



DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomer B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.03.27 @ 17:35:00

End Date: 2014.03.27 @ 23:11:54

Job Ticket #: 56256 DST #: 1

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

Printed: 2014.04.11 @ 11:19:43



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

Job Ticket: 56256

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.03.27 @ 17:35:00

GENERAL INFORMATION:

Formation: **LKC 'E'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:39:12

Time Test Ended: 23:11:54

Test Type: Conventional Bottom Hole (Initial)

Tester: Chuck Smith

Unit No: 62

Interval: 4034.00 ft (KB) To 4065.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4065.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8357

Inside

Press@RunDepth: 35.16 psig @ 4037.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.03.27

End Date:

2014.03.27

Last Calib.:

2014.03.27

Start Time: 17:35:05

End Time:

23:11:54

Time On Btm:

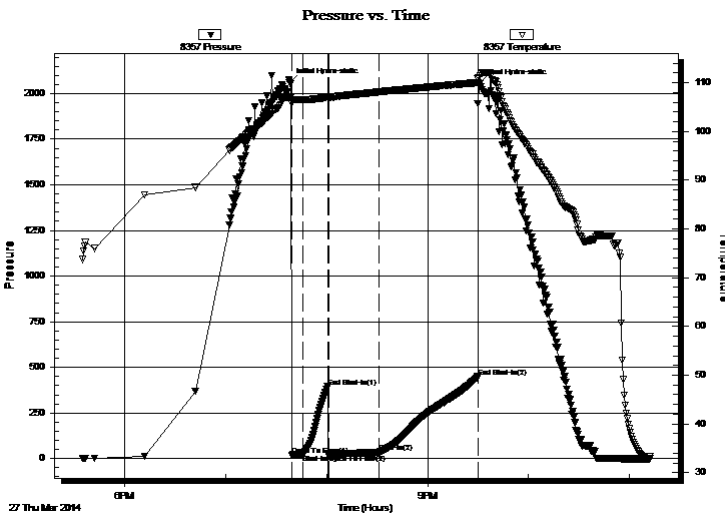
2014.03.27 @ 19:37:54

Time Off Btm:

2014.03.27 @ 21:30:24

TEST COMMENT: 6- 1" Blow .
15- No return.
30- 2 1/2" Blow .
60- No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2062.19	106.93	Initial Hydro-static
2	19.24	105.69	Open To Flow (1)
8	23.49	106.49	Shut-In(1)
23	393.72	106.98	End Shut-In(1)
24	25.11	106.95	Open To Flow (2)
54	35.16	108.12	Shut-In(2)
112	448.89	110.03	End Shut-In(2)
113	2054.50	111.05	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCM 25o 75m	0.10

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

S16-17s-29w Lane, KS

Boomer B #1-16

Job Ticket: 56256

DST#: 1

Test Start: 2014.03.27 @ 17:35:00

GENERAL INFORMATION:

Formation: **LKC 'E'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:39:12

Time Test Ended: 23:11:54

Test Type: Conventional Bottom Hole (Initial)

Tester: Chuck Smith

Unit No: 62

Interval: 4034.00 ft (KB) To 4065.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4065.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8645 Outside

Press@RunDepth: psig @ 4037.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.03.27

End Date: 2014.03.27

Last Calib.: 2014.03.27

Start Time: 17:34:35

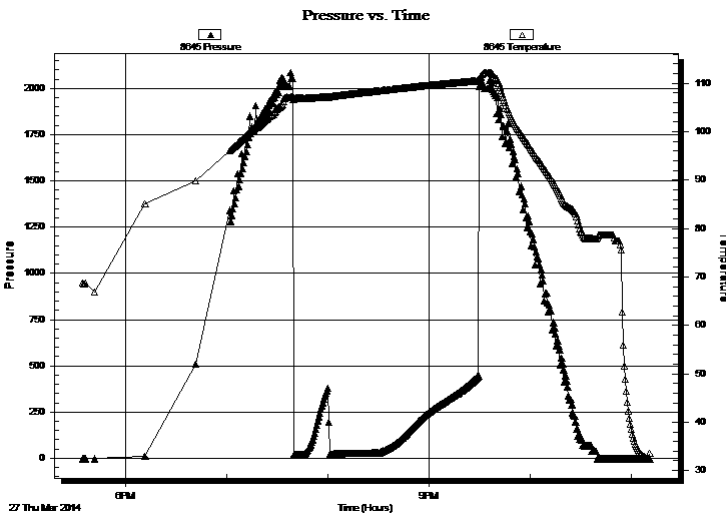
End Time: 23:11:06

Time On Btm:

Time Off Btm:

TEST COMMENT: 6- 1" Blow .
15- No return.
30- 2 1/2" Blow .
60- No return.

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCM 25o 75m	0.10

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 56256

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.03.27 @ 17:35:00

Tool Information

Drill Pipe:	Length: 3921.00 ft	Diameter: 3.80 inches	Volume: 55.00 bbl	Tool Weight:	2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 116.00 ft	Diameter: 2.25 inches	Volume: 0.57 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: 55.57 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	30.50 ft			String Weight: Initial	55000.00 lb
Depth to Top Packer:	4034.00 ft			Final	55000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	31.00 ft				
Tool Length:	58.50 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			4007.50	
Shut In Tool	5.00			4012.50	
Hydraulic tool	5.00			4017.50	
Jars	5.00			4022.50	
Safety Joint	2.50			4025.00	
Packer	5.00			4030.00	27.50 Bottom Of Top Packer
Packer	4.00			4034.00	
Stubb	1.00			4035.00	
Perforations	2.00			4037.00	
Recorder	0.00	8357	Inside	4037.00	
Recorder	0.00	8645	Outside	4037.00	
Perforations	25.00			4062.00	
Bullnose	3.00			4065.00	31.00 Bottom Packers & Anchor

Total Tool Length: 58.50



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 56256

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.03.27 @ 17:35:00

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: 7.09 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
20.00	OCM 25o 75m	0.098

Total Length: 20.00 ft Total Volume: 0.098 bbl

Num Fluid Samples: 0

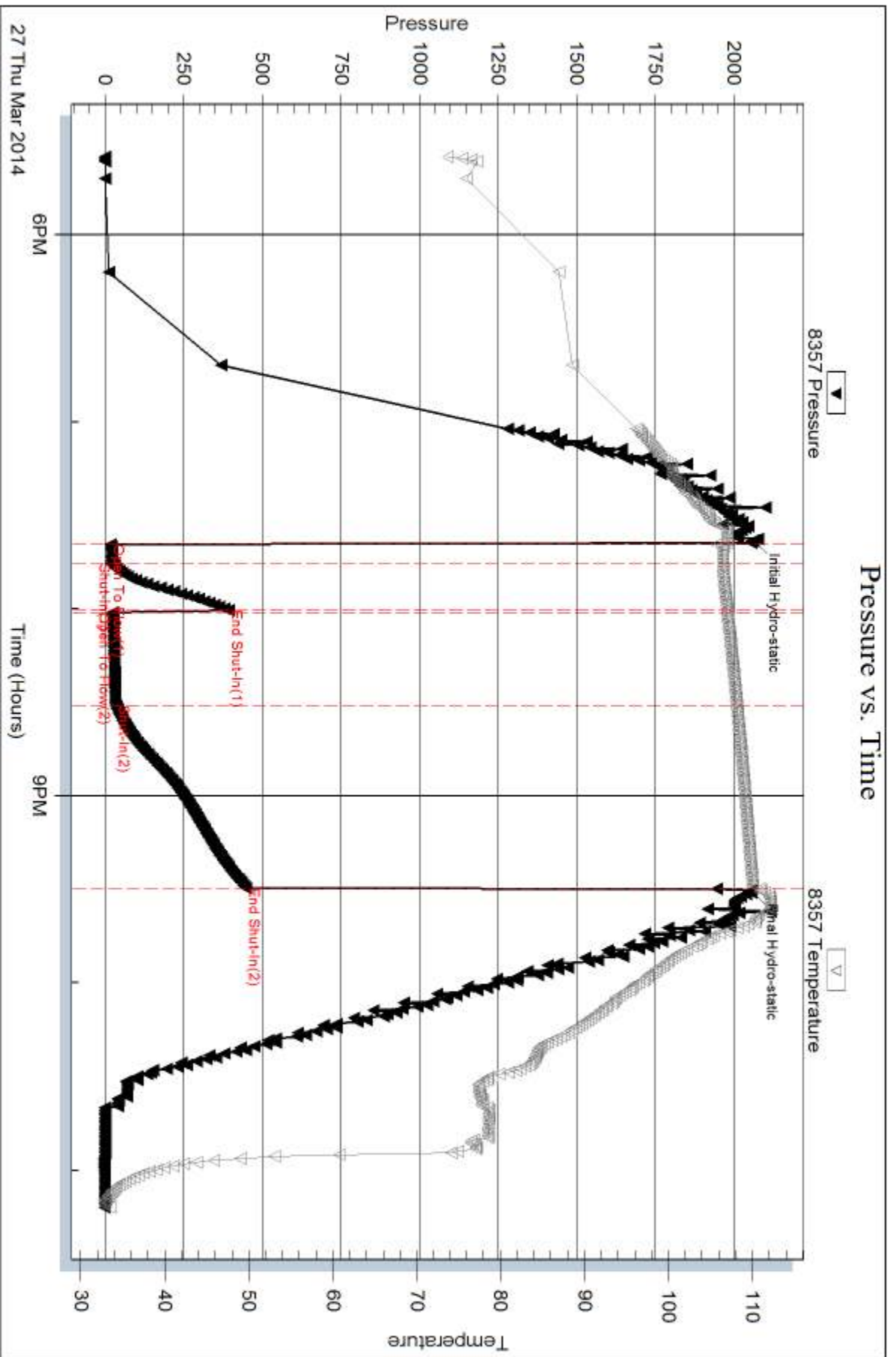
Num Gas Bombs: 0

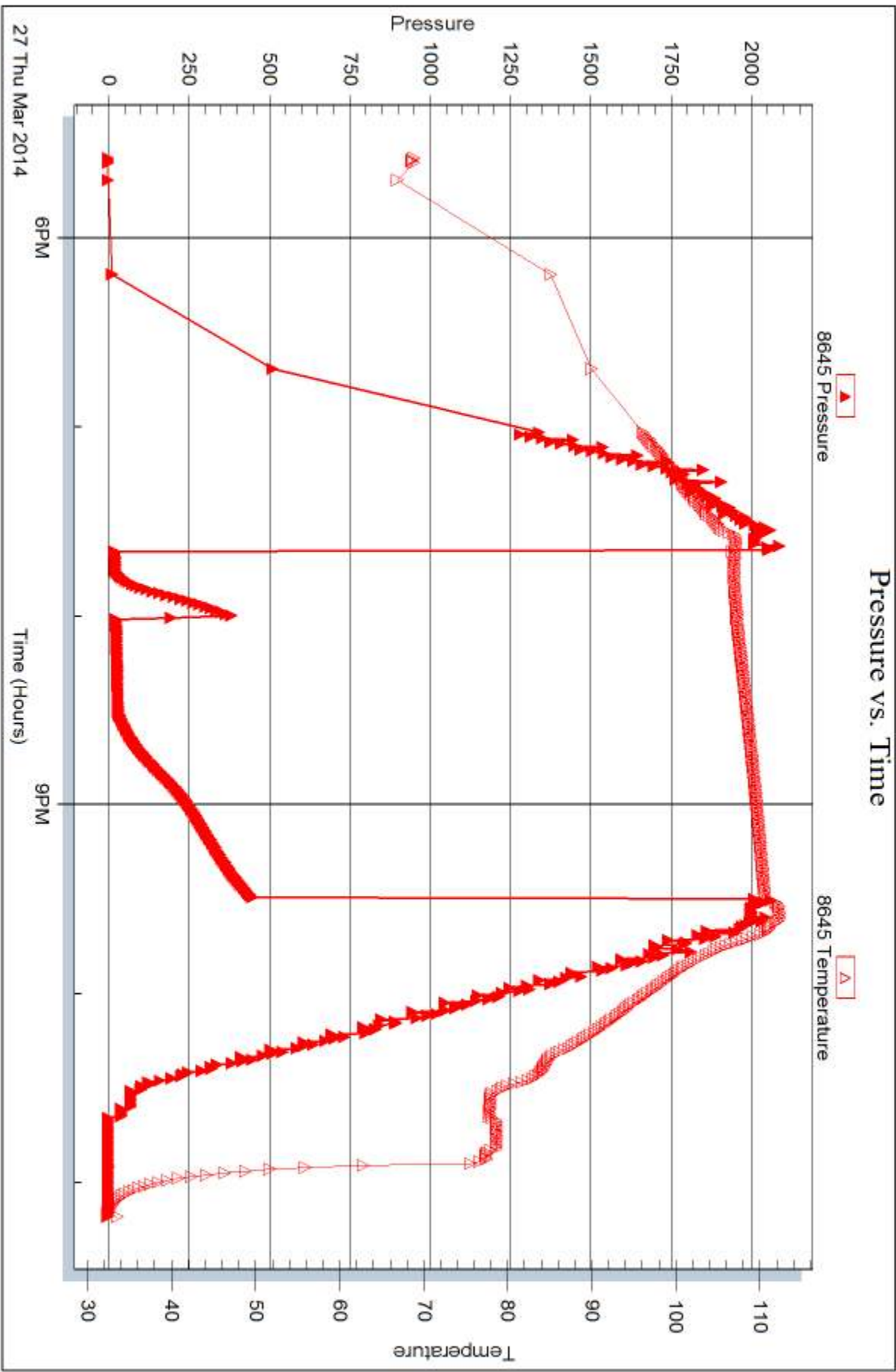
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomhower B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.04.08 @ 05:25:00

End Date: 2014.04.08 @ 12:03:00

Job Ticket #: 56515 DST #: 10

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

Printed: 2014.04.11 @ 11:15:41

Larson Engineering, Inc.

S16-17s-29w Lane,KS

Boomhower B #1-16

DST # 10

Cherokee

2014.04.08



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

ATTN: Vern Schrag

Job Ticket: 56515

DST#: 10

Test Start: 2014.04.08 @ 05:25:00

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:46:45

Time Test Ended: 12:03:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 72

Interval: 4496.00 ft (KB) To 4560.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4560.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8674 Inside

Press@RunDepth: 74.51 psig @ 4499.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.08

End Date:

2014.04.08

Last Calib.:

2014.04.08

Start Time:

05:25:05

End Time:

12:02:59

Time On Btm:

2014.04.08 @ 07:46:30

Time Off Btm:

2014.04.08 @ 09:37:30

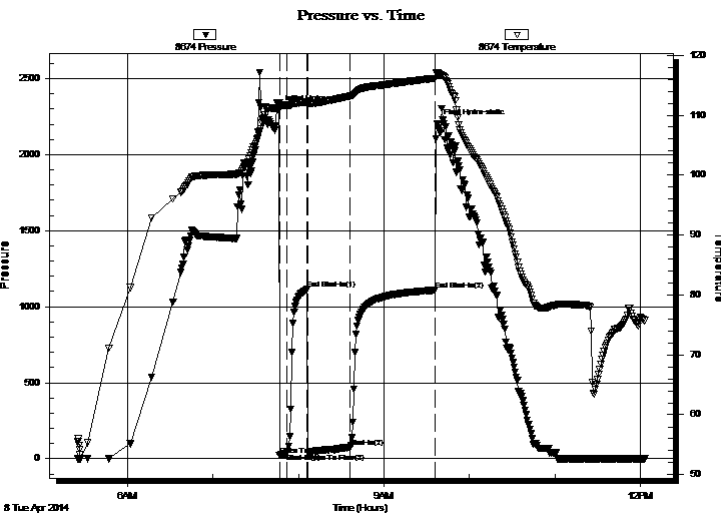
TEST COMMENT:

IF: 3 in. Blow

IS: Bled off in 2 min.-Fair surface Blow back return-Died in 10 min.

FF: Surface blow -built to B.o.b. in 16 1/2 min.

FS: Bled off in 2 min.-Fair surface blow back-Built to 1/2 in.-Died back to surface blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2298.28	112.04	Initial Hydro-static
1	21.53	111.07	Open To Flow (1)
6	35.10	111.57	Shut-In(1)
20	1114.02	112.23	End Shut-In(1)
21	38.01	111.80	Open To Flow (2)
50	74.51	113.17	Shut-In(2)
110	1108.96	116.15	End Shut-In(2)
111	2203.12	117.06	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
58.00	G & MCO 15g 20m 65o	0.29
53.00	M & GCO 10m 30g 60o	0.26
5.00	CGO 15g 85o	0.02
30.00	G & MCO 15g 30m 55o	0.42
1.00	CGO 15g 85o	0.01
0.00	GIP=283	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

S16-17s-29w Lane, KS

Boomer B #1-16

Job Ticket: 56515

DST#: 10

Test Start: 2014.04.08 @ 05:25:00

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:46:45

Time Test Ended: 12:03:00

Interval: 4496.00 ft (KB) To 4560.00 ft (KB) (TVD)

Total Depth: 4560.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 72

Reference Elevations: 2805.00 ft (KB)

2798.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4499.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.08

End Date: 2014.04.08

Last Calib.: 2014.04.08

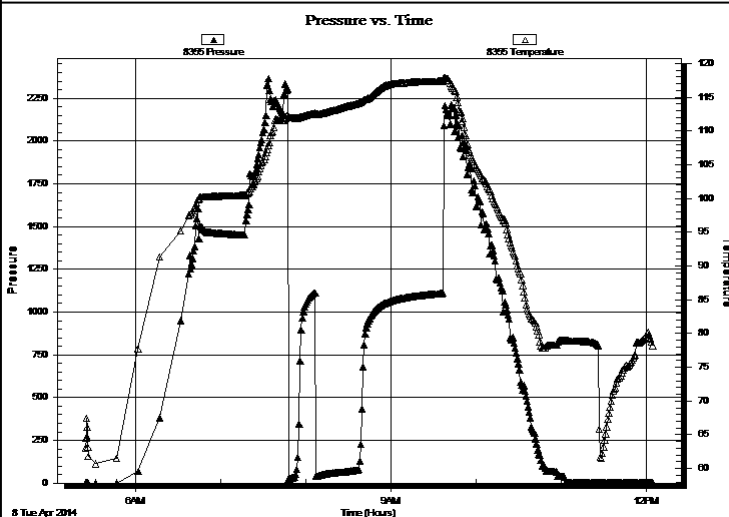
Start Time: 05:25:05

End Time: 12:04:29

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: 3 in. Blow
 IS: Bled off in 2 min.-Fair surface Blow back return-Died in 10 min.
 FF: Surface blow -built to B.o.b. in 16 1/2 min.
 FS: Bled off in 2 min.-Fair surface blow back-Built to 1/2 in.-Died back to surface blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
58.00	G & MCO 15g 20m 65o	0.29
53.00	M & GCO 10m 30g 60o	0.26
5.00	CGO 15g 85o	0.02
30.00	G & MCO 15g 30m 55o	0.42
1.00	CGO 15g 85o	0.01
0.00	GIP=283	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.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 56515

DST#: 10

ATTN: Vern Schrag

Test Start: 2014.04.08 @ 05:25:00

Tool Information

Drill Pipe:	Length: 4358.00 ft	Diameter: 3.80 inches	Volume: 61.13 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:	26000.00 lb
Drill Collar:	Length: 116.00 ft	Diameter: 2.25 inches	Volume: 0.57 bbl	Weight to Pull Loose:	5000.00 lb
			<u>Total Volume: 61.70 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	4496.00 ft			Final	56000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	64.00 ft				
Tool Length:	91.00 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			4470.00	
Shut In Tool	5.00			4475.00	
Hydraulic tool	5.00			4480.00	
Jars	5.00			4485.00	
Safety Joint	2.00			4487.00	
Packer	5.00			4492.00	27.00 Bottom Of Top Packer
Packer	4.00			4496.00	
Stubb	1.00			4497.00	
Perforations	1.00			4498.00	
Change Over Sub	1.00			4499.00	
Recorder	0.00	8355	Outside	4499.00	
Recorder	0.00	8674	Inside	4499.00	
Drill Pipe	31.00			4530.00	
Change Over Sub	1.00			4531.00	
Perforations	24.00			4555.00	
Bullnose	5.00			4560.00	64.00 Bottom Packers & Anchor
Total Tool Length:	91.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

