



DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Judy Unit #1-32

32-18s-27w Lane,KS

Start Date: 2014.08.13 @ 02:08:00

End Date: 2014.08.13 @ 06:46:30

Job Ticket #: 56589 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.08.20 @ 13:30:57



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 56589

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.08.13 @ 02:08:00

GENERAL INFORMATION:

Formation: " K "

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:59:00

Time Test Ended: 06:46:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Samuel Esparza

Unit No: 72

Interval: 4236.00 ft (KB) To 4250.00 ft (KB) (TVD)

Reference Elevations: 2704.00 ft (KB)

Total Depth: 4250.00 ft (KB) (TVD)

2697.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8845 Outside

Press@RunDepth: 28.08 psig @ 4237.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.08.13

End Date:

2014.08.13

Last Calib.: 2014.08.13

Start Time: 02:08:05

End Time:

06:46:29

Time On Btm: 2014.08.13 @ 03:58:45

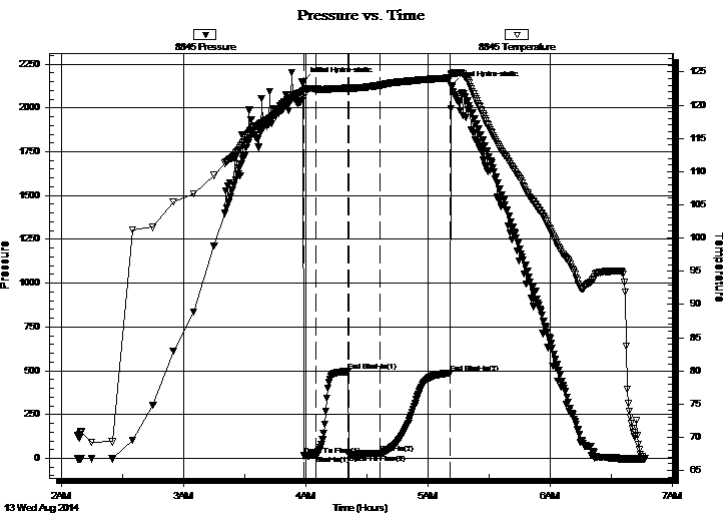
Time Off Btm: 2014.08.13 @ 05:11:30

TEST COMMENT: IF: Weak Surface Blow .

IS: No Return.

FF: 1/4" Blow .

FS: No Return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2147.78	122.11	Initial Hydro-static
1	15.00	121.17	Open To Flow (1)
6	19.08	122.44	Shut-In(1)
22	495.96	122.57	End Shut-In(1)
23	23.18	122.32	Open To Flow (2)
38	28.08	122.97	Shut-In(2)
72	486.93	124.10	End Shut-In(2)
73	2126.82	124.69	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud 100m (Oil Spots)	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 56589

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.08.13 @ 02:08:00

Tool Information

Drill Pipe:	Length: 4109.00 ft	Diameter: 3.80 inches	Volume: 57.64 bbl	Tool Weight: 2000.00 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 58.25 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4236.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	42.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4209.00	
Shut In Tool	5.00			4214.00	
Hydraulic tool	5.00			4219.00	
Jars	5.00			4224.00	
Safety Joint	3.00			4227.00	
Packer	5.00			4232.00	28.00 Bottom Of Top Packer
Packer	4.00			4236.00	
Stubb	1.00			4237.00	
Recorder	0.00	6772	Outside	4237.00	
Recorder	0.00	8845	Outside	4237.00	
Perforations	8.00			4245.00	
Bullnose	5.00			4250.00	14.00 Bottom Packers & Anchor

Total Tool Length: 42.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

32-18s-27w Lane,KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 56589

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.08.13 @ 02:08:00

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: 7.94 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud 100m (Oil Spots)	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

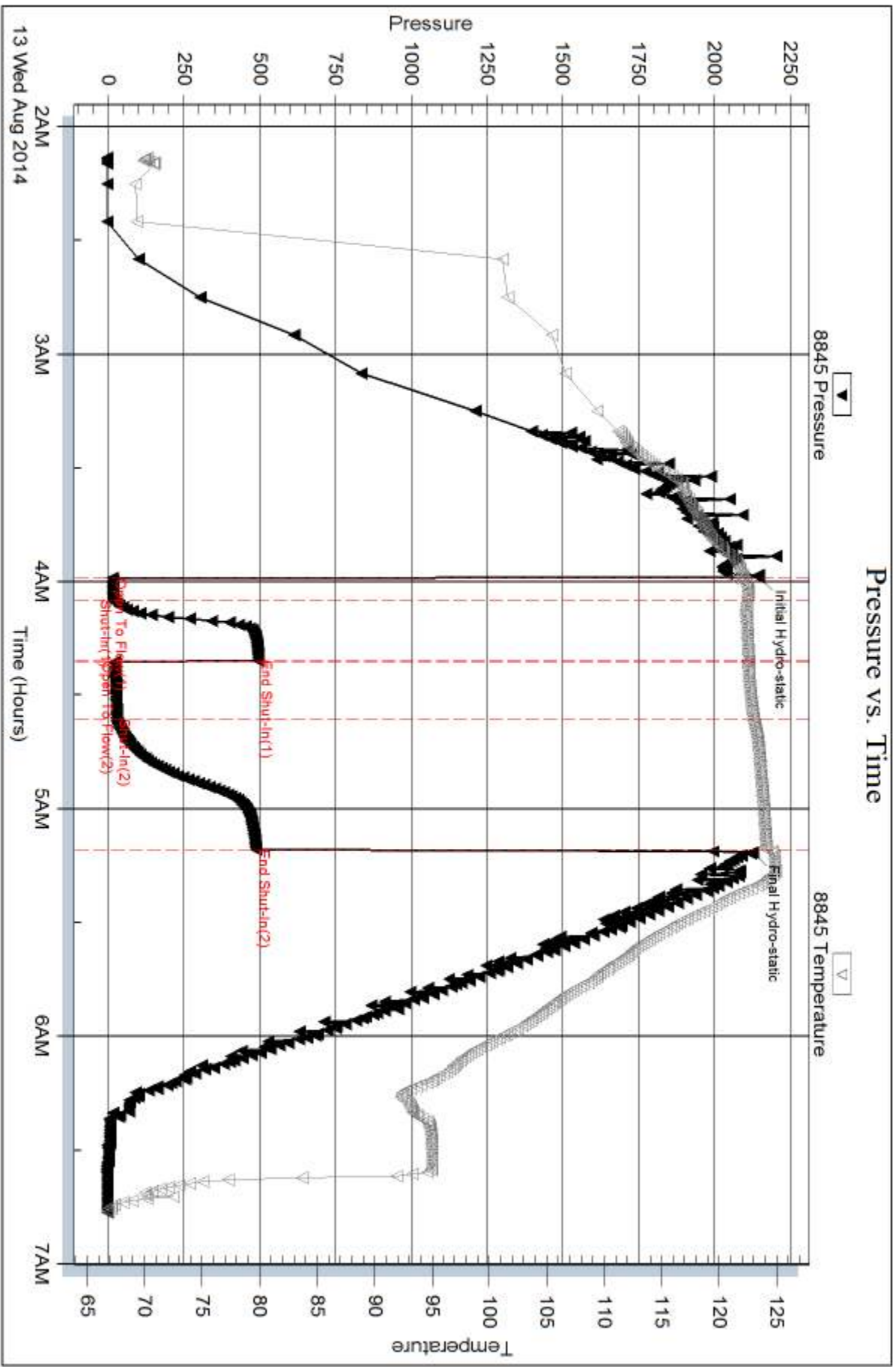
Num Gas Bombs: 0

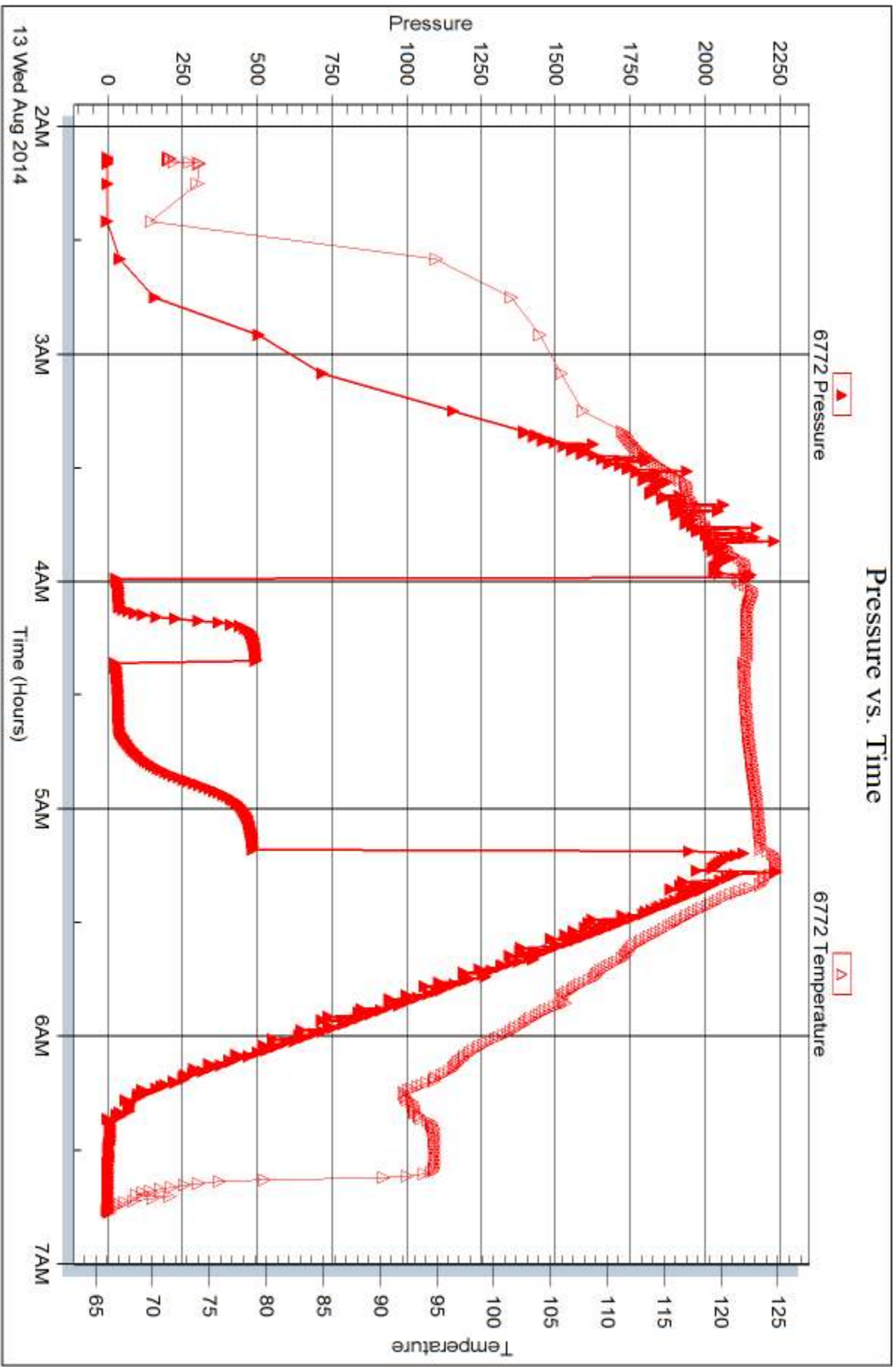
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Judy Unit #1-32

32-18s-27w Lane,KS

Start Date: 2014.08.13 @ 16:30:00

End Date: 2014.08.13 @ 21:33:15

Job Ticket #: 59590 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.08.20 @ 13:30:26



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

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

32-18s-27w Lane, KS

Judy Unit #1-32

Job Ticket: 59590

DST#: 2

Test Start: 2014.08.13 @ 16:30:00

GENERAL INFORMATION:

Formation: " K "

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:59:00

Time Test Ended: 21:33:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Samuel Esparza

Unit No: 72

Interval: 4234.00 ft (KB) To 4253.00 ft (KB) (TVD)

Total Depth: 4253.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2704.00 ft (KB)

2697.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8845 Outside

Press@RunDepth: 35.70 psig @ 4235.00 ft (KB)

Start Date: 2014.08.13

End Date:

2014.08.13

Start Time: 16:30:05

End Time:

21:33:14

Capacity: 8000.00 psig

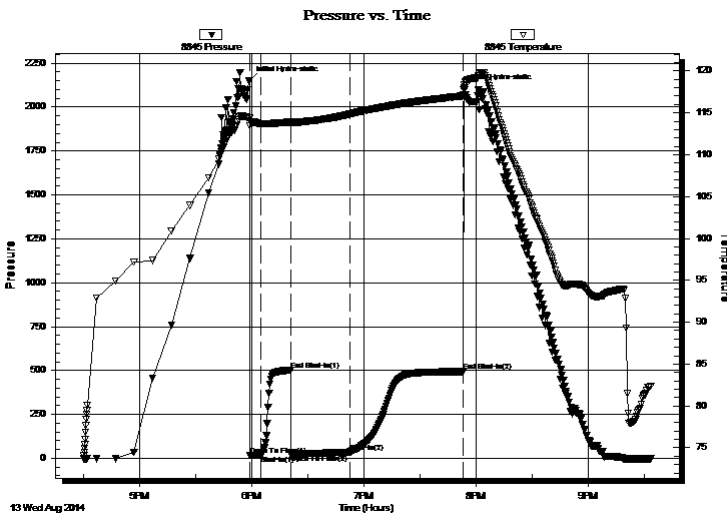
Last Calib.: 2014.08.13

Time On Btm: 2014.08.13 @ 17:58:45

Time Off Btm: 2014.08.13 @ 19:53:30

TEST COMMENT: IF: 1/2" Blow .
IS: No Return.
FF: 1" Blow .
FS: No Return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2151.20	114.38	Initial Hydro-static
1	16.79	113.48	Open To Flow (1)
6	18.17	113.72	Shut-In(1)
22	501.95	113.91	End Shut-In(1)
23	21.86	113.70	Open To Flow (2)
54	35.70	114.84	Shut-In(2)
115	493.98	117.03	End Shut-In(2)
115	2107.69	117.75	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	OCM 15o 85m	0.07

