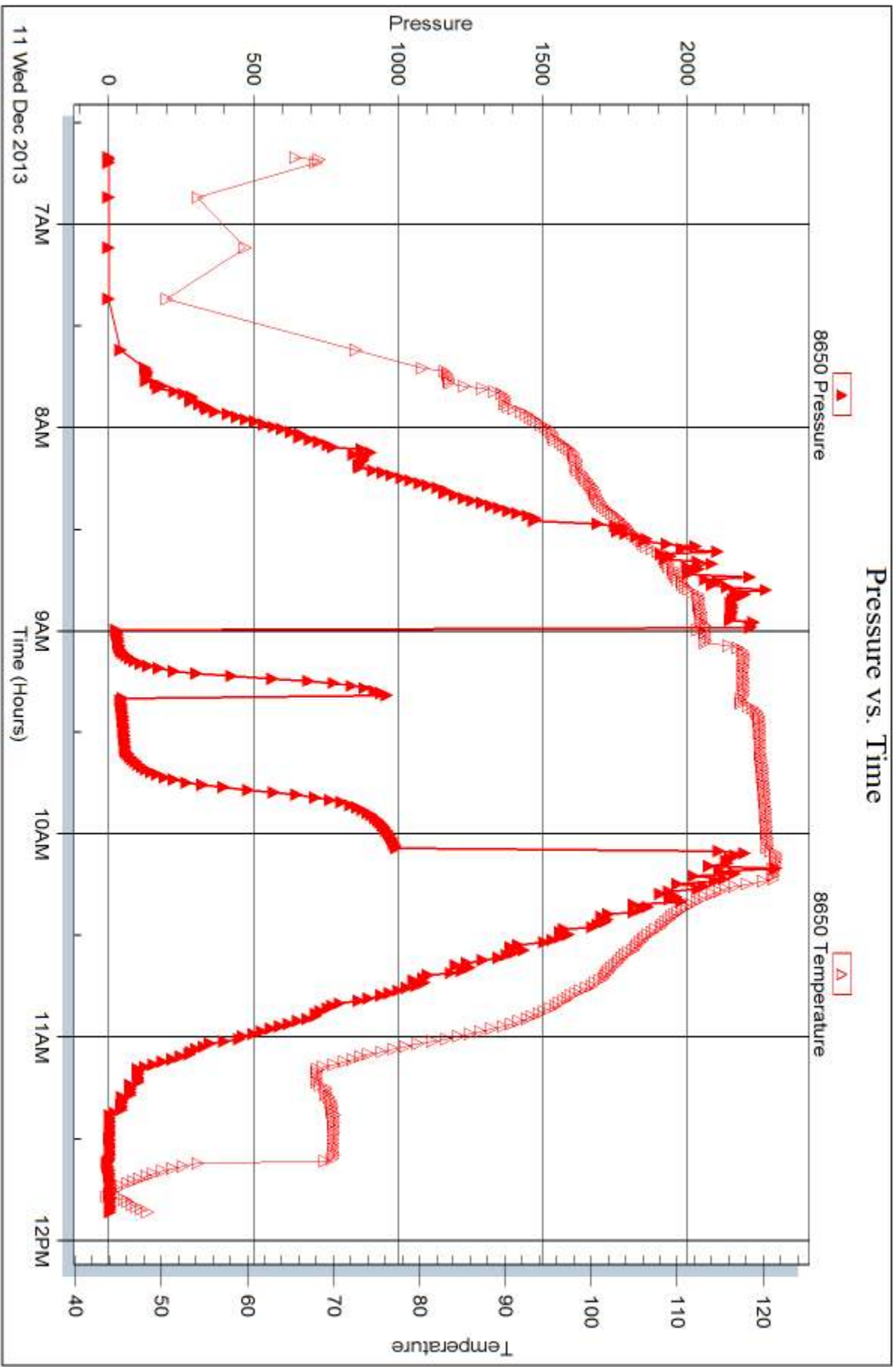
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 West State Rd 4
Olmitz, KS 67564-8561

ATTN: Vern Schrag

Eaton #1-36

36-18s-31w Scott,KS

Start Date: 2013.12.12 @ 00:05:00

End Date: 2013.12.12 @ 07:33:30

Job Ticket #: 54589 DST #: 5

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

Printed: 2013.12.13 @ 14:37:20



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54589

DST#: 5

ATTN: Vern Schrag

Test Start: 2013.12.12 @ 00:05:00

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:06:45

Time Test Ended: 07:33:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

Interval: 4498.00 ft (KB) To 4565.00 ft (KB) (TVD)