Job Ticket: 56515

DST#: 10

ATTN: Vern Schrag

Test Start: 2014.04.08 @ 05:25:00

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:

ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.60 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2300.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
58.00	G & MCO 15g 20m 65o	0.285
53.00	M & GCO 10m 30g 60o	0.261
5.00	CGO 15g 85o	0.025
30.00	G & MCO 15g 30m 55o	0.421
1.00	CGO 15g 85o	0.014
0.00	GIP=283	0.000

Total Length: 147.00 ft Total Volume: 1.006 bbl

Num Fluid Samples: 0

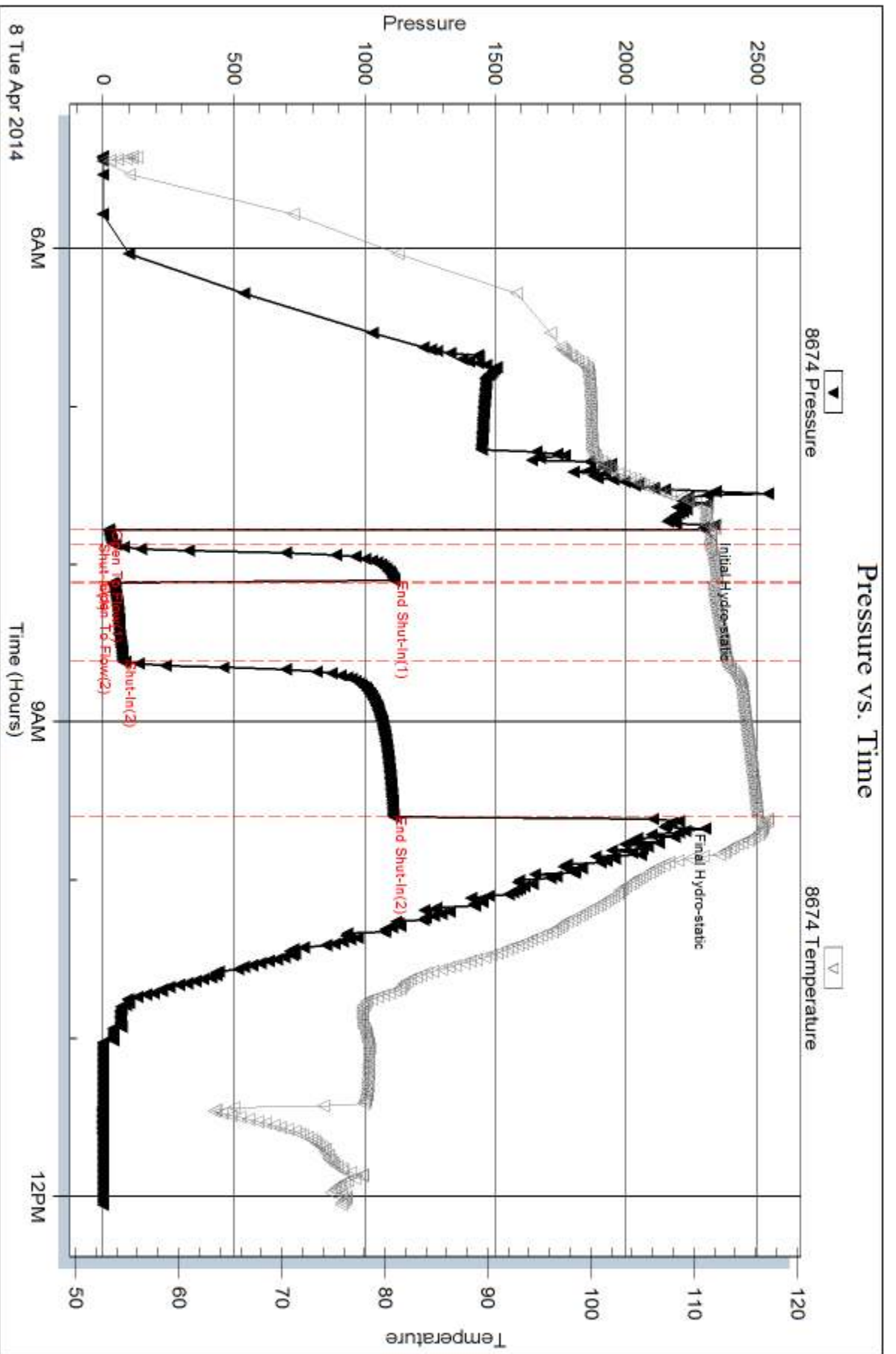
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity 38@80=36

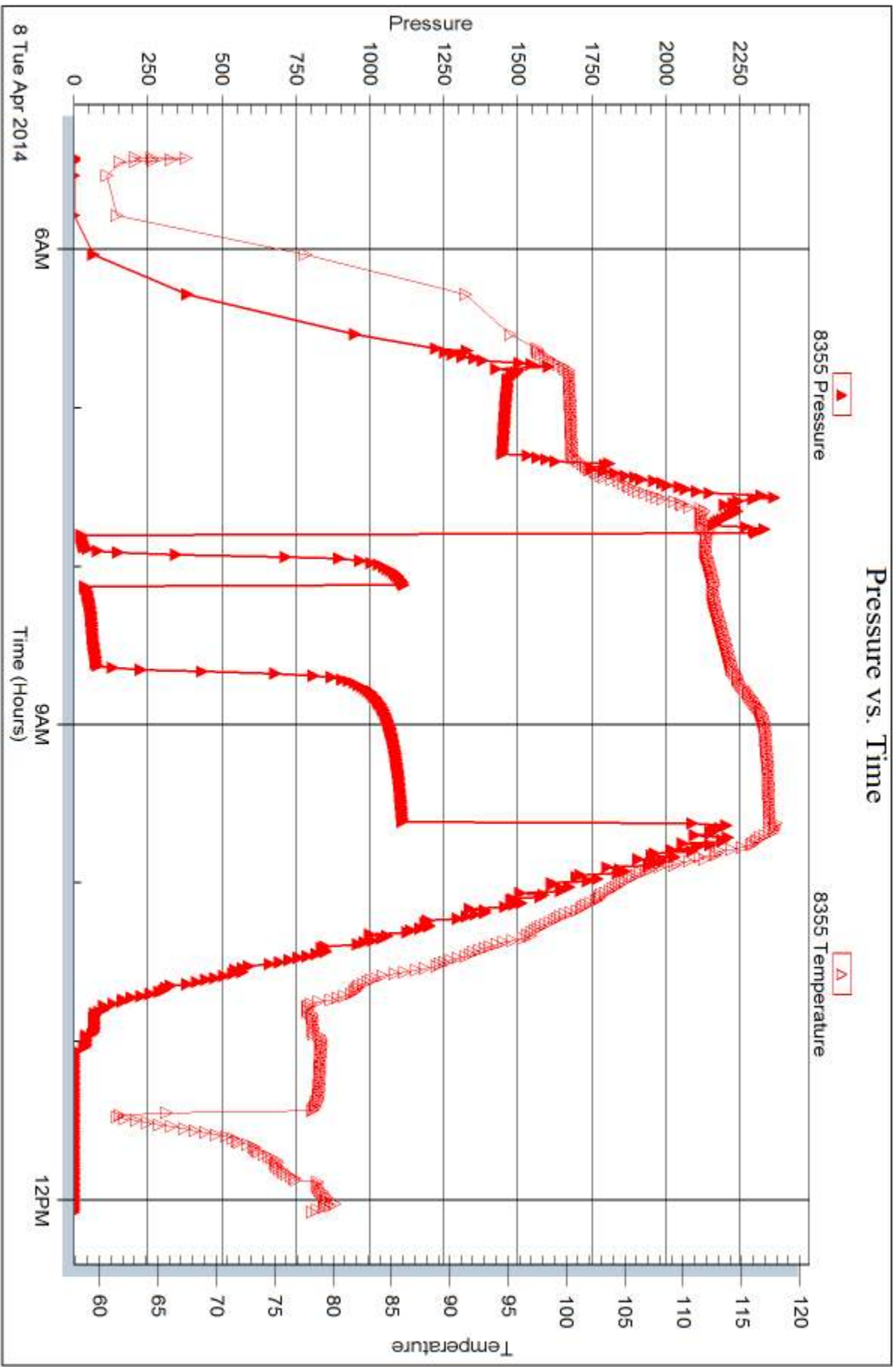


Serial #: 8355

Outside Larson Engineering, Inc.

Boomhow er B #1-16

DST Test Number: 10



Triobite Testing, Inc

Ref. No: 56515

Printed: 2014.04.11 @ 11:15:44



DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomhower B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.04.02 @ 16:08:00

End Date: 2014.04.02 @ 21:09:09

Job Ticket #: 57232 DST #: 2

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

Printed: 2014.04.11 @ 11:19:11



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

ATTN: Vern Schrag

Job Ticket: 57232

DST#: 2

Test Start: 2014.04.02 @ 16:08:00

GENERAL INFORMATION:

Formation: **LKC "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:12:55

Time Test Ended: 21:09:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4125.00 ft (KB) To 4148.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4148.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 24.48 psig @ 4126.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.02

End Date:

2014.04.02

Last Calib.:

2014.04.02

Start Time:

16:08:00

End Time:

21:09:09

Time On Btm:

2014.04.02 @ 18:12:40

Time Off Btm:

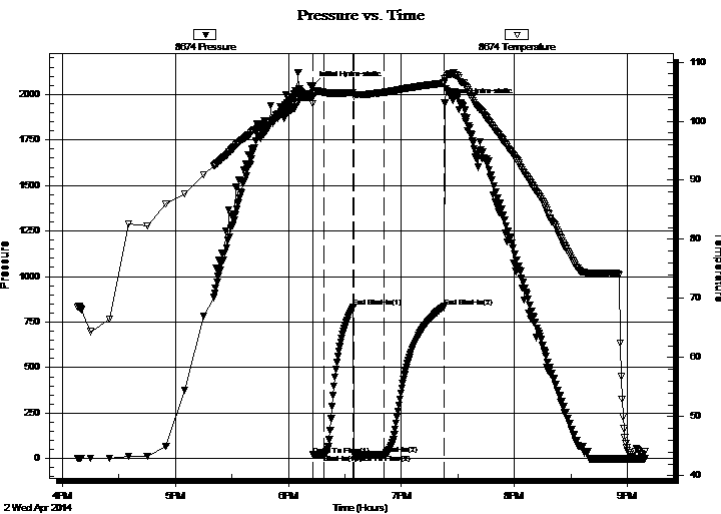
2014.04.02 @ 19:22:55

TEST COMMENT: IF- Weak Surface Blow 1/2"

IS- No Blow

FF- No Blow

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2046.04	104.05	Initial Hydro-static
1	20.88	102.98	Open To Flow (1)
6	21.84	104.86	Shut-In(1)
22	833.06	104.81	End Shut-In(1)
22	22.84	104.23	Open To Flow (2)
38	24.48	104.87	Shut-In(2)
70	835.40	106.46	End Shut-In(2)
71	1953.81	107.12	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% m with a Skim of Oil on Top	0.02

* Recovery from multiple tests

Gas Rates

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



DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

Job Ticket: 57232 **DST#: 2**

ATTN: Vern Schrag

Test Start: 2014.04.02 @ 16:08:00

GENERAL INFORMATION:

Formation: **LKC "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:12:55

Time Test Ended: 21:09:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4125.00 ft (KB) To 4148.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4148.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4126.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.02

End Date:

2014.04.02

Last Calib.:

2014.04.02

Start Time: 16:08:05

End Time:

21:10:14

Time On Btm:

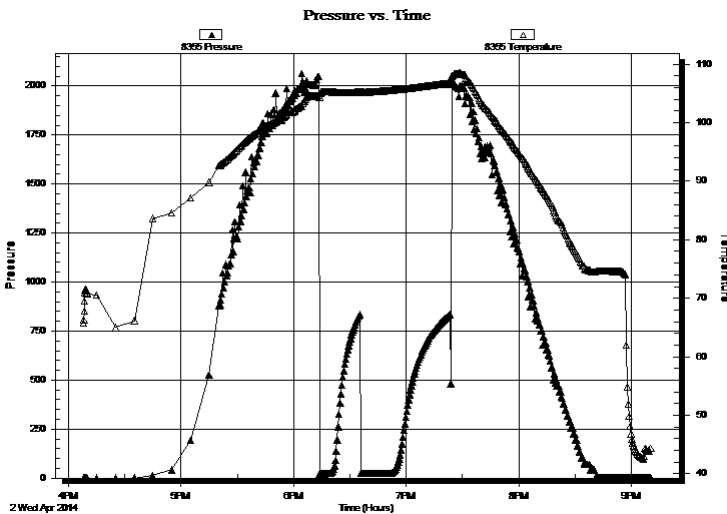
Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow 1/2"

IS- No Blow

FF- No Blow

FS- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% m with a Skim of Oil on Top	0.02

* 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.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57232

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.04.02 @ 16:08:00

Tool Information

Drill Pipe:	Length: 4012.00 ft	Diameter: 3.80 inches	Volume: 56.28 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:	28000.00 lb
Drill Collar:	Length: 116.00 ft	Diameter: 2.25 inches	Volume: 0.57 bbl	Weight to Pull Loose:	12000.00 lb
			<u>Total Volume: 56.85 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	52000.00 lb
Depth to Top Packer:	4125.00 ft			Final	52000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	23.00 ft				
Tool Length:	50.00 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			4099.00	
Shut In Tool	5.00			4104.00	
Hydraulic tool	5.00			4109.00	
Jars	5.00			4114.00	
Safety Joint	2.00			4116.00	
Packer	5.00			4121.00	27.00 Bottom Of Top Packer
Packer	4.00			4125.00	
Stubb	1.00			4126.00	
Recorder	0.00	8355	Outside	4126.00	
Recorder	0.00	8674	Inside	4126.00	
Perforations	17.00			4143.00	
Bullnose	5.00			4148.00	23.00 Bottom Packers & Anchor

Total Tool Length: 50.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57232

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.04.02 @ 16:08:00

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: 52.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.89 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2200.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	100% m with a Skim of Oil on Top	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

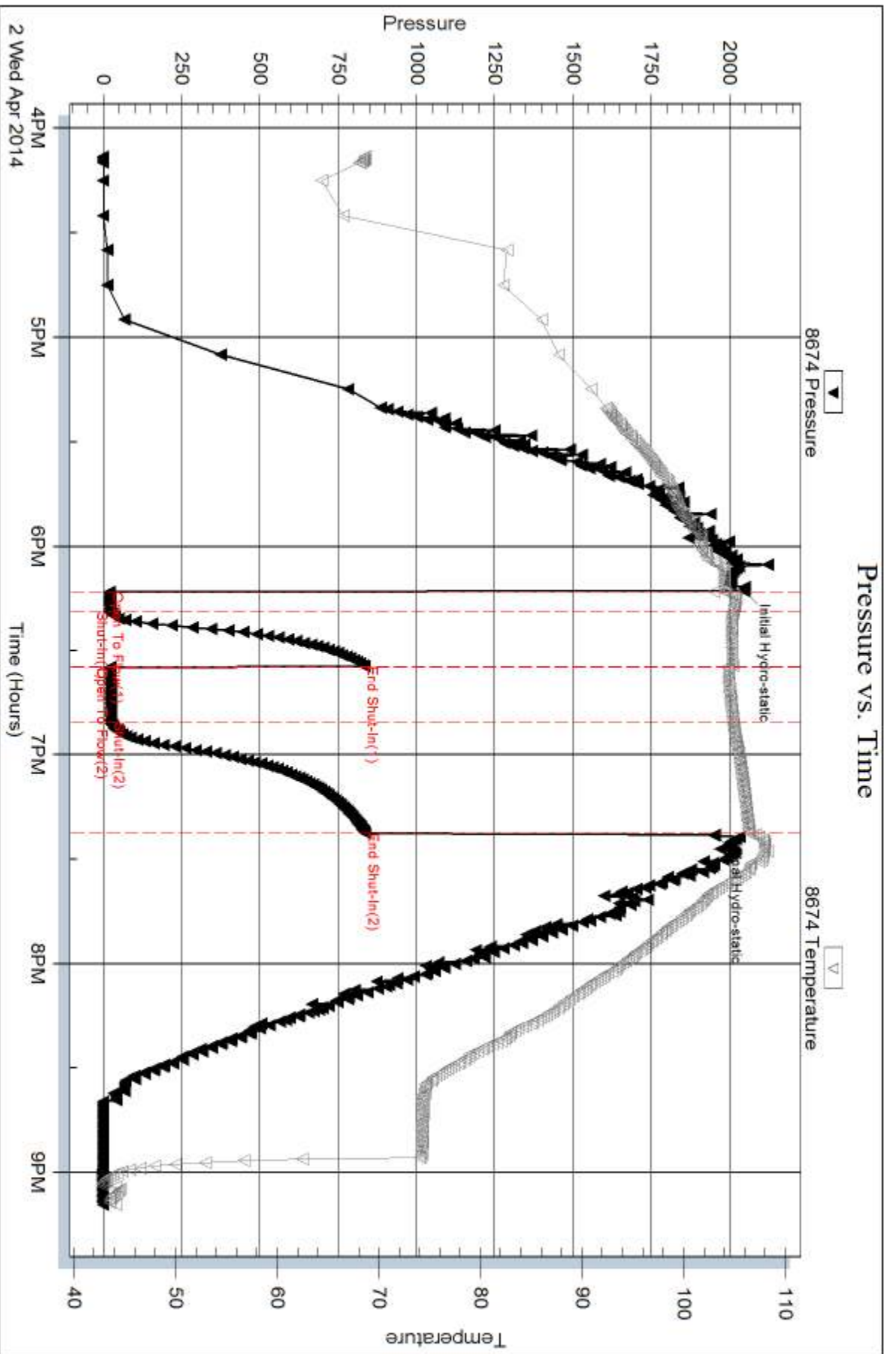
Num Gas Bombs: 0

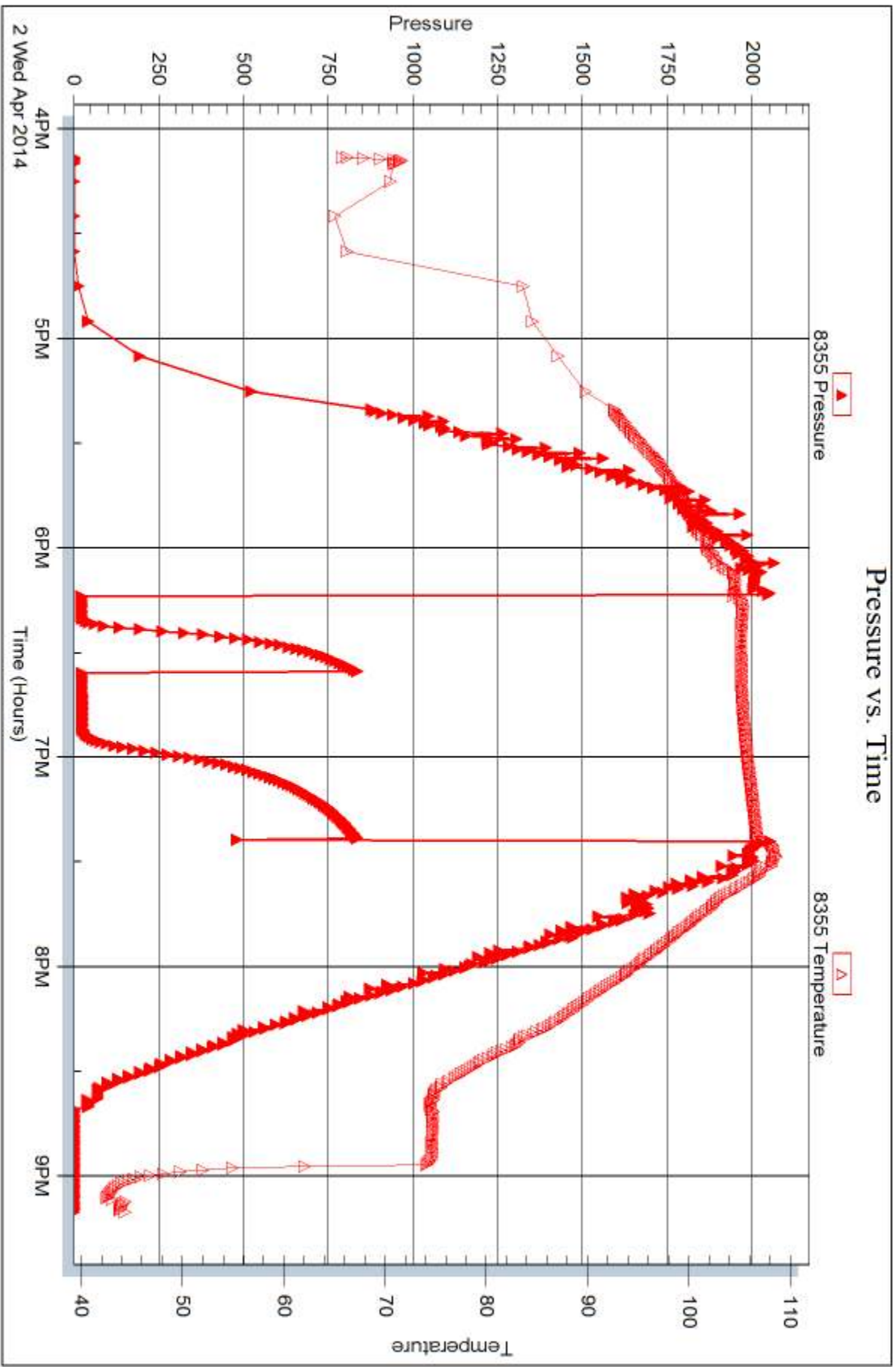
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomhower B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.04.03 @ 09:48:00