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 59590

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.08.13 @ 16:30:00

Tool Information

Drill Pipe:	Length: 4109.00 ft	Diameter: 3.80 inches	Volume: 57.64 bbl	Tool Weight: 2000.00 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 58.25 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4234.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	19.00 ft			
Tool Length:	47.00 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			4207.00	
Shut In Tool	5.00			4212.00	
Hydraulic tool	5.00			4217.00	
Jars	5.00			4222.00	
Safety Joint	3.00			4225.00	
Packer	5.00			4230.00	28.00 Bottom Of Top Packer
Packer	4.00			4234.00	
Stubb	1.00			4235.00	
Recorder	0.00	6772	Outside	4235.00	
Recorder	0.00	8845	Outside	4235.00	
Perforations	13.00			4248.00	
Bullnose	5.00			4253.00	19.00 Bottom Packers & Anchor

Total Tool Length: 47.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 59590

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.08.13 @ 16:30:00

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: 7.93 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	OCM 15o 85m	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

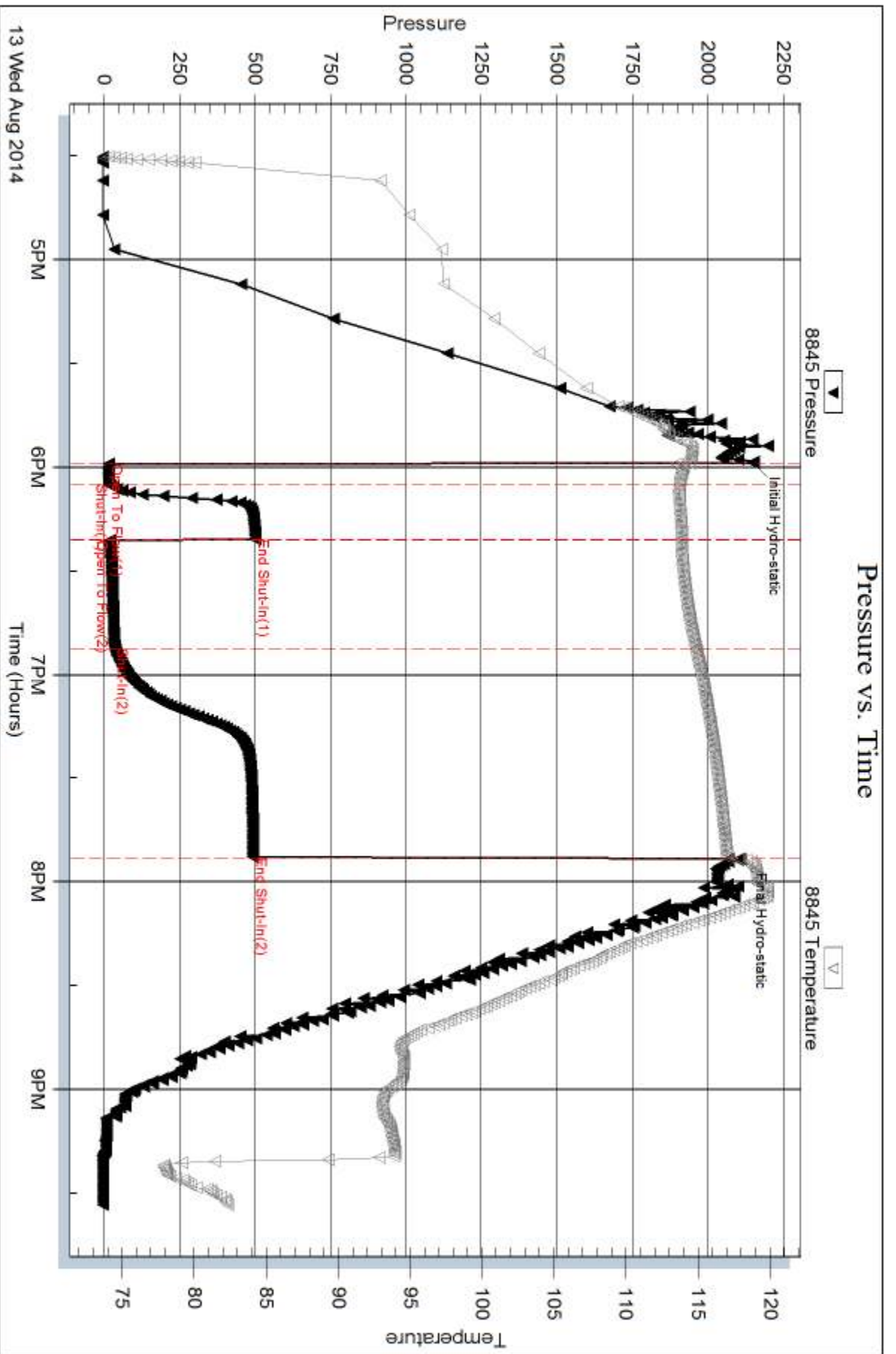
Num Gas Bombs: 0

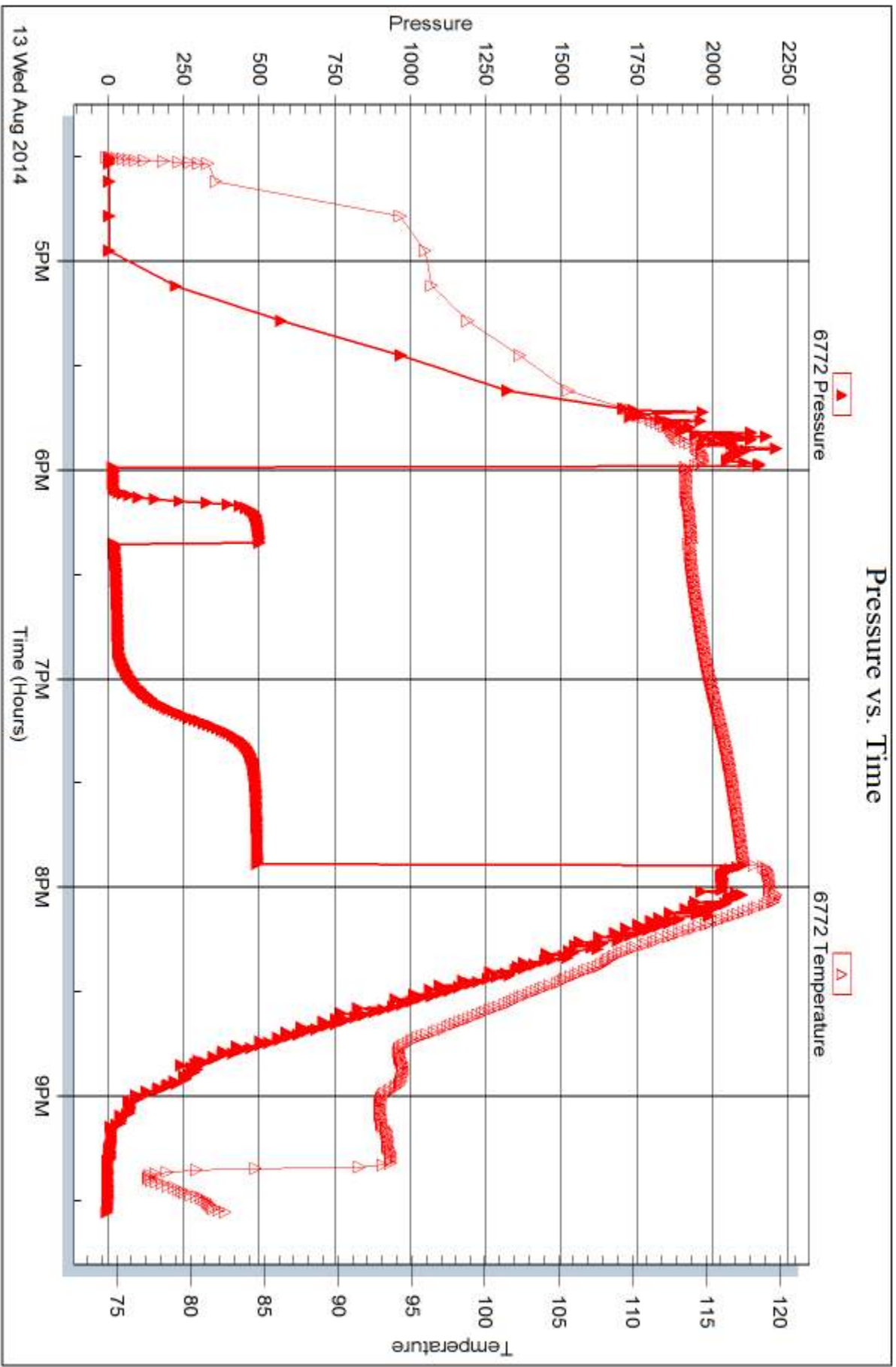
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Judy Unit #1-32

32-18s-27w Lane,KS

Start Date: 2014.08.14 @ 02:36:00

End Date: 2014.08.14 @ 08:50:45

Job Ticket #: 59591 DST #: 3

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.08.20 @ 13:29:54



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 59591

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.08.14 @ 02:36:00

GENERAL INFORMATION:

Formation: " K "

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:33:45

Time Test Ended: 08:50:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Samuel Esparza

Unit No: 72

Interval: 4232.00 ft (KB) To 4258.00 ft (KB) (TVD)

Reference Elevations: 2704.00 ft (KB)

Total Depth: 4258.00 ft (KB) (TVD)

2697.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8845 Outside

Press@RunDepth: 35.23 psig @ 4233.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.08.14

End Date:

2014.08.14

Last Calib.: 2014.08.14

Start Time: 02:36:05

End Time:

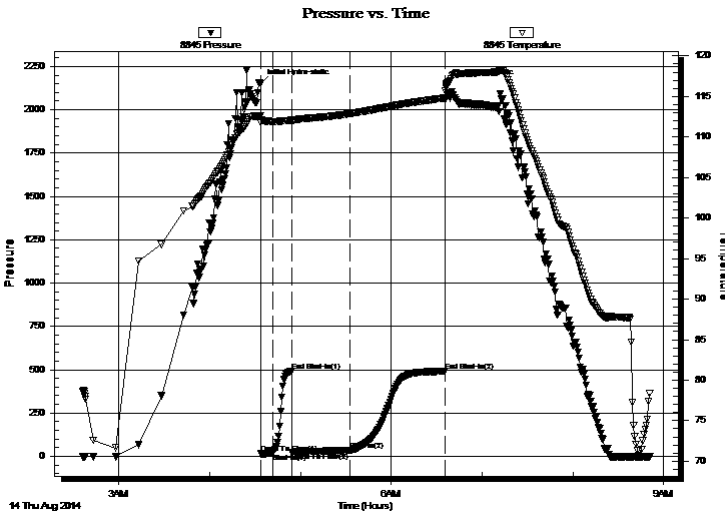
08:50:44

Time On Btm: 2014.08.14 @ 04:33:30

Time Off Btm: 2014.08.14 @ 06:36:15

TEST COMMENT: IF: 1/4" Blow .
IS: No Return.
FF: 1 1/4" Blow .
FS: No Return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2150.95	112.59	Initial Hydro-static
1	14.96	111.79	Open To Flow (1)
8	18.21	111.91	Shut-In(1)
21	492.44	112.05	End Shut-In(1)
21	22.02	111.88	Open To Flow (2)
60	35.23	112.87	Shut-In(2)
122	490.28	114.80	End Shut-In(2)
123	2149.54	116.01	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	OCM 15o 85m	0.07

* 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.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 59591

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.08.14 @ 02:36:00

Tool Information

Drill Pipe:	Length: 4110.00 ft	Diameter: 3.80 inches	Volume: 57.65 bbl	Tool Weight:	2000.00 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose:	90000.00 lb
			<u>Total Volume: 58.26 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4232.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	26.00 ft				
Tool Length:	54.00 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			4205.00	
Shut In Tool	5.00			4210.00	
Hydraulic tool	5.00			4215.00	
Jars	5.00			4220.00	
Safety Joint	3.00			4223.00	
Packer	5.00			4228.00	28.00 Bottom Of Top Packer
Packer	4.00			4232.00	
Stubb	1.00			4233.00	
Recorder	0.00	6772	Outside	4233.00	
Recorder	0.00	8845	Outside	4233.00	
Perforations	20.00			4253.00	
Bullnose	5.00			4258.00	26.00 Bottom Packers & Anchor

Total Tool Length: 54.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 59591

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.08.14 @ 02:36:00

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: 7.94 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	OCM 15o 85m	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