Reference Elevations: 2922.00 ft (KB)

Total Depth: 4565.00 ft (KB) (TVD)

2915.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8675 Inside

Press@RunDepth: 22.77 psig @ 4499.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.12.12

End Date:

2013.12.12

Last Calib.: 2013.12.12

Start Time: 00:05:15

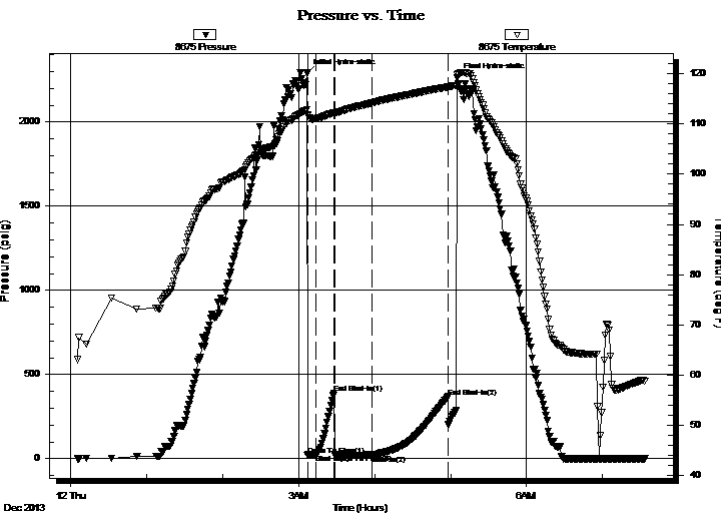
End Time:

07:33:30

Time On Btm: 2013.12.12 @ 03:06:30

Time Off Btm: 2013.12.12 @ 05:05:15

TEST COMMENT: Built to 1/2" blow
No return blow
Built to 3/4" blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2289.89	112.90	Initial Hydro-static
1	22.08	111.80	Open To Flow (1)
7	23.75	111.08	Shut-In(1)
22	388.08	112.29	End Shut-In(1)
22	23.35	112.16	Open To Flow (2)
52	22.77	114.23	Shut-In(2)
112	368.38	117.43	End Shut-In(2)
119	2265.01	119.76	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	100% Mud with oil scum	0.07

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54589

DST#: 5

ATTN: Vern Schrag

Test Start: 2013.12.12 @ 00:05:00

Tool Information

Drill Pipe:	Length: 4354.55 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:	30000.00 lb
Drill Collar:	Length: 147.95 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose:	68000.00 lb
			<u>Total Volume: 61.81 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	4498.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	67.00 ft				
Tool Length:	94.50 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			4471.50	
Shut In Tool	5.00			4476.50	
Hydraulic tool	5.00			4481.50	
Jars	5.00			4486.50	
Safety Joint	2.50			4489.00	
Packer	5.00			4494.00	27.50 Bottom Of Top Packer
Packer	4.00			4498.00	
Stubb	1.00			4499.00	
Recorder	0.00	8675	Inside	4499.00	
Recorder	0.00	8650	Outside	4499.00	
Perforations	30.00			4529.00	
Change Over Sub	1.00			4530.00	
Drill Pipe	31.00			4561.00	
Change Over Sub	1.00			4562.00	
Bullnose	3.00			4565.00	67.00 Bottom Packers & Anchor

Total Tool Length: 94.50



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

36-18s-31w Scott,KS

562 West State Rd 4
Olmitz, KS 67564-8561

Eaton #1-36

Job Ticket: 54589

DST#: 5

ATTN: Vern Schrag

Test Start: 2013.12.12 @ 00:05:00

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: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	100% Mud w ith oil scum	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