End Date: 2014.04.03 @ 14:39:39

Job Ticket #: 57233 DST #: 3

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

Printed: 2014.04.11 @ 11:18:47



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

ATTN: Vern Schrag

Job Ticket: 57233

DST#: 3

Test Start: 2014.04.03 @ 09:48:00

GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:45:40

Time Test Ended: 14:39:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4185.00 ft (KB) To 4204.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4204.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 23.49 psig @ 4186.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.03

End Date:

2014.04.03

Last Calib.:

2014.04.03

Start Time:

09:48:00

End Time:

14:39:39

Time On Btm:

2014.04.03 @ 11:45:25

Time Off Btm:

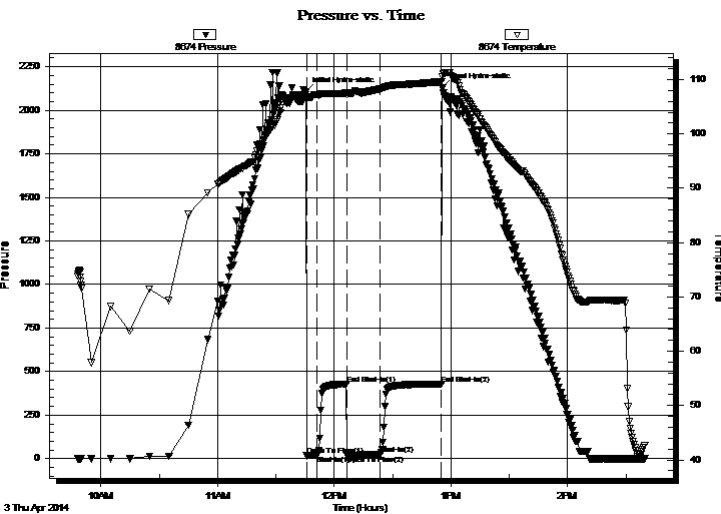
2014.04.03 @ 12:55:40

TEST COMMENT: IF- Weak Surface Blow 1/4"

IS- No Blow

FF- Weak Surface Blow Built to 1/4"

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2105.40	107.28	Initial Hydro-static
1	16.87	106.45	Open To Flow (1)
6	18.50	107.24	Shut-In(1)
21	427.79	107.50	End Shut-In(1)
22	19.20	107.29	Open To Flow (2)
39	23.49	108.32	Shut-In(2)
70	427.97	109.65	End Shut-In(2)
71	2127.50	110.53	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
8.00	100% m with Oil Spots	0.04

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

ATTN: Vern Schrag

Job Ticket: 57233

DST#: 3

Test Start: 2014.04.03 @ 09:48:00

GENERAL INFORMATION:

Formation: **LKC " J "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:45:40

Time Test Ended: 14:39:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4185.00 ft (KB) To 4204.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4204.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4186.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.03

End Date:

2014.04.03

Last Calib.:

2014.04.03

Start Time: 09:48:05

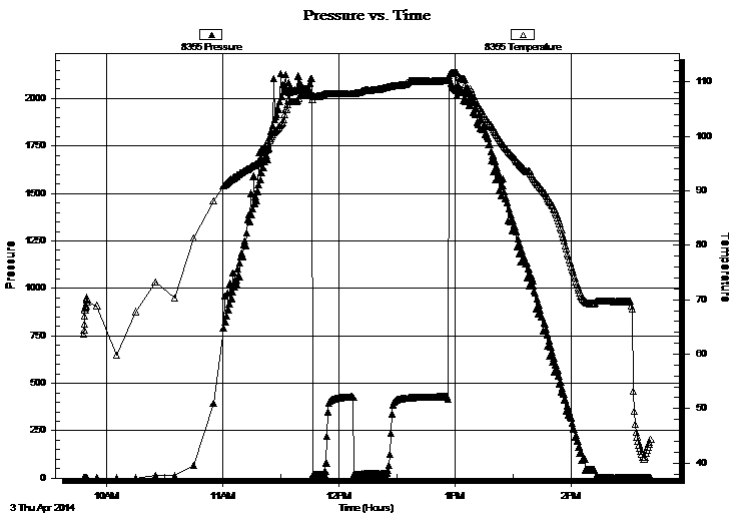
End Time:

14:40:59

Time On Btm:

Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow 1/4"
IS- No Blow
FF- Weak Surface Blow Built to 1/4"
FS- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
8.00	100%m with Oil Spots	0.04

* 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.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

Job Ticket: 57233

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.04.03 @ 09:48:00

Tool Information

Drill Pipe:	Length: 4046.00 ft	Diameter: 3.80 inches	Volume: 56.75 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:	26000.00 lb
Drill Collar:	Length: 144.00 ft	Diameter: 2.25 inches	Volume: 0.71 bbl	Weight to Pull Loose:	8000.00 lb
			<u>Total Volume: 57.46 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	4185.00 ft			Final	56000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	19.00 ft				
Tool Length:	46.00 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			4159.00	
Shut In Tool	5.00			4164.00	
Hydraulic tool	5.00			4169.00	
Jars	5.00			4174.00	
Safety Joint	2.00			4176.00	
Packer	5.00			4181.00	27.00 Bottom Of Top Packer
Packer	4.00			4185.00	
Stubb	1.00			4186.00	
Recorder	0.00	8355	Outside	4186.00	
Recorder	0.00	8674	Inside	4186.00	
Perforations	13.00			4199.00	
Bullnose	5.00			4204.00	19.00 Bottom Packers & Anchor

Total Tool Length: 46.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57233

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.04.03 @ 09:48:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.90 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2200.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
8.00	100% m with Oil Spots	0.039

Total Length: 8.00 ft Total Volume: 0.039 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

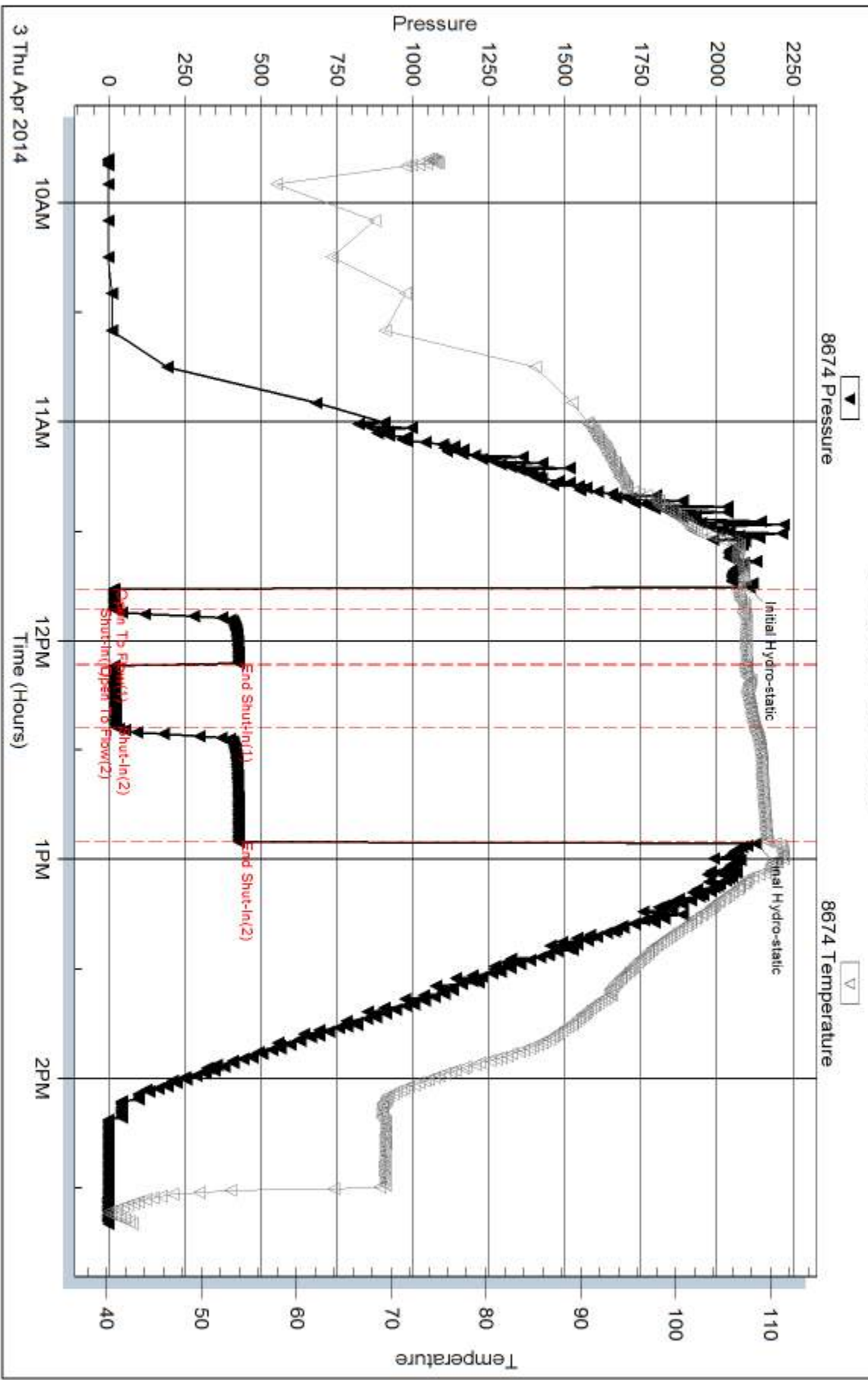
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

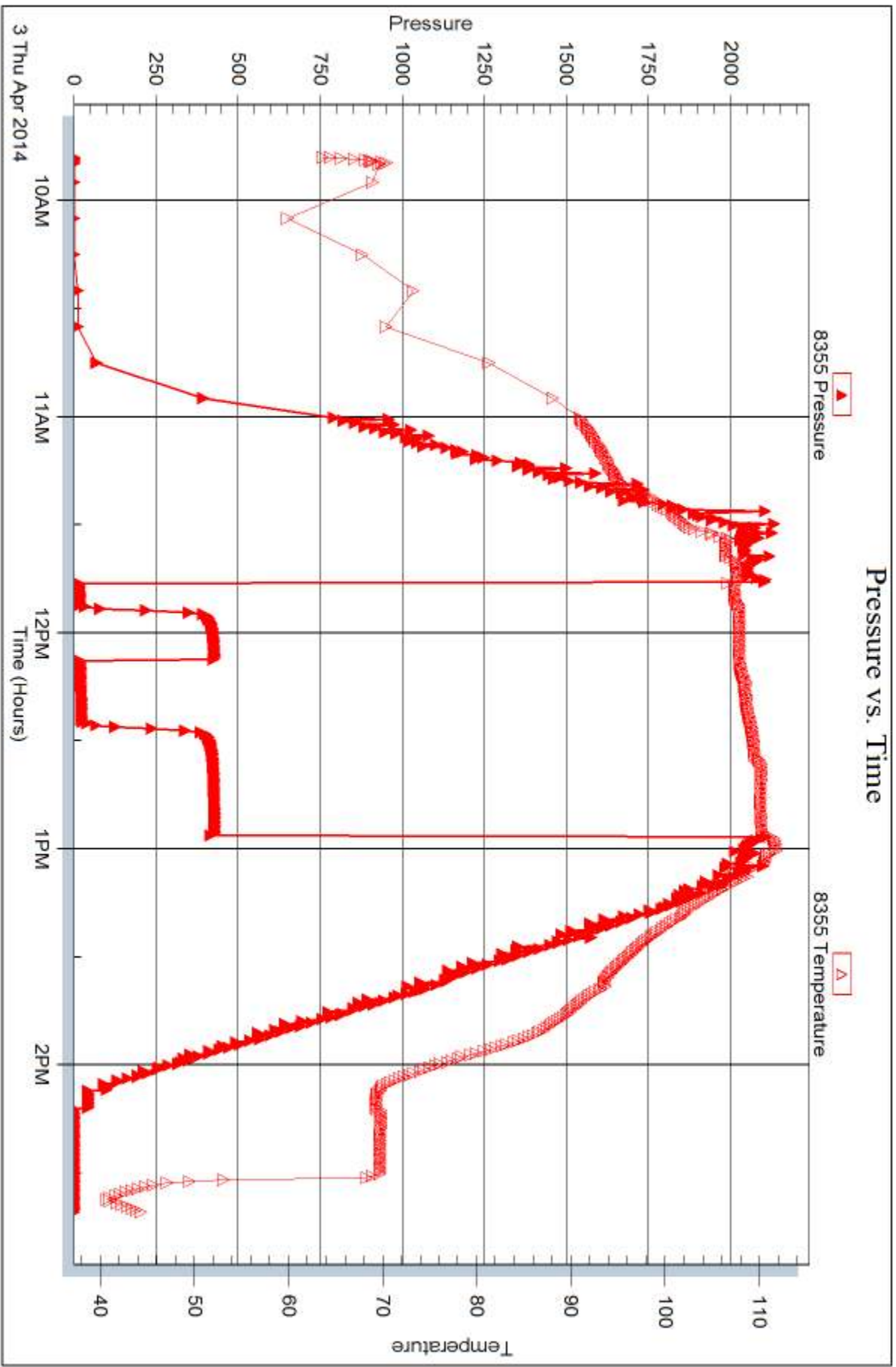


Serial #: 8355

Outside Larson Engineering, Inc.

Boomhow er B #1-16

DST Test Number: 3



Tribble Testing, Inc

Ref. No: 57233

Printed: 2014.04.11 @ 11:18:50



DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomhower B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.04.03 @ 21:24:00

End Date: 2014.04.04 @ 03:08:54

Job Ticket #: 57234 DST #: 4

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

Printed: 2014.04.11 @ 11:18:23



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

ATTN: Vern Schrag

Job Ticket: 57234

DST#: 4

Test Start: 2014.04.03 @ 21:24:00

GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:26:55

Time Test Ended: 03:08:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4200.00 ft (KB) To 4210.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4210.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 25.80 psig @ 4201.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.03

End Date:

2014.04.04

Last Calib.:

2014.04.04

Start Time: 21:24:00

End Time:

03:08:54

Time On Btm:

2014.04.03 @ 23:26:40

Time Off Btm:

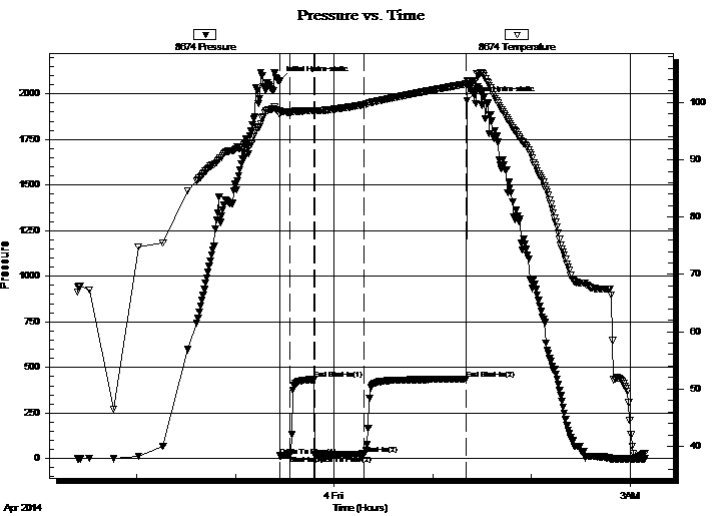
2014.04.04 @ 01:20:40

TEST COMMENT: IF- Weak Surface Blow Built to 1/2"

IS- No Blow

FF- Weak Surface Blow Built to 1"

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2070.78	98.62	Initial Hydro-static
1	15.29	97.83	Open To Flow (1)
7	18.59	98.32	Shut-In(1)
21	433.58	98.64	End Shut-In(1)
22	19.17	98.47	Open To Flow (2)
52	25.80	99.65	Shut-In(2)
114	434.84	103.23	End Shut-In(2)
114	1964.25	103.76	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	OWCM 1%oil 11%w 88%m	0.07

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57234 **DST#: 4**

ATTN: Vern Schrag

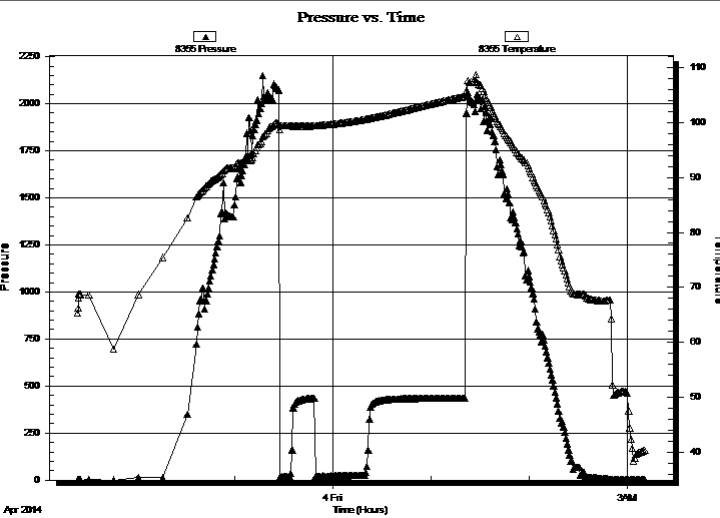
Test Start: 2014.04.03 @ 21:24:00

GENERAL INFORMATION:

Formation: **LKC " J "**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 23:26:55 Tester: Will MacLean
 Time Test Ended: 03:08:54 Unit No: 72
Interval: 4200.00 ft (KB) To 4210.00 ft (KB) (TVD) Reference Elevations: 2805.00 ft (KB)
 Total Depth: 4210.00 ft (KB) (TVD) 2798.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 7.00 ft

Serial #: 8355 Outside
 Press@RunDepth: psig @ 4201.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.04.03 End Date: 2014.04.04 Last Calib.: 2014.04.04
 Start Time: 21:24:05 End Time: 03:10:14 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow Built to 1/2"
 IS- No Blow
 FF- Weak Surface Blow Built to 1"
 FS- No Blow



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

Recovery		
Length (ft)	Description	Volume (bbl)
15.00	OWCM 1%oil 11%w 88%m	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.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57234

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.04.03 @ 21:24:00

Tool Information

Drill Pipe:	Length: 4073.00 ft	Diameter: 3.80 inches	Volume: 57.13 bbl	Tool Weight: 2300.00 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: 116.00 ft	Diameter: 2.25 inches	Volume: 0.57 bbl	Weight to Pull Loose: 10000.00 lb
			<u>Total Volume: 57.70 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4200.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	37.00 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			4174.00	
Shut In Tool	5.00			4179.00	
Hydraulic tool	5.00			4184.00	
Jars	5.00			4189.00	
Safety Joint	2.00			4191.00	
Packer	5.00			4196.00	27.00 Bottom Of Top Packer
Packer	4.00			4200.00	
Stubb	1.00			4201.00	
Recorder	0.00	8355	Outside	4201.00	
Recorder	0.00	8674	Inside	4201.00	
Perforations	4.00			4205.00	
Bullnose	5.00			4210.00	10.00 Bottom Packers & Anchor

Total Tool Length: 37.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57234

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.04.03 @ 21:24:00

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:

28500 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.13 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	OWCM 1%oil 11%w 88%m	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

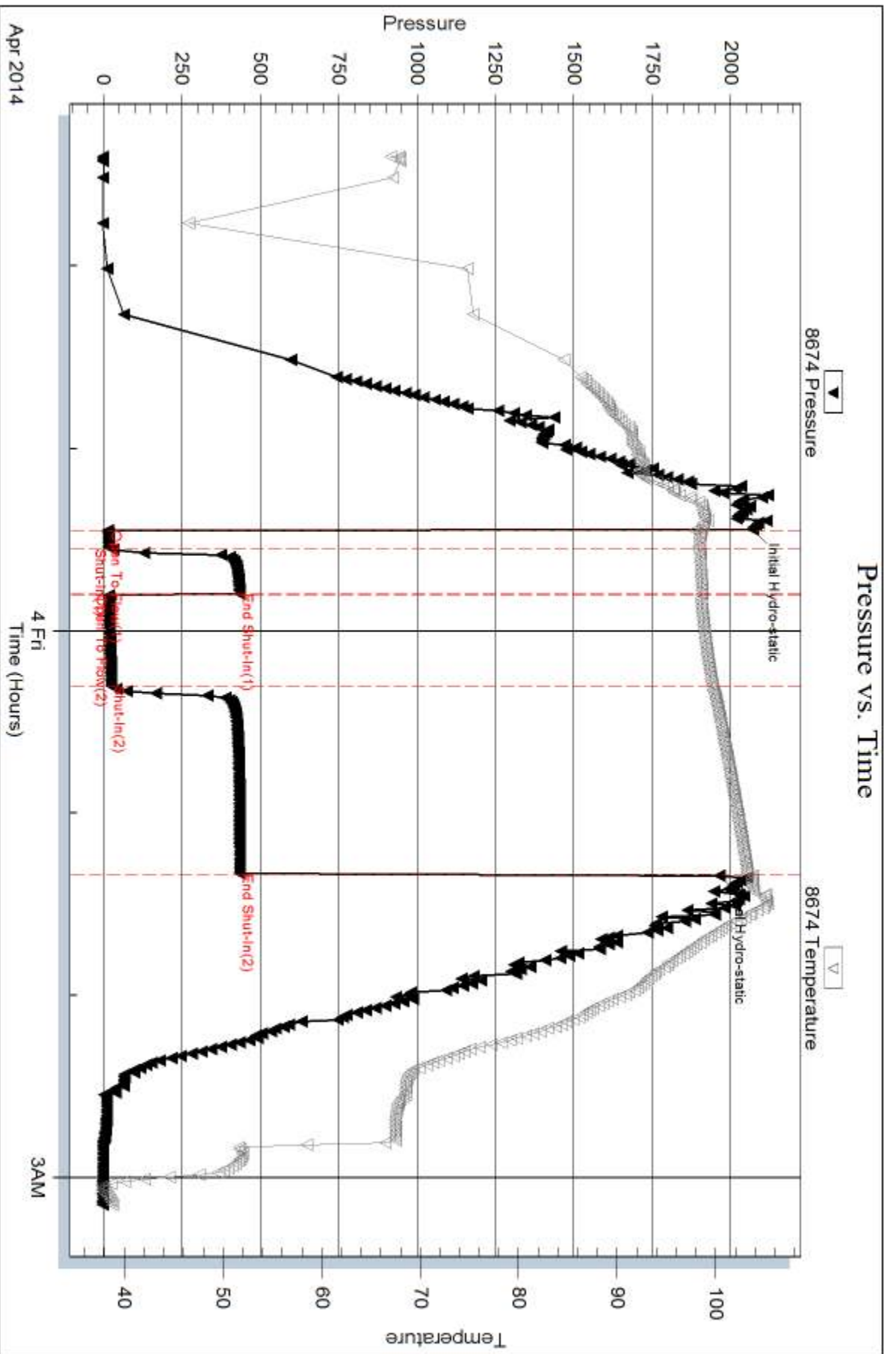
Num Gas Bombs: 0

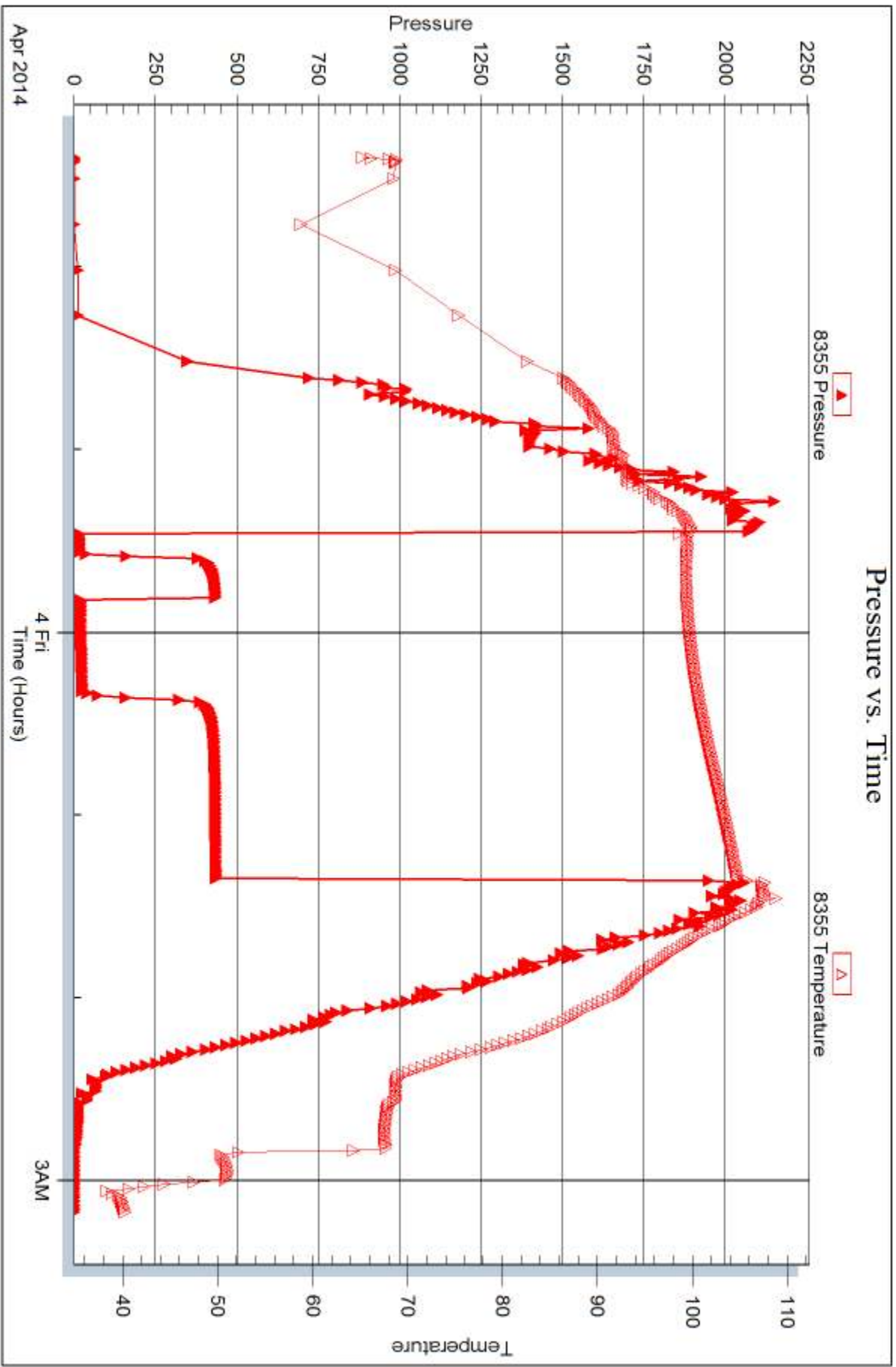
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .425 @ 38f = 28500







DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomhower B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.04.04 @ 12:20:00

End Date: 2014.04.04 @ 17:03:54

Job Ticket #: 57235 DST #: 5

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

Printed: 2014.04.11 @ 11:17:57



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

Job Ticket: 57235

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.04.04 @ 12:20:00

GENERAL INFORMATION:

Formation: **LKC " K "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:10:10

Time Test Ended: 17:03:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4220.00 ft (KB) To 4238.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4238.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 21.24 psig @ 4223.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.04

End Date:

2014.04.04

Last Calib.:

2014.04.04

Start Time: 12:20:00

End Time:

17:03:54

Time On Btm:

2014.04.04 @ 14:09:55

Time Off Btm:

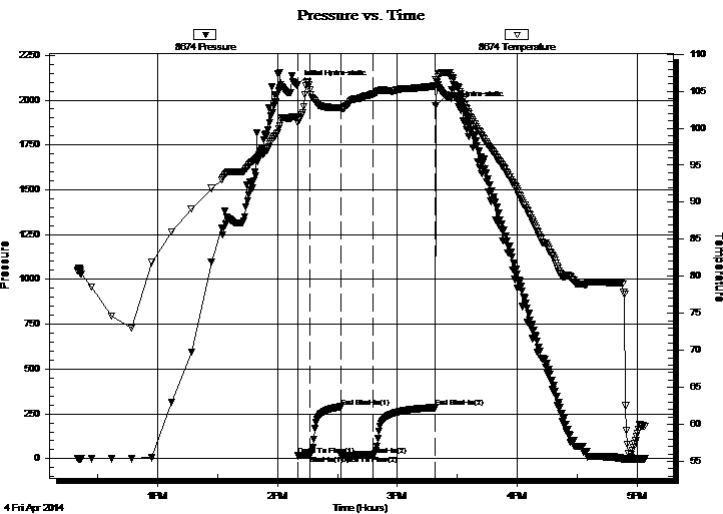
2014.04.04 @ 15:19:10

TEST COMMENT: IF- Weak Surface Blow 1/4"

IS- No Blow

FF- Weak Surface Blow Built to 1/4"

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2087.97	101.53	Initial Hydro-static
1	16.69	100.74	Open To Flow (1)
7	18.55	105.14	Shut-In(1)
22	289.78	102.76	End Shut-In(1)
22	18.04	102.57	Open To Flow (2)
38	21.24	104.63	Shut-In(2)
69	285.24	105.70	End Shut-In(2)
70	1968.22	106.61	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% m with Few Oil Spots in Tool	0.02

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57235

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.04.04 @ 12:20:00

GENERAL INFORMATION:

Formation: **LKC "K"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:10:10

Time Test Ended: 17:03:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: **4220.00 ft (KB) To 4238.00 ft (KB) (TVD)**

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4238.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4223.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.04

End Date:

2014.04.04

Last Calib.:

2014.04.04

Start Time: 12:20:05

End Time:

17:05:14

Time On Btm:

Time Off Btm:

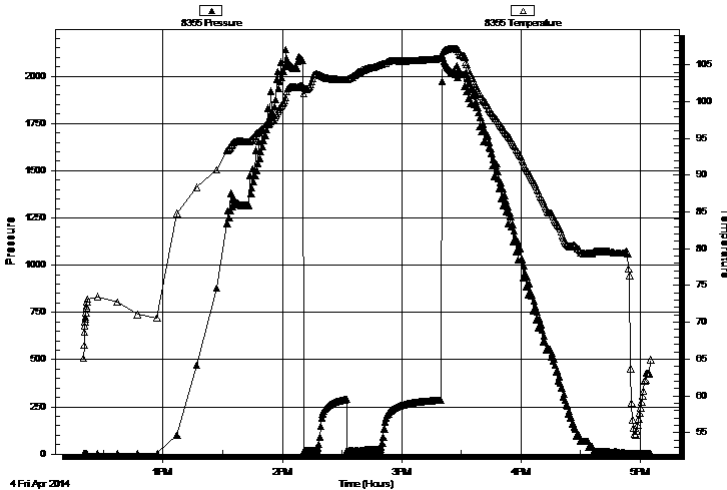
TEST COMMENT: IF- Weak Surface Blow 1/4"

IS- No Blow

FF- Weak Surface Blow Built to 1/4"

FS- No Blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% m with Few Oil Spots in Tool	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.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57235

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.04.04 @ 12:20:00

Tool Information

Drill Pipe:	Length: 4105.00 ft	Diameter: 3.80 inches	Volume: 57.58 bbl	Tool Weight:	2300.00 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: 116.00 ft	Diameter: 2.25 inches	Volume: 0.57 bbl	Weight to Pull Loose:	4000.00 lb
			<u>Total Volume: 58.15 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	4220.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	18.00 ft				
Tool Length:	45.00 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			4194.00	
Shut In Tool	5.00			4199.00	
Hydraulic tool	5.00			4204.00	
Jars	5.00			4209.00	
Safety Joint	2.00			4211.00	
Packer	5.00			4216.00	27.00 Bottom Of Top Packer
Packer	4.00			4220.00	
Stubb	1.00			4221.00	
Perforations	2.00			4223.00	
Recorder	0.00	8355	Outside	4223.00	
Recorder	0.00	8674	Inside	4223.00	
Perforations	10.00			4233.00	
Bullnose	5.00			4238.00	18.00 Bottom Packers & Anchor

Total Tool Length: 45.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57235

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.04.04 @ 12:20:00

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: 50.00 sec/qt

Cushion Volume: bbl

Water Loss: 7.14 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure: psig

Salinity: 2700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	100% m with Few Oil Spots in Tool	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