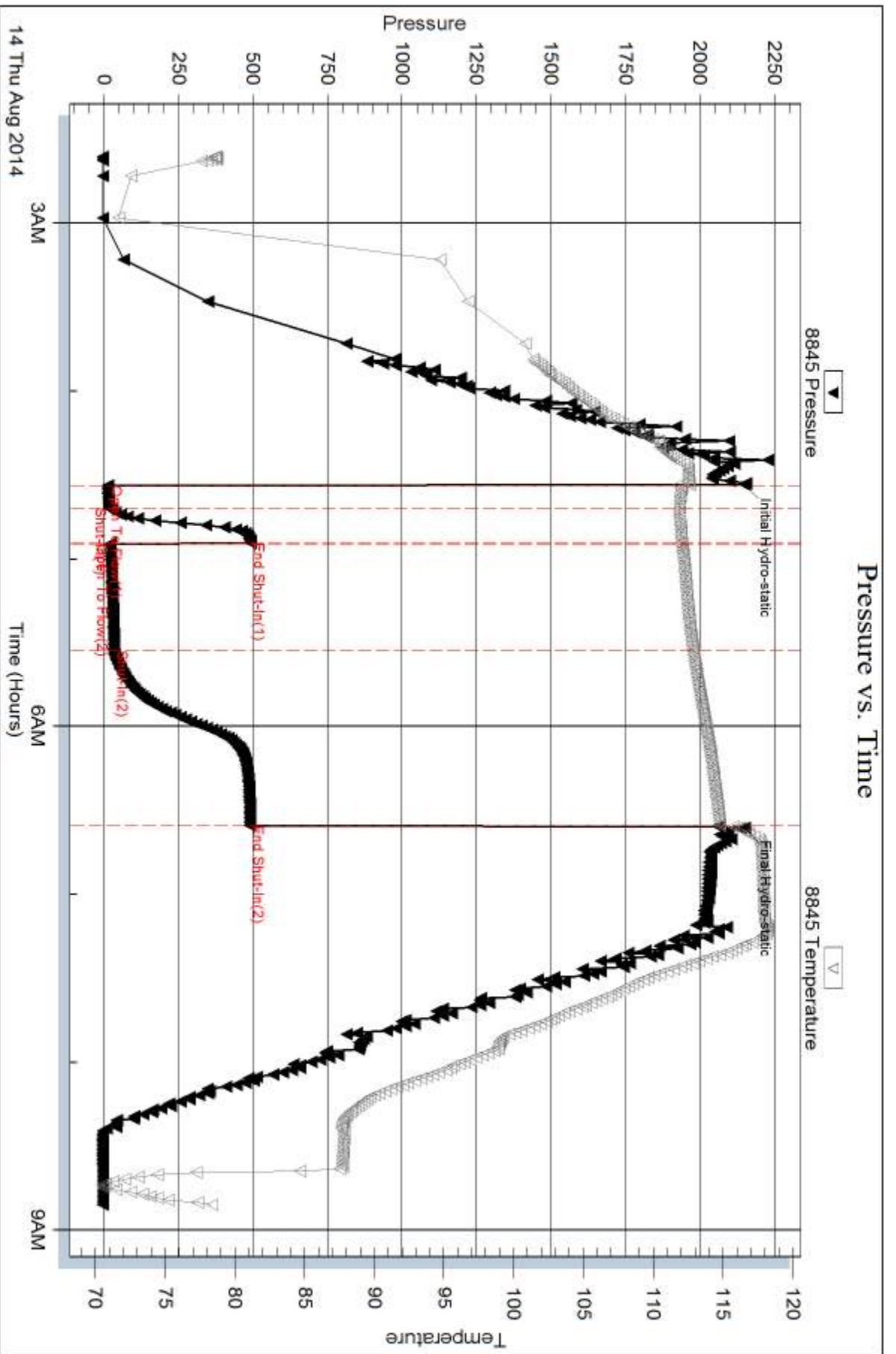
Num Gas Bombs: 0

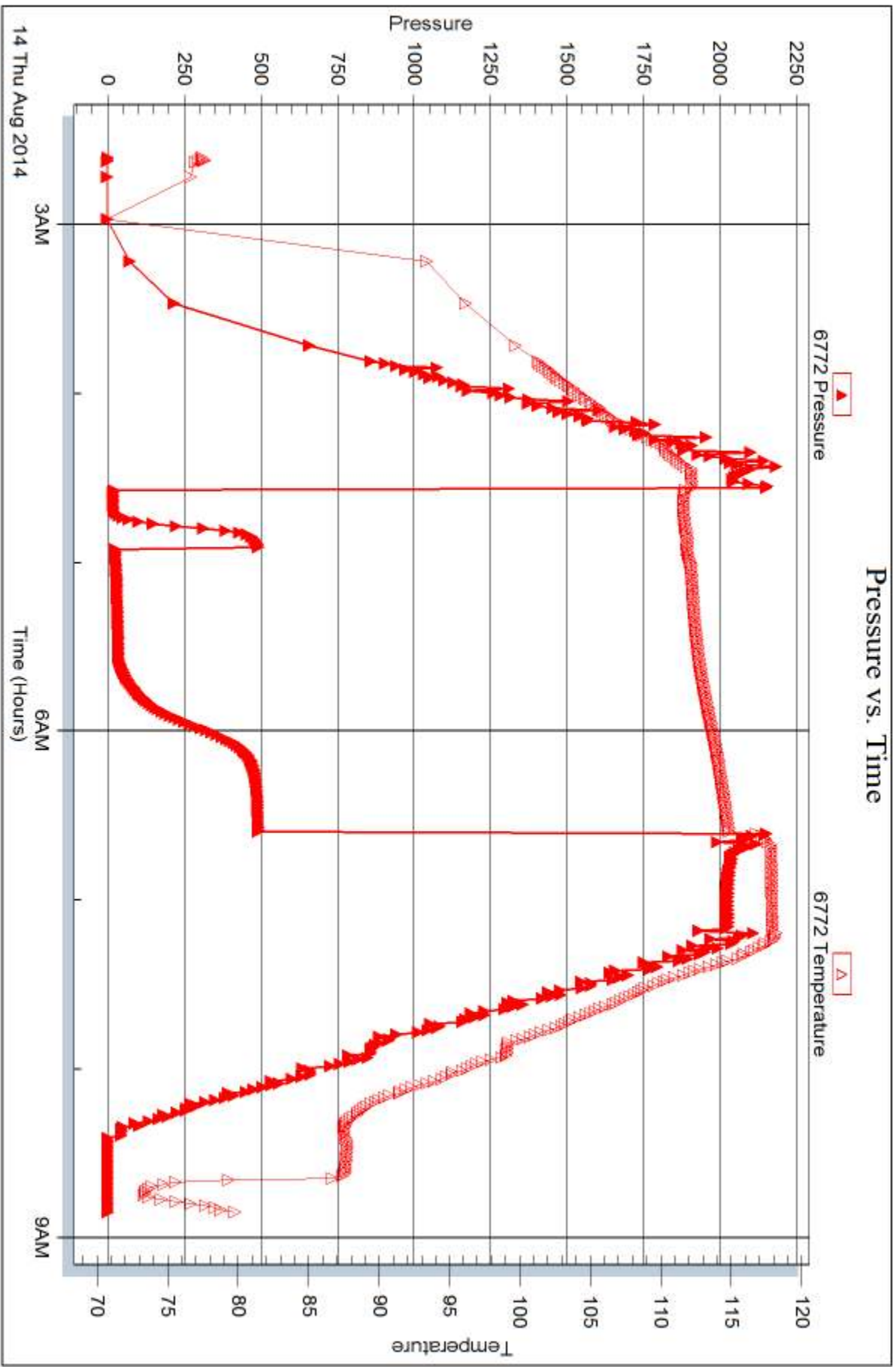
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Judy Unit #1-32

32-18s-27w Lane,KS

Start Date: 2014.08.15 @ 00:42:00

End Date: 2014.08.15 @ 06:14:30

Job Ticket #: 56592 DST #: 4

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.08.20 @ 13:29:17



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

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

32-18s-27w Lane, KS
Judy Unit #1-32
 Job Ticket: 56592 **DST#: 4**
 Test Start: 2014.08.15 @ 00:42:00

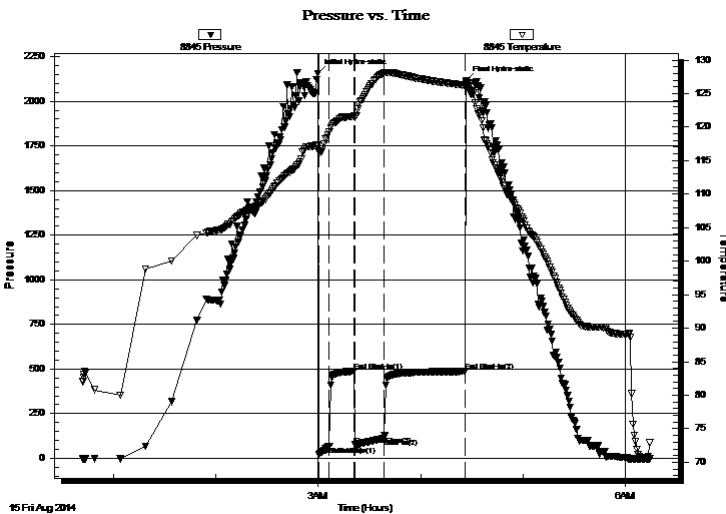
GENERAL INFORMATION:

Formation: " L "
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 03:00:15
 Time Test Ended: 06:14:30
 Interval: **4266.00 ft (KB) To 4290.00 ft (KB) (TVD)**
 Total Depth: 4290.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Samuel Esparza
 Unit No: 72
 Reference Elevations: 2704.00 ft (KB)
 2697.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8845 Outside
 Press@RunDepth: 111.75 psig @ 4267.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.08.15 End Date: 2014.08.15 Last Calib.: 2014.08.15
 Start Time: 00:42:05 End Time: 06:14:29 Time On Btm: 2014.08.15 @ 03:00:00
 Time Off Btm: 2014.08.15 @ 04:26:45

TEST COMMENT: IF: 3 1/2" Blow .
 IS: No Return.
 FF: 4 1/4" Blow .
 FS: No Return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2152.96	117.23	Initial Hydro-static
1	18.99	116.22	Open To Flow (1)
7	68.62	119.33	Shut-In(1)
21	487.46	121.60	End Shut-In(1)
22	75.15	121.48	Open To Flow (2)
39	111.75	128.07	Shut-In(2)
86	486.80	126.25	End Shut-In(2)
87	2116.12	126.58	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
210.00	MW 20m 80w	1.82

* 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.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 56592

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.08.15 @ 00:42:00

Tool Information

Drill Pipe:	Length: 4144.00 ft	Diameter: 3.80 inches	Volume: 58.13 bbl	Tool Weight: 2000.00 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 58.74 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4266.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	24.00 ft			
Tool Length:	52.00 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			4239.00	
Shut In Tool	5.00			4244.00	
Hydraulic tool	5.00			4249.00	
Jars	5.00			4254.00	
Safety Joint	3.00			4257.00	
Packer	5.00			4262.00	28.00 Bottom Of Top Packer
Packer	4.00			4266.00	
Stubb	1.00			4267.00	
Recorder	0.00	6772	Outside	4267.00	
Recorder	0.00	8845	Outside	4267.00	
Perforations	18.00			4285.00	
Bullnose	5.00			4290.00	24.00 Bottom Packers & Anchor

Total Tool Length: 52.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

32-18s-27w Lane,KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 56592

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.08.15 @ 00:42:00

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:

65000 ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.75 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
210.00	MW 20m 80w	1.816