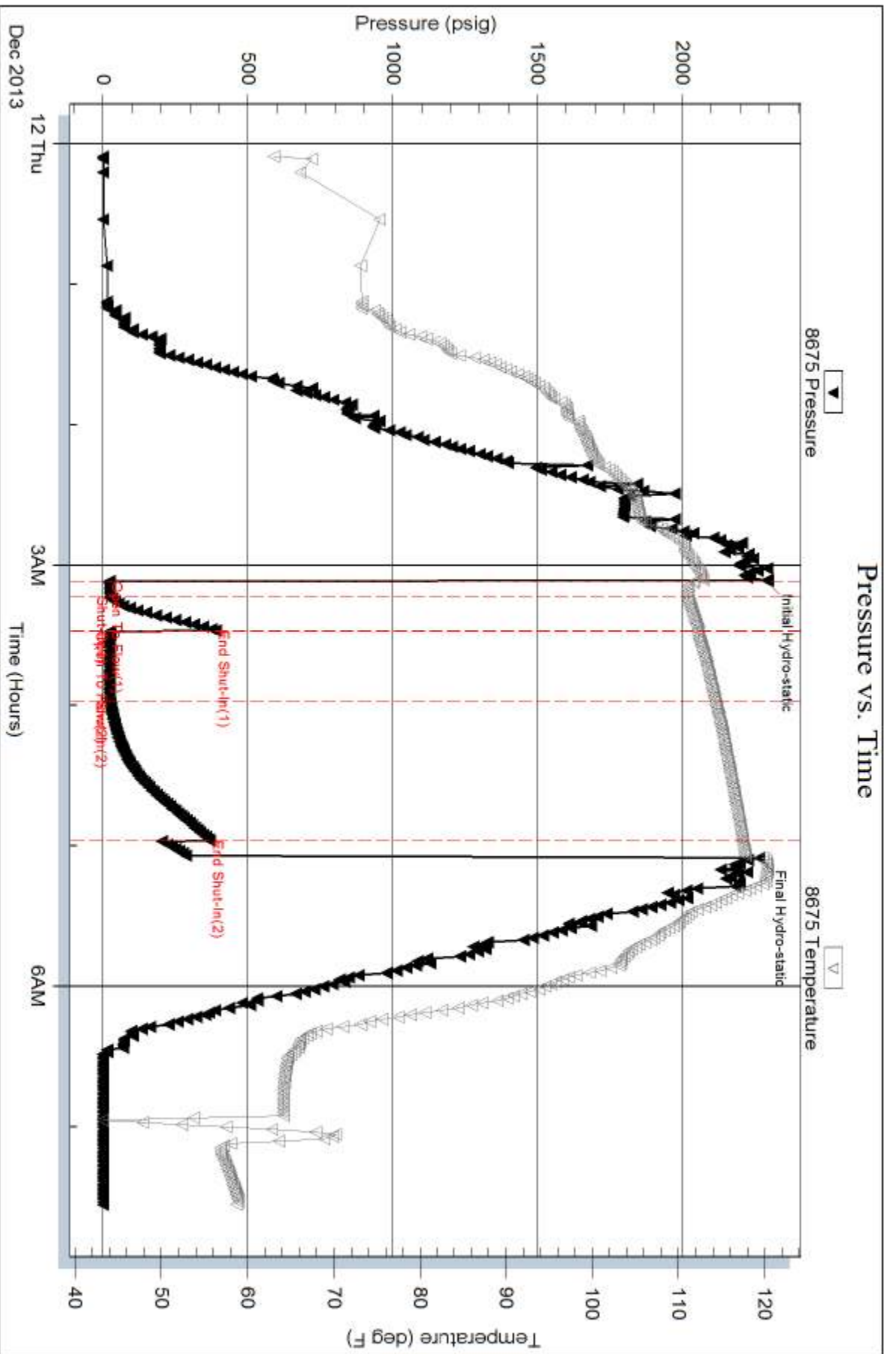
Num Gas Bombs: 0

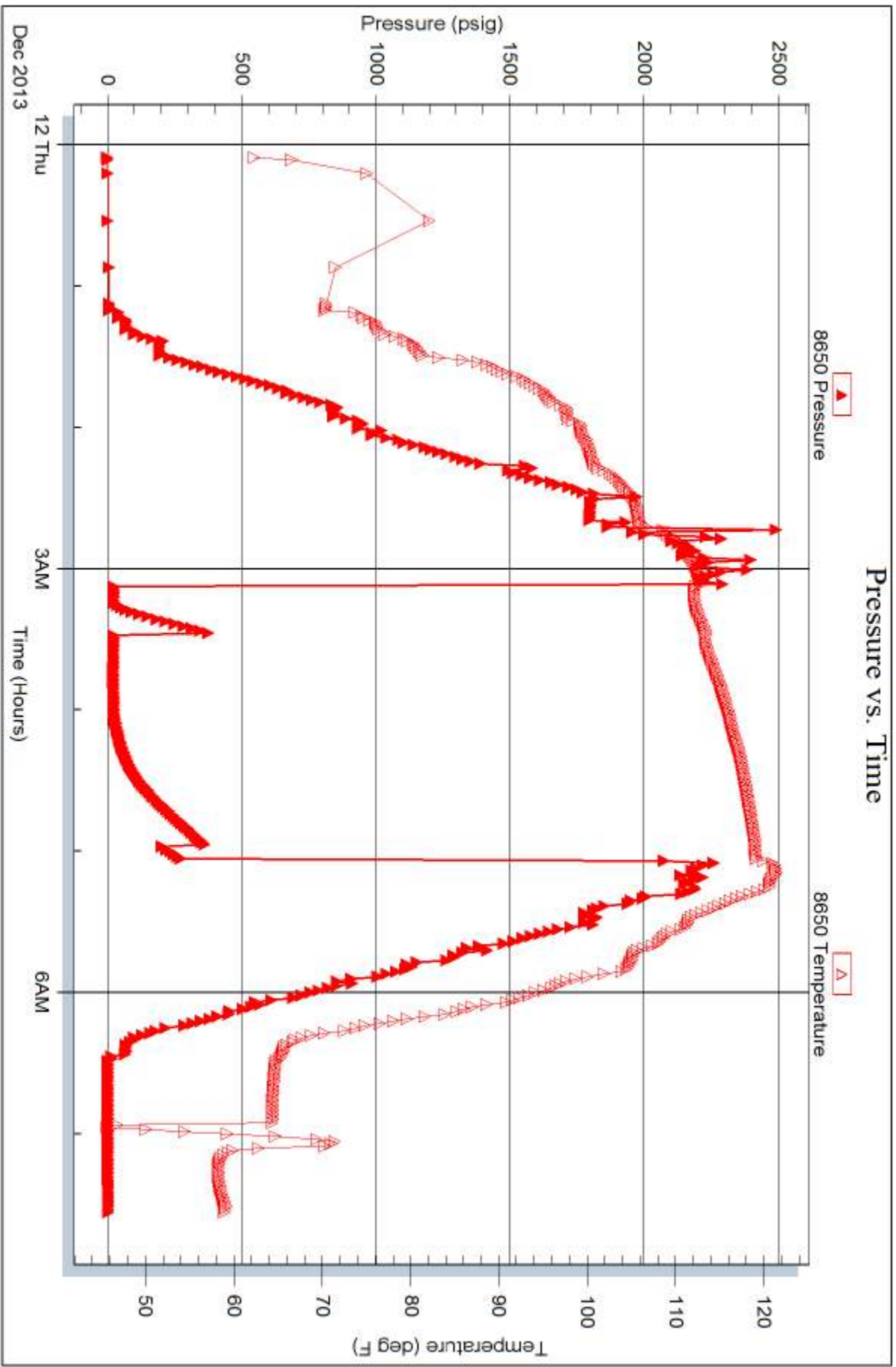
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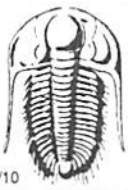
Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54585

Well Name & No. Eaton # 1-36 Test No. 1 Date 12/8/13 12/9/13
 Company Larson Engineering Inc Elevation 2922 KB 2915 GL
 Address 562 West State Rd 4 Olmitz, KS 67564-8561
 Co. Rep / Geo. Vern Schwag Rig HD Rig 3
 Location: Sec. 36 Twp. 78s Rge. 31w Co. Scott County State KS

Interval Tested 4269 - 4283 Zone Tested Kansas City "L" Zone
 Anchor Length 14 Drill Pipe Run 4103.51 Mud Wt. 9.0
 Top Packer Depth 4265 Drill Collars Run 147.95 Vis 53
 Bottom Packer Depth 4269 Wt. Pipe Run _____ WL 6.8
 Total Depth 4283 Chlorides 1,800 ppm System LCM 2#

Blow Description Built to 7" below
Bled off for 3 min. No return below
B.O.B. in 9 1/2 min.

Bled off for 5 min. No return below

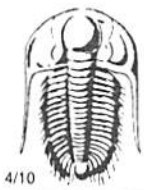
Rec	Feet of	%gas	%oil	%water	%mud
<u>131</u>	<u>WCM with few oil spots</u>		<u>20</u>	<u>80</u>	
<u>179</u>	<u>MCM</u>		<u>80</u>	<u>20</u>	
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total 310 BHT 117 Gravity _____ API RW 1.0 @ 00 ° F Chlorides 20,000 ppm