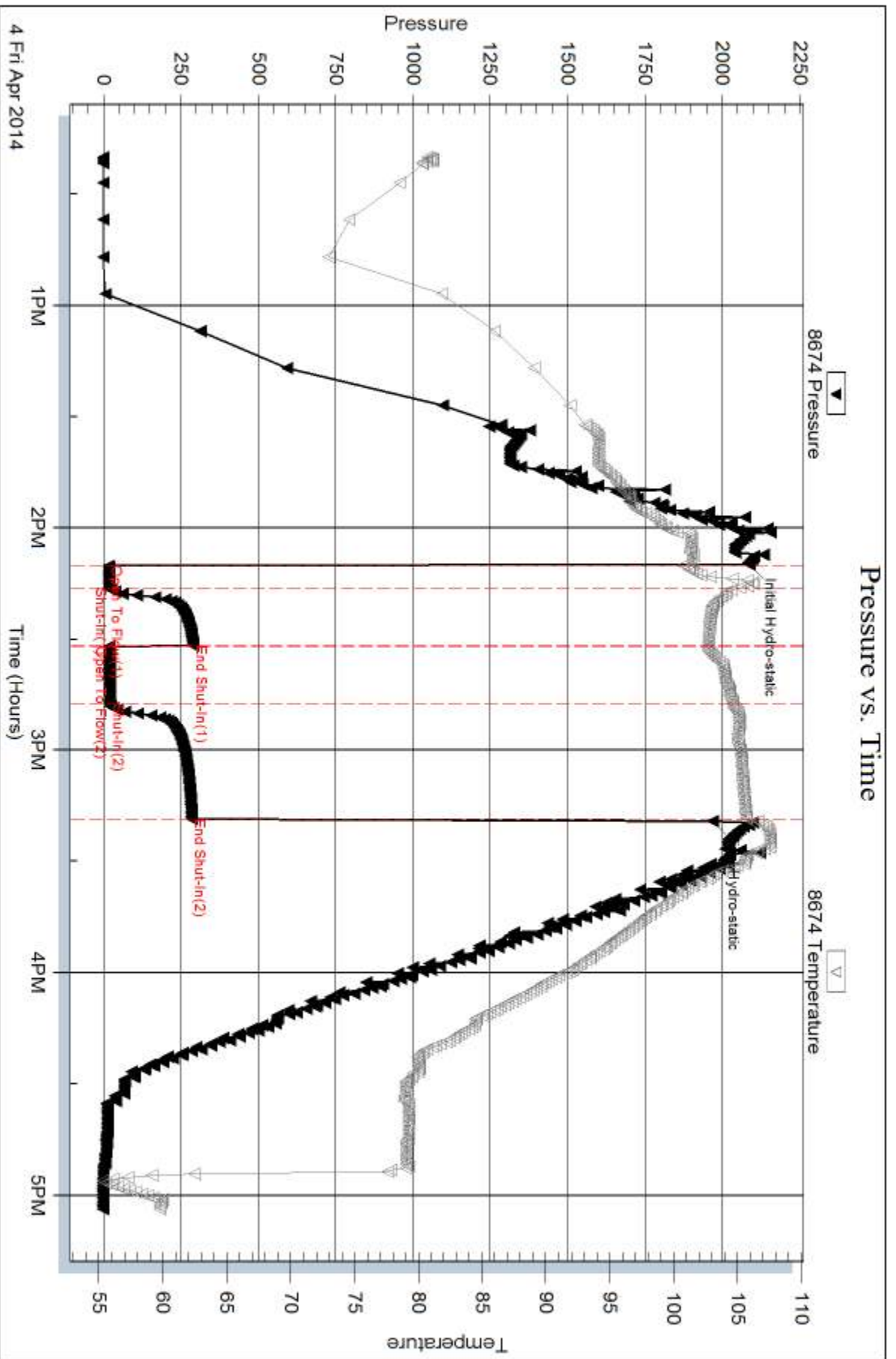
Num Gas Bombs: 0

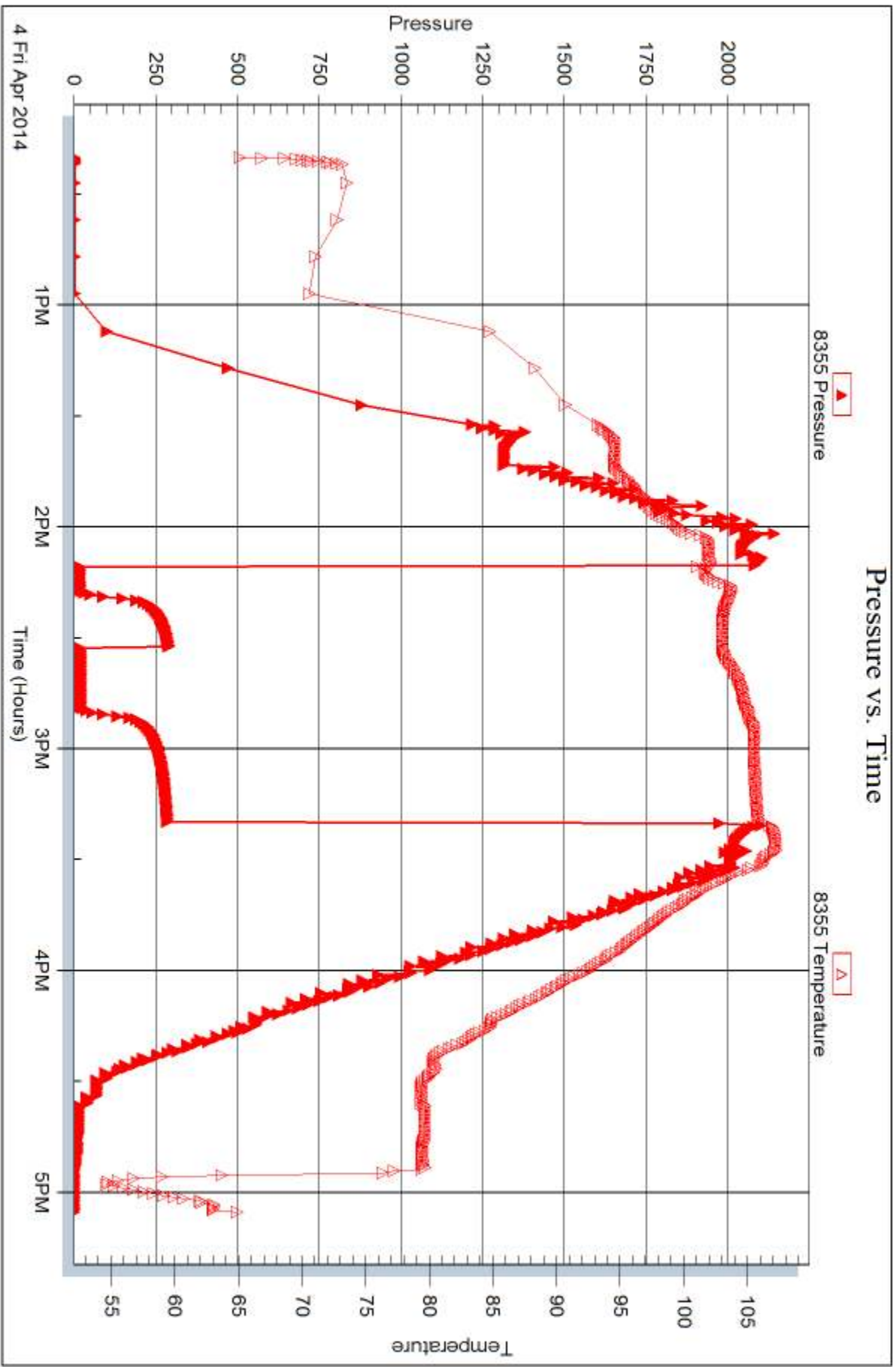
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomer B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.04.05 @ 06:32:00

End Date: 2014.04.05 @ 11:16:39

Job Ticket #: 57236 DST #: 6

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

Printed: 2014.04.11 @ 11:17:34



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

Job Ticket: 57236

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.04.05 @ 06:32:00

GENERAL INFORMATION:

Formation: **LKC " L "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:24:40

Time Test Ended: 11:16:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4259.00 ft (KB) To 4281.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4065.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 18.73 psig @ 4262.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.05

End Date:

2014.04.05

Last Calib.:

2014.04.05

Start Time: 06:32:00

End Time:

11:16:39

Time On Btm:

2014.04.05 @ 08:24:25

Time Off Btm:

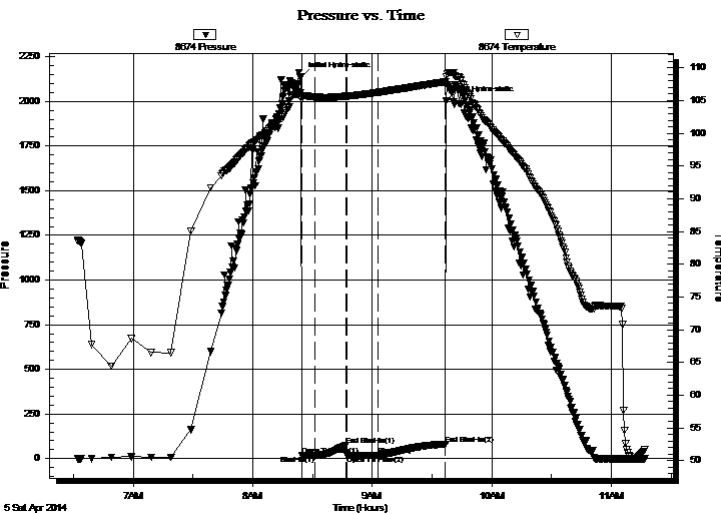
2014.04.05 @ 09:37:10

TEST COMMENT: IF- Weak Surface Blow 1/4"

IS- No Blow

FF- Weak Surface Blow

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2138.76	106.27	Initial Hydro-static
1	16.40	105.16	Open To Flow (1)
7	16.55	105.57	Shut-In(1)
23	74.29	105.69	End Shut-In(1)
23	17.74	105.66	Open To Flow (2)
39	18.73	106.27	Shut-In(2)
73	81.49	107.87	End Shut-In(2)
73	2003.33	108.68	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	100% Couple Oil Spots in Tool	0.01

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57236 **DST#: 6**

ATTN: Vern Schrag

Test Start: 2014.04.05 @ 06:32:00

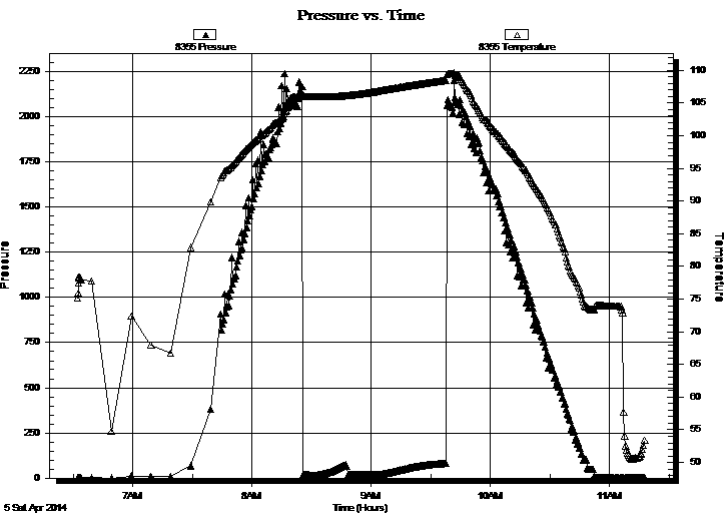
GENERAL INFORMATION:

Formation: LKC "L"	Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock: ft (KB)	Tester: Will MacLean
Time Tool Opened: 08:24:40	Unit No: 72
Time Test Ended: 11:16:39	
Interval: 4259.00 ft (KB) To 4281.00 ft (KB) (TVD)	Reference Elevations: 2805.00 ft (KB)
Total Depth: 4065.00 ft (KB) (TVD)	2798.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Good	KB to GR/CF: 7.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4262.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2014.04.05 End Date: 2014.04.05	Last Calib.: 2014.04.05
Start Time: 06:32:05 End Time: 11:17:59	Time On Btm:
	Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow 1/4"
IS- No Blow
FF- Weak Surface Blow
FS- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
2.00	100%m Couple Oil Spots in Tool	0.01

* 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.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57236

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.04.05 @ 06:32:00

Tool Information

Drill Pipe:	Length: 4136.00 ft	Diameter: 3.80 inches	Volume: 58.02 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: 116.00 ft	Diameter: 2.25 inches	Volume: 0.57 bbl	Weight to Pull Loose:	10000.00 lb
			<u>Total Volume: 58.59 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	4259.00 ft			Final	56000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	22.00 ft				
Tool Length:	49.00 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			4233.00	
Shut In Tool	5.00			4238.00	
Hydraulic tool	5.00			4243.00	
Jars	5.00			4248.00	
Safety Joint	2.00			4250.00	
Packer	5.00			4255.00	27.00 Bottom Of Top Packer
Packer	4.00			4259.00	
Stubb	1.00			4260.00	
Perforations	2.00			4262.00	
Recorder	0.00	8355	Outside	4262.00	
Recorder	0.00	8674	Inside	4262.00	
Perforations	14.00			4276.00	
Bullnose	5.00			4281.00	22.00 Bottom Packers & Anchor

Total Tool Length: 49.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57236

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.04.05 @ 06:32:00

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: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	100%m Couple Oil Spots in Tool	0.010

Total Length: 2.00 ft Total Volume: 0.010 bbl

Num Fluid Samples: 0

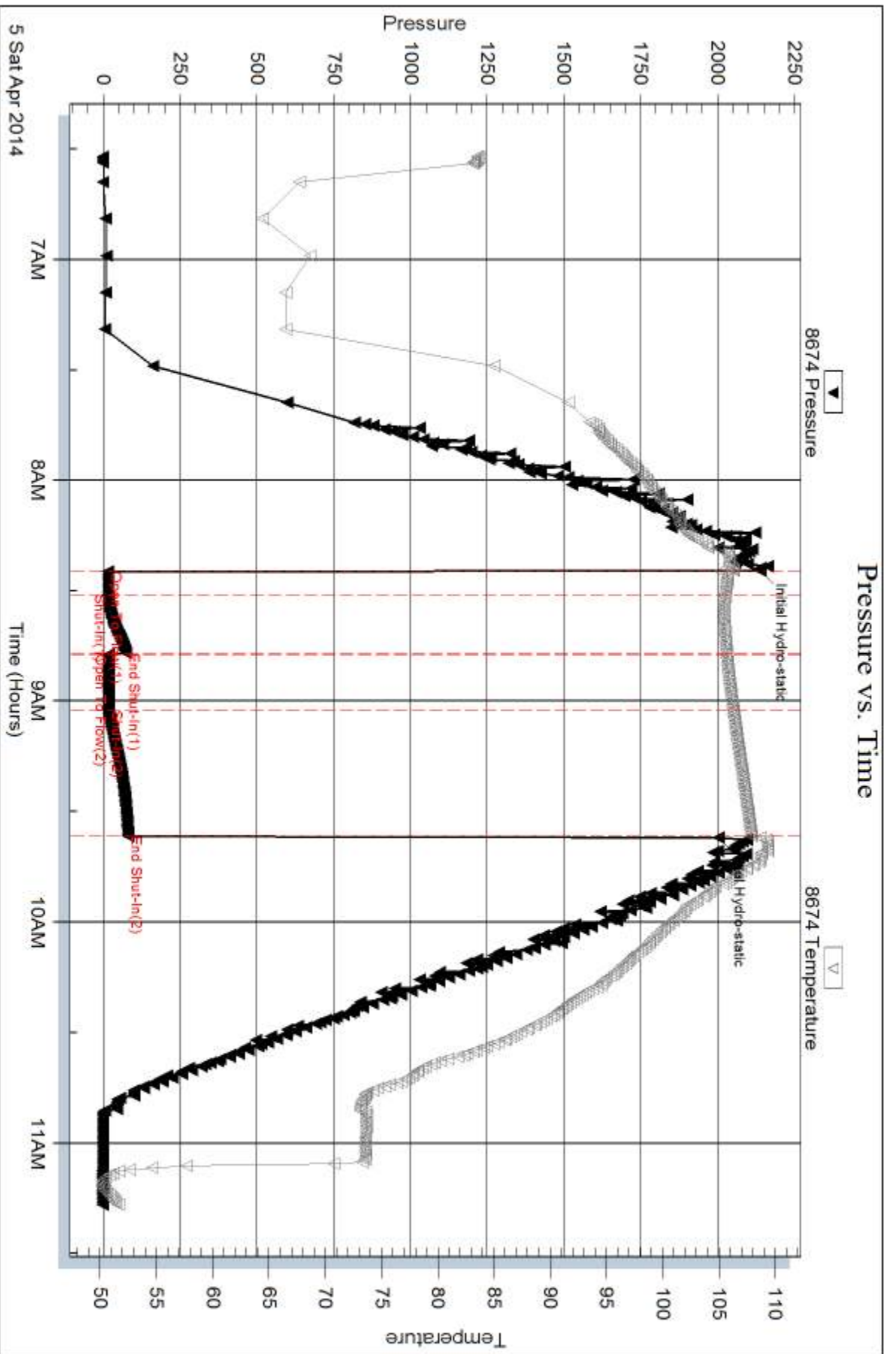
Num Gas Bombs: 0

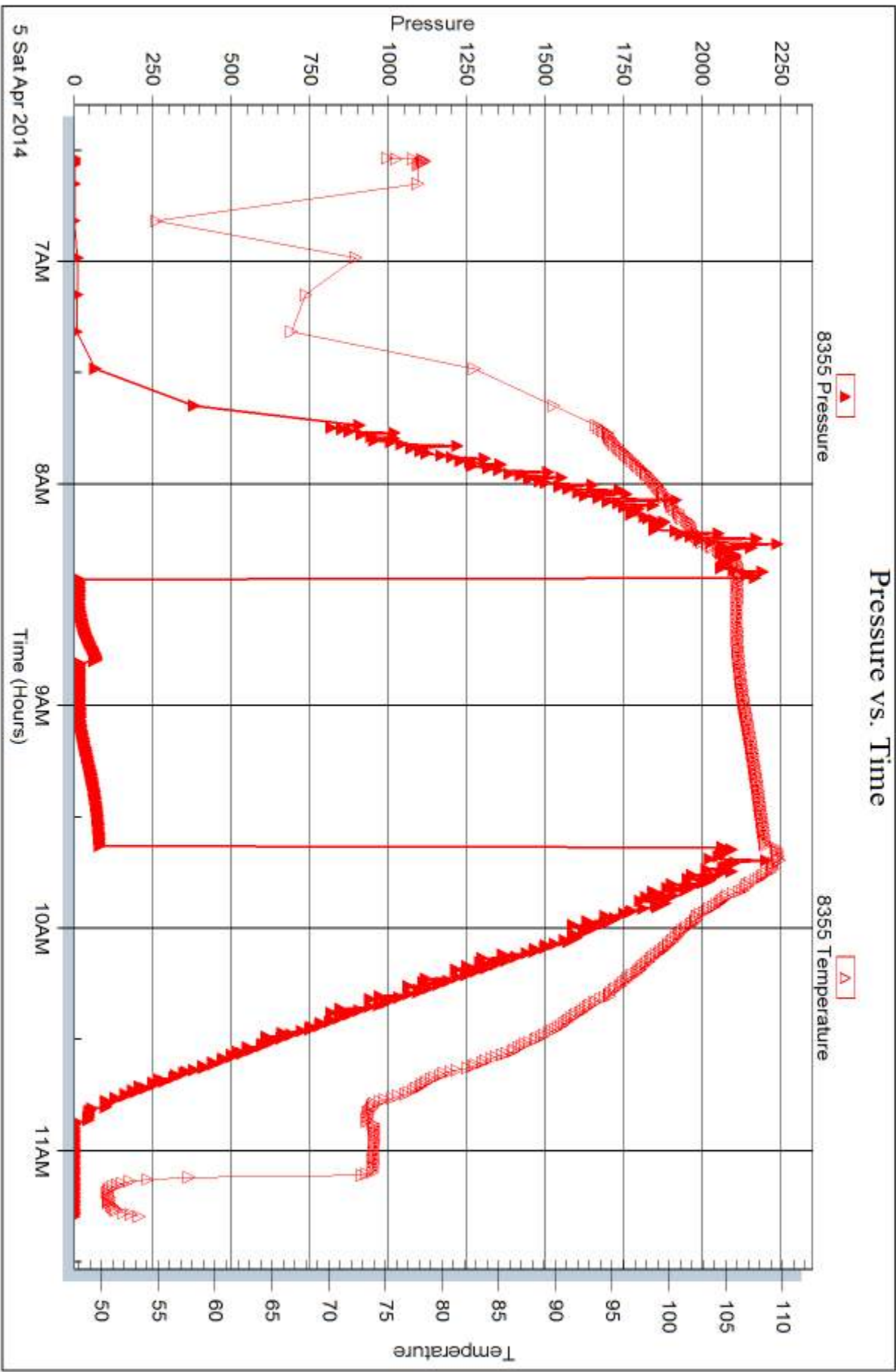
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomhower B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.04.06 @ 00:04:00

End Date: 2014.04.06 @ 04:52:09

Job Ticket #: 57237 DST #: 7

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

Printed: 2014.04.11 @ 11:17:05



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

ATTN: Vern Schrag

Job Ticket: 57237

DST#: 7

Test Start: 2014.04.06 @ 00:04:00

GENERAL INFORMATION:

Formation: **Pleasanton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:03:10

Time Test Ended: 04:52:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4314.00 ft (KB) To 4350.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4350.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 19.18 psig @ 4317.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.06

End Date:

2014.04.06

Last Calib.:

2014.04.06

Start Time: 00:04:00

End Time:

04:52:09

Time On Btm:

2014.04.06 @ 02:02:55

Time Off Btm:

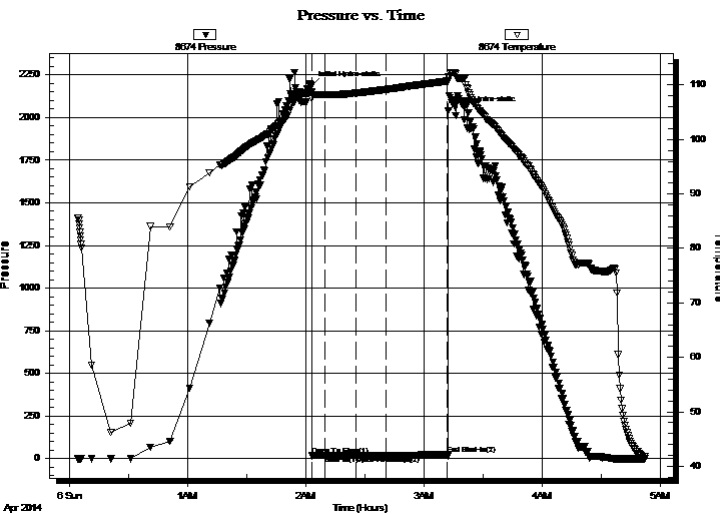
2014.04.06 @ 03:12:25

TEST COMMENT: IF- Weak Surface Blow

IS- No Blow

FF- No Blow

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2186.87	108.67	Initial Hydro-static
1	16.97	107.47	Open To Flow (1)
7	18.74	108.19	Shut-In(1)
23	23.66	108.50	End Shut-In(1)
23	17.97	108.50	Open To Flow (2)
38	19.18	109.18	Shut-In(2)
69	24.89	110.71	End Shut-In(2)
70	2039.70	111.43	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100% mud	0.00

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

ATTN: Vern Schrag

Job Ticket: 57237

DST#: 7

Test Start: 2014.04.06 @ 00:04:00

GENERAL INFORMATION:

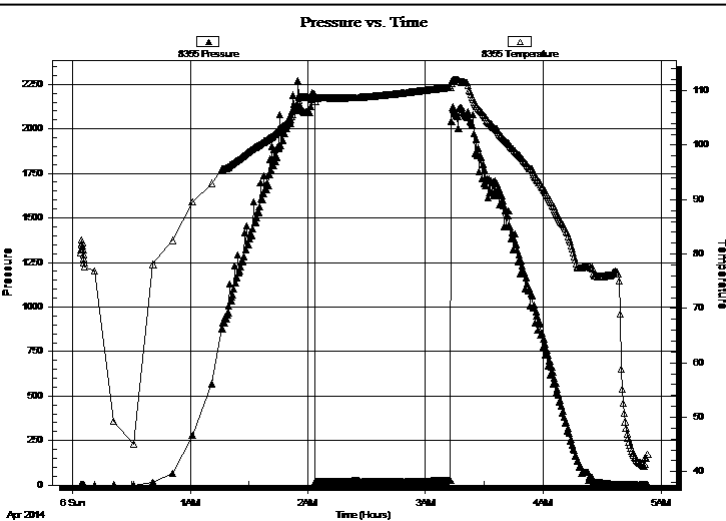
Formation: **Pleasanton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:03:10
Time Test Ended: 04:52:09
Interval: 4314.00 ft (KB) To 4350.00 ft (KB) (TVD)
Total Depth: 4350.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)
Tester: Will MacLean
Unit No: 72
Reference Elevations: 2805.00 ft (KB)
2798.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4317.00 ft (KB)
Start Date: 2014.04.06 End Date: 2014.04.06
Start Time: 00:04:05 End Time: 04:53:14
Capacity: 8000.00 psig
Last Calib.: 2014.04.06
Time On Btm:
Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow
IS- No Blow
FF- No Blow
FS- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100% mud	0.00

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.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57237

DST#: 7

ATTN: Vern Schrag

Test Start: 2014.04.06 @ 00:04:00

Tool Information

Drill Pipe:	Length: 4201.00 ft	Diameter: 3.80 inches	Volume: 58.93 bbl	Tool Weight:	2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	28000.00 lb
Drill Collar:	Length: 116.00 ft	Diameter: 2.25 inches	Volume: 0.57 bbl	Weight to Pull Loose:	4000.00 lb
			<u>Total Volume: 59.50 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	4314.00 ft			Final	56000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	36.00 ft				
Tool Length:	63.00 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			4288.00	
Shut In Tool	5.00			4293.00	
Hydraulic tool	5.00			4298.00	
Jars	5.00			4303.00	
Safety Joint	2.00			4305.00	
Packer	5.00			4310.00	27.00 Bottom Of Top Packer
Packer	4.00			4314.00	
Stubb	1.00			4315.00	
Perforations	2.00			4317.00	
Recorder	0.00	8355	Outside	4317.00	
Recorder	0.00	8674	Inside	4317.00	
Perforations	28.00			4345.00	
Bullnose	5.00			4350.00	36.00 Bottom Packers & Anchor

Total Tool Length: 63.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57237

DST#: 7

ATTN: Vern Schrag

Test Start: 2014.04.06 @ 00:04:00

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: 56.00 sec/qt

Cushion Volume:

bbl

Water Loss: 6.36 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
1.00	100%mud	0.005

Total Length: 1.00 ft Total Volume: 0.005 bbl

Num Fluid Samples: 0

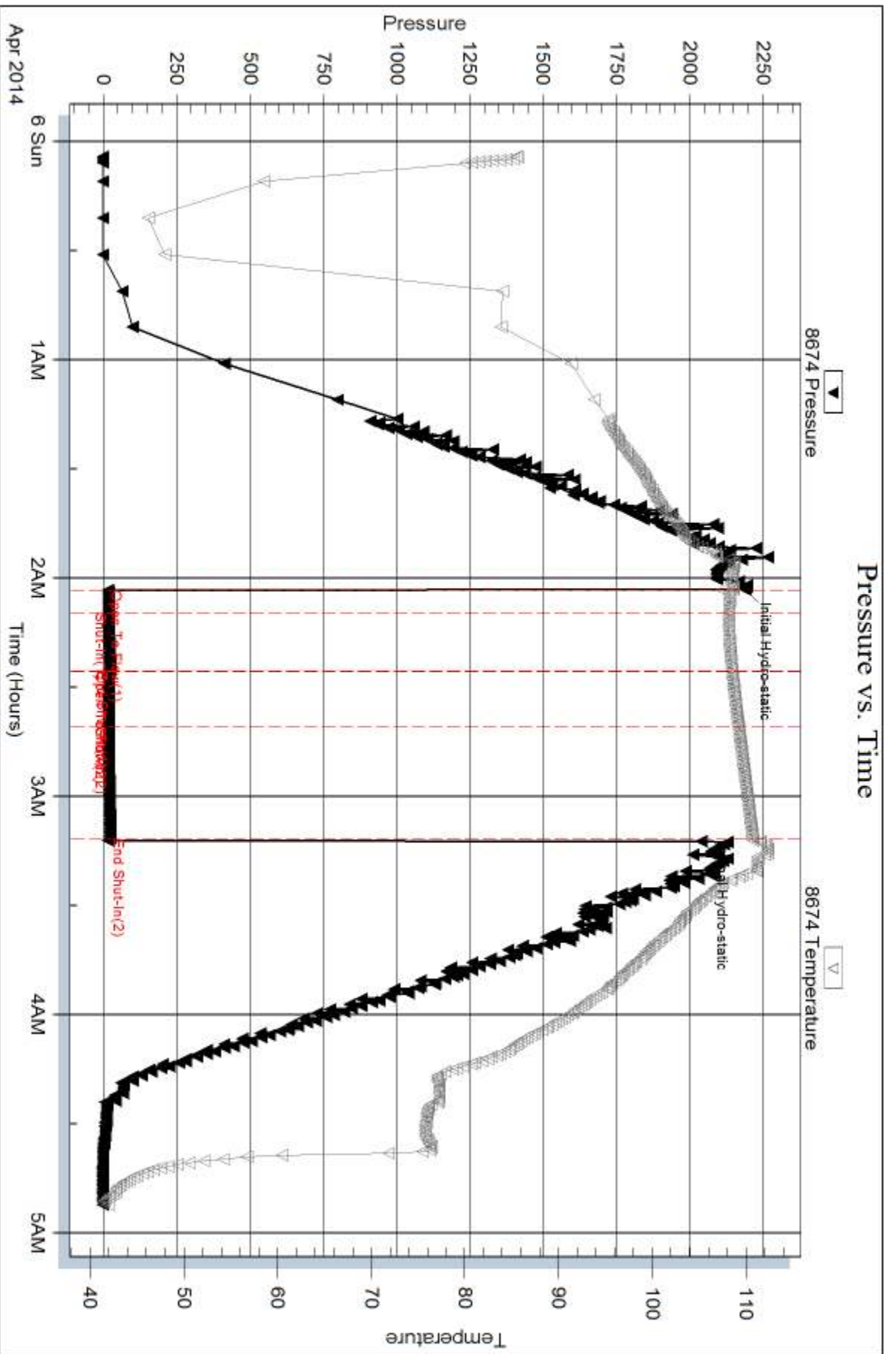
Num Gas Bombs: 0

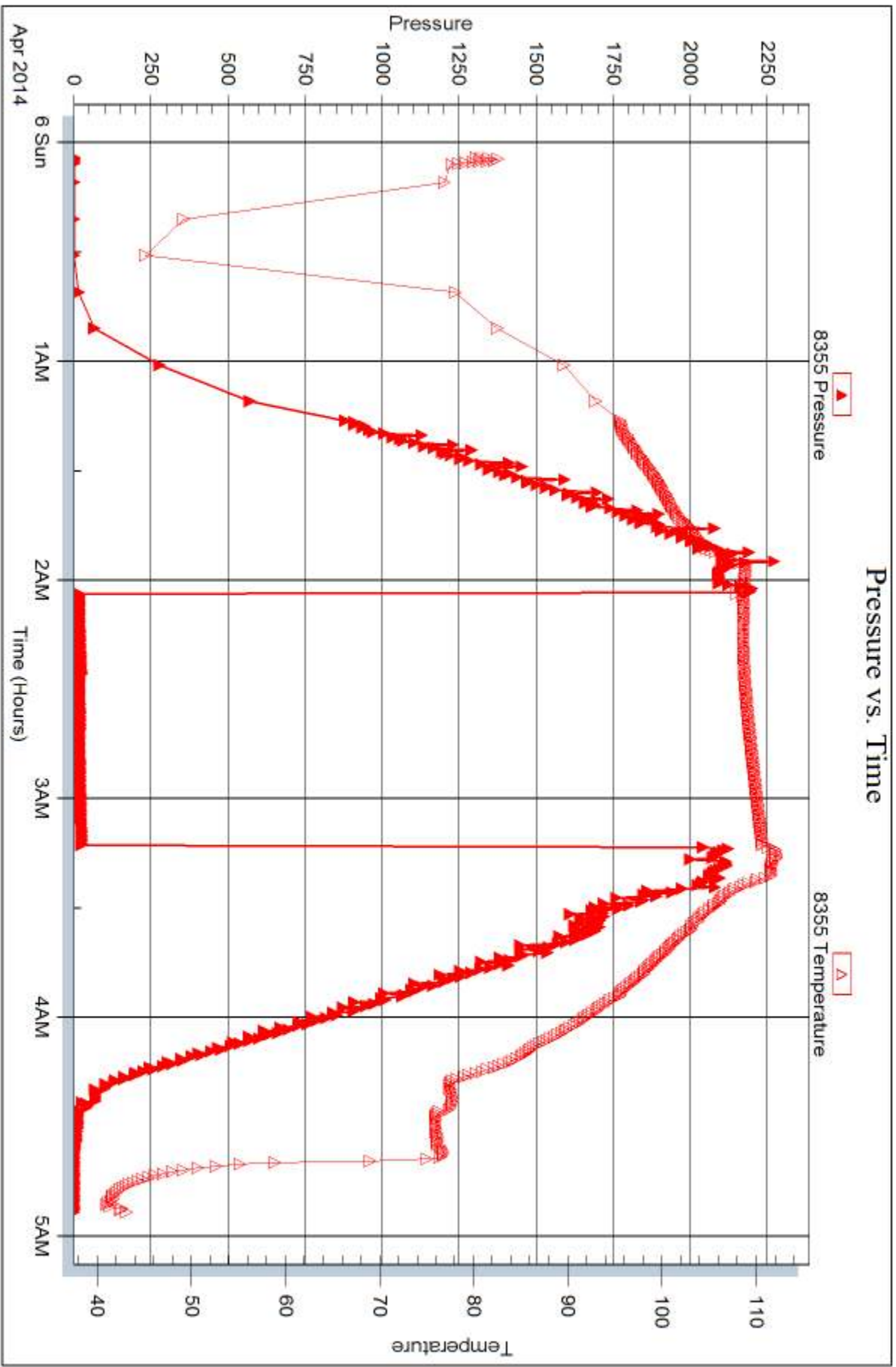
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomhower B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.04.06 @ 14:50:00

End Date: 2014.04.06 @ 20:10:54

Job Ticket #: 57238 DST #: 8

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

Printed: 2014.04.11 @ 11:16:43



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57238

DST#: 8

ATTN: Vern Schrag

Test Start: 2014.04.06 @ 14:50:00

GENERAL INFORMATION:

Formation: **Marmanton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:34:25

Time Test Ended: 20:10:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4346.00 ft (KB) To 4400.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4400.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 108.44 psig @ 4347.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.06

End Date:

2014.04.06

Last Calib.:

2014.04.06

Start Time: 14:50:00

End Time:

20:10:54

Time On Btm:

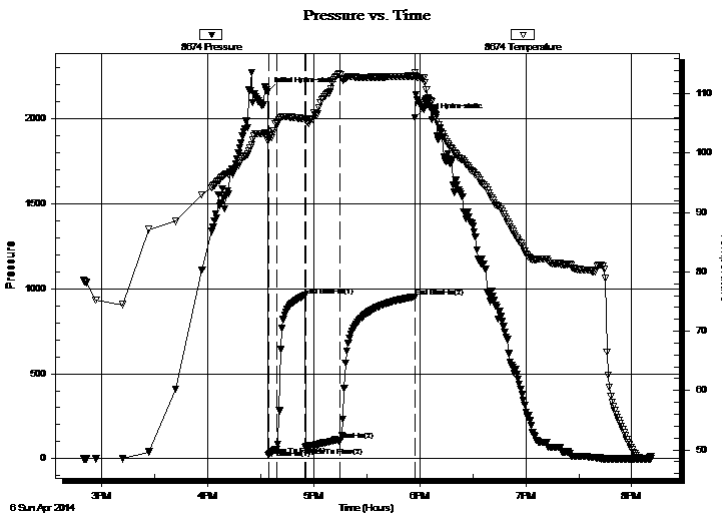
2014.04.06 @ 16:34:10

Time Off Btm:

2014.04.06 @ 17:57:25

TEST COMMENT: IF- Weak Surface Blow Built to 3 1/4"
IS- No Blow
FF- Weak Surface Blow Built to 10 1/2"
FS- Weak Surface Blow in 11min

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2160.99	103.12	Initial Hydro-static
1	21.29	102.14	Open To Flow (1)
6	55.87	105.07	Shut-In(1)
21	960.00	105.80	End Shut-In(1)
22	67.02	105.45	Open To Flow (2)
41	108.44	113.23	Shut-In(2)
83	952.80	112.98	End Shut-In(2)
84	2007.01	113.62	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
58.00	OGCM 8%oil 14%g 78%m	0.29
58.00	OGCM 10%oil 27%g 63%m	0.29
62.00	OGCM 7%oil 12%g 81%m	0.87
10.00	GOCM 4%g 9%oil 87%m	0.14
0.00	114' of GIP	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57238

DST#: 8

ATTN: Vern Schrag

Test Start: 2014.04.06 @ 14:50:00

GENERAL INFORMATION:

Formation: **Marmanton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:34:25

Time Test Ended: 20:10:54

Interval: **4346.00 ft (KB) To 4400.00 ft (KB) (TVD)**

Total Depth: 4400.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Reference Elevations: 2805.00 ft (KB)

2798.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4347.00 ft (KB)

Start Date: 2014.04.06

End Date:

2014.04.06

Capacity: 8000.00 psig

Last Calib.:

2014.04.06

Start Time: 14:50:05

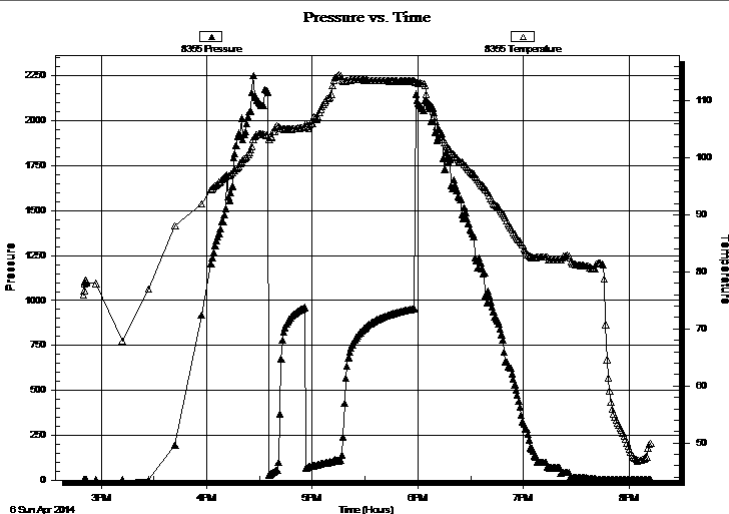
End Time:

20:12:14

Time On Btm:

Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow Built to 3 1/4"
IS- No Blow
FF- Weak Surface Blow Built to 10 1/2"
FS- Weak Surface Blow in 11min



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
58.00	OGCM 8%oil 14%g 78%m	0.29
58.00	OGCM 10%oil 27%g 63%m	0.29
62.00	OGCM 7%oil 12%g 81%m	0.87
10.00	GOCM 4%g 9%oil 87%m	0.14
0.00	114' of GIP	0.00

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.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57238

DST#: 8

ATTN: Vern Schrag

Test Start: 2014.04.06 @ 14:50:00

Tool Information

Drill Pipe:	Length: 4233.00 ft	Diameter: 3.80 inches	Volume: 59.38 bbl	Tool Weight:	2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	26000.00 lb
Drill Collar:	Length: 116.00 ft	Diameter: 2.25 inches	Volume: 0.57 bbl	Weight to Pull Loose:	6000.00 lb
			<u>Total Volume: 59.95 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	4346.00 ft			Final	56000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	54.00 ft				
Tool Length:	81.00 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			4320.00	
Shut In Tool	5.00			4325.00	
Hydraulic tool	5.00			4330.00	
Jars	5.00			4335.00	
Safety Joint	2.00			4337.00	
Packer	5.00			4342.00	27.00 Bottom Of Top Packer
Packer	4.00			4346.00	
Stubb	1.00			4347.00	
Recorder	0.00	8355	Outside	4347.00	
Recorder	0.00	8674	Inside	4347.00	
Perforations	15.00			4362.00	
Change Over Sub	1.00			4363.00	
Drill Pipe	31.00			4394.00	
Change Over Sub	1.00			4395.00	
Bullnose	5.00			4400.00	54.00 Bottom Packers & Anchor

Total Tool Length: 81.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 57238

DST#: 8

ATTN: Vern Schrag

Test Start: 2014.04.06 @ 14:50:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 68.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.18 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 bbf
58.00	OGCM 8%oil 14%g 78%m	0.285
58.00	OGCM 10%oil 27%g 63%m	0.285
62.00	OGCM 7%oil 12%g 81%m	0.870
10.00	GOCM 4%g 9%oil 87%m	0.140
0.00	114' of GIP	0.000

Total Length: 188.00 ft

Total Volume: 1.580 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

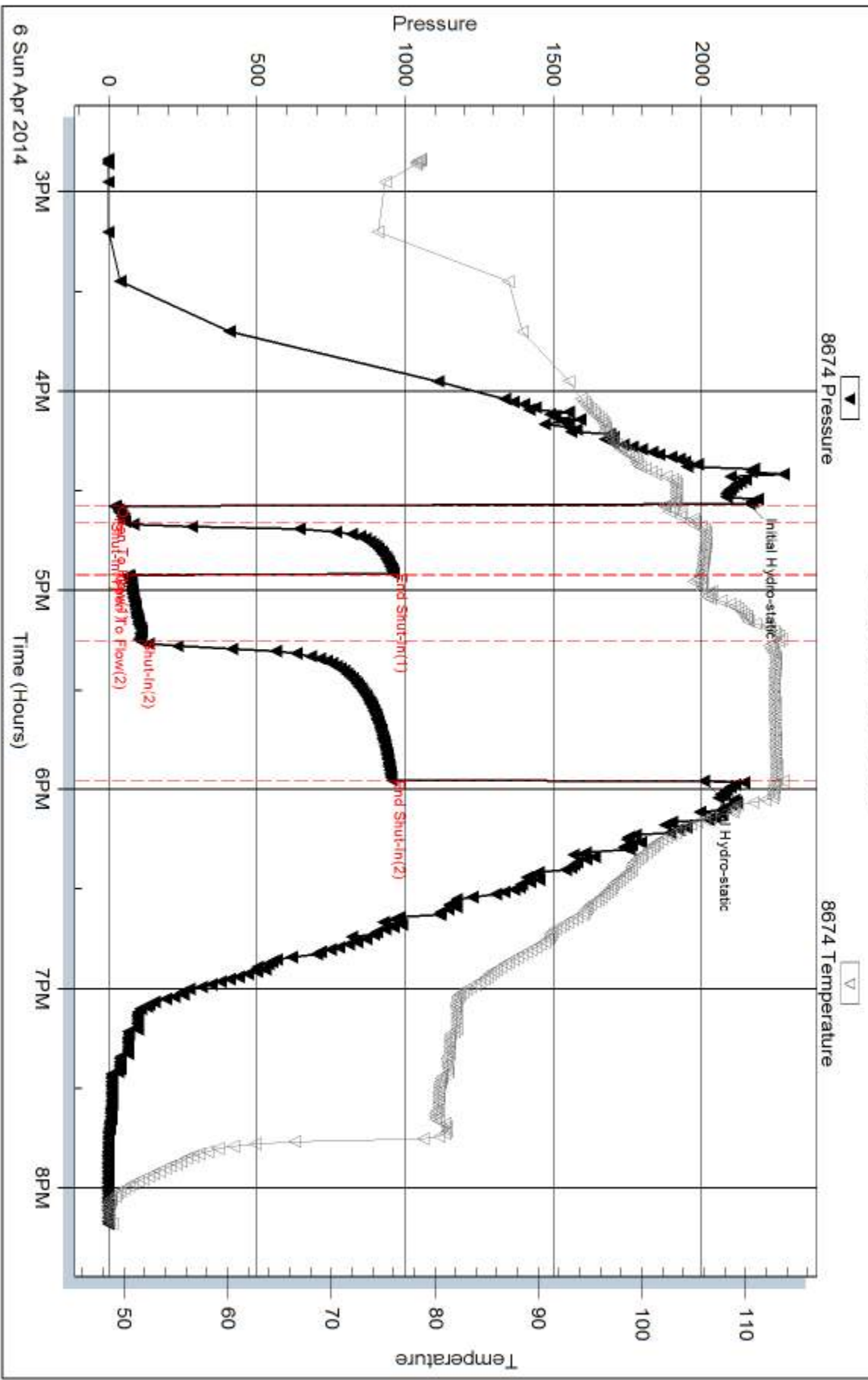
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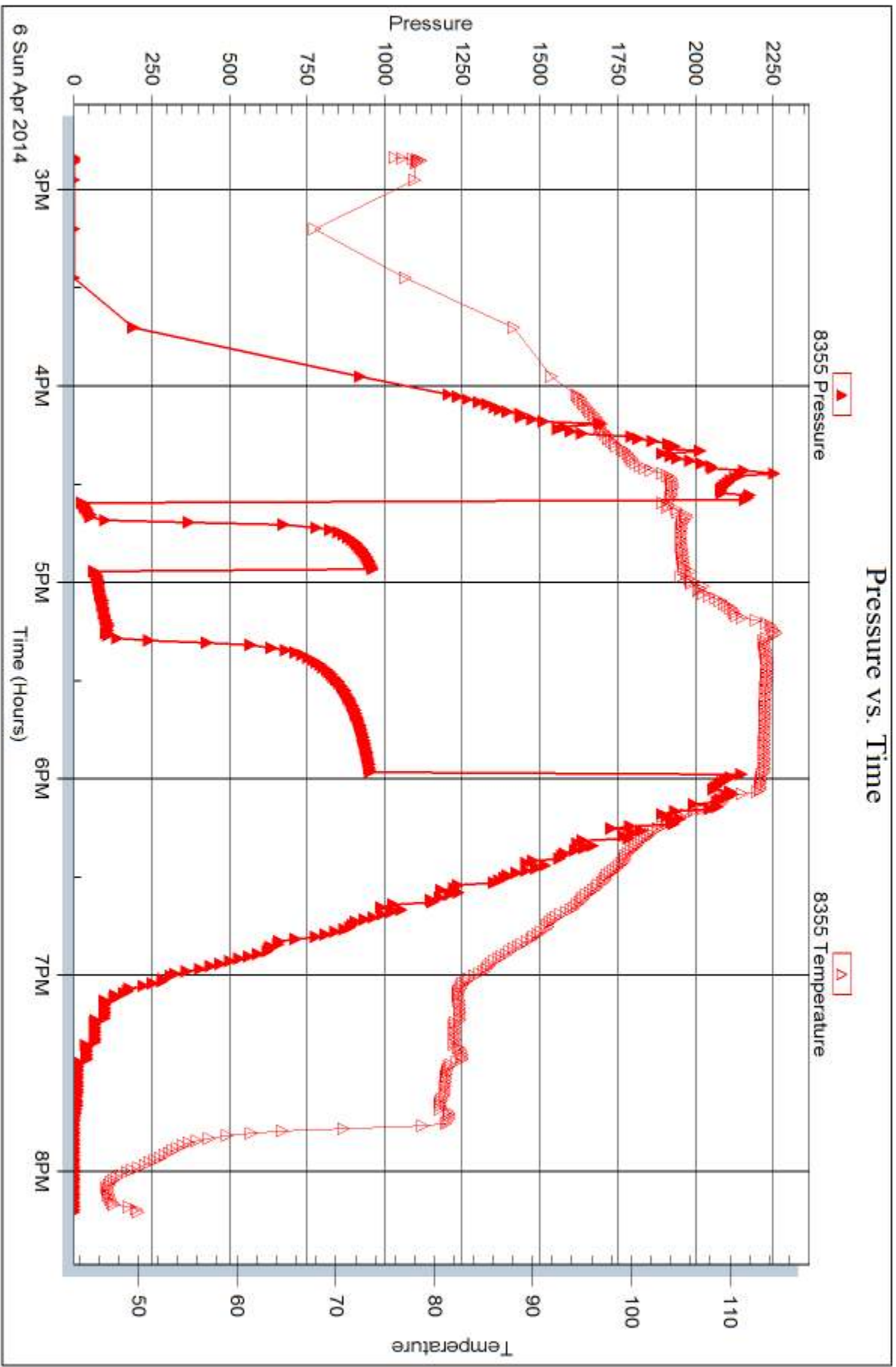
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

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

562 W. State Rd. 4
Olmitz, KS 67564

ATTN: Vern Schrag

Boomhower B #1-16

S16-17s-29w Lane,KS

Start Date: 2014.04.07 @ 10:21:00

End Date: 2014.04.07 @ 16:22:30

Job Ticket #: 56513 DST #: 9

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

Printed: 2014.04.11 @ 11:16:19



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

Job Ticket: 56513

DST#: 9

ATTN: Vern Schrag

Test Start: 2014.04.07 @ 10:21:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:24:45

Time Test Ended: 16:22:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 72

Interval: 4418.00 ft (KB) To 4495.00 ft (KB) (TVD)

Reference Elevations: 2805.00 ft (KB)

Total Depth: 4495.00 ft (KB) (TVD)

2798.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8674 Inside

Press@RunDepth: 65.45 psig @ 4421.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.07 End Date: 2014.04.07

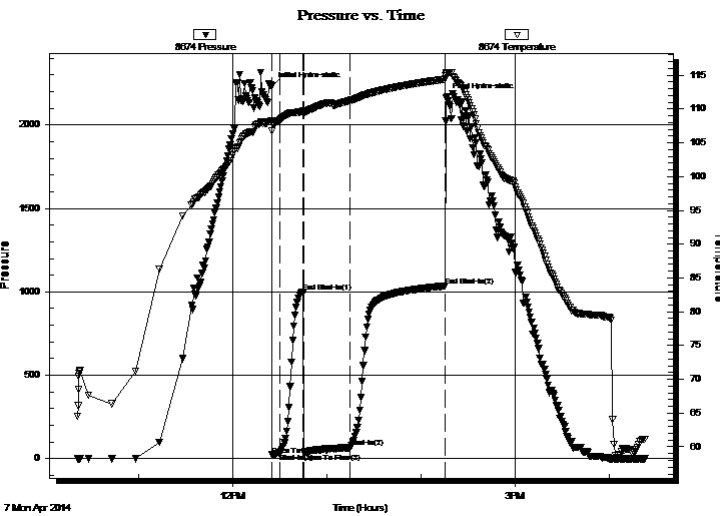
Last Calib.: 2014.04.07

Start Time: 10:21:05 End Time: 16:22:29

Time On Btm: 2014.04.07 @ 12:24:30

Time Off Btm: 2014.04.07 @ 14:16:00

TEST COMMENT: IF: 2 1/2 in. of Blow
IS: Bled off in 2 min.-No return
FF: 1 1/2 Immediately-Built to B.o.b. in 15 min.
FS: Bled off in 2 min.- Fair surface blow back-Died in 30 min.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2233.03	108.22	Initial Hydro-static
1	22.77	106.74	Open To Flow (1)
6	33.17	108.40	Shut-In(1)
21	996.54	109.70	End Shut-In(1)
21	35.21	109.26	Open To Flow (2)
50	65.45	111.23	Shut-In(2)
111	1035.45	114.42	End Shut-In(2)
112	2165.45	115.28	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	Mco & G 20m 40o 40g	0.30
30.00	G & Ocm 25g 35o 40m	0.15
30.00	O & Gcm 10o 15g 75m	0.18
1.00	Cgo 15g 85o	0.01
0.00	GIP=189	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 56513

DST#: 9

ATTN: Vern Schrag

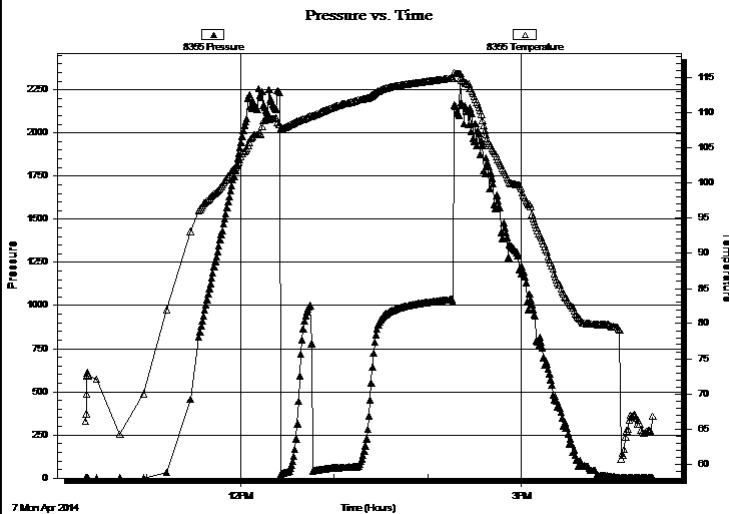
Test Start: 2014.04.07 @ 10:21:00

GENERAL INFORMATION:

Formation: **Pawnee**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 12:24:45 Tester: Cornelio Landa III
Time Test Ended: 16:22:30 Unit No: 72
Interval: 4418.00 ft (KB) To 4495.00 ft (KB) (TVD) Reference Elevations: 2805.00 ft (KB)
Total Depth: 4495.00 ft (KB) (TVD) 2798.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 7.00 ft

Serial #: 8355 **Outside**
Press@RunDepth: psig @ 4421.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.04.07 End Date: 2014.04.07 Last Calib.: 2014.04.07
Start Time: 10:21:05 End Time: 16:23:44 Time On Btm:
Time Off Btm:

TEST COMMENT: IF: 2 1/2 in. of Blow
IS: Bled off in 2 min.-No return
FF: 1 1/2 Immediately-Built to B.o.b. in 15 min.
FS: Bled off in 2 min.- Fair surface blow back-Died in 30 min.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	Mco & G 20m 40o 40g	0.30
30.00	G & Ocm 25g 35o 40m	0.15
30.00	O & Gcm 10o 15g 75m	0.18
1.00	Cgo 15g 85o	0.01
0.00	GIP=189	0.00

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.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomhower B #1-16

Job Ticket: 56513

DST#: 9

ATTN: Vern Schrag

Test Start: 2014.04.07 @ 10:21:00

Tool Information

Drill Pipe:	Length: 4295.00 ft	Diameter: 3.80 inches	Volume: 60.25 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:	26000.00 lb
Drill Collar:	Length: 116.00 ft	Diameter: 2.25 inches	Volume: 0.57 bbl	Weight to Pull Loose:	10000.00 lb
			<u>Total Volume: 60.82 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	4418.00 ft			Final	56000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	77.00 ft				
Tool Length:	104.00 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			4392.00	
Shut In Tool	5.00			4397.00	
Hydraulic tool	5.00			4402.00	
Jars	5.00			4407.00	
Safety Joint	2.00			4409.00	
Packer	5.00			4414.00	27.00 Bottom Of Top Packer
Packer	4.00			4418.00	
Stubb	1.00			4419.00	
Perforations	1.00			4420.00	
Change Over Sub	1.00			4421.00	
Recorder	0.00	8355	Outside	4421.00	
Recorder	0.00	8674	Inside	4421.00	
Drill Pipe	63.00			4484.00	
Change Over Sub	1.00			4485.00	
Perforations	5.00			4490.00	
Bullnose	5.00			4495.00	77.00 Bottom Packers & Anchor
Total Tool Length:	104.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

S16-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz, KS 67564

Boomer B #1-16

Job Ticket: 56513

DST#: 9

ATTN: Vern Schrag

Test Start: 2014.04.07 @ 10:21:00

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: 63.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.19 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 bbf
60.00	Mco & G 20m 40o 40g	0.295
30.00	G & Ocm 25g 35o 40m	0.148
30.00	O & Gcm 10o 15g 75m	0.184
1.00	Cgo 15g 85o	0.014
0.00	GIP=189	0.000

Total Length: 121.00 ft

Total Volume: 0.641 bbf

Num Fluid Samples: 0

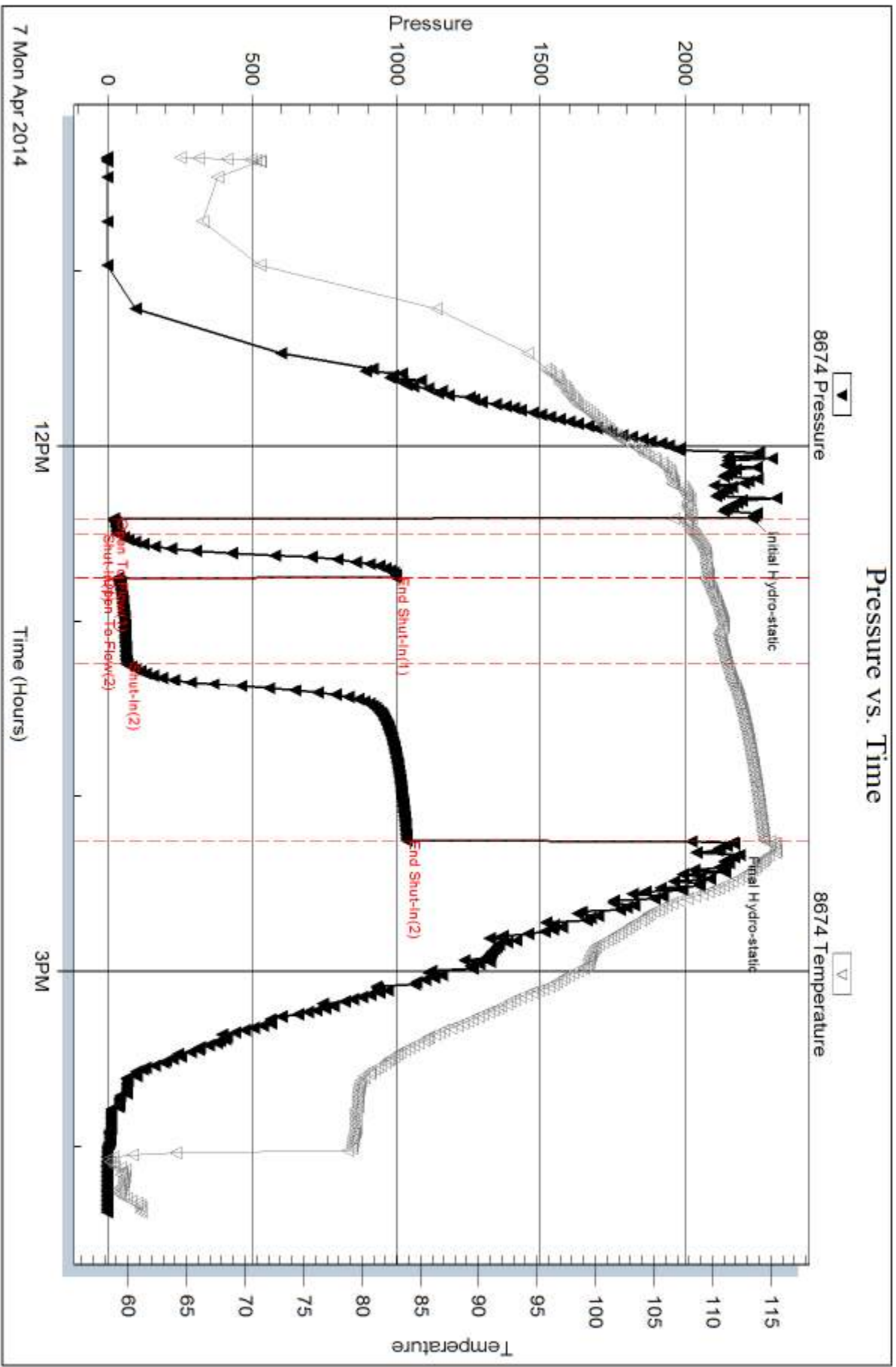
Num Gas Bombs: 0

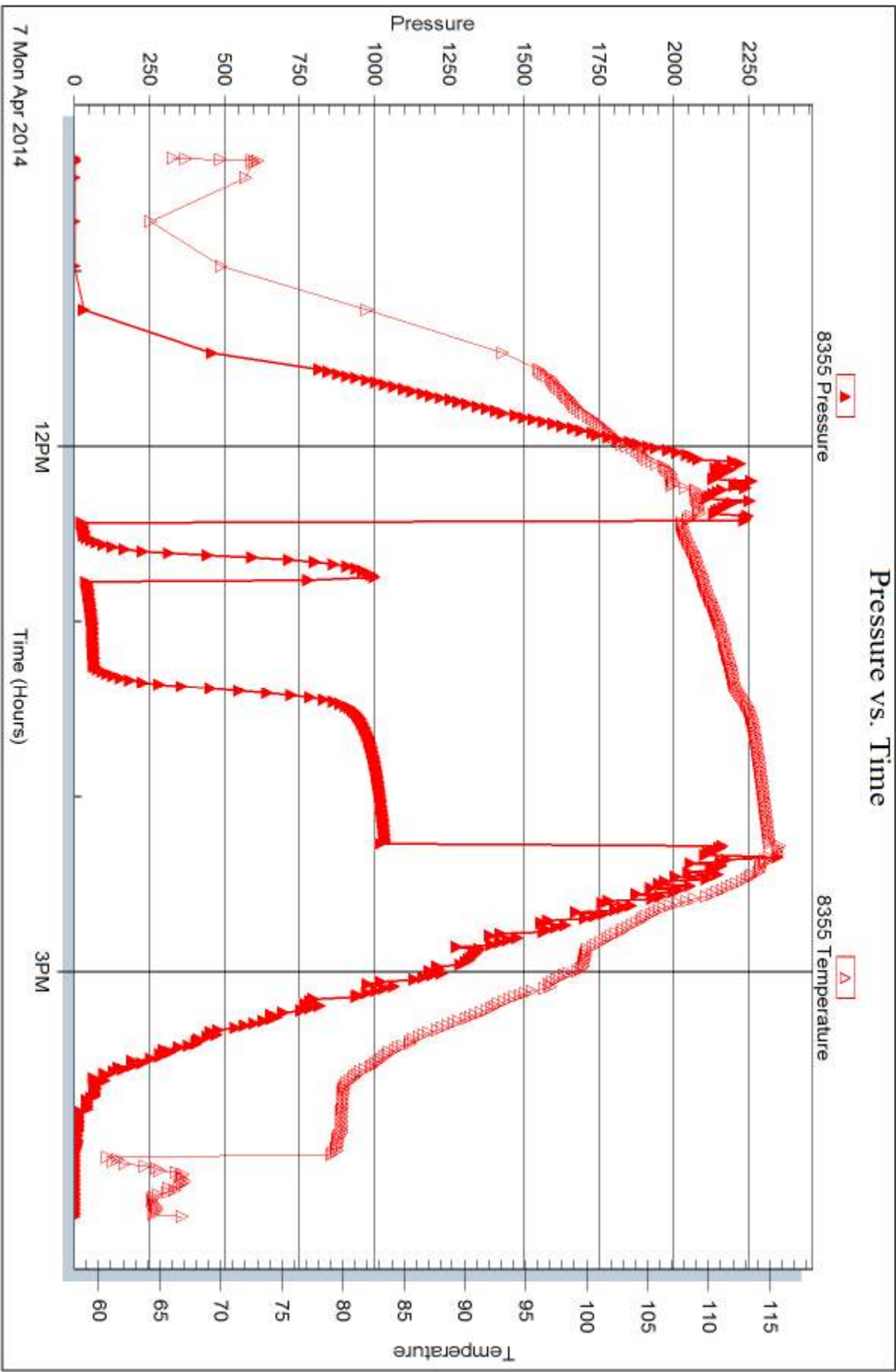
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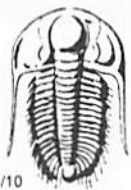
Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56256

Well Name & No. Boombower B 1-16 Test No. 1 Date 3-27-14
 Company Larson Engineering, Inc. Elevation 2805 KB 2798 GL
 Address 562 W. St. Rd. 4 Olmitz, KS 67565
 Co. Rep / Geo. Vern Schrag Rig HD#3
 Location: Sec. 16 Twp. 17s Rge. 29w Co. Lane State KS

Interval Tested 40.34 - 40.65 Zone Tested LKC 'E'
 Anchor Length 31 Drill Pipe Run 3921 Mud Wt. 9.3
 Top Packer Depth 40.30 Drill Collars Run 116 Vis 57
 Bottom Packer Depth 40.34 Wt. Pipe Run 0 WL 7.2
 Total Depth 40.65 Chlorides 2000 ppm System LCM 2"
 Blow Description 1' Blow
No return.
2 1/2" Blow
No return.

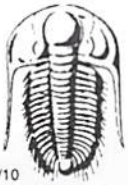
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>20</u>	Feet of <u>OCM</u>	%gas	<u>25</u> %oil	%water	<u>75</u> %mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 20 BHT 110 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2062</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>17:10</u>
(B) First Initial Flow <u>19</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>17:35</u>
(C) First Final Flow <u>23</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>19:39</u>
(D) Initial Shut-In <u>394</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIC</u>	T-Pulled <u>21:30</u>
(E) Second Initial Flow <u>25</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>23:12</u>
(F) Second Final Flow <u>35</u>	<input checked="" type="checkbox"/> Mileage <u>56RT x 2</u> 167.40	Comments <u>Picked up tool.</u> <u>NO TEST, rig problems</u> <u>3-28-14 10:00 a.m.</u>
(G) Final Shut-In <u>449</u>	<input type="checkbox"/> Sampler <u>54rt</u>	
(H) Final Hydrostatic <u>2055</u>	<input type="checkbox"/> Straddle	
	<input type="checkbox"/> Shale Packer	
Initial Open <u>6</u>	<input type="checkbox"/> Extra Packer	<input checked="" type="checkbox"/> Ruined Shale Packer <u>N/A</u>
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Recorder	<input checked="" type="checkbox"/> Ruined Packer <u>320</u>
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	Sub Total <u>320</u>
	Sub Total <u>1742.40</u>	Total <u>2062.40</u>

Approved By Vern Schrag Our Representative Chuck Smith

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57232

Well Name & No. Boomhauer B #1-16 Test No. DST #2 Date 4-2-14
 Company Larson Engineering Inc Elevation 2805 KB 2798 GL
 Address 562 W. State Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D Rg #3
 Location: Sec. 16 Twp. 17s Rge. 29W Co. Lane State KS

Interval Tested 4125-4148 Zone Tested LRC "H"
 Anchor Length 23 Drill Pipe Run 4012 Mud Wt. 9.0
 Top Packer Depth 4121 Drill Collars Run 116 Vis 52
 Bottom Packer Depth 4125 Wt. Pipe Run 0 WL 8.0
 Total Depth 4148 Chlorides 2200 ppm System LCM 216
 Blow Description IF- Weak Surface Blow 1/2"
ISJ- No Blow
FF- No Blow
FSJ- No Blow

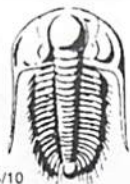
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud with c SK in at or on top</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 107 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2046</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>15:36</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>16:08</u>
(C) First Final Flow <u>21</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>18:12</u>
(D) Initial Shut-In <u>833</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>19:22</u>
(E) Second Initial Flow <u>22</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>21:09</u>
(F) Second Final Flow <u>24</u>	<input checked="" type="checkbox"/> Mileage <u>54 R/T</u> 83.70	Comments _____
(G) Final Shut-In <u>835</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1953</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>1658.70</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1658.70</u>	

Approved By Vern Schrag Our Representative Will Hall

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57233

Well Name & No. Boomer B #1-16 Test No. DST #3 Date 4-3-14
 Company Larson Engineering Inc Elevation 2805 KB 2798 GL
 Address 562 W. State Rd. 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D Rig #3
 Location: Sec. 16 Twp. 17s Rge. 29w Co. Lane State KS

Interval Tested 4185 - 4204 Zone Tested LRC "J"
 Anchor Length 19 Drill Pipe Run 4046 Mud Wt. 9.0
 Top Packer Depth 4181 Drill Collars Run 144 Vis 52
 Bottom Packer Depth 4185 Wt. Pipe Run 0 WL 8.0
 Total Depth 4204 Chlorides 2200 ppm System LCM 216
 Blow Description IF - Weak Surface Blow 1/4"
ISI - No Blow
FF - Weak Surface Blow Built to 1/4"
FST - No Blow

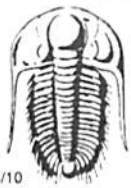
Rec	Feet of	%gas	%oil	%water	%mud
<u>8</u>	<u>Mud with oil spots</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 8 BHT 112 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2105</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>9:08</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>9:48</u>
(C) First Final Flow <u>18</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>11:45</u>
(D) Initial Shut-In <u>427</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIC</u>	T-Pulled <u>12:55</u>
(E) Second Initial Flow <u>19</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>14:39</u>
(F) Second Final Flow <u>23</u>	<input checked="" type="checkbox"/> Mileage <u>54 R/T</u> 83.70	Comments _____
(G) Final Shut-In <u>427</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>1658.70</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1658.70</u>	

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57234

Well Name & No. Boomer B #1-16 Test No. DST#4 Date 4-3-14
 Company Larson Engineering Inc Elevation 2805 KB 2798 GL
 Address 562 W. State Rd 4 Omitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D Rig #3
 Location: Sec. 16 Twp. 17s Rge. 29W Co. Lane State KS

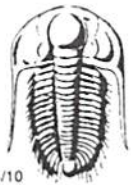
Interval Tested 4200-4210 Zone Tested LKC "J"
 Anchor Length 10 Drill Pipe Run 4073 Mud Wt. 9.2
 Top Packer Depth 4196 Drill Collars Run 116 Vis 50
 Bottom Packer Depth 4200 Wt. Pipe Run 0 WL 7.2
 Total Depth 4210 Chlorides 2700 ppm System LCM 216
 Blow Description IF- Weak Surface Blow Built to 1/2"
ISI- No Blow
FF- Weak Surface Blow Built to 1"
FSI- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>OWCM</u>		<u>1</u>	<u>11</u>	<u>88</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 15 BHT 104 Gravity _____ API RW 425 @ 38 °F Chlorides 28,500 ppm
 (A) Initial Hydrostatic 2070 Test 1250 T-On Location 21:00
 (B) First Initial Flow 15 Jars 250 T-Started 21:24
 (C) First Final Flow 18 Safety Joint 75 T-Open 23:26
 (D) Initial Shut-In 433 Circ Sub NIC T-Pulled 1:20
 (E) Second Initial Flow 19 Hourly Standby _____ T-Out 3:08
 (F) Second Final Flow 25 Mileage 54 RIT 83.70 Comments _____
 (G) Final Shut-In 434 Sampler _____
 (H) Final Hydrostatic 1964 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1658.70
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1658.70

Initial Open 5
 Initial Shut-In 15
 Final Flow 30
 Final Shut-In 60
 Approved By [Signature] Our Representative Will Max

Trilobite Testing Inc. shall not be liable for damaged or 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. 57235

Well Name & No. Boomer B #1-16 Test No. DST #5 Date 4-4-14
 Company Larson Engineering Inc Elevation 2805 KB 2798 GL
 Address 562 W. State Rd 4 Olinitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D Rig #3
 Location: Sec. 16 Twp. 17s Rge. 29W Co. Lane State KS

Interval Tested 4220-4238 Zone Tested LRC "K"
 Anchor Length 18 Drill Pipe Run 4105 Mud Wt. 9.2
 Top Packer Depth 4216 Drill Collars Run 116 Vis 50
 Bottom Packer Depth 4220 Wt. Pipe Run 0 WL 7.2
 Total Depth 4238 Chlorides 2700 ppm System LCM 215

Blow Description IF-Weak Surface Blow 1/4"
ISI- No Blow
FF-Weak Surface Blow Built to 1/4"
FSI- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud with few oil spots in Tool</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 106 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

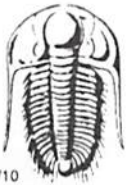
(A) Initial Hydrostatic 2087 Test 1250 T-On Location 11:52
 (B) First Initial Flow 16 Jars 250 T-Started 12:20
 (C) First Final Flow 18 Safety Joint 75 T-Open 14:10
 (D) Initial Shut-In 289 Circ Sub N/C T-Pulled 15:19
 (E) Second Initial Flow 18 Hourly Standby T-Out 17:03
 (F) Second Final Flow 21 Mileage BY R/T 83.70 Comments _____
 (G) Final Shut-In 285 Sampler _____
 (H) Final Hydrostatic 1968 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____

Initial Open 5
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30

Sub Total 0
 Total 1658.70
 MP/DST Disc't _____
 Sub Total 1658.70

Approved By Vern Schrag Our Representative Wim

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. 57236

4/10

Well Name & No. Bromhauer B # 1-16 Test No. DST #6 Date 4-5-12
 Company Larson Engineering Inc Elevation 2805 KB 2798 GL
 Address 562 W. State Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D Rys #3
 Location: Sec. 16 Twp. 17s Rge. 29W Co. Lane State KS

Interval Tested 4259-4281 Zone Tested LRC "L"
 Anchor Length 22 Drill Pipe Run 4136 Mud Wt. 9.1
 Top Packer Depth 4255 Drill Collars Run 116 Vis 65
 Bottom Packer Depth 4259 Wt. Pipe Run 0 WL 7.2
 Total Depth 4281 Chlorides 2800 ppm System LCM 116
 Blow Description IF-Weak Surface Blow 1/4"
ISI- No Blow
FF-Weak Surface Blow
FST- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>Mud Couple 0.1 Spds in Tool</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

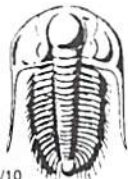
Rec Total 2 BHT 108 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2138 Test 1250 T-On Location 5:58
 (B) First Initial Flow 16 Jars 250 T-Started 6:30
 (C) First Final Flow 16 Safety Joint 75 T-Open 8:24
 (D) Initial Shut-In 74 Circ Sub NIC T-Pulled 9:37
 (E) Second Initial Flow 17 Hourly Standby _____ T-Out 11:16
 (F) Second Final Flow 18 Mileage 54 RIT 83.70 Comments _____
 (G) Final Shut-In 81 Sampler _____
 (H) Final Hydrostatic 2003 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1658.70
 Accessibility _____ MP/DST Disc't _____

Initial Open 5
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30
 Sub Total 1658.70

Approved By VC Schrag Our Representative Jim m

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57237

Well Name & No. Boomer B# 1-16 Test No. DST #7 Date 4-5-11
 Company Larson Engineering Elevation 2805 KB 2798 GL
 Address 562 W. State Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D Rig #3
 Location: Sec. 16 Twp. 17s Rge. 2W Co. Lane State KS

Interval Tested 4314-4350 Zone Tested Pleasanton
 Anchor Length ~~4310~~ 36 Drill Pipe Run 4201 Mud Wt. 9.1
 Top Packer Depth ~~4314~~ 4310 Drill Collars Run 116 Vis 56
 Bottom Packer Depth ~~4350~~ 4314 Wt. Pipe Run 0 WL 6.4
 Total Depth 4350 Chlorides 2500 ppm System LCM 116

Blow Description IF- Wear Surface Blow
ISI- No Blow
FF- No Blow
FSI- No Blow

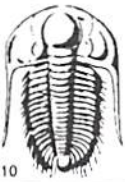
Rec	Feet of	%gas	%oil	%water	%mud
1	Mud				

Rec Total 1 BHT 111 Gravity API RW @ °F Chlorides ppm
 (A) Initial Hydrostatic 2186 Test 1250 T-On Location 23:38
 (B) First Initial Flow 16 Jars 250 T-Started 00:04
 (C) First Final Flow 18 Safety Joint 75 T-Open 21:03
 (D) Initial Shut-In 23 Circ Sub NIC T-Pulled 3:12
 (E) Second Initial Flow 17 Hourly Standby T-Out 4:52
 (F) Second Final Flow 19 Mileage 54 R/T 83.70 Comments
 (G) Final Shut-In 24 Sampler
 (H) Final Hydrostatic 2039 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies
 Extra Recorder Sub Total 0
 Day Standby Total 1658.70
 Accessibility MP/DST Disc't

Initial Open 5
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30
 Sub Total 1658.70

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57238

Well Name & No. Boamhower B #1-16 Test No. DST #8 Date 4-6-14
 Company Larson Engineering Inc Elevation 2805 KB 2798 GL
 Address 562 W. State Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schwag Rig H-D Rig #3
 Location: Sec. 16 Twp. 17S Rge. 29W Co. Lanc State KS

Interval Tested 4346-4400 Zone Tested Marmanton
 Anchor Length 54 Drill Pipe Run 4233 Mud Wt. 9.1
 Top Packer Depth 4342 Drill Collars Run 116 Vis 68
 Bottom Packer Depth 4346 Wt. Pipe Run 0 WL 7.2
 Total Depth 4400 Chlorides 2000 ppm System LCM 116

Blow Description IF- Weak Surface Blow Built to 3 1/4"
ISI- No Blow
FF- Weak Surface Blow Built to 10 1/2"
FSL- Weak Surface Blow in 11 min

Rec	Feet of	%gas	%oil	%water	%mud
10	6-0 CM	4	9	87	
62	0-0 CM	12	7	81	
58	0-0 CM	27	10	63	
58	0-0 CM	14	8	78	
	114' of G-IP				

Rec Total 188 BHT 114 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2160 Test 1250 T-On Location 14:26
 (B) First Initial Flow 21 Jars 250 T-Started 14:50
 (C) First Final Flow 55 Safety Joint 75 T-Open 16:34
 (D) Initial Shut-In 960 Circ Sub NIC T-Pulled _____
 (E) Second Initial Flow 67 Hourly Standby _____ T-Out 20:10
 (F) Second Final Flow 108 Mileage 54 RIT 83.70 Comments 114' of G-IP
 (G) Final Shut-In 952 Sampler _____
 (H) Final Hydrostatic 2007 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1658.70
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1658.70

Initial Open 5
 Initial Shut-In 15
 Final Flow 20
 Final Shut-In 40

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56513

Well Name & No. Boomer^B#1-16 Test No. 9 Date 4-7-14
 Company Larson Engineering, Inc. Elevation 2805 KB 2798 GL
 Address 562 W. State Rd. 4- Olmitz, KS 67564
 Co. Rep / Geo. Vern Shrag Rig HD#3
 Location: Sec. 16 Twp. 17-S Rge. 27-W Co. Lane State KS

Interval Tested 4418-4495 Zone Tested Pawnee
 Anchor Length 77' Drill Pipe Run 4295 Mud Wt. 9.1
 Top Packer Depth 4414 Drill Collars Run 116 Vis 63
 Bottom Packer Depth 4418 Wt. Pipe Run Ø WL 7.2
 Total Depth 4495 Chlorides 2,000 ppm System LCM # 1

Blow Description IF: 2 1/2 in. Blow
FSI: Bled off in 2 min. - No Return
FF: 1 1/2 in. Immediately - Built to B.o.b. in 15 min.
FSI: Bled off in 2 min. - Fair surface Blow back - Died in 30 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>mco & G</u>	<u>40</u>	<u>40</u>		<u>20</u>
<u>30</u>	<u>G & Ocm</u>	<u>25</u>	<u>35</u>		<u>40</u>
<u>30</u>	<u>Ø & Gcm</u>	<u>15</u>	<u>10</u>		<u>75</u>
<u>1</u>	<u>CGO</u>	<u>15</u>	<u>85</u>		
<u>Ø</u>	<u>GIP=189</u>				

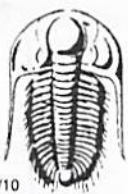
Rec Total 121 BHT 115 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2233 Test 1250 T-On Location 10:15
 (B) First Initial Flow 23 Jars 250 T-Started 10:21
 (C) First Final Flow 33 Safety Joint 75 T-Open 12:26
 (D) Initial Shut-In 997 Circ Sub N/C T-Pulled Ø:14:16
 (E) Second Initial Flow 35 Hourly Standby _____ T-Out 16:22
 (F) Second Final Flow 65 Mileage 83.70 Comments _____
 (G) Final Shut-In 1035 Sampler _____
 (H) Final Hydrostatic 2165 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 5
 Initial Shut-In 15
 Final Flow 30
 Final Shut-In 60

Sub Total 1658.70

Approved By Vern C. Shrag Our Representative Colleen Witt
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56515

Well Name & No. Boomhower B#1-16 Test No. 10 Date 4-8-14
 Company Larson Engineering, Inc Elevation 2805 KB 2798 GL
 Address 562 W. State Rd #4 - Olmitz, KS 67564
 Co. Rep / Geo. Vern Schrag Rig HP#3
 Location: Sec. 16 Twp. 17-s Rge. 29-w Co. Lane State KS

Interval Tested 4496-4560 Zone Tested Cherokee
 Anchor Length 64' Drill Pipe Run 4358' Mud Wt. 9.0
 Top Packer Depth 4492 Drill Collars Run 116 Vis 58
 Bottom Packer Depth 4496 Wt. Pipe Run Ø WL 7.6
 Total Depth 4560 Chlorides 2300 ppm System LCM #1

Blow Description IF: 3 in. Blow
ISI: Bled off in 2 min - Fair Surface Blowback Return - Died in 10 min.
FF: Surface Blowback - Built to B.o.d. in 16 1/2 min.
FST: Bled off in 2 min - Fair Surface Blowback - Built to 1/2 in. - Died back to Surface Blowback

Rec	Feet of		%gas	%oil	%water	%mud
58	GEMCO		15	65	20	
53	ME'GCO	GIP=283	30	60	10	
5	CGO		15	85		
30	GEMCO		15	55	30	
1	CGO		15	85		

Rec Total 147 BHT 117 Gravity 36 API RW → @ → ° F Chlorides → ppm

(A) Initial Hydrostatic 2298 Test 1250 T-On Location 5:15
 (B) First Initial Flow 22 Jars 250 T-Started 5:25
 (C) First Final Flow 35 Safety Joint 75 T-Open 7:46
 (D) Initial Shut-In 1114 Circ Sub N/C T-Pulled 9:36
 (E) Second Initial Flow 38 Hourly Standby _____ T-Out 12:03
 (F) Second Final Flow 75 Mileage 83.70 Comments _____
 (G) Final Shut-In 1169 Sampler _____
 (H) Final Hydrostatic 2203 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1658.70
 Accessibility _____ MP/DST Disc't _____

Initial Open 5
 Initial Shut-In 15
 Final Flow 30
 Final Shut-In 60

Sub Total 1658.70

Approved By _____

Our Representative Coltman CLT

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