Total Length: 210.00 ft Total Volume: 1.816 bbl

Num Fluid Samples: 0

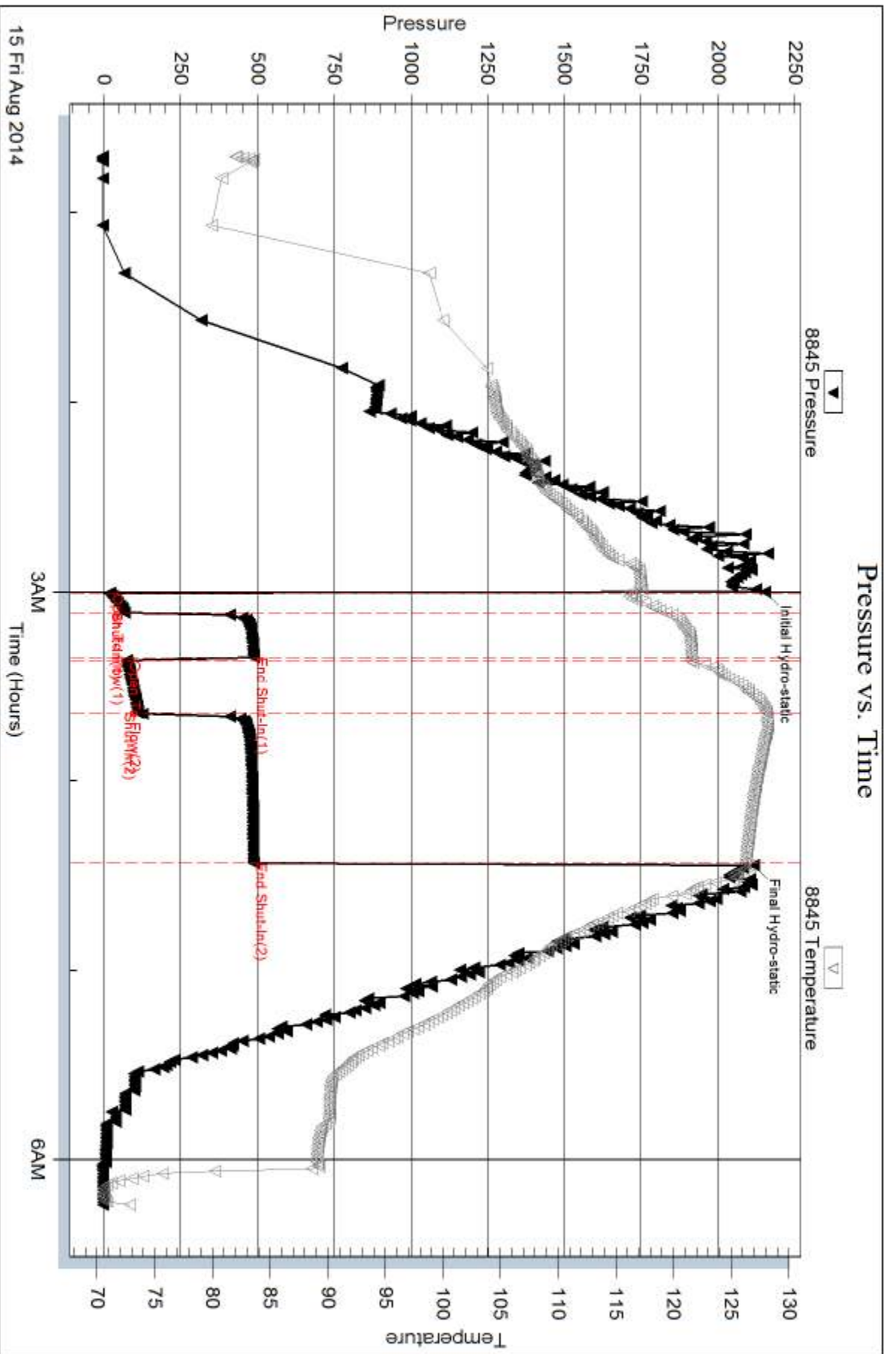
Num Gas Bombs: 0

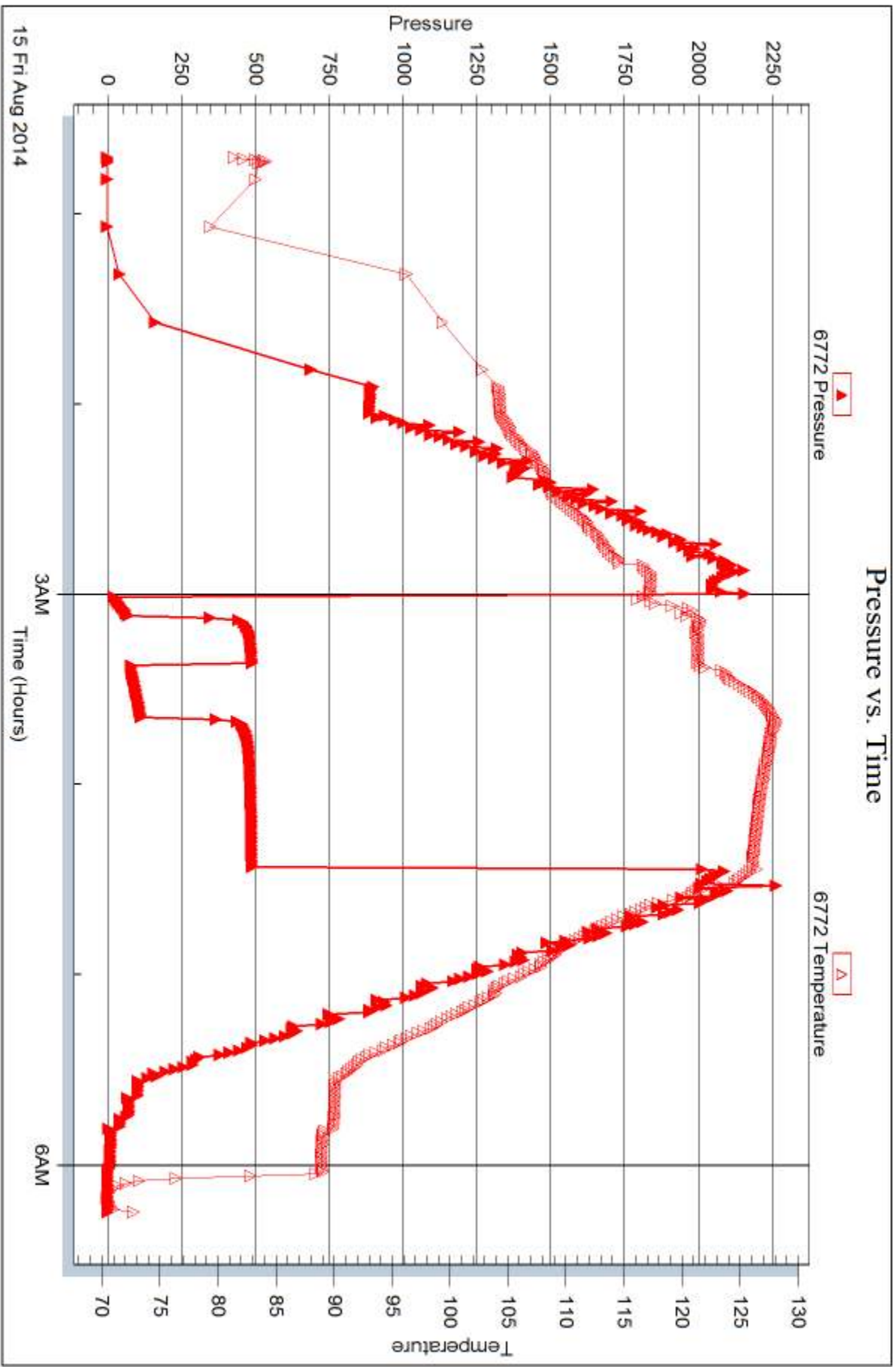
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Water Salinity: .118 @ 70 degrees= 65,000 ppm







DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Judy Unit #1-32

32-18s-27w Lane,KS

Start Date: 2014.08.15 @ 21:08:00

End Date: 2014.08.16 @ 01:14:30

Job Ticket #: 59593 DST #: 5

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.08.20 @ 13:28:42



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

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

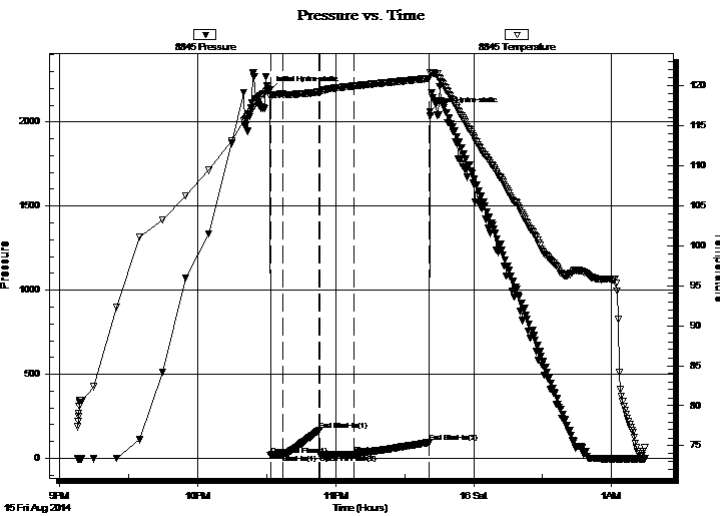
32-18s-27w Lane, KS
Judy Unit #1-32
 Job Ticket: 59593 **DST#: 5**
 Test Start: 2014.08.15 @ 21:08:00

GENERAL INFORMATION:

Formation: **Marmaton**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 22:31:45
 Time Test Ended: 01:14:30
 Interval: **4311.00 ft (KB) To 4410.00 ft (KB) (TVD)**
 Total Depth: 4410.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Samuel Esparza
 Unit No: 72
 Reference Elevations: 2704.00 ft (KB)
 2697.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8845 Inside
 Press@RunDepth: 24.85 psig @ 4312.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.08.15 End Date: 2014.08.16 Last Calib.: 2014.08.16
 Start Time: 21:08:05 End Time: 01:14:30 Time On Btm: 2014.08.15 @ 22:31:30
 Time Off Btm: 2014.08.15 @ 23:41:00

TEST COMMENT: IF: 1/4" Blow .
 IS: No Return.
 FF: No Blow .
 FS: No Return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2188.67	119.39	Initial Hydro-static
1	18.89	118.51	Open To Flow (1)
6	21.67	118.89	Shut-In(1)
22	167.53	119.14	End Shut-In(1)
22	22.69	119.08	Open To Flow (2)
37	24.85	119.90	Shut-In(2)
69	94.91	120.84	End Shut-In(2)
70	2061.92	121.60	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud 100m	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

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 59593

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.08.15 @ 21:08:00

Tool Information

Drill Pipe:	Length: 4169.00 ft	Diameter: 3.80 inches	Volume: 58.48 bbl	Tool Weight:	2000.00 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose:	90000.00 lb
			<u>Total Volume: 59.09 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	64000.00 lb
Depth to Top Packer:	4311.00 ft			Final	64000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	99.00 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			4284.00	
Shut In Tool	5.00			4289.00	
Hydraulic tool	5.00			4294.00	
Jars	5.00			4299.00	
Safety Joint	3.00			4302.00	
Packer	5.00			4307.00	28.00 Bottom Of Top Packer
Packer	4.00			4311.00	
Stubb	1.00			4312.00	
Recorder	0.00	6772	Outside	4312.00	
Recorder	0.00	8845	Inside	4312.00	
Perforations	28.00			4340.00	
Change Over Sub	1.00			4341.00	
Drill Pipe	63.00			4404.00	
Change Over Sub	1.00			4405.00	
Bullnose	5.00			4410.00	99.00 Bottom Packers & Anchor

Total Tool Length: 127.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 59593

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.08.15 @ 21:08:00

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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.35 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud 100m	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

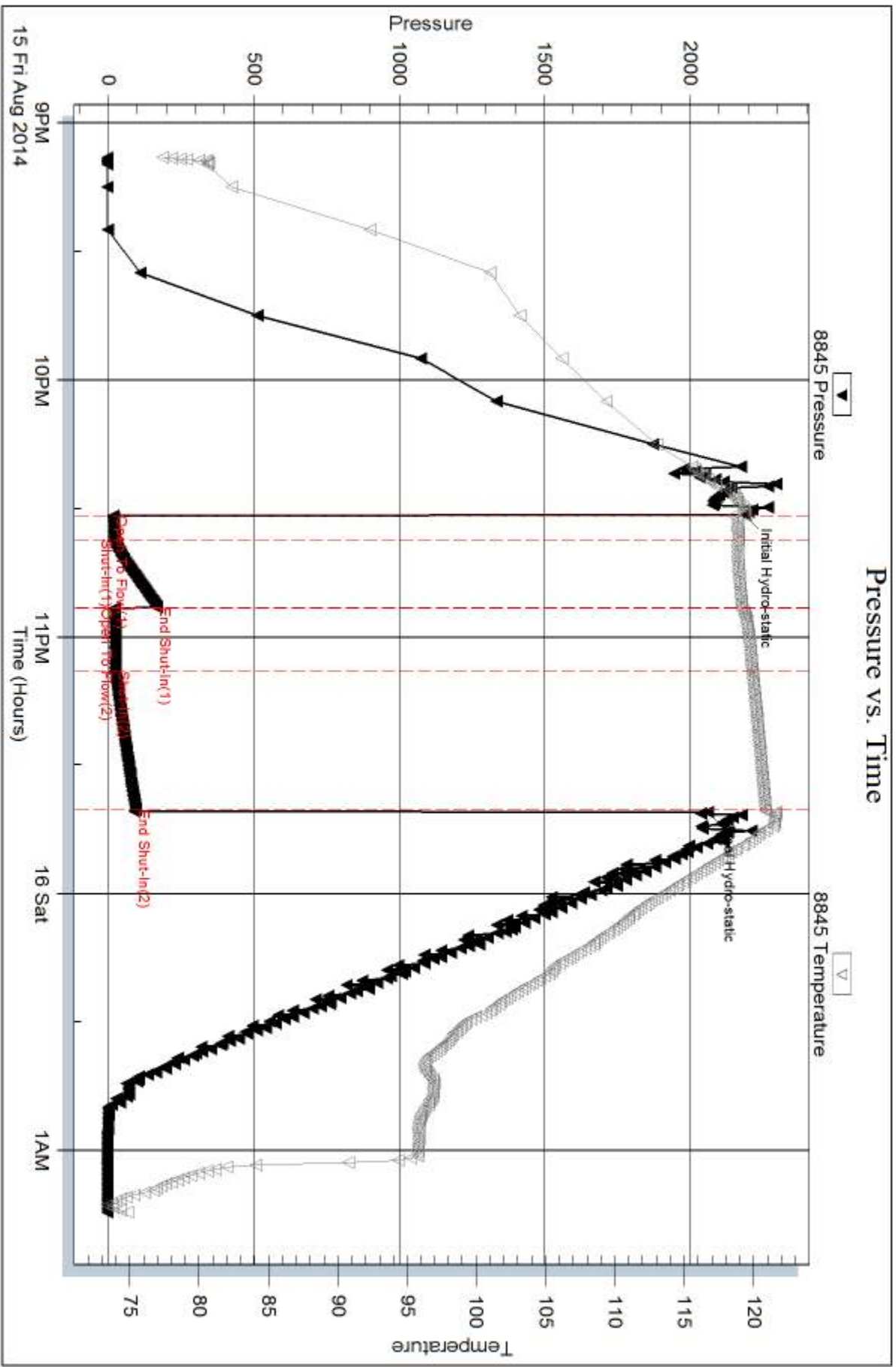
Num Gas Bombs: 0

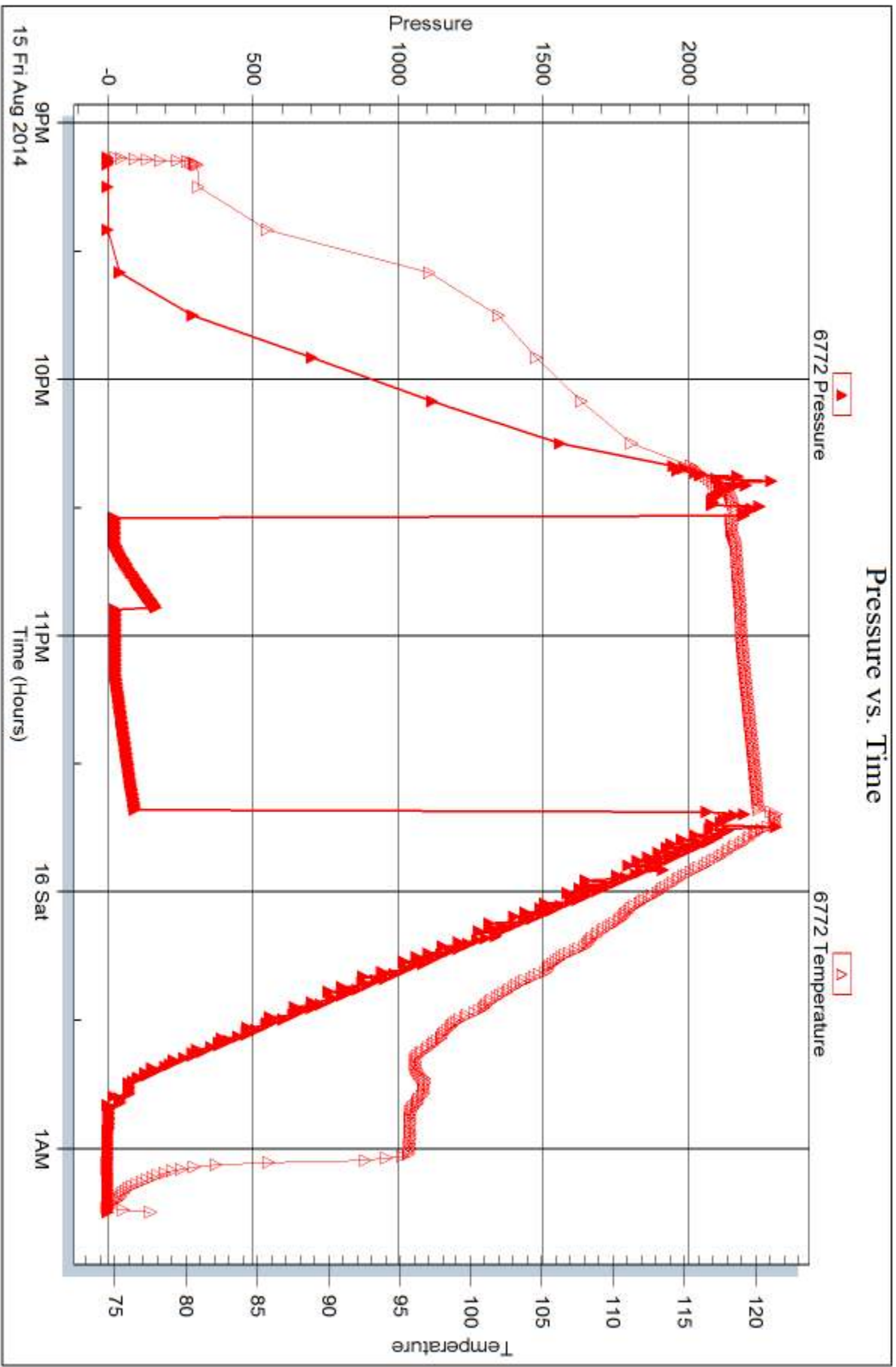
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Judy Unit #1-32