(A) Initial Hydrostatic <u>2,144</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>23:00</u>
(B) First Initial Flow <u>25</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>01:55</u>
(C) First Final Flow <u>82</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>06:06</u>
(D) Initial Shut-In <u>832</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>07:11</u>
(E) Second Initial Flow <u>87</u>	<input checked="" type="checkbox"/> Hourly Standby <u>1 hour</u>	T-Out <u>09:34</u>
(F) Second Final Flow <u>160</u>	<input checked="" type="checkbox"/> Mileage <u>30 RT</u> <u>46.50</u>	Comments _____
(G) Final Shut-In <u>821</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2,114</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Initial Open <u>5</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Initial Shut-In <u>15</u>	<input type="checkbox"/> Day Standby _____	Total <u>1621.50</u>
Final Flow <u>15</u>	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
Final Shut-In <u>30</u>	Sub Total <u>1621.50</u>	

Approved By Vern Schwag Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54586

Well Name & No. Eaton # 1-36 Test No. 2 Date 12/10/13
 Company Larson Engineering, Inc Elevation 2922 KB 2915 GL
 Address 562 West State Rd 4 Olmitz, KS 67564 - 8561
 Co. Rep / Geo. Vern Schrag Rig H/O Rig 3
 Location: Sec. 36 Twp. 18s Rge. 3lw Co. Scott County State KS

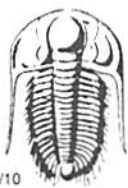
Interval Tested 4372-4390 Zone Tested Marmaton
 Anchor Length 18 Drill Pipe Run 4233.28 Mud Wt. 9.1
 Top Packer Depth 4368 Drill Collars Run 147.95 Vis 46
 Bottom Packer Depth 4372 Wt. Pipe Run _____ WL 6.8
 Total Depth 4390 Chlorides 2100 ppm System LCM 2#
 Blow Description Packer Failure

Rec	Feet of	%gas	%oil	%water	%mud
<u>350</u>	<u>100% 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 350 BHT 2,226 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic _____ Test 1050 T-On Location 01:00
 (B) First Initial Flow _____ Jars 250 T-Started 02:00
 (C) First Final Flow _____ Safety Joint 75 T-Open _____
 (D) Initial Shut-In _____ Circ Sub N/C T-Pulled _____
 (E) Second Initial Flow _____ Hourly Standby _____ T-Out 07:53
 (F) Second Final Flow _____ Mileage 30 RT 46.50 Comments _____
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic 2,178 Straddle _____
 Shale Packer 250 Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Day Standby _____ Sub Total 0
 Accessibility _____ Total 1671.50
 Sub Total 1671.50 MP/DST Disc't _____

Approved By Vern Schrag Our Representative [Signature]
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54587

Well Name & No. Eaton # 1-36 Test No. 3 Date 12/10/13
 Company Carbon Engineering, Inc. Elevation 2922 KB 2915 GL
 Address 562 West State Rd 4 Olmitz, KS 67564-8561
 Co. Rep / Geo. Vern Schrag Rig 40 Rig 3
 Location: Sec. 36 Twp. 185 Rge. 3W Co. Scott County State KS

Interval Tested 4300-4390 Zone Tested Marmaton
 Anchor Length 90 Drill Pipe Run 4134.78 Mud Wt. 9.1
 Top Packer Depth 4296 Drill Collars Run 147.95 Vis 4/6
 Bottom Packer Depth 4300 Wt. Pipe Run _____ WL 6.8
 Total Depth 4390 Chlorides 2,100 ppm System LCM 2#

Blow Description B.O.B. in 1 min.
Bled off for 5 min. No return below
B.O.B. in 1 1/2 min.
Bled off for 5 min. Built to 1" return below

Rec	Feet of	%gas	%oil	%water	%mud
179	OCGwm	10	5	55	30
186	OCGwm	30	5	30	35
186	GCOWM	10	10	20	60
248	OCGwm	10	5	35	50
236	GCOWM	5	10	40	45

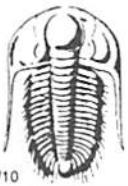
Rec Total 1035 BHT 135 Gravity _____ API RW 025 @ 60 °F Chlorides 32,000 ppm

(A) Initial Hydrostatic 2,163 Test 1250 T-On Location 08:00
 (B) First Initial Flow 183 Jars 250 T-Started 08:20
 (C) First Final Flow 303 Safety Joint 75 T-Open 10:03
 (D) Initial Shut-In 762 Circ Sub N/C T-Pulled 11:08
 (E) Second Initial Flow 313 Hourly Standby _____ T-Out 14:05
 (F) Second Final Flow 520 Mileage 30 RT Comments 258 Feet
 (G) Final Shut-In 655 Sampler _____ Wear Gas
 (H) Final Hydrostatic 2,130 Straddle _____ Ruined Shale Packer _____
 Shale Packer 250 Ruined Packer _____

