



DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. State Rd. 4
Olmitz KS. 67564

ATTN: Vern Schrag

Ehmke-Fisher #1-19

19-17s-29w Lane,KS

Start Date: 2014.11.28 @ 01:40:00

End Date: 2014.11.28 @ 07:54:59

Job Ticket #: 58720 DST #: 1

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

Printed: 2014.12.05 @ 09:49:29



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering Inc
 562 W. State Rd. 4
 Olmitz KS. 67564
 ATTN: Vern Schrag

19-17s-29w Lane, KS
Ehmke-Fisher #1-19
 Job Ticket: 58720 **DST#: 1**
 Test Start: 2014.11.28 @ 01:40:00

GENERAL INFORMATION:

Formation: **LKC "I"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 04:01:00
 Time Test Ended: 07:54:59
 Interval: **4158.00 ft (KB) To 4185.00 ft (KB) (TVD)**
 Total Depth: 4185.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Will MacLean
 Unit No: 71
 Reference Elevations: 2838.00 ft (KB)
 2829.00 ft (CF)
 KB to GR/CF: 9.00 ft

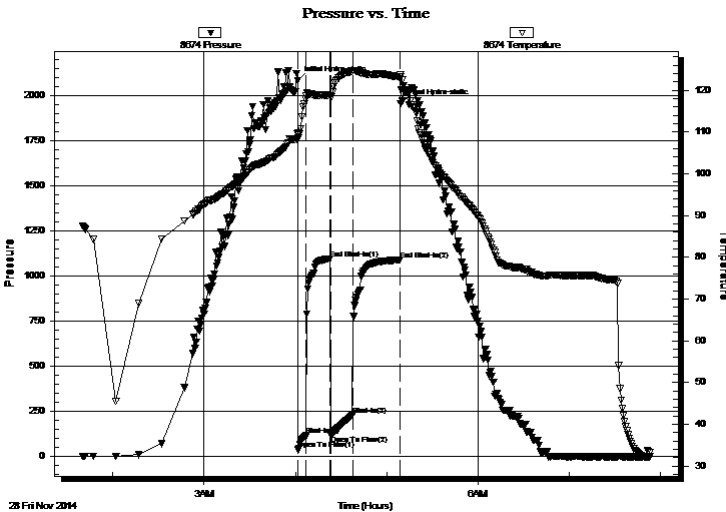
Serial #: 8674

Inside

Press@RunDepth: 229.62 psig @ 4160.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.11.28 End Date: 2014.11.28 Last Calib.: 2014.11.28
 Start Time: 01:40:00 End Time: 07:53:39 Time On Btm: 2014.11.28 @ 04:01:40
 Time Off Btm: 2014.11.28 @ 05:09:10

TEST COMMENT: IF- Surface Blow Built to BOB in 4 3/4"
 IS- Weak Surface Blow in 14 min
 FF- Surface Blow Built to BOB in 5 min
 FS- Weak Surface Blow in 3 1/2"min Built to 1"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2082.06	109.76	Initial Hydro-static
1	37.81	108.53	Open To Flow (1)
6	115.20	118.58	Shut-In(1)
21	1096.81	118.70	End Shut-In(1)
22	118.54	118.16	Open To Flow (2)
36	229.62	124.53	Shut-In(2)
68	1090.21	123.14	End Shut-In(2)
68	1957.48	123.68	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
186.00	GMCW 4%g 15%m 81%w skim of Oil	c1.48
62.00	OGMCW 3%oil 4%g 24%m 69%w	0.87
124.00	OGMCW 7%oil 10%g 38%m 45%w	1.74
50.00	GOWCM 11%g 20%oil 23%w 46%m	0.70
48.00	MGCO 3%m 6%g 91%oil	0.67
0.00	212' of GIP	0.00

Gas Rates

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



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TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering Inc
562 W. State Rd. 4
Olmitz KS. 67564
ATTN: Vern Schrag

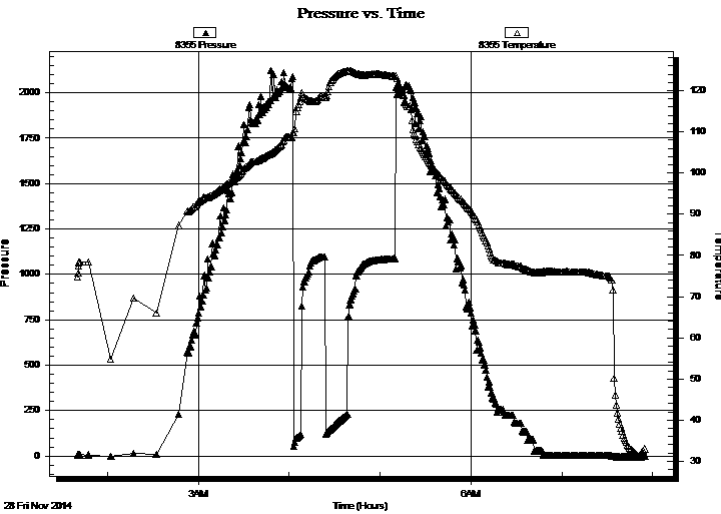
19-17s-29w Lane,KS
Ehmke-Fisher #1-19
Job Ticket: 58720 **DST#: 1**
Test Start: 2014.11.28 @ 01:40:00

GENERAL INFORMATION:

Formation: **LKC "I"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 04:01:00
Time Test Ended: 07:54:59
Interval: **4158.00 ft (KB) To 4185.00 ft (KB) (TVD)**
Total Depth: 4185.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Initial)
Tester: Will MacLean
Unit No: 71
Reference Elevations: 2838.00 ft (KB)
2829.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 8355 Outside
Press@RunDepth: psig @ 4160.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.11.28 End Date: 2014.11.28 Last Calib.: 2014.11.28
Start Time: 01:40:05 End Time: 07:54:59 Time On Btm:
Time Off Btm:

TEST COMMENT: IF- Surface Blow Built to BOB in 4 3/4"
IS- Weak Surface Blow in 14 min
FF- Surface Blow Built to BOB in 5 min
FS- Weak Surface Blow in 3 1/2"min Built to 1"



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
186.00	GMCW 4%g 15%m 81%w skim of Oil	c1.48
62.00	OGMCW 3%oil 4%g 24%m 69%w	0.87
124.00	OGMCW 7%oil 10%g 38%m 45%w	1.74
50.00	GOWCM 11%g 20%oil 23%w 46%m	0.70
48.00	MGCO 3%m 6%g 91%oil	0.67
0.00	212' of GIP	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58720

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.11.28 @ 01:40:00

Tool Information

Drill Pipe:	Length: 4015.00 ft	Diameter: 3.80 inches	Volume: 56.32 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:	18000.00 lb
			<u>Total Volume: 56.93 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial	52000.00 lb
Depth to Top Packer:	4158.00 ft			Final	54000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	27.00 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			4132.00	
Shut In Tool	5.00			4137.00	
Hydraulic tool	5.00			4142.00	
Jars	5.00			4147.00	
Safety Joint	2.00			4149.00	
Packer	5.00			4154.00	27.00 Bottom Of Top Packer
Packer	4.00			4158.00	
Stubb	1.00			4159.00	
Perforations	1.00			4160.00	
Recorder	0.00	8355	Outside	4160.00	
Recorder	0.00	8674	Inside	4160.00	
Perforations	20.00			4180.00	
Bullnose	5.00			4185.00	27.00 Bottom Packers & Anchor

Total Tool Length: 54.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58720

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.11.28 @ 01:40:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

34 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

54000 ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.72 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
186.00	GMCW 4%g 15%m 81%w skim of Oil on Tc	1.480
62.00	OGMCW 3%oil 4%g 24%m 69%w	0.870
124.00	OGMCW 7%oil 10%g 38%m 45%w	1.739
50.00	GOWCM 11%g 20%oil 23%w 46%m	0.701
48.00	MGCO 3%m 6%g 91%oil	0.673
0.00	212' of GIP	0.000

Total Length: 470.00 ft Total Volume: 5.463 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

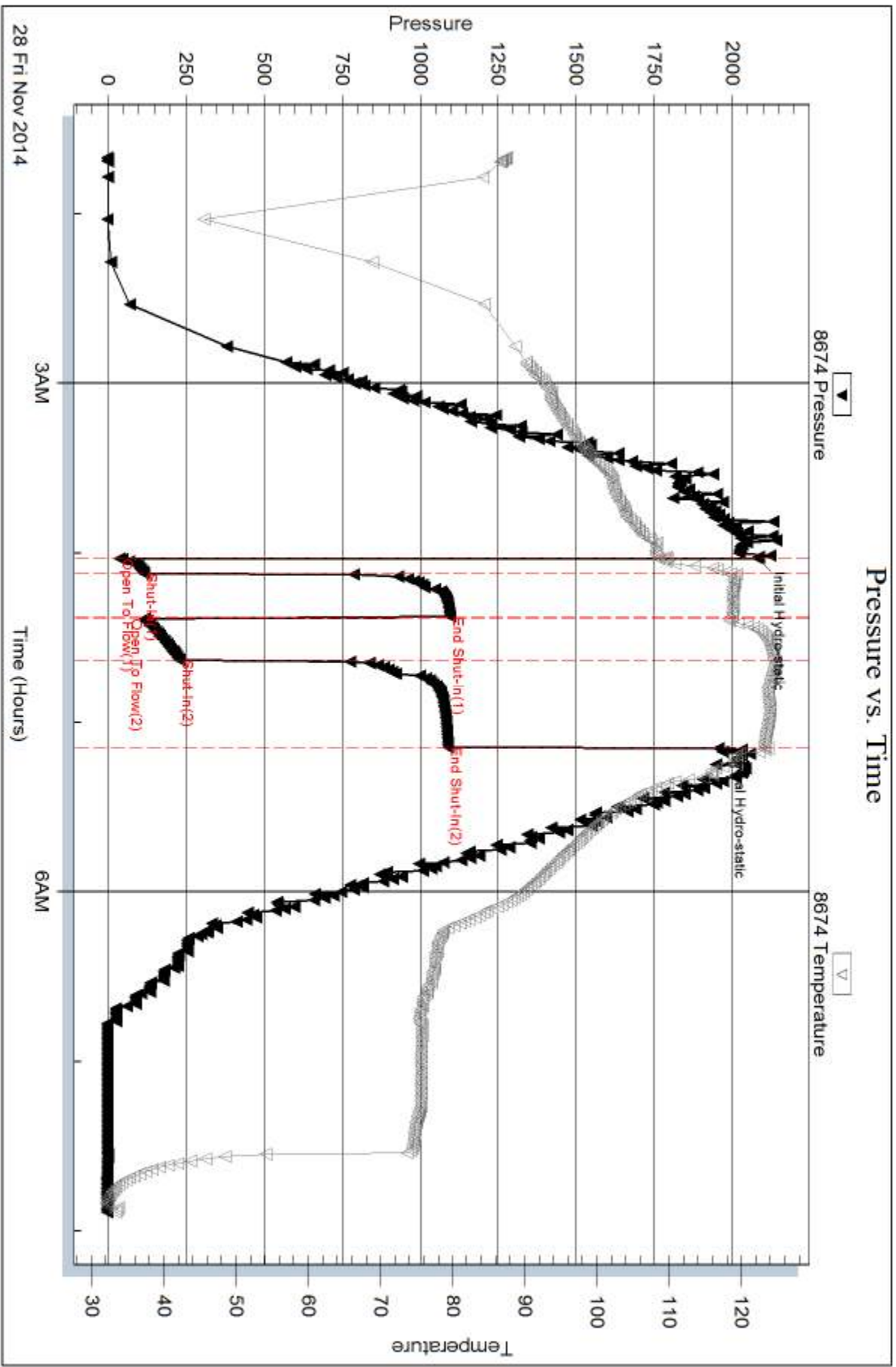
Serial #:

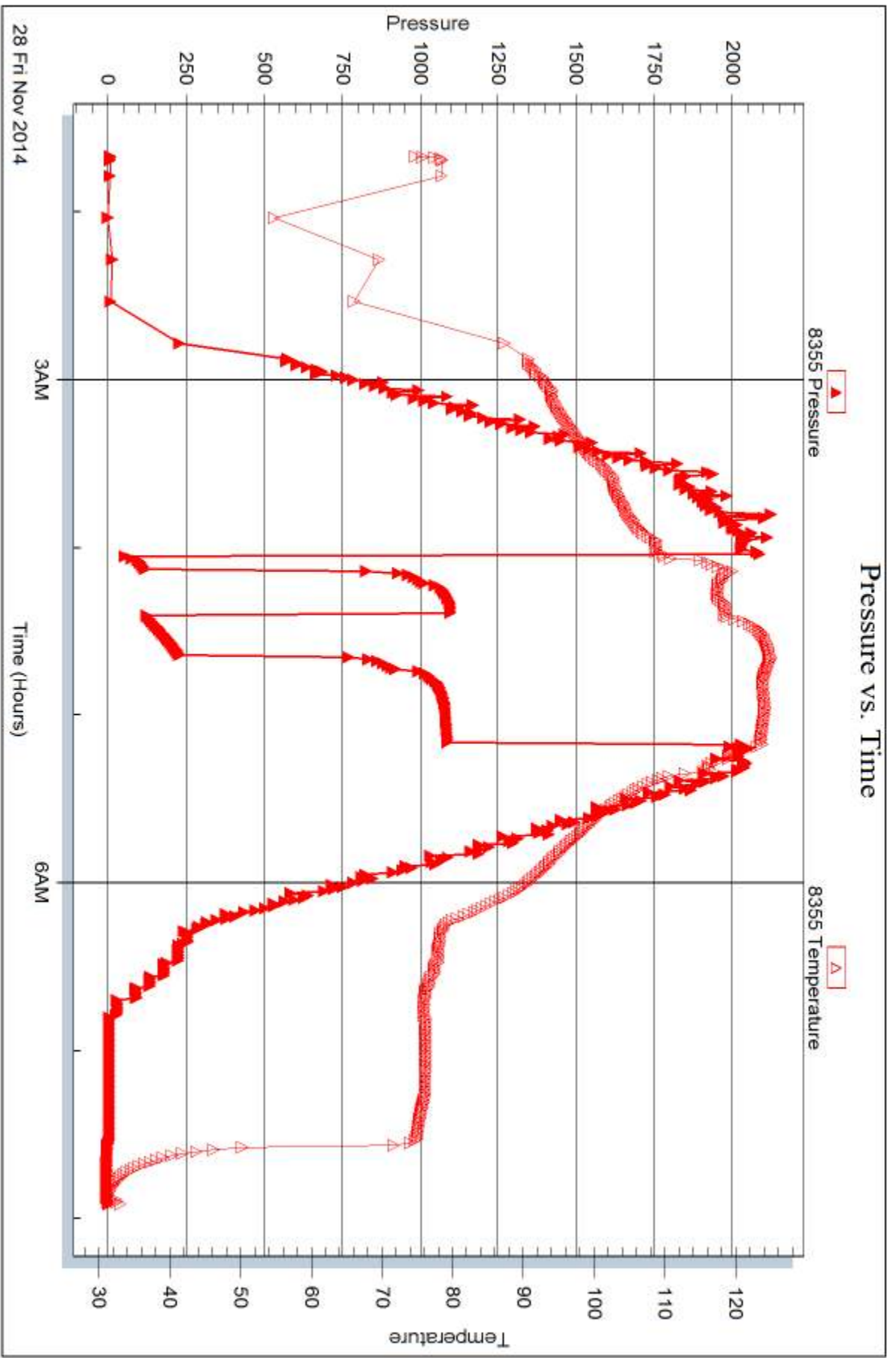
Laboratory Name:

Laboratory Location:

Recovery Comments: API is 31 @ 30f = 34

RW is .313 @ 30f = 54000







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. State Rd. 4
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ATTN: Vern Schrag

Ehmke-Fisher #1-19

19-17s-29w Lane,KS

Start Date: 2014.11.28 @ 15:40:00

End Date: 2014.11.28 @ 20:30:39

Job Ticket #: 58721 DST #: 2

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

Printed: 2014.12.05 @ 09:41:13



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering Inc

19-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58721

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.11.28 @ 15:40:00

GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:38:55

Time Test Ended: 20:30:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 71

Interval: 4148.00 ft (KB) To 4210.00 ft (KB) (TVD)

Reference Elevations: 2838.00 ft (KB)

Total Depth: 4185.00 ft (KB) (TVD)

2829.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 9.00 ft

Serial #: 8674

Inside

Press@RunDepth: 39.37 psig @ 4185.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.28

End Date:

2014.11.28

Last Calib.:

2014.11.28

Start Time: 15:40:00

End Time:

20:30:39

Time On Btm:

2014.11.28 @ 17:38:25

Time Off Btm:

2014.11.28 @ 18:50:40

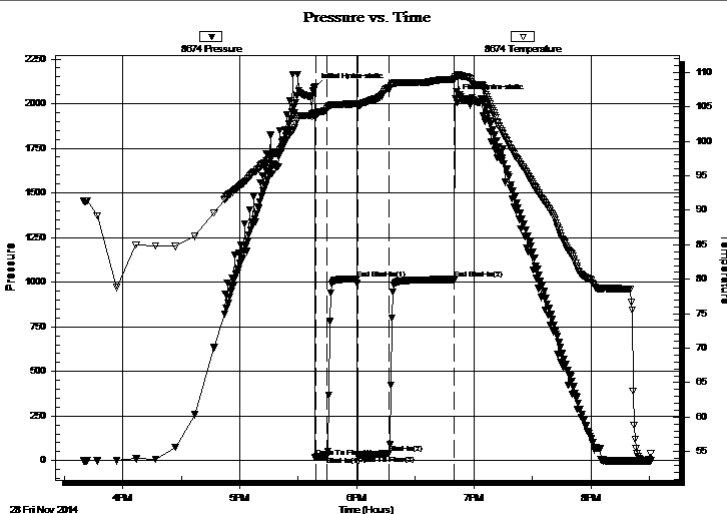
TEST COMMENT: IF- Weak Surface Blow Built to 1/2"

IS- No Blow

FF- Weak Surface Blow

FS- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2092.21	104.15	Initial Hydro-static
1	19.48	103.77	Open To Flow (1)
7	25.85	104.67	Shut-In(1)
22	1018.51	105.48	End Shut-In(1)
22	27.68	105.07	Open To Flow (2)
38	39.37	107.72	Shut-In(2)
72	1015.54	109.01	End Shut-In(2)
73	2028.53	109.35	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	100% m with Oil Spots in Tool	0.07

Gas Rates

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

* Recovery from multiple tests



DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. State Rd. 4
Olmitz KS. 67564

ATTN: Vern Schrag

19-17s-29w Lane, KS

Ehmke-Fisher #1-19

Job Ticket: 58721

DST#: 2

Test Start: 2014.11.28 @ 15:40:00

GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:38:55

Time Test Ended: 20:30:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 71

Interval: 4148.00 ft (KB) To 4210.00 ft (KB) (TVD)

Total Depth: 4185.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2838.00 ft (KB)

2829.00 ft (CF)

KB to GR/CF: 9.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4185.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.28

End Date: 2014.11.28

Last Calib.: 2014.11.28

Start Time: 15:40:05

End Time: 20:31:44

Time On Btm:

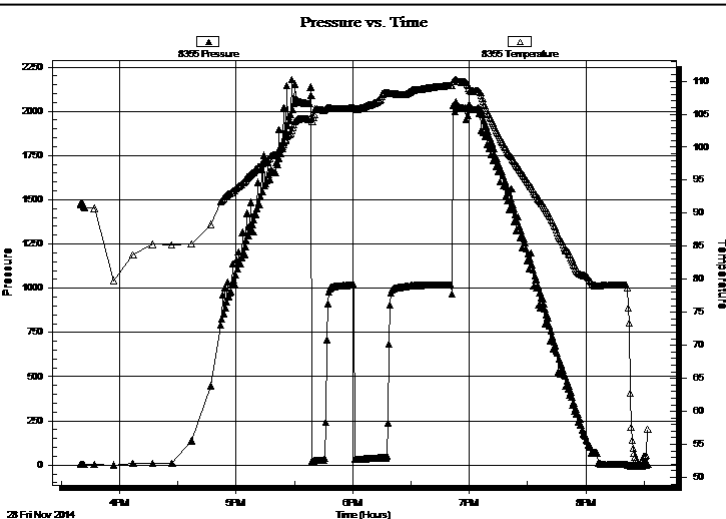
Time Off Btm:

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

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)
15.00	100% m with Oil Spots in Tool	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

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58721

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.11.28 @ 15:40:00

Tool Information

Drill Pipe:	Length: 4045.00 ft	Diameter: 3.80 inches	Volume: 56.74 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:	24000.00 lb
			<u>Total Volume: 57.35 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial	54000.00 lb
Depth to Top Packer:	4184.00 ft			Final	54000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	26.00 ft				
Tool Length:	53.00 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			4158.00	
Shut In Tool	5.00			4163.00	
Hydraulic tool	5.00			4168.00	
Jars	5.00			4173.00	
Safety Joint	2.00			4175.00	
Packer	5.00			4180.00	27.00 Bottom Of Top Packer
Packer	4.00			4184.00	
Stubb	1.00			4185.00	
Recorder	0.00	8355	Outside	4185.00	
Recorder	0.00	8674	Inside	4185.00	
Perforations	20.00			4205.00	
Bullnose	5.00			4210.00	26.00 Bottom Packers & Anchor

Total Tool Length: 53.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58721

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.11.28 @ 15:40:00

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: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.73 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	100% m with Oil Spots in Tool	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

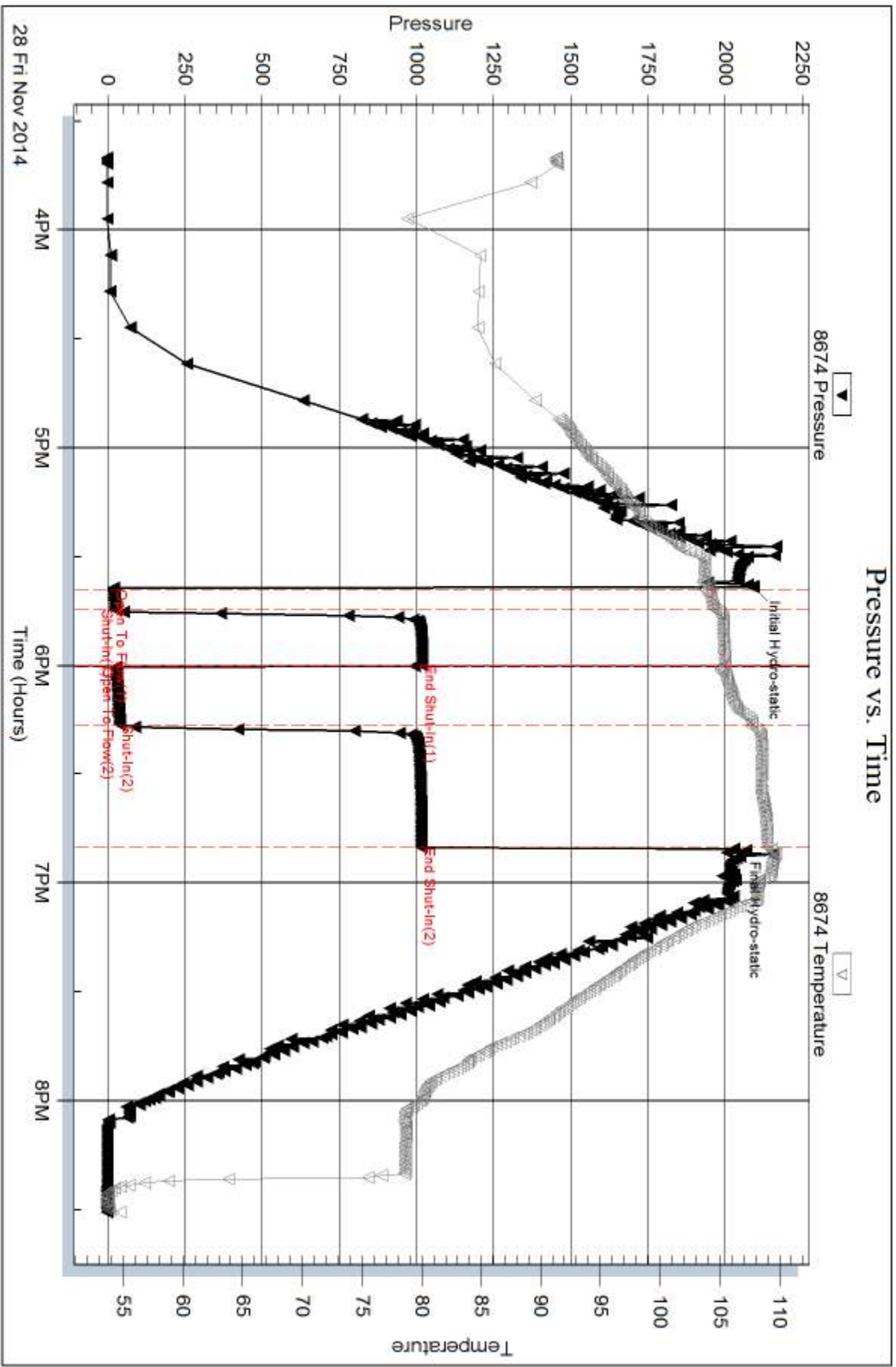
Num Gas Bombs: 0

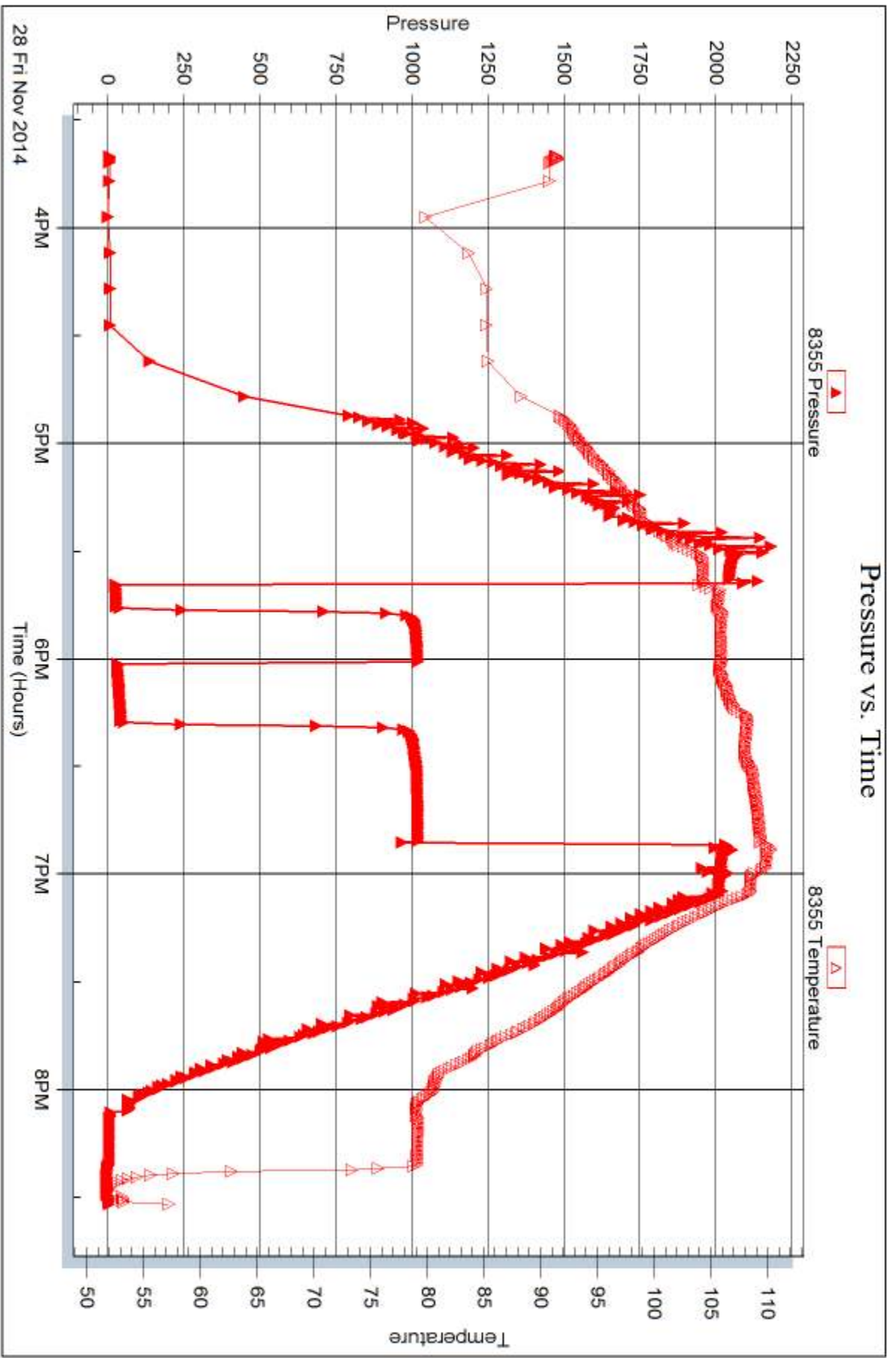
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. State Rd. 4
Olmitz KS. 67564

ATTN: Vern Schrag

Ehmke-Fisher #1-19

19-17s-29w Lane,KS

Start Date: 2014.11.29 @ 05:18:00

End Date: 2014.11.29 @ 11:16:39

Job Ticket #: 58722 DST #: 3

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

Printed: 2014.12.05 @ 09:40:44



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering Inc

19-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58722

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.11.29 @ 05:18:00

GENERAL INFORMATION:

Formation: **LKC " K "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:36:55

Time Test Ended: 11:16:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 71

Interval: 4219.00 ft (KB) To 4231.00 ft (KB) (TVD)

Reference Elevations: 2838.00 ft (KB)

Total Depth: 4231.00 ft (KB) (TVD)

2829.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 9.00 ft

Serial #: 8674 Inside

Press@RunDepth: 32.59 psig @ 4221.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.29

End Date:

2014.11.29

Last Calib.:

2014.11.29

Start Time: 05:18:00

End Time:

11:16:39

Time On Btm:

2014.11.29 @ 07:36:40

Time Off Btm:

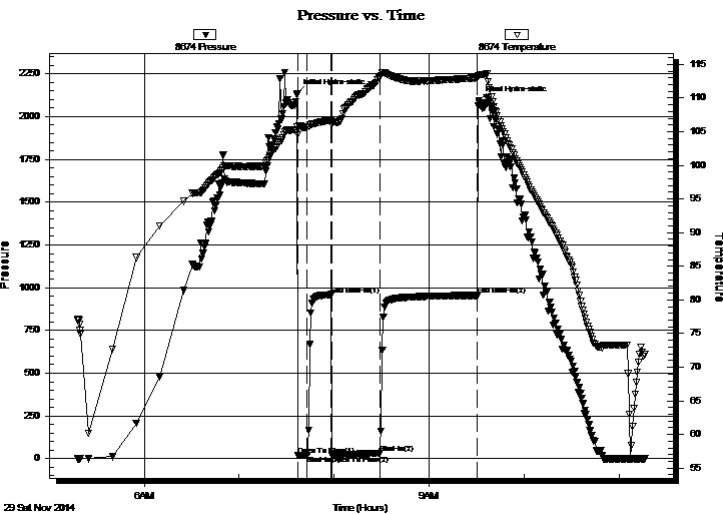
2014.11.29 @ 09:31:25

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

IS- No Blow

FF- Weak Surface Blow Built to 1/2"

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2131.97	105.79	Initial Hydro-static
1	18.29	104.55	Open To Flow (1)
7	20.79	105.62	Shut-In(1)
22	958.65	106.78	End Shut-In(1)
22	20.58	106.05	Open To Flow (2)
52	32.59	112.96	Shut-In(2)
114	954.74	113.01	End Shut-In(2)
115	2094.46	113.26	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	100% m with a Few Oil Spots	0.10

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering Inc

19-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58722

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.11.29 @ 05:18:00

GENERAL INFORMATION:

Formation: **LKC " K "**

Deviated: **No** Whipstock: ft (KB)

Time Tool Opened: 07:36:55

Time Test Ended: 11:16:39

Test Type: **Conventional Bottom Hole (Reset)**

Tester: **Will MacLean**

Unit No: **71**

Interval: 4219.00 ft (KB) To 4231.00 ft (KB) (TVD)

Reference Elevations: **2838.00 ft (KB)**

Total Depth: **4231.00 ft (KB) (TVD)**

2829.00 ft (CF)

Hole Diameter: **7.88 inches** Hole Condition: **Good**

KB to GR/CF: **9.00 ft**

Serial #: 8355

Outside

Press@RunDepth: psig @ **4221.00 ft (KB)**

Capacity: **8000.00 psig**

Start Date: **2014.11.29**

End Date:

2014.11.29

Last Calib.:

2014.11.29

Start Time: **05:18:05**

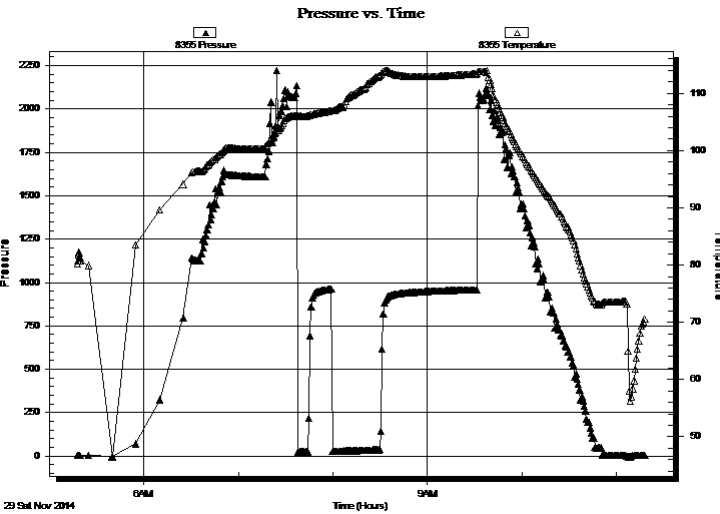
End Time:

11:17:59

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 1/2"
FS- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	100% <i>m</i> with a Few Oil Spots	0.10

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

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58722

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.11.29 @ 05:18:00

Tool Information

Drill Pipe:	Length: 4078.00 ft	Diameter: 3.80 inches	Volume: 57.20 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose:	10000.00 lb
			<u>Total Volume: 57.81 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	54000.00 lb
Depth to Top Packer:	4219.00 ft			Final	54000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	12.00 ft				
Tool Length:	39.00 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			4193.00	
Shut In Tool	5.00			4198.00	
Hydraulic tool	5.00			4203.00	
Jars	5.00			4208.00	
Safety Joint	2.00			4210.00	
Packer	5.00			4215.00	27.00 Bottom Of Top Packer
Packer	4.00			4219.00	
Stubb	1.00			4220.00	
Perforations	1.00			4221.00	
Recorder	0.00	8355	Outside	4221.00	
Recorder	0.00	8674	Inside	4221.00	
Perforations	5.00			4226.00	
Bullnose	5.00			4231.00	12.00 Bottom Packers & Anchor

Total Tool Length: 39.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58722

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.11.29 @ 05:18:00

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: 55.00 sec/qt

Cushion Volume:

bbf

Water Loss: 6.74 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
20.00	100% m with a Few Oil Spots	0.098

Total Length: 20.00 ft Total Volume: 0.098 bbf

Num Fluid Samples: 0

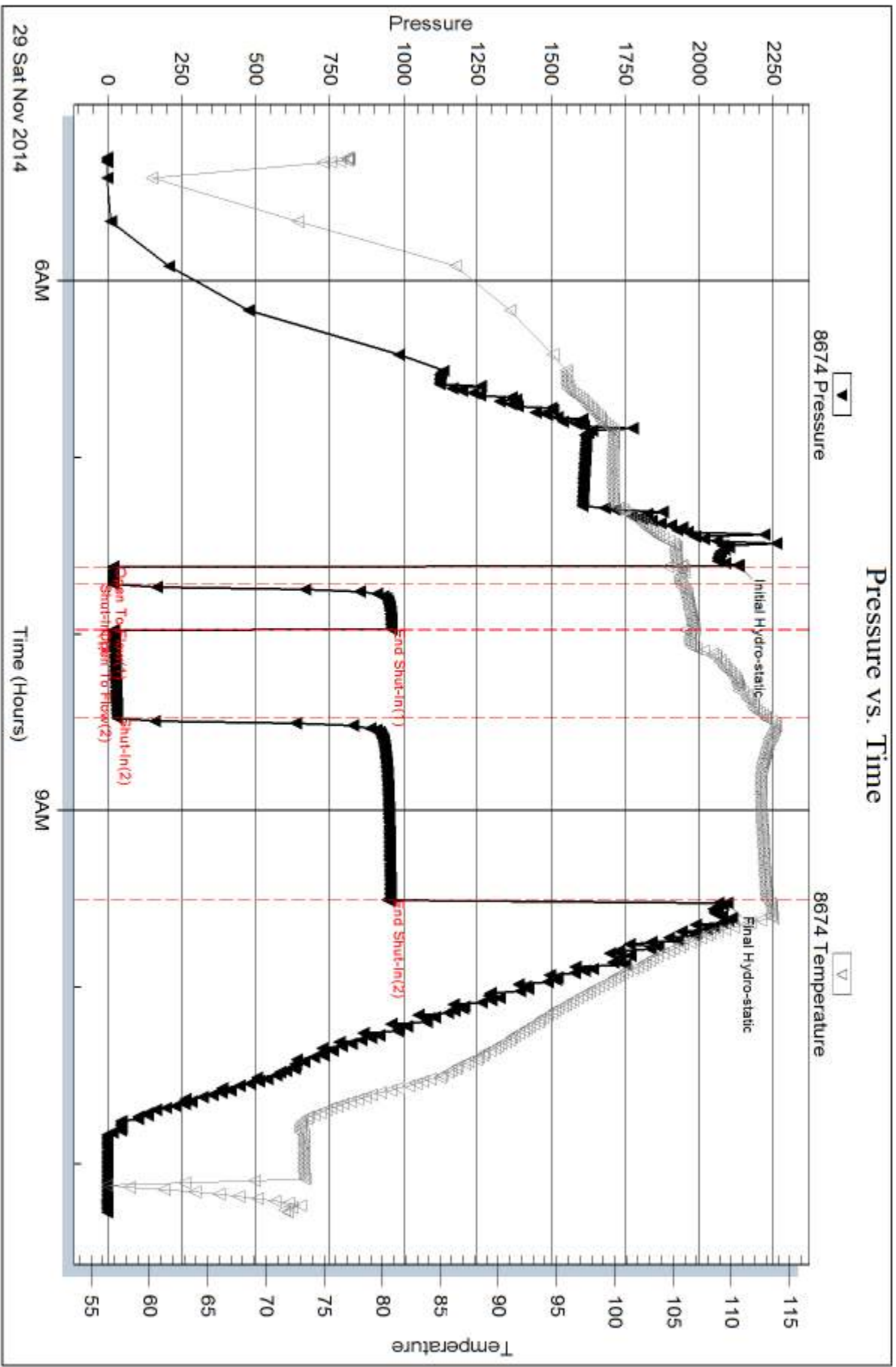
Num Gas Bombs: 0

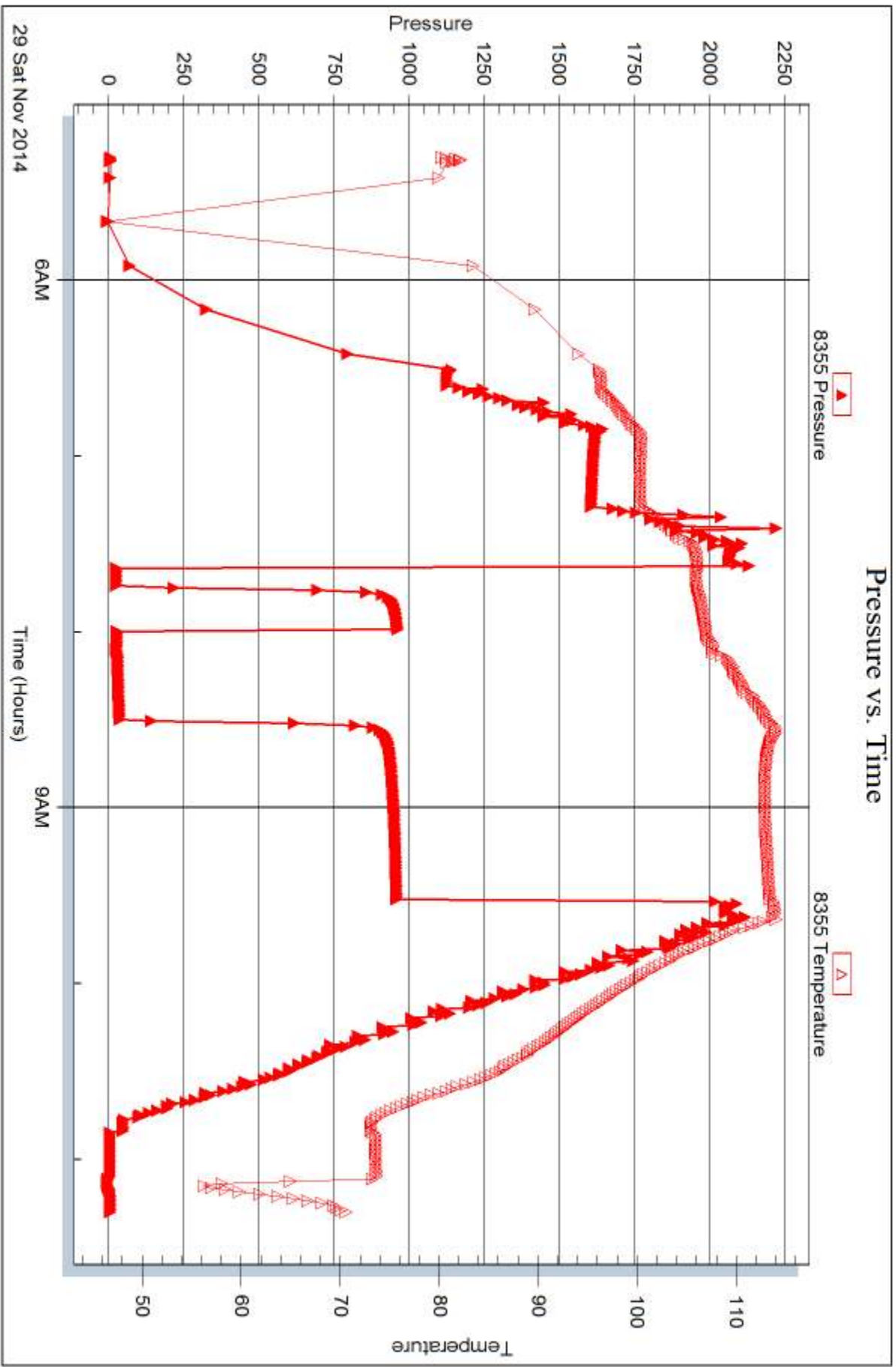
Serial #:

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

Ehmke-Fisher #1-19

19-17s-29w Lane,KS

Start Date: 2014.11.30 @ 00:10:00

End Date: 2014.11.30 @ 04:57:09

Job Ticket #: 58723 DST #: 4

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

Printed: 2014.12.05 @ 09:39:57

Larson Engineering Inc

19-17s-29w Lane,KS

Ehmke-Fisher #1-19

DST # 4

LKC " L "

2014.11.30



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering Inc

19-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58723

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.11.30 @ 00:10:00

GENERAL INFORMATION:

Formation: **LKC " L "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:11:10

Time Test Ended: 04:57:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 71

Interval: 4255.00 ft (KB) To 4274.00 ft (KB) (TVD)

Reference Elevations: 2838.00 ft (KB)

Total Depth: 4274.00 ft (KB) (TVD)

2829.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 9.00 ft

Serial #: 8674

Inside

Press@RunDepth: 18.84 psig @ 4259.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.30

End Date:

2014.11.30

Last Calib.:

2014.11.30

Start Time: 00:10:00

End Time:

04:57:09

Time On Btm:

2014.11.30 @ 02:10:55

Time Off Btm:

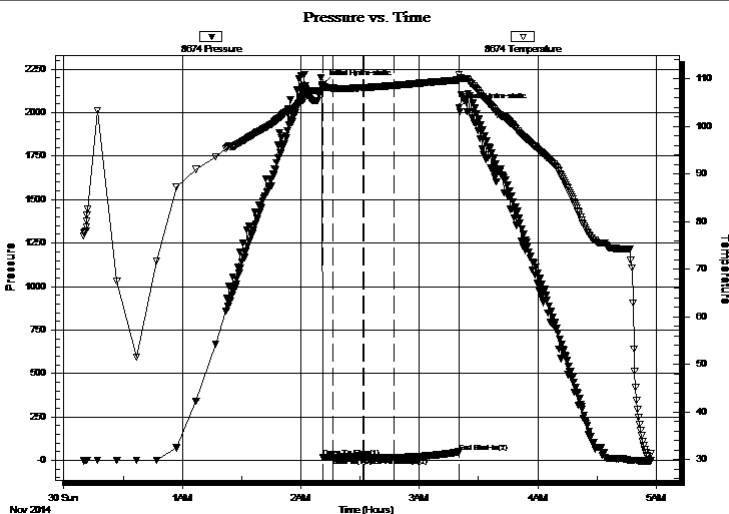
2014.11.30 @ 03:20:10

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	2160.68	108.48	Initial Hydro-static
1	16.92	107.67	Open To Flow (1)
6	18.51	108.00	Shut-In(1)
21	25.71	108.10	End Shut-In(1)
21	16.70	108.10	Open To Flow (2)
37	18.84	108.57	Shut-In(2)
69	49.39	109.73	End Shut-In(2)
70	2027.95	110.90	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100% m w ith Oil Spots	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

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58723

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.11.30 @ 00:10:00

GENERAL INFORMATION:

Formation: **LKC "L "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:11:10

Time Test Ended: 04:57:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 71

Interval: 4255.00 ft (KB) To 4274.00 ft (KB) (TVD)

Reference Elevations: 2838.00 ft (KB)

Total Depth: 4274.00 ft (KB) (TVD)

2829.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 9.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4259.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.30

End Date:

2014.11.30

Last Calib.:

2014.11.30

Start Time: 00:10:05

End Time:

04:58:14

Time On Btm:

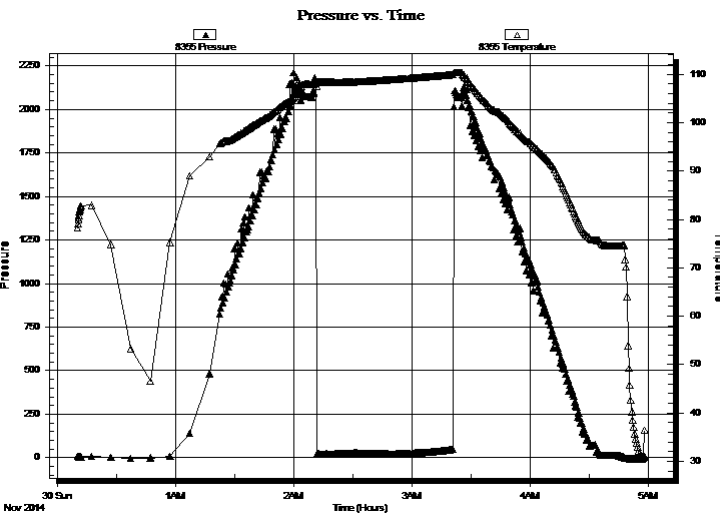
Time Off Btm:

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% m w ith Oil Spots	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

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58723

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.11.30 @ 00:10:00

Tool Information

Drill Pipe:	Length: 4112.00 ft	Diameter: 3.80 inches	Volume: 57.68 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 12000.00 lb
			<u>Total Volume: 58.29 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4255.00 ft			Final 52000.00 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	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			4229.00	
Shut In Tool	5.00			4234.00	
Hydraulic tool	5.00			4239.00	
Jars	5.00			4244.00	
Safety Joint	2.00			4246.00	
Packer	5.00			4251.00	27.00 Bottom Of Top Packer
Packer	4.00			4255.00	
Stubb	1.00			4256.00	
Perforations	3.00			4259.00	
Recorder	0.00	8355	Outside	4259.00	
Recorder	0.00	8674	Inside	4259.00	
Perforations	10.00			4269.00	
Bullnose	5.00			4274.00	19.00 Bottom Packers & Anchor

Total Tool Length: 46.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58723

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.11.30 @ 00:10:00

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: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	100% m with Oil Spots	0.005

Total Length: 1.00 ft Total Volume: 0.005 bbl

Num Fluid Samples: 0

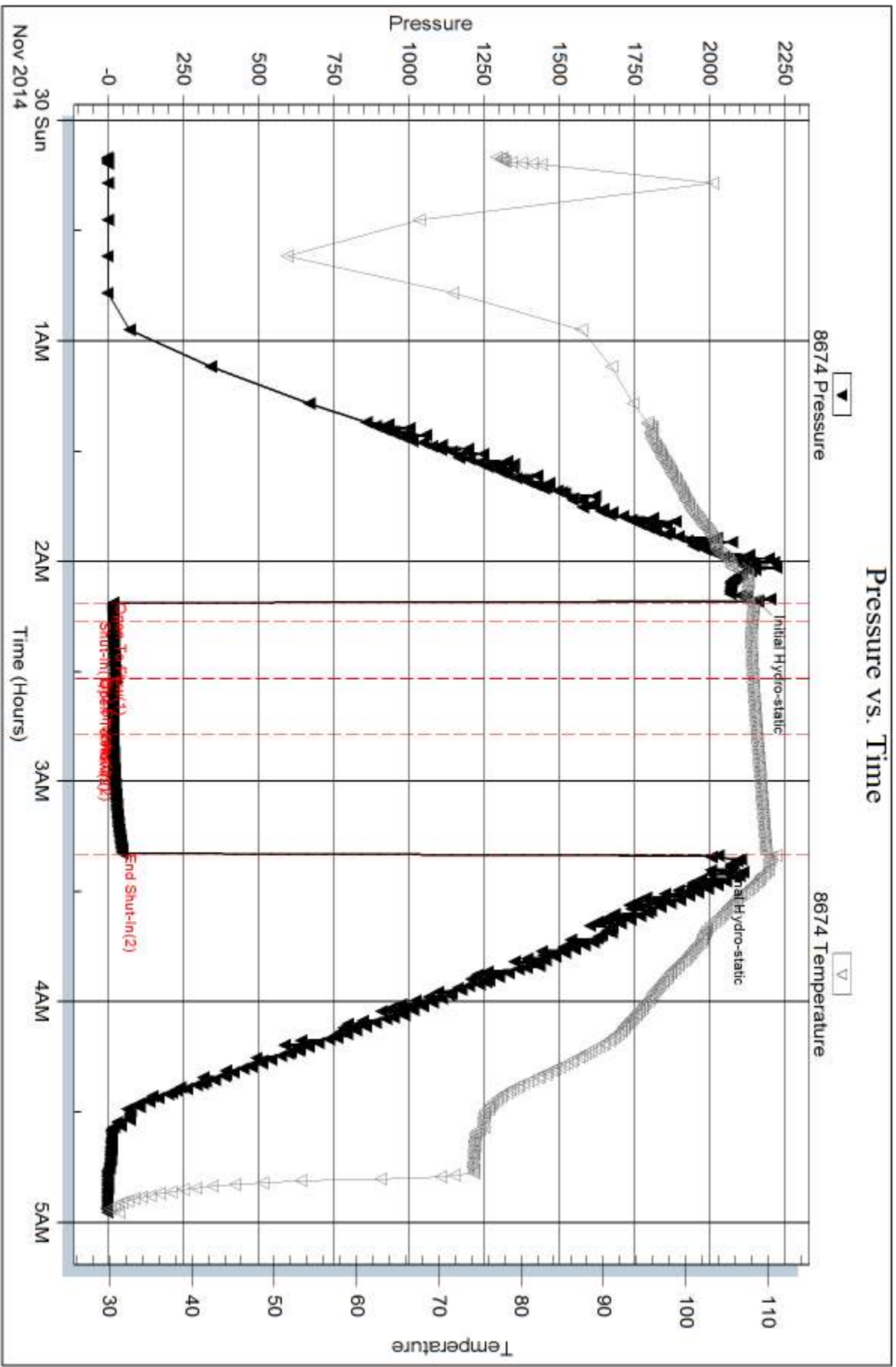
Num Gas Bombs: 0

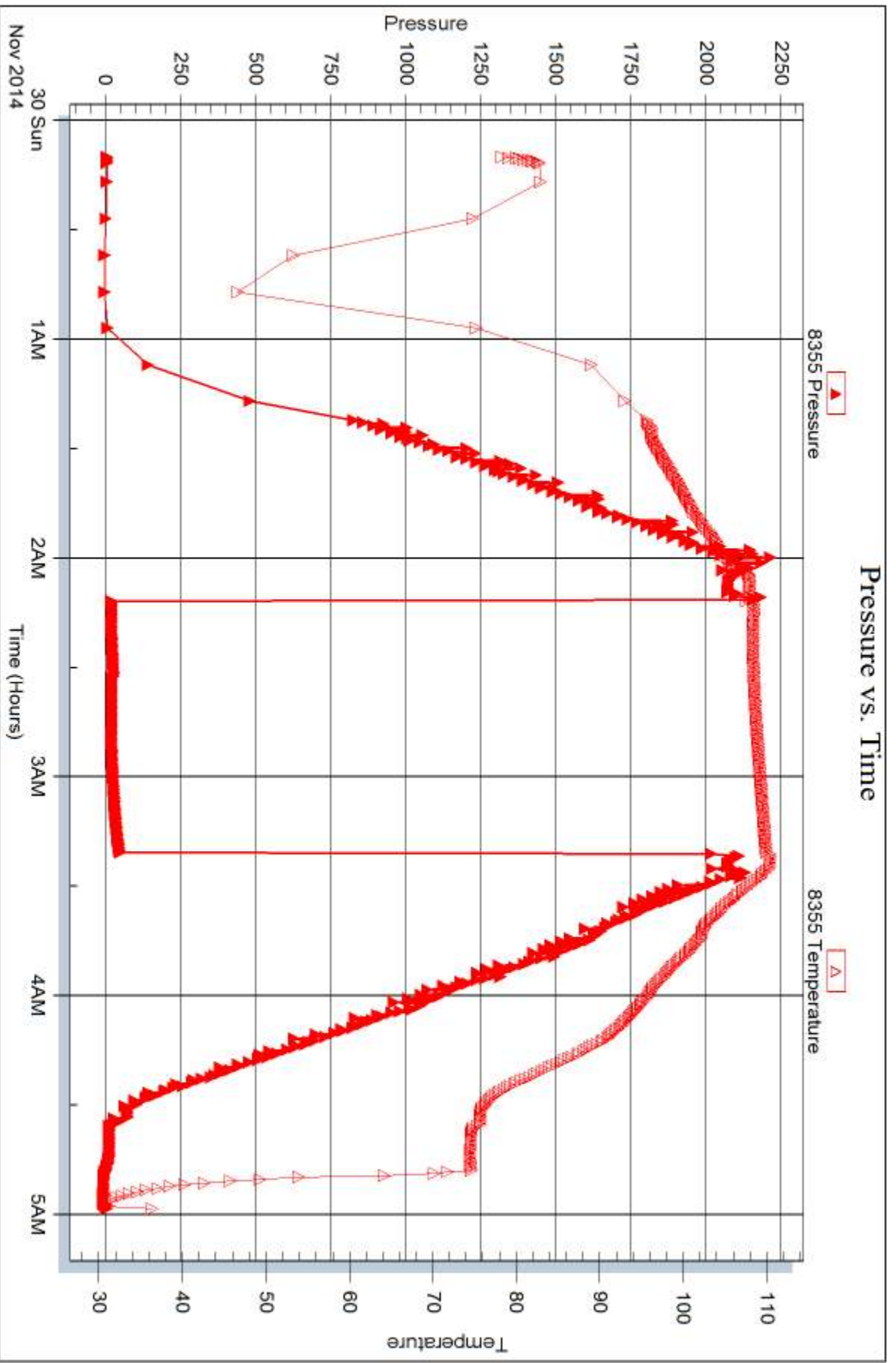
Serial #:

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

Ehmke-Fisher #1-19

19-17s-29w Lane,KS

Start Date: 2014.11.30 @ 21:18:00

End Date: 2014.12.01 @ 03:00:24

Job Ticket #: 58724 DST #: 5

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

Printed: 2014.12.05 @ 09:32:10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering Inc

19-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58724

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.11.30 @ 21:18:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:49:40

Time Test Ended: 03:00:24

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 71

Interval: 4295.00 ft (KB) To 4400.00 ft (KB) (TVD)

Reference Elevations: 2838.00 ft (KB)

Total Depth: 4400.00 ft (KB) (TVD)

2829.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 9.00 ft

Serial #: 8674

Inside

Press@RunDepth: 24.22 psig @ 4297.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.30

End Date:

2014.12.01

Last Calib.: 2014.12.01

Start Time: 21:18:00

End Time:

03:00:24

Time On Btm: 2014.11.30 @ 23:49:25

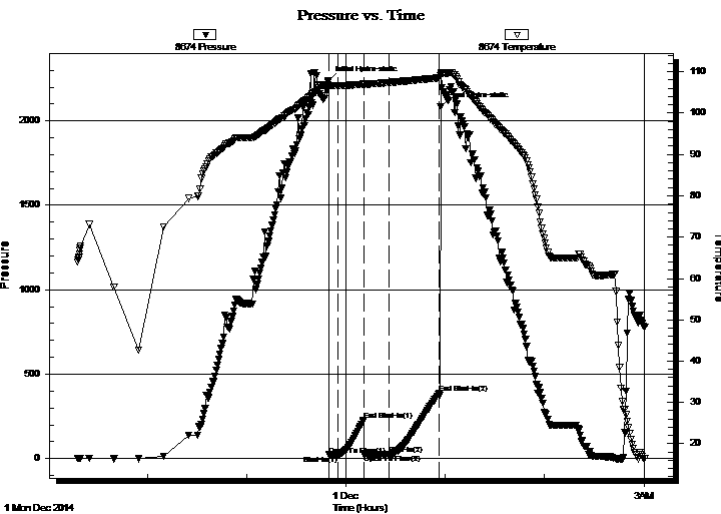
Time Off Btm: 2014.12.01 @ 00:57:10

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

IS- No Blow

FF- Weak Surface Blow

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2239.00	107.03	Initial Hydro-static
1	21.57	106.32	Open To Flow (1)
6	22.02	106.64	Shut-In(1)
22	226.72	107.00	End Shut-In(1)
22	22.40	106.87	Open To Flow (2)
37	24.22	107.40	Shut-In(2)
67	385.10	108.54	End Shut-In(2)
68	2083.45	109.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% m w ith a Few Oil Spots	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

19-17s-29w Lane, KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58724 **DST#: 5**

ATTN: Vern Schrag

Test Start: 2014.11.30 @ 21:18:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:49:40

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Time Test Ended: 03:00:24

Unit No: 71

Interval: 4295.00 ft (KB) To 4400.00 ft (KB) (TVD)

Reference Elevations: 2838.00 ft (KB)

Total Depth: 4400.00 ft (KB) (TVD)

2829.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 9.00 ft

Serial #: 8355 Outside

Press@RunDepth: psig @ 4297.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.30

End Date:

2014.12.01

Last Calib.:

2014.12.01

Start Time: 21:18:05

End Time:

03:01:44

Time On Btm:

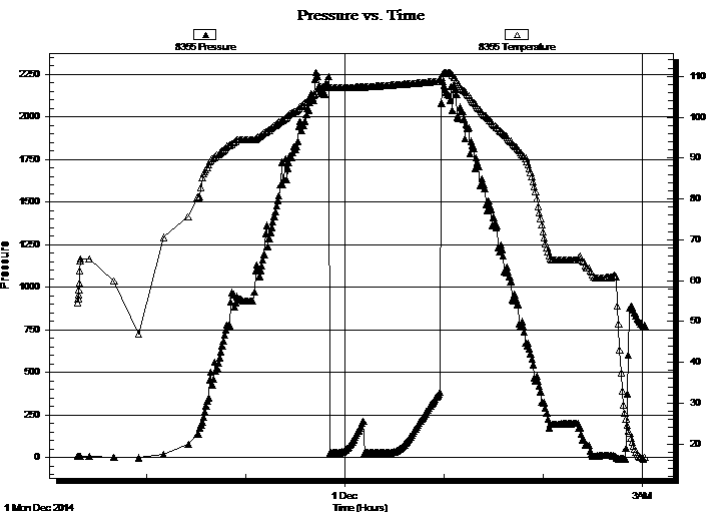
Time Off Btm:

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

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)
5.00	100% m w ith a Few Oil Spots	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

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58724

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.11.30 @ 21:18:00

Tool Information

Drill Pipe:	Length: 4172.00 ft	Diameter: 3.80 inches	Volume: 58.52 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose:	8000.00 lb
			<u>Total Volume: 59.13 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	54000.00 lb
Depth to Top Packer:	4295.00 ft			Final	54000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	105.00 ft				
Tool Length:	132.00 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			4269.00	
Shut In Tool	5.00			4274.00	
Hydraulic tool	5.00			4279.00	
Jars	5.00			4284.00	
Safety Joint	2.00			4286.00	
Packer	5.00			4291.00	27.00 Bottom Of Top Packer
Packer	4.00			4295.00	
Stubb	1.00			4296.00	
Perforations	1.00			4297.00	
Recorder	0.00	8355	Outside	4297.00	
Recorder	0.00	8674	Inside	4297.00	
Perforations	33.00			4330.00	
Change Over Sub	1.00			4331.00	
Drill Pipe	63.00			4394.00	
Change Over Sub	1.00			4395.00	
Bullnose	5.00			4400.00	105.00 Bottom Packers & Anchor
Total Tool Length:	132.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58724

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.11.30 @ 21:18:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

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

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

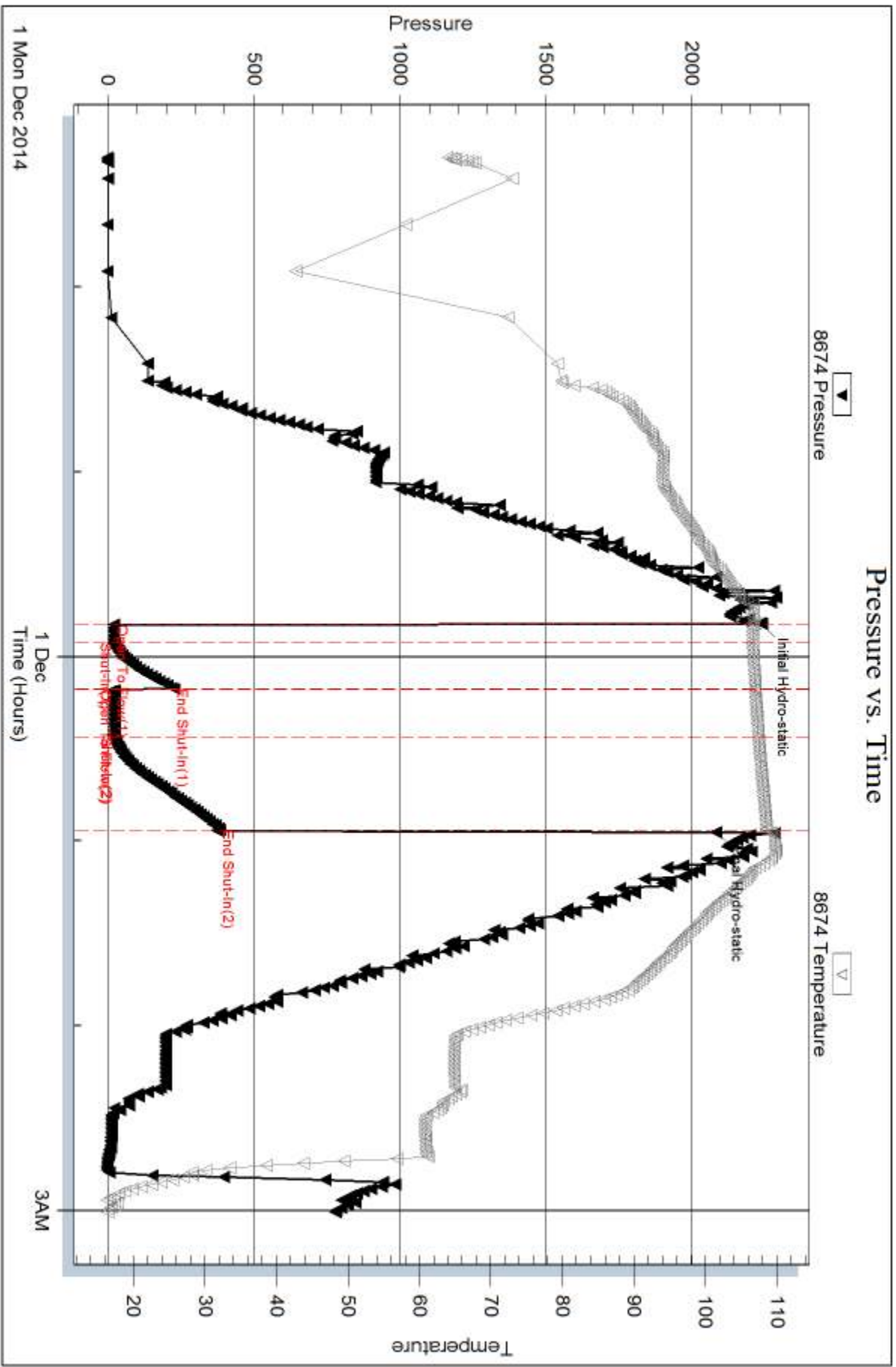
Num Gas Bombs: 0

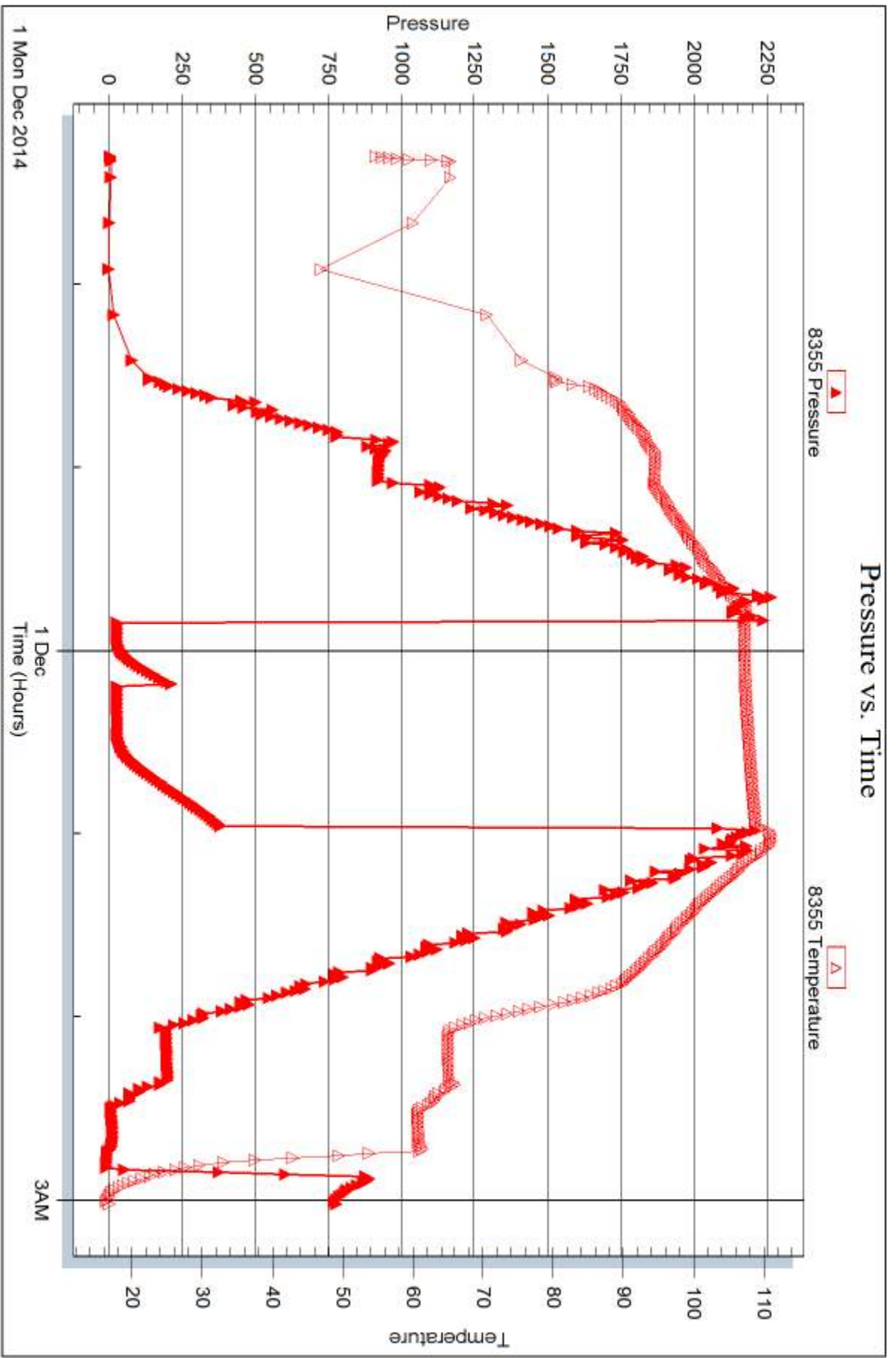
Serial #:

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

Ehmke-Fisher #1-19

19-17s-29w Lane,KS

Start Date: 2014.12.01 @ 23:38:00

End Date: 2014.12.02 @ 06:53:30

Job Ticket #: 58725 DST #: 6

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

Printed: 2014.12.05 @ 09:31:27



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering Inc
 562 W. State Rd. 4
 Olmitz KS. 67564
 ATTN: Vern Schrag

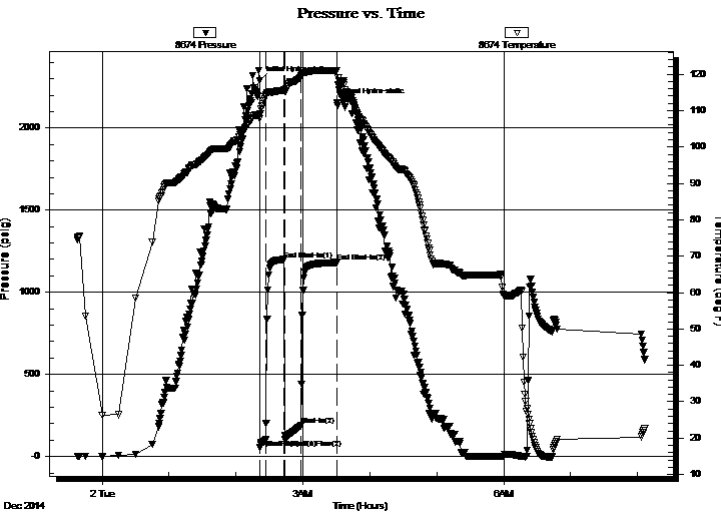
19-17s-29w Lane, KS
Ehmke-Fisher #1-19
 Job Ticket: 58725 **DST#: 6**
 Test Start: 2014.12.01 @ 23:38:00

GENERAL INFORMATION:

Formation: **Cherokee**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 02:21:25 Tester: Will MacLean
 Time Test Ended: 06:53:30 Unit No: 71
 Interval: **4433.00 ft (KB) To 4560.00 ft (KB) (TVD)** Reference Elevations: 2838.00 ft (KB)
 Total Depth: 4560.00 ft (KB) (TVD) 2829.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 9.00 ft

Serial #: 8674 Inside
 Press@RunDepth: 188.22 psig @ 4434.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.12.01 End Date: 2014.12.02 Last Calib.: 2014.12.02
 Start Time: 23:38:00 End Time: 08:06:24 Time On Btm: 2014.12.02 @ 02:21:10
 Time Off Btm: 2014.12.02 @ 03:30:40

TEST COMMENT: IF- Surface Blow Built to BOB in 2 1/4 min
 IS- Weak Surface Blow in 1min Built to 1/4"
 FF- Surface Blow Built to BOB in 2 min
 FS- Weak Surface Blow Built to BOB in 11 3/4 min



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2288.27	108.75	Initial Hydro-static
1	52.41	107.81	Open To Flow (1)
6	103.37	114.11	Shut-In(1)
22	1199.92	115.60	End Shut-In(1)
23	102.76	115.08	Open To Flow (2)
37	188.22	119.27	Shut-In(2)
69	1181.84	120.91	End Shut-In(2)
70	2154.68	121.02	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
186.00	WOGCM 4%w 18%oil 31%g 47%m	1.48
62.00	WOGCM 3%w 15%oil 22%g 60%m	0.87
62.00	OMCG 18%oil 37%m 45%g	0.87
62.00	GMCO 23%g 26%m 51%oil	0.87
72.00	GO 14%g 86%oil	1.01
0.00	1540' of GIP	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

19-17s-29w Lane, KS

Ehmke-Fisher #1-19

Job Ticket: 58725

DST#: 6

Test Start: 2014.12.01 @ 23:38:00

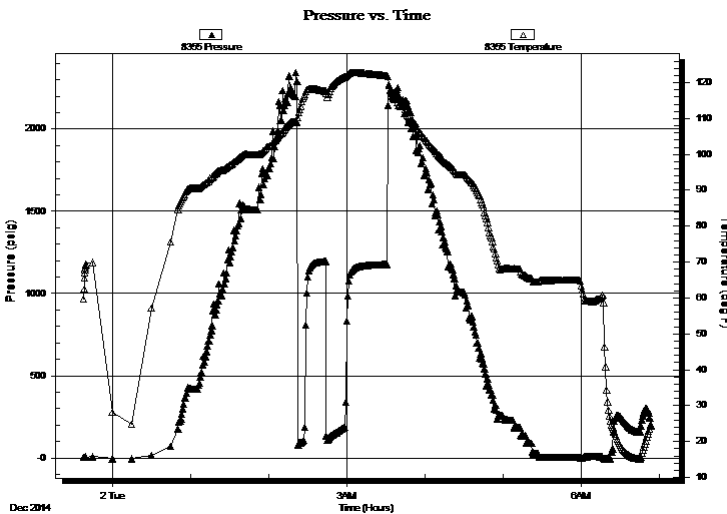
GENERAL INFORMATION:

Formation: **Cherokee**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:21:25
Time Test Ended: 06:53:30
Interval: **4433.00 ft (KB) To 4560.00 ft (KB) (TVD)**
Total Depth: 4560.00 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: 2838.00 ft (KB)
2829.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 8355 Outside
Press@RunDepth: psig @ 4434.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.12.01 End Date: 2014.12.02 Last Calib.: 2014.12.02
Start Time: 23:38:00 End Time: 06:53:24 Time On Btm:
Time Off Btm:

TEST COMMENT: IF- Surface Blow Built to BOB in 2 1/4 min
IS- Weak Surface Blow in 1min Built to 1/4"
FF- Surface Blow Built to BOB in 2 min
FS- Weak Surface Blow Built to BOB in 11 3/4 min

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
186.00	WOGCM 4%w 18%oil 31%g 47%m	1.48
62.00	WOGCM 3%w 15%oil 22%g 60%m	0.87
62.00	OMCG 18%oil 37%m 45%g	0.87
62.00	GMCO 23%g 26%m 51%oil	0.87
72.00	GO 14%g 86%oil	1.01
0.00	1540' 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

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58725

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.12.01 @ 23:38:00

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:	32000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose:	12000.00 lb
			<u>Total Volume: 60.87 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	4433.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	127.00 ft				
Tool Length:	154.00 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			4407.00	
Shut In Tool	5.00			4412.00	
Hydraulic tool	5.00			4417.00	
Jars	5.00			4422.00	
Safety Joint	2.00			4424.00	
Packer	5.00			4429.00	27.00 Bottom Of Top Packer
Packer	4.00			4433.00	
Stubb	1.00			4434.00	
Recorder	0.00	8355	Outside	4434.00	
Recorder	0.00	8674	Inside	4434.00	
Perforations	25.00			4459.00	
Change Over Sub	1.00			4460.00	
Drill Pipe	94.00			4554.00	
Change Over Sub	1.00			4555.00	
Bullnose	5.00			4560.00	127.00 Bottom Packers & Anchor

Total Tool Length: 154.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

19-17s-29w Lane,KS

562 W. State Rd. 4
Olmitz KS. 67564

Ehmke-Fisher #1-19

Job Ticket: 58725

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.12.01 @ 23:38:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.72 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
186.00	WOGCM 4%w 18%oil 31%g 47%m	1.480
62.00	WOGCM 3%w 15%oil 22%g 60%m	0.870
62.00	OMCG 18%oil 37%m 45%g	0.870
62.00	GMCO 23%g 26%m 51%oil	0.870
72.00	GO 14%g 86%oil	1.010
0.00	1540' of GIP	0.000

Total Length: 444.00 ft Total Volume: 5.100 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

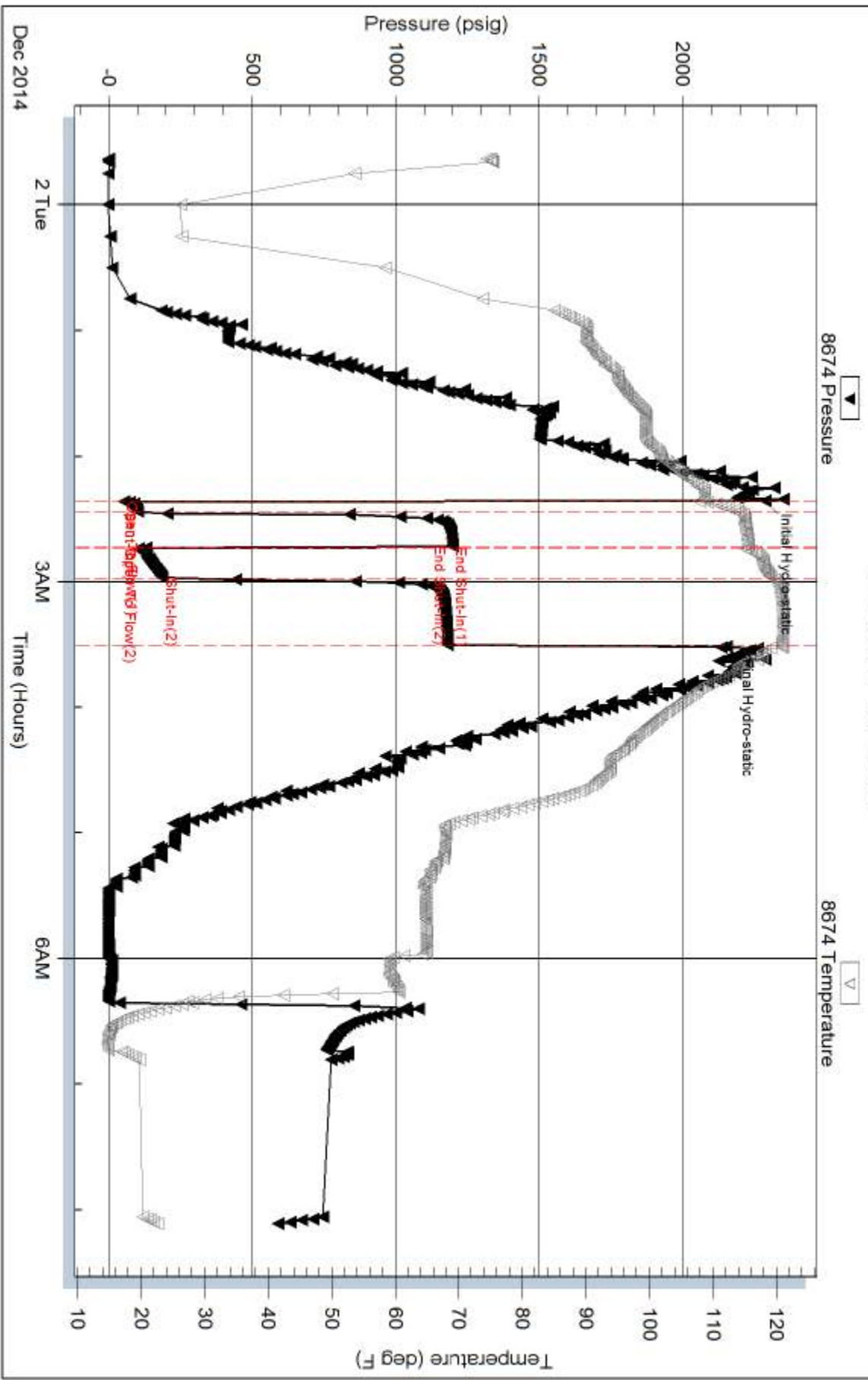
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