32-18s-27w Lane,KS

Start Date: 2014.08.16 @ 21:28:00

End Date: 2014.08.17 @ 01:36:30

Job Ticket #: 59594 DST #: 6

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.08.20 @ 13:27:51



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

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

32-18s-27w Lane, KS

Judy Unit #1-32

Job Ticket: 59594

DST#: 6

Test Start: 2014.08.16 @ 21:28:00

GENERAL INFORMATION:

Formation: **Cherokee**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 22:54:00
 Time Test Ended: 01:36:30
 Interval: **4426.00 ft (KB) To 4570.00 ft (KB) (TVD)**
 Total Depth: 4570.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Samuel Esparza
 Unit No: 72
 Reference Elevations: 2704.00 ft (KB)
 2697.00 ft (CF)
 KB to GR/CF: 7.00 ft

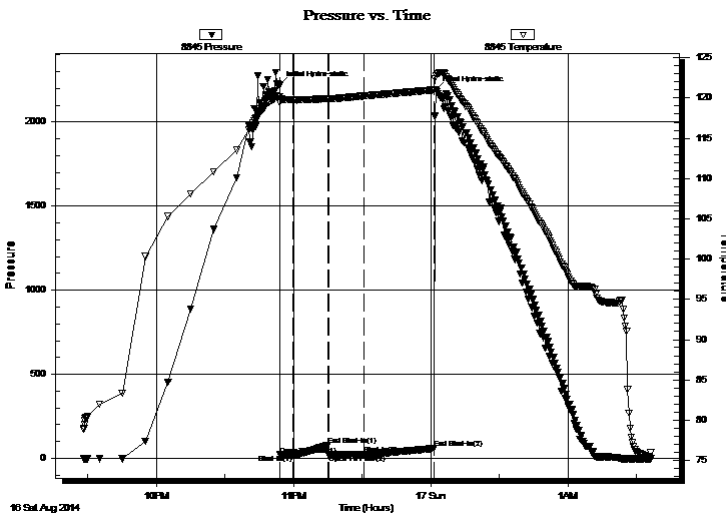
Serial #: 8845

Inside

Press@RunDepth: 23.11 psig @ 4427.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.08.16 End Date: 2014.08.17 Last Calib.: 2014.08.17
 Start Time: 21:28:05 End Time: 01:36:30 Time On Btm: 2014.08.16 @ 22:53:45
 Time Off Btm: 2014.08.17 @ 00:02:15

TEST COMMENT: IF: 1/4" Blow .
 IS: No Return.
 FF: No Blow .
 FS: No Return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2219.21	120.15	Initial Hydro-static
1	21.44	119.42	Open To Flow (1)
6	21.30	119.77	Shut-In(1)
22	78.27	119.94	End Shut-In(1)
22	21.43	119.91	Open To Flow (2)
37	23.11	120.26	Shut-In(2)
68	59.81	121.02	End Shut-In(2)
69	2189.28	122.71	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100m	0.02

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.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 59594

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.08.16 @ 21:28:00

Tool Information

Drill Pipe:	Length: 4296.00 ft	Diameter: 3.80 inches	Volume: 60.26 bbl	Tool Weight: 2000.00 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 95000.00 lb
			<u>Total Volume: 60.87 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4426.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	144.00 ft			
Tool Length:	172.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4399.00	
Shut In Tool	5.00			4404.00	
Hydraulic tool	5.00			4409.00	
Jars	5.00			4414.00	
Safety Joint	3.00			4417.00	
Packer	5.00			4422.00	28.00 Bottom Of Top Packer
Packer	4.00			4426.00	
Stubb	1.00			4427.00	
Recorder	0.00	6772	Outside	4427.00	
Recorder	0.00	8845	Inside	4427.00	
Perforations	10.00			4437.00	
Change Over Sub	1.00			4438.00	
Drill Pipe	126.00			4564.00	
Change Over Sub	1.00			4565.00	
Bullnose	5.00			4570.00	144.00 Bottom Packers & Anchor

Total Tool Length: 172.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 59594

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.08.16 @ 21:28:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.95 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

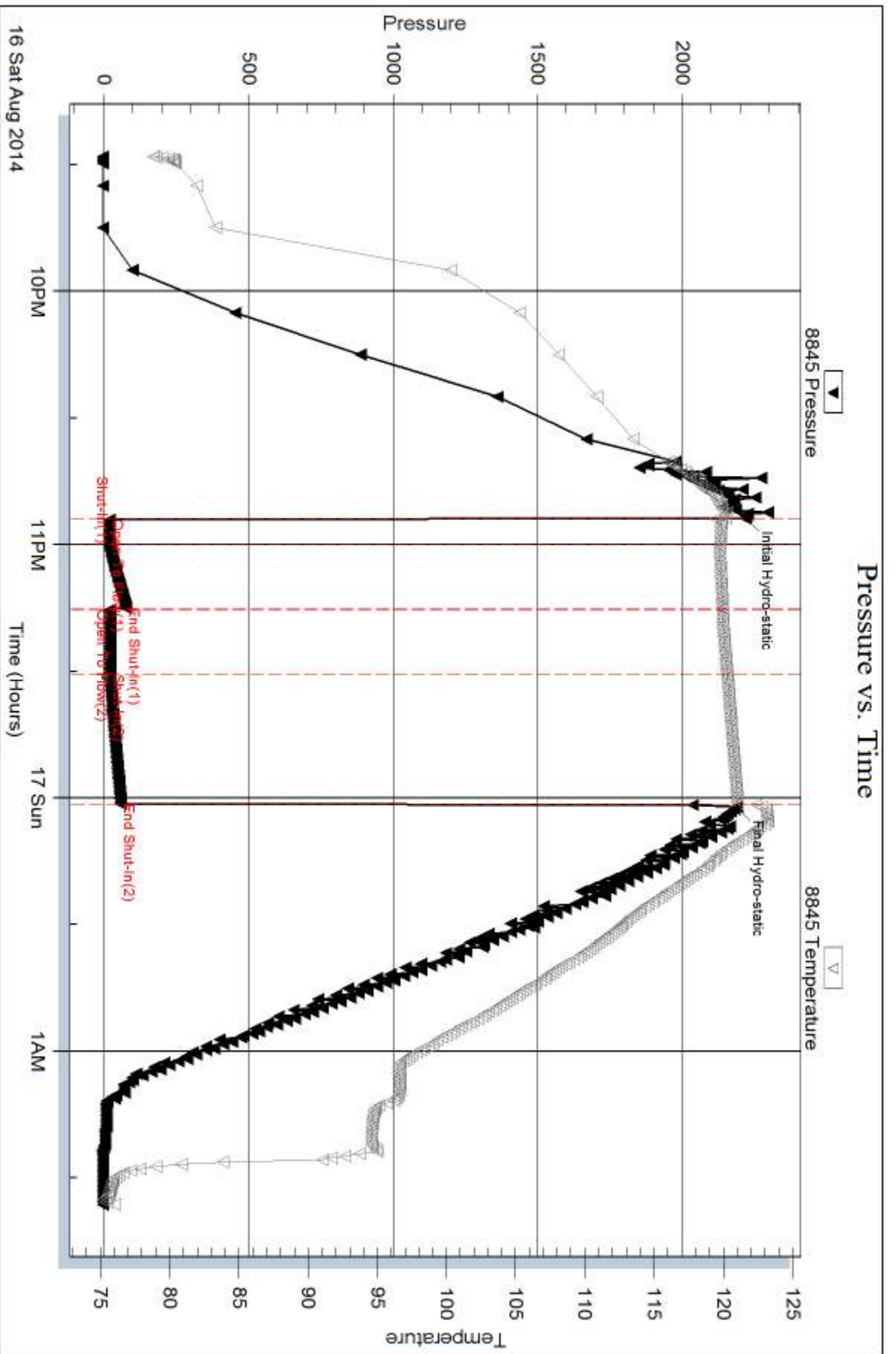
Num Gas Bombs: 0

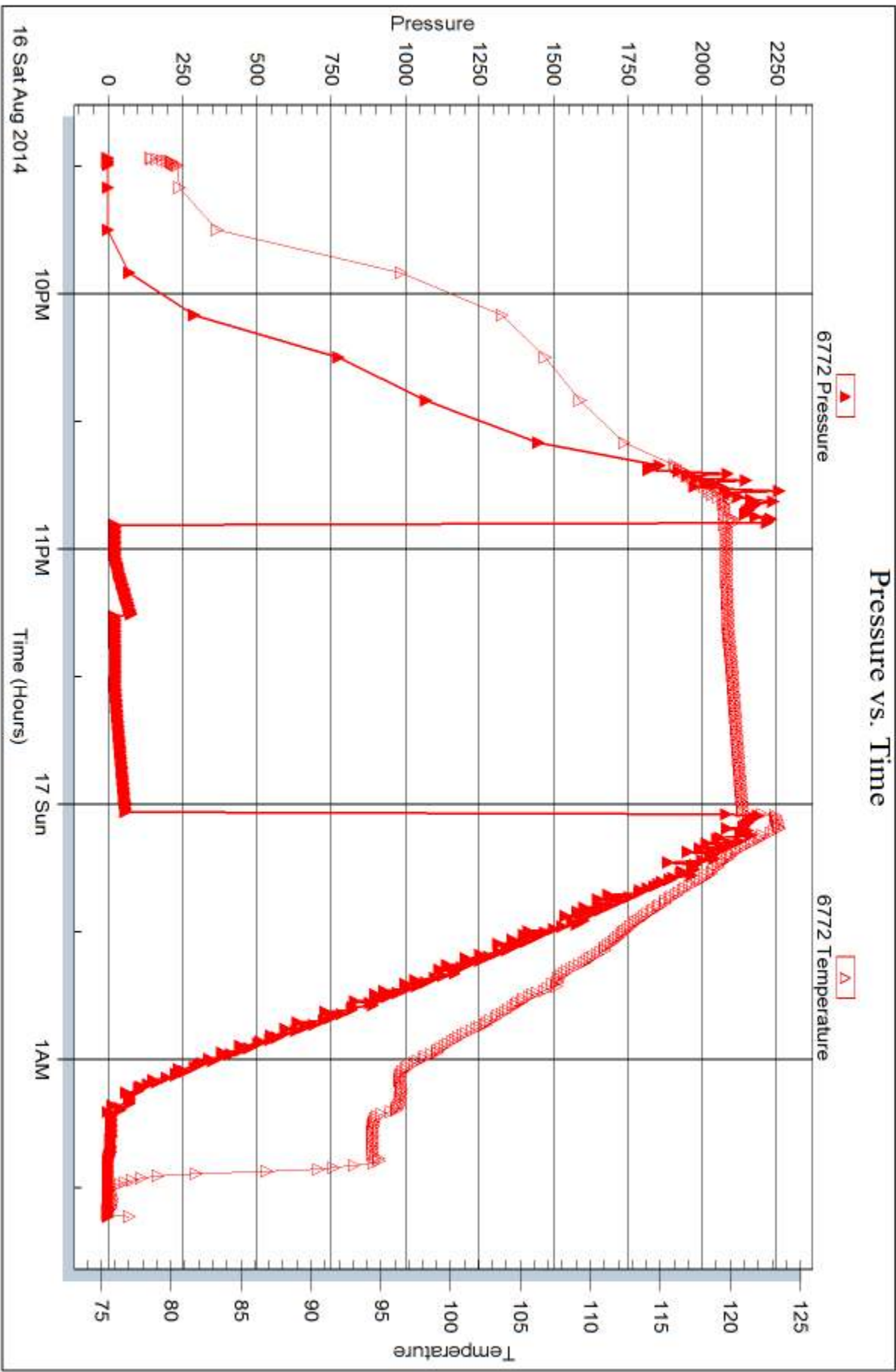
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Judy Unit #1-32

32-18s-27w Lane,KS

Start Date: 2014.08.17 @ 09:12:00

End Date: 2014.08.17 @ 14:51:39

Job Ticket #: 57717 DST #: 7

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.08.20 @ 13:26:36



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

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

32-18s-27w Lane, KS

Judy Unit #1-32

Job Ticket: 57717

DST#: 7

Test Start: 2014.08.17 @ 09:12:00

GENERAL INFORMATION:

Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:23:10
 Time Test Ended: 14:51:39
 Interval: **4554.00 ft (KB) To 4612.00 ft (KB) (TVD)**
 Total Depth: 4612.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Will MacLean
 Unit No: 71
 Reference Elevations: 2704.00 ft (KB)
 2697.00 ft (CF)
 KB to GR/CF: 7.00 ft