Initial Open 5 Extra Packer _____ Extra Copies _____
 Initial Shut-In 15 Extra Recorder _____ Sub Total 0
 Final Flow 15 Day Standby _____ Total 1825
 Final Shut-In 30 Accessibility _____ MP/DST Disc't _____
 Sub Total 1825

Approved By Vern Schrag Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54588

Well Name & No. Eaton # 1-36 Test No. 4 Date 12/11/13
 Company Larson Engineering, Inc Elevation 2922 KB 2915 GL
 Address 562 West State Rd 4 Olmitz, KS 67564-8566
 Co. Rep / Geo. Vern Schrag Rig HD Rig 3
 Location: Sec. 36 Twp. 185 Rge. 31w Co. Scott County State KS

Interval Tested 4427 - 4500 Zone Tested Pawnee - Fort Scott
 Anchor Length 73 Drill Pipe Run 4260.61 Mud Wt. 9.1
 Top Packer Depth 4423 Drill Collars Run 142.95 Vis 49
 Bottom Packer Depth 4427 Wt. Pipe Run _____ WL 6.8
 Total Depth 4500 Chlorides 2,200 ppm System LCM 2#

Blow Description Built to 2 1/2" below
No return below
Built to 10" below
No return below

Rec	Feet of	%gas	%oil	%water	%mud
<u>0</u>	<u>164 Feet Gas In Pipe</u>				
<u>30</u>	<u>600M</u>	<u>5</u>	<u>10</u>	<u>85</u>	
<u>60</u>	<u>000M</u>	<u>30</u>	<u>20</u>	<u>50</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

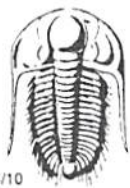
Rec Total 90 BHT 120 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2,223 Test 1250 T-On Location 05:45
 (B) First Initial Flow 24 Jars 250 T-Started 06:40
 (C) First Final Flow 35 Safety Joint 75 T-Open 09:00
 (D) Initial Shut-In 976 Circ Sub N/C T-Pulled 10:05
 (E) Second Initial Flow 41 Hourly Standby _____ T-Out 11:51
 (F) Second Final Flow 57 Mileage 30 RT 46.50
 (G) Final Shut-In 1,002 Sampler _____
 (H) Final Hydrostatic 2,124 Straddle _____

Initial Open 5 Shale Packer _____ Ruined Shale Packer _____
 Initial Shut-In 15 Extra Packer _____ Ruined Packer _____
 Final Flow 15 Extra Recorder _____ Sub Total 0
 Final Shut-In 30 Day Standby _____ Total 1621.50
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1621.50

Approved By Vern Schrag Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54589

Well Name & No. Eaton #1-36 Test No. 5 Date 12/11/13 12/12/13
 Company Larson Engineering, Inc Elevation 2922 KB 2915 GL
 Address 562 West State Rd 4 Olmitz, KS 67564 - 8561
 Co. Rep / Geo. Vern Schrag Rig HD Rig 3
 Location: Sec. 36 Twp. 18S Rge. 31W Co. Scott County State KS

Interval Tested 4498-4565 Zone Tested Cherokee
 Anchor Length 67 Drill Pipe Run 4354.55 Mud Wt. 9.2
 Top Packer Depth 4494 Drill Collars Run 147.95 Vis 54
 Bottom Packer Depth 4498 Wt. Pipe Run _____ WL 7.2
 Total Depth 4565 Chlorides 2,500 ppm System LCM 2 #

Blow Description Built to 1/2" below
No return below
Built to 3/4" below
No return below

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>Mud with oil scum</u>			<u>10</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 15 BHT 120 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2,290 Test 1250 T-On Location 23:10
 (B) First Initial Flow 22 Jars 250 T-Started 00:05
 (C) First Final Flow 24 Safety Joint 75 T-Open 03:07
 (D) Initial Shut-In 388 Circ Sub N/C T-Pulled 04:57
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 07:33
 (F) Second Final Flow 23 Mileage 30 RT 46.50 Comments _____
 (G) Final Shut-In 368 Sampler _____
 (H) Final Hydrostatic 2,265 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 5 Extra Recorder _____ Sub Total 0
 Initial Shut-In 15 Day Standby _____ Total 1621.50
 Final Flow 30 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 60 Sub Total 1621.50

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