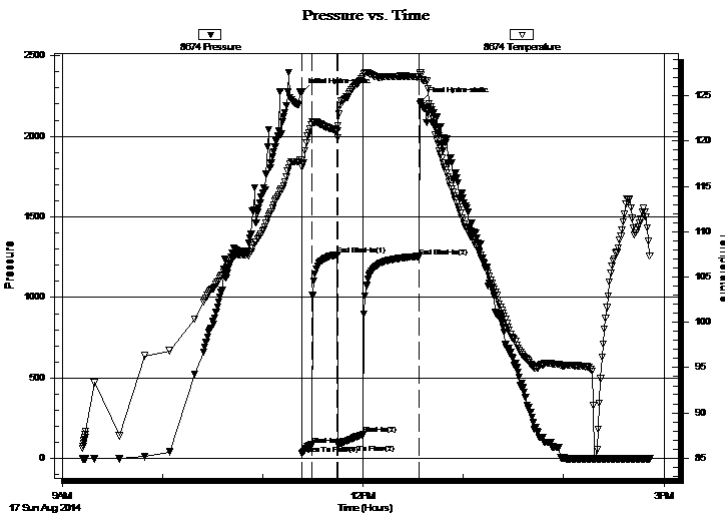
Serial #: 8674

Inside

Press@RunDepth: 149.48 psig @ 4555.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.08.17 End Date: 2014.08.17 Last Calib.: 2014.08.17
 Start Time: 09:12:00 End Time: 14:51:39 Time On Btm: 2014.08.17 @ 11:22:55
 Time Off Btm: 2014.08.17 @ 12:34:25

TEST COMMENT: IF- Weak Surface Blow Built to 5"
 IS- No Blow
 FF- Weak Surface Blow Built to 9 3/4"
 FS- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2273.31	117.91	Initial Hydro-static
1	30.20	117.12	Open To Flow (1)
6	86.03	121.78	Shut-In(1)
22	1264.75	121.17	End Shut-In(1)
22	88.82	121.74	Open To Flow (2)
37	149.48	127.09	Shut-In(2)
71	1254.89	127.12	End Shut-In(2)
72	2212.91	127.30	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	WOGCM 2%w 5%oil 7%g 86%m	0.61
62.00	WOGCM 3%w 5%oil 8%g 84%m	0.87
97.00	OCM 7%oil 93%m	1.36

* 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.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 57717

DST#: 7

ATTN: Vern Schrag

Test Start: 2014.08.17 @ 09:12:00

Tool Information

Drill Pipe:	Length: 4425.00 ft	Diameter: 3.80 inches	Volume: 62.07 bbl	Tool Weight: 2000.00 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 8000.00 lb
			<u>Total Volume: 62.68 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 66000.00 lb
Depth to Top Packer:	4554.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	58.00 ft			
Tool Length:	85.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4528.00	
Shut In Tool	5.00			4533.00	
Hydraulic tool	5.00			4538.00	
Jars	5.00			4543.00	
Safety Joint	2.00			4545.00	
Packer	5.00			4550.00	27.00 Bottom Of Top Packer
Packer	4.00			4554.00	
Stubb	1.00			4555.00	
Recorder	0.00	8355	Outside	4555.00	
Recorder	0.00	8674	Inside	4555.00	
Perforations	19.00			4574.00	
Change Over Sub	1.00			4575.00	
Drill Pipe	31.00			4606.00	
Change Over Sub	1.00			4607.00	
Bullnose	5.00			4612.00	58.00 Bottom Packers & Anchor

Total Tool Length: 85.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 57717

DST#: 7

ATTN: Vern Schrag

Test Start: 2014.08.17 @ 09:12:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.95 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	WOGCM 2%w 5%oil 7%g 86%m	0.610
62.00	WOGCM 3%w 5%oil 8%g 84%m	0.870
97.00	OCM 7%oil 93%m	1.361

Total Length: 283.00 ft Total Volume: 2.841 bbl

Num Fluid Samples: 0

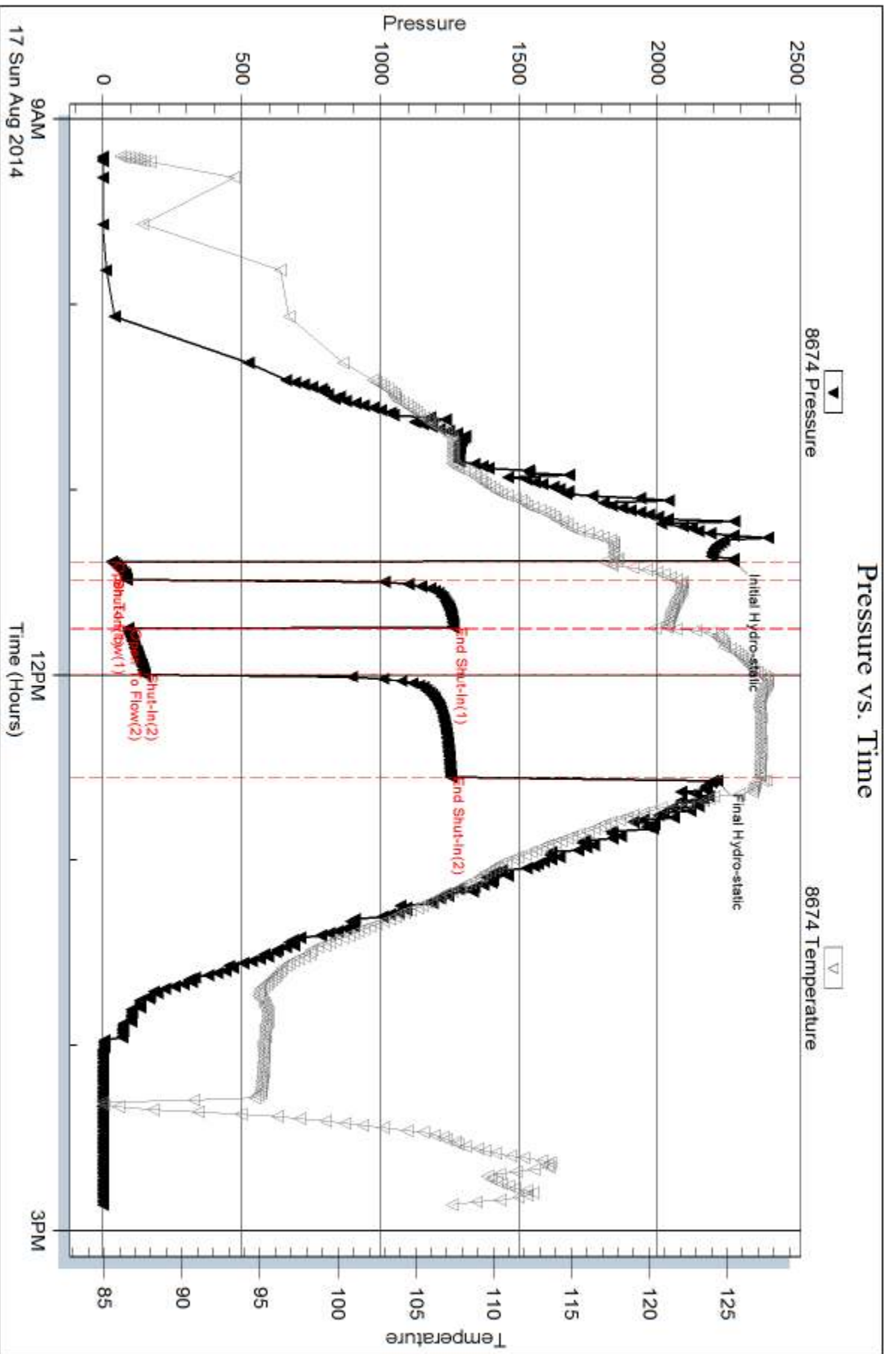
Num Gas Bombs: 0

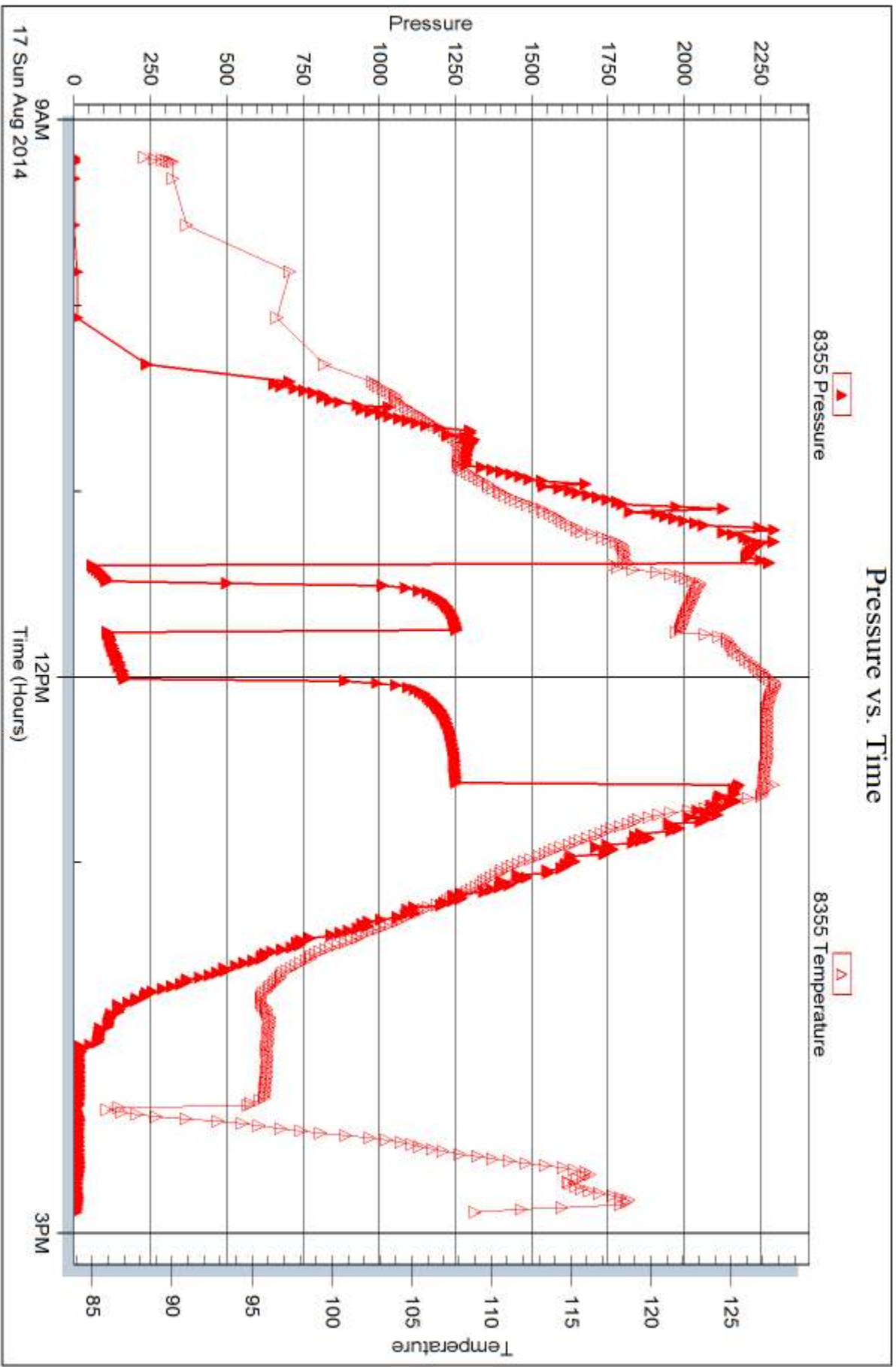
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Judy Unit #1-32

32-18s-27w Lane,KS

Start Date: 2014.08.18 @ 02:04:00

End Date: 2014.08.18 @ 10:20:09

Job Ticket #: 57718 DST #: 8

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.08.20 @ 13:25:52



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

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

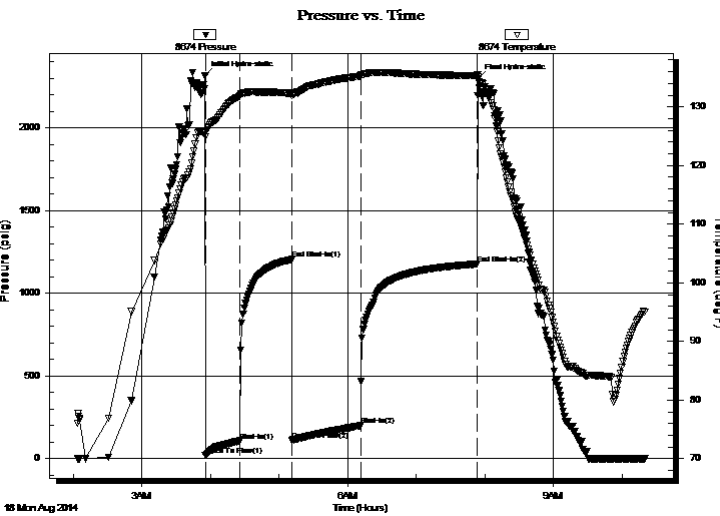
32-18s-27w Lane, KS
Judy Unit #1-32
 Job Ticket: 57718 **DST#: 8**
 Test Start: 2014.08.18 @ 02:04:00

GENERAL INFORMATION:

Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 03:55:40
 Time Test Ended: 10:20:09
 Interval: **4578.00 ft (KB) To 4605.00 ft (KB) (TVD)**
 Total Depth: 4642.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Straddle (Reset)
 Tester: Will MacLean
 Unit No: 71
 Reference Elevations: 2704.00 ft (KB)
 2697.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8674 Inside
 Press@RunDepth: 200.58 psig @ 4579.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.08.18 End Date: 2014.08.18 Last Calib.: 2014.08.18
 Start Time: 02:04:00 End Time: 10:20:09 Time On Btm: 2014.08.18 @ 03:55:25
 Time Off Btm: 2014.08.18 @ 07:53:54

TEST COMMENT: IF- Weak Surface Blow Built to 11"
 IS- No Blow
 FF- Weak Surface Blow Built to BOB in 50 min
 FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2317.99	125.99	Initial Hydro-static
1	20.64	124.95	Open To Flow (1)
31	108.17	131.85	Shut-In(1)
76	1204.91	132.35	End Shut-In(1)
77	112.19	131.96	Open To Flow (2)
136	200.58	135.27	Shut-In(2)
238	1177.55	135.33	End Shut-In(2)
239	2295.72	135.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
248.00	MCW 4% m 96% w with Oil Spots	2.35
62.00	MCW 7% m 93% w with a Skim of Oil on	0.87
77.00	OMCW 2% oil 45% m 53% w	1.08
15.00	MCO 5% m 95% oil	0.21

* 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.

32-18s-27w Lane, KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 57718

DST#: 8

ATTN: Vern Schrag

Test Start: 2014.08.18 @ 02:04:00

Tool Information

Drill Pipe:	Length: 4452.00 ft	Diameter: 3.80 inches	Volume: 62.45 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 32000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 8000.00 lb
			<u>Total Volume: 63.06 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4578.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	4605.00 ft			
Interval between Packers:	27.00 ft			
Tool Length:	92.00 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			4551.00	
Shut In Tool	5.00			4556.00	
Hydraulic tool	5.00			4561.00	
Jars	5.00			4566.00	
Safety Joint	3.00			4569.00	
Packer	5.00			4574.00	28.00 Bottom Of Top Packer
Packer	4.00			4578.00	
Stubb	1.00			4579.00	
Recorder	0.00	8355	Outside	4579.00	
Recorder	0.00	8674	Inside	4579.00	
Perforations	22.00			4601.00	
Blank Off Sub	1.00			4602.00	
Top of Straddle Packer	3.00			4605.00	27.00 Tool Interval
Packer	0.00			4605.00	
Stubb	1.00			4606.00	
Recorder	0.00	8672	Below	4606.00	
Perforations	1.00			4607.00	
Change Over Sub	1.00			4608.00	
Drill Pipe	31.00			4639.00	
Change Over Sub	1.00			4640.00	
Bullnose	2.00			4642.00	37.00 Bottom Packers & Anchor

Total Tool Length: 92.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

32-18s-27w Lane,KS

562 West State Road 4
Olmitz, KS 67564

Judy Unit #1-32

Job Ticket: 57718

DST#: 8

ATTN: Vern Schrag

Test Start: 2014.08.18 @ 02:04:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

36 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

15100 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
248.00	MCW 4%m 96%w with Oil Spots	2.349
62.00	MCW 7%m 93%w with aSkim of Oil on Top	0.870
77.00	OMCW 2%oil 45%m 53%w	1.080
15.00	MCO 5%m 95%oil	0.210

Total Length: 402.00 ft

Total Volume: 4.509 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

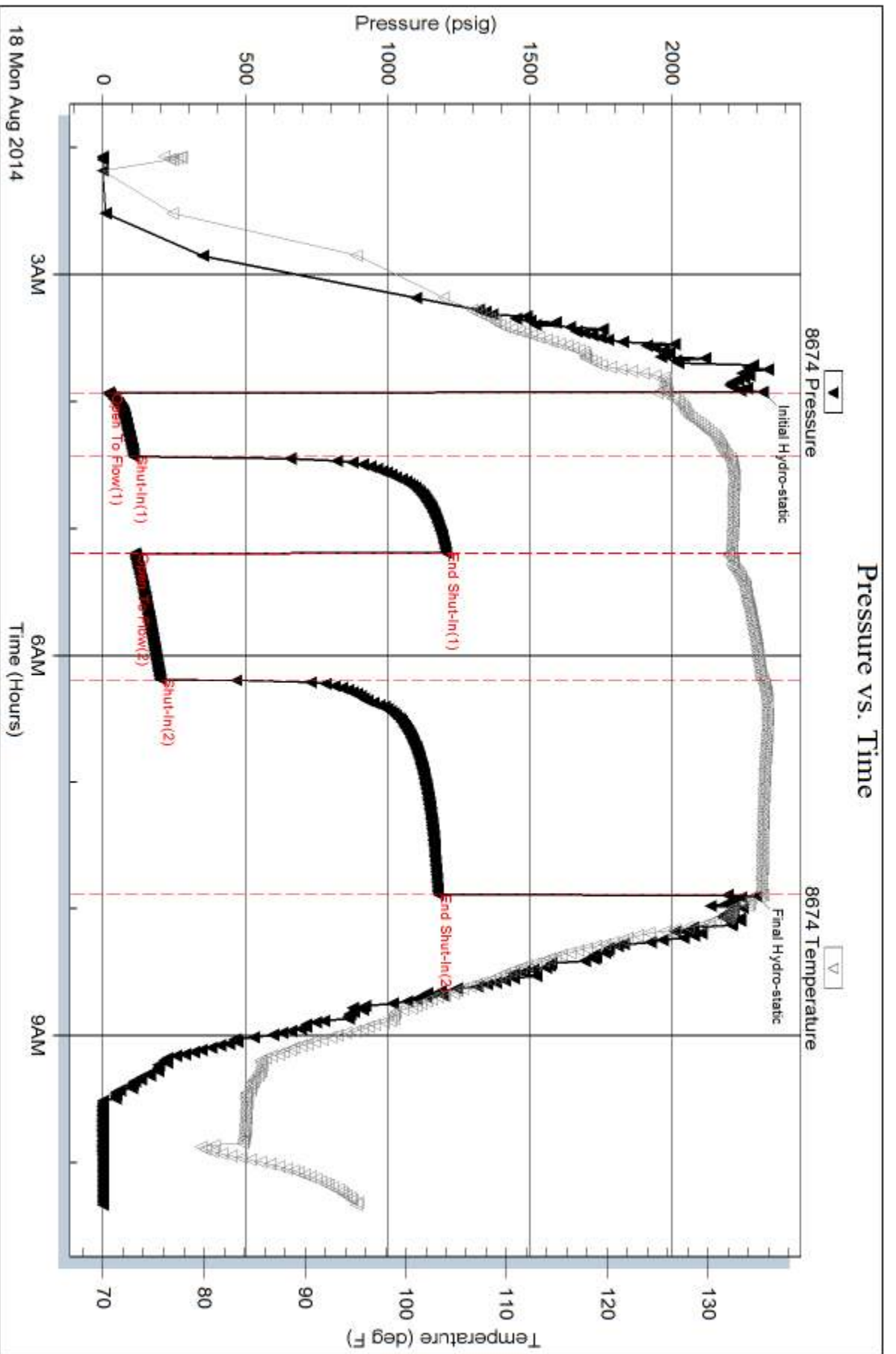
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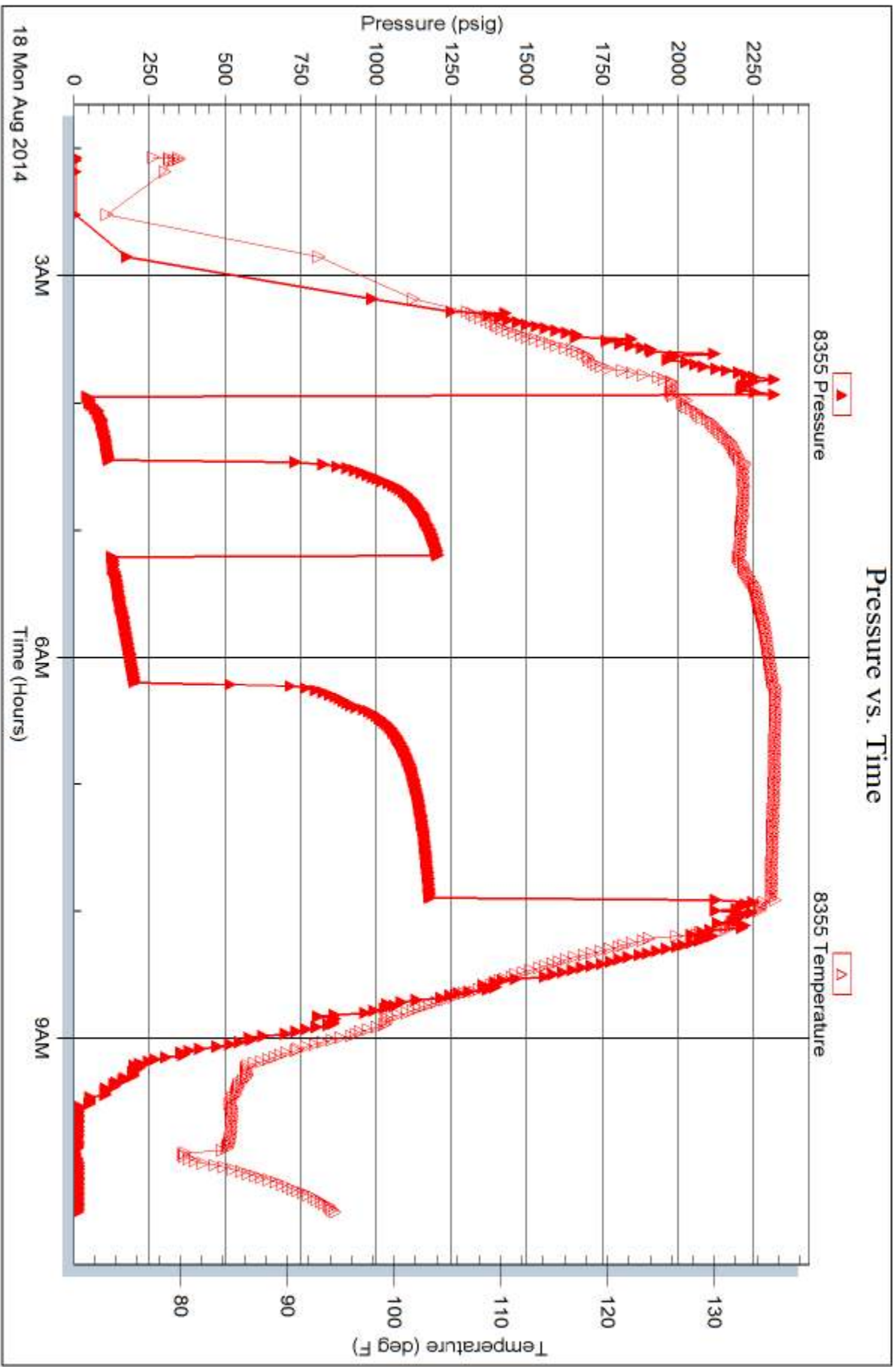
Laboratory Name:

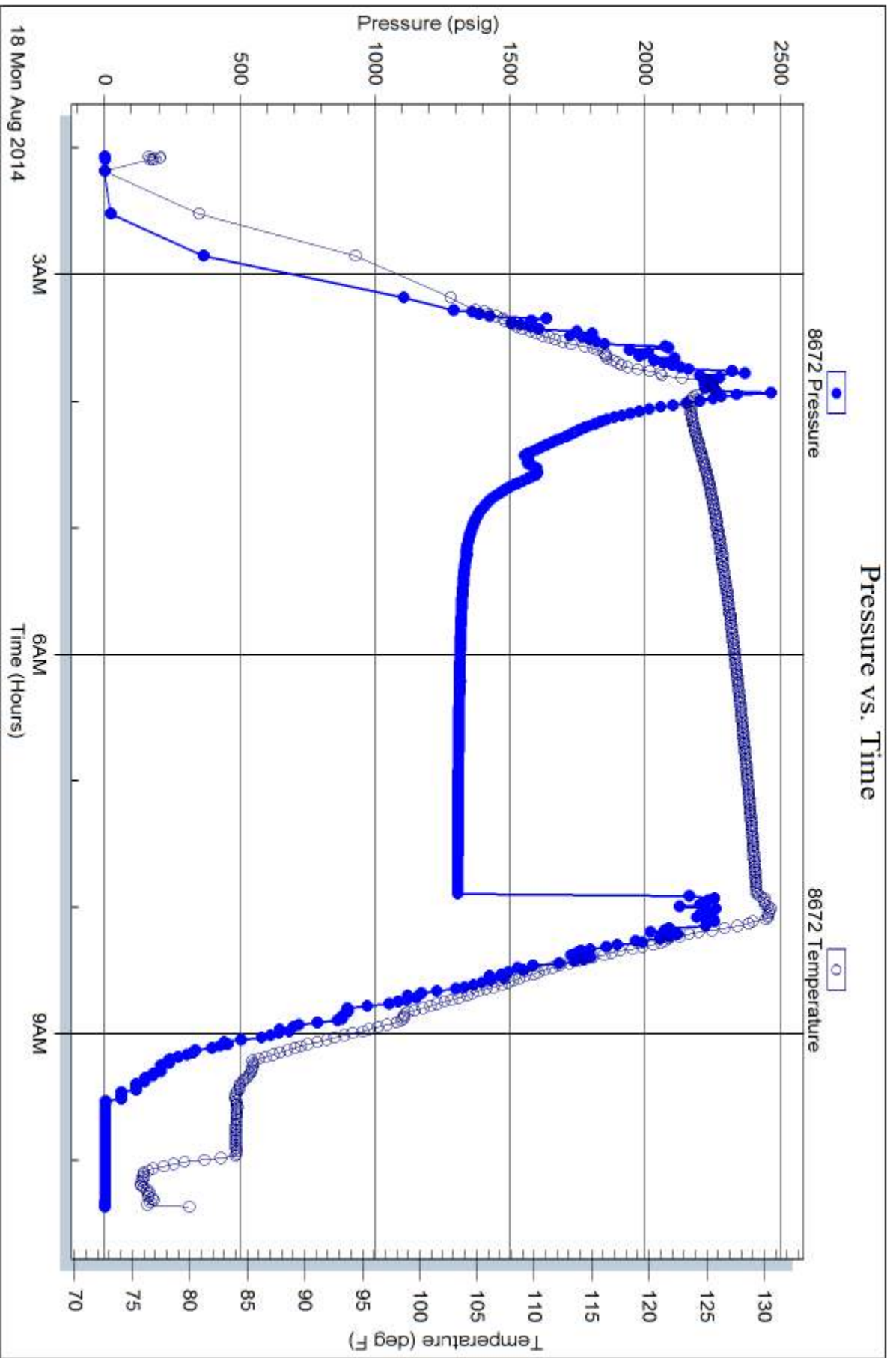
Laboratory Location:

Recovery Comments: RW is .343 @ 85f = 15100

API is 38 @ 80f = 36









TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59589

Well Name & No. Judy Unit #1-32 Test No. 1 Date 8/13/14
 Company Larson Engineering, Inc. Elevation 2704 KB 2697 GL
 Address 562 West State Road 4 Olmitz, KS 67564
 Co. Rep / Geo. Vern Schrage Rig HD #3
 Location: Sec. 32 Twp. 18S Rge. 27W Co. Lane State KS

Interval Tested 4236 - 4250 Zone Tested "K"
 Anchor Length 14 Drill Pipe Run 4109 Mud Wt. 9.0
 Top Packer Depth 4232 Drill Collars Run 124 Vis 60
 Bottom Packer Depth 4236 Wt. Pipe Run Ø WL 8.0
 Total Depth 4250 Chlorides 2600 ppm System LCM 1

Blow Description IF: Weak Surface Blow.
ISI: No Return.
FF: 4" Blow.
FSI: No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud (oil spots)</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 10 BHT 124 Gravity - API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic <u>2148</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>0200 0200</u>
(B) First Initial Flow <u>15</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>0208</u>
(C) First Final Flow <u>19</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0359</u>
(D) Initial Shut-In <u>496</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>0511</u>
(E) Second Initial Flow <u>23</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0648</u>
(F) Second Final Flow <u>28</u>	<input checked="" type="checkbox"/> Mileage <u>70 R/T</u> 108.50	Comments
(G) Final Shut-In <u>487</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2127</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>5</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>15</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1683.50</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1683.50</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. 59590

Well Name & No. Judy Unit # 1-32 Test No. 2 Date 8/13/14
 Company Larson Engineering, Inc. Elevation 2704 KB 2697 GL
 Address 562 West State Road 4 O'nitz, KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD #3
 Location: Sec. 32 Twp. 18S Rge. 27W Co. Lane State KS

Interval Tested 4234 - 4253 Zone Tested "K"
 Anchor Length 19' Drill Pipe Run 4109 Mud Wt. 9.1
 Top Packer Depth 4230 Drill Collars Run 124 Vis 61
 Bottom Packer Depth 4234 Wt. Pipe Run Ø WL 8.0
 Total Depth 4253 Chlorides 3200 ppm System LCM 1

Blow Description IF: 3" Blow.
ISI: No Return.
FF: 1" Blow.
FSD: No Return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>OCM</u>	<u>15</u>		<u>85</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 117 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>2151</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>1445</u>
(B) First Initial Flow <u>17</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1500</u>
(C) First Final Flow <u>18</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1630</u>
(D) Initial Shut-In <u>502</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>1823</u>
(E) Second Initial Flow <u>22</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>2008</u>
(F) Second Final Flow <u>36</u>	<input checked="" type="checkbox"/> Mileage <u>70 R/FD</u> 108.50	Comments
(G) Final Shut-In <u>494</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2108</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>5</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>1030</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1683.50</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1683.50</u>	

Approved By _____ Our Representative 

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59591

4/10

Well Name & No. Judy Unit #1-32 Test No. 3 Date 8/14/14
 Company Loren Engineering, Inc. Elevation 2704 KB 2697 GL
 Address 562 West State Road 4 Olinitz, KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD #3
 Location: Sec. 32 Twp. 18p Rge. 27W Co. Loren State KS

Interval Tested 4232-4258 Zone Tested "K"
 Anchor Length 26' Drill Pipe Run 410 Mud Wt. 8.9
 Top Packer Depth 4228 Drill Collars Run 124 Vis 60
 Bottom Packer Depth 4232 Wt. Pipe Run Ø WL 8.0
 Total Depth 4258 Chlorides 3200 ppm System LCM 1

Blow Description IP: 1/2" Blow.
ISI: No Return
EE: 1 1/4" Blow.
FBI: No Return.

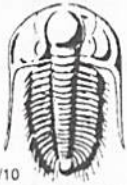
Rec	Feet of	%gas	%oil	%water	%mud
15	0cm	15		85	

Rec Total 15 BHT 115 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2151 Test 1250 T-On Location 0215
 (B) First Initial Flow 15 Jars 250 T-Started 0236
 (C) First Final Flow 18 Safety Joint 75 T-Open 0440
 (D) Initial Shut-In 492 Circ Sub N/C T-Pulled 0642
 (E) Second Initial Flow 22 Hourly Standby _____ T-Out 0854
 (F) Second Final Flow 35 Mileage 70 RT 108.50 Comments _____
 (G) Final Shut-In 490 Sampler _____
 (H) Final Hydrostatic 2150 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 1683.50
 Final Flow 30 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 60 Sub Total 1683.50

Approved By _____ Our Representative _____

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59592

4/10

Well Name & No. Judy Unit # 1-32 Test No. 41 Date 8/15/14
 Company Larson Engineering, Inc. Elevation 2704 KB 2697 GL
 Address 562 West State Road 4 Olmitz, KS 67564
 Co. Rep / Geo. Vern Schroy Rig AD #3
 Location: Sec. 32 Twp. 18N Rge. 27W Co. Linn State KS

Interval Tested 4266-4290 Zone Tested "L"
 Anchor Length 24' Drill Pipe Run 4144 Mud Wt. 9.0
 Top Packer Depth 4262 Drill Collars Run 124 Vis 42
 Bottom Packer Depth 4266 Wt. Pipe Run 0 WL 8.8
 Total Depth 4290 Chlorides 3500 ppm System LCM 1

Blow Description IF: 3 1/2" Bb
1st: NO Return
RF: 4 1/4" Blow
2st: NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>210</u>	<u>600 MW</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	Feet of	%gas	%oil	%water	%mud

Rec Total 210 BHT 126 Gravity - API RW 118 @ 71 ° F Chlorides 65,000 ppm
 (A) Initial Hydrostatic 2153 Test 1250 T-On Location 6030
 (B) First Initial Flow 19 Jars 250 T-Started 0040
 (C) First Final Flow 69 Safety Joint 75 T-Open 0301
 (D) Initial Shut-In 487 Circ Sub N/C T-Pulled 0418
 (E) Second Initial Flow 75 Hourly Standby _____ T-Out 0615
 (F) Second Final Flow 112 Mileage 70 OK 108.50 Comments _____
 (G) Final Shut-In 487 Sampler _____
 (H) Final Hydrostatic 2116 Straddle _____ Ruined Shale Packer _____
 Initial Open 5 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 15 Extra Packer _____ Extra Copies _____
 Final Flow 15 Extra Recorder _____ Sub Total 0
 Final Shut-In 30 Day Standby _____ Total 1683.50
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1683.50

Approved By _____ Our Representative _____

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **59593**

4/10

Well Name & No. Judy Unit #1-32 Test No. 5 Date 8/15/14
 Company Larson Engineering, Inc. Elevation 2704 KB 2697 GL
 Address 562 West State Road 4 Omitz, KS 67561
 Co. Rep / Geo. Vern Schroy Rig HD #3
 Location: Sec. 32 Twp. 18S Rge. 27W Co. Lane State KS

Interval Tested 4311-4410 Zone Tested Marmaton
 Anchor Length 99 Drill Pipe Run 4169 Mud Wt. 9.1
 Top Packer Depth 4307 Drill Collars Run 124 Vis 80 53
 Bottom Packer Depth 4311 Wt. Pipe Run 0 WL 8.4
 Total Depth 4410 Chlorides 3700 ppm System LCM 1
 Blow Description IF: 4" Blow.
ISS: No Return.
FF: No Blow.
RST: No Return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</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 10 BHT 121 Gravity — API RW — @ — °F Chlorides — ppm
 (A) Initial Hydrostatic 2189 Test 1250 T-On Location 2050
 (B) First Initial Flow 19 Jars 250 T-Started 2108
 (C) First Final Flow 22 Safety Joint 75 T-Open 2241
 (D) Initial Shut-In 168 Circ Sub N/C T-Pulled 2351
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 0124
 (F) Second Final Flow 25 Mileage TO RPT 108.50 Comments _____
 (G) Final Shut-In 95 Sampler _____
 (H) Final Hydrostatic 2062 Straddle _____ Ruined Shale Packer _____
 Shale Packer 250 Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 5 Extra Recorder _____ Sub Total 0
 Initial Shut-In 15 Day Standby _____ Total 1933.50
 Final Flow 15 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 30 Sub Total 1933.50

Approved By _____ Our Representative

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59594

Well Name & No. Judy Unit #1-32 Test No. 6 Date 8/16/14
 Company Larson Engineering, Inc. Elevation 2704 KB 2697 GL
 Address 562 West State Road 4 Omitz, KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD #3
 Location: Sec. 32 Twp. 18S Rge. 27W Co. Lane State KS

Interval Tested 4426-4570 Zone Tested "Cherokee"
 Anchor Length 144 Drill Pipe Run 4296 Mud Wt. 9.1
 Top Packer Depth 4422 Drill Collars Run 124 Vis 57
 Bottom Packer Depth 4426 Wt. Pipe Run Ø WL 8.0
 Total Depth 4570 Chlorides 2500 ppm System LCM 2

Blow Description IF: 4" Blw.
IST: No Return.
RF: NO Blw.
FST: No Return.

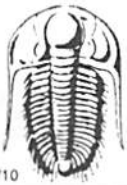
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 121 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2219</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>2115</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>2128</u>
(C) First Final Flow <u>21</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>2255</u>
(D) Initial Shut-In <u>78</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>0003</u>
(E) Second Initial Flow <u>21</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0138</u>
(F) Second Final Flow <u>23</u>	<input checked="" type="checkbox"/> Mileage <u>70 R/T</u> 108.50	Comments <u>Can't get tools</u>
(G) Final Shut-In <u>60</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>289</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>5</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>15</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1933.50</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1933.50</u>	

Approved By _____ Our Representative

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57717

Well Name & No. Judy Unit #1-32 Test No. DST #17 Date 8-17-14
 Company Larson Engineering Inc Elevation 2704 KB 2697 GL
 Address 562 West State Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D #3
 Location: Sec. 32 Twp. 18s Rge. 27w Co. Lane State _____

Interval Tested 4554-4612 Zone Tested Mississippi
 Anchor Length 58 Drill Pipe Run 4425 Mud Wt. 9.1
 Top Packer Depth 4550 Drill Collars Run 124 Vis 57
 Bottom Packer Depth 4554 Wt. Pipe Run 0 WL 8-0
 Total Depth 4612 Chlorides 2000 ppm System LCM 215
 Blow Description IF- Weak Surface Blow Built to 5"
IS- No Blow
FF- Weak Surface Blow Built to 9 3/4
FSI- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>99</u>	<u>OCM</u>	<u>7</u>	<u>93</u>		
<u>62</u>	<u>WOGCM</u>	<u>8</u>	<u>5</u>	<u>3</u>	<u>84</u>
<u>124</u>	<u>WOGCM</u>	<u>7</u>	<u>5</u>	<u>2</u>	<u>86</u>
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total 283 BHT 127 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

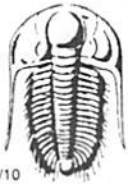
(A) Initial Hydrostatic 2273 Test 1250 T-On Location 7:08
 (B) First Initial Flow 30 Jars 250 T-Started 9:12
 (C) First Final Flow 86 Safety Joint 75 T-Open 11:23
 (D) Initial Shut-In 1264 Circ Sub N/C T-Pulled 12:34
 (E) Second Initial Flow 88 Hourly Standby T-Out 14:51
 (F) Second Final Flow 149 Mileage 70 RIT 108.50 Comments _____
 (G) Final Shut-In 1254 Sampler _____
 (H) Final Hydrostatic 2212 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 3
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30

Sub Total 1683.50 Total 1683.50
 MP/DST Disc't _____

Approved By Vern Schrag Our Representative Wainman

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57718

Well Name & No. Judy Unit # 1-32 Test No. DST #8 Date 8-18-14
 Company Larson Engineering Inc Elevation 2704 KB 2697 GL
 Address 562 West State Rd 4 Olathe KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D #3
 Location: Sec. 32 Twp. 18S Rge. 27W Co. Lane State KS

Interval Tested 4578 - 4605 Zone Tested Mississippi
 Anchor Length 27 Drill Pipe Run 4452 Mud Wt. 9.2
 Top Packer Depth 4578 Drill Collars Run 0 Vis 49
 Bottom Packer Depth 4605 Wt. Pipe Run 0 WL 7.6
 Total Depth 4642 Logger TD Chlorides 4000 ppm System LCM 216
 Blow Description IF - Weak Surface Blow Built to 11"
IST - No Blow
FF - Weak Surface Blow Built to BOB in 50 min
F2I - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>MCO</u>	<u>95</u>	<u>5</u>	<u>5</u>	<u>5</u>
<u>77</u>	<u>OMCW</u>	<u>2</u>	<u>53</u>	<u>45</u>	<u>45</u>
<u>62</u>	<u>MCO with a skin of oil on top</u>	<u>93</u>	<u>7</u>	<u>7</u>	<u>7</u>
<u>248</u>	<u>MCO with oil spots</u>	<u>96</u>	<u>4</u>	<u>4</u>	<u>4</u>

Rec Total 402 BHT 135 Gravity 36 API RW .343 @ 85 °F Chlorides 15100 ppm

(A) Initial Hydrostatic 2317 Test 1250 T-On Location 1:30
 (B) First Initial Flow 20 Jars 250 T-Started 2:04
 (C) First Final Flow 108 Safety Joint 75 T-Open 3:55
 (D) Initial Shut-In 1204 Circ Sub NIC T-Pulled 7:53
 (E) Second Initial Flow 112 Hourly Standby T-Out 10:20
 (F) Second Final Flow 200 Mileage 70 RIT 108.50 Comments _____
 (G) Final Shut-In 1177 Sampler _____
 (H) Final Hydrostatic 2295 Straddle 600 Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 2283.50
 Accessibility _____ MP/DST Disc't _____
 Sub Total 2283.50

Initial Open 30
 Initial Shut-In 45
 Final Flow 60
 Final Shut-In 90

Approved By Vern C Schrag Our Representative [Signature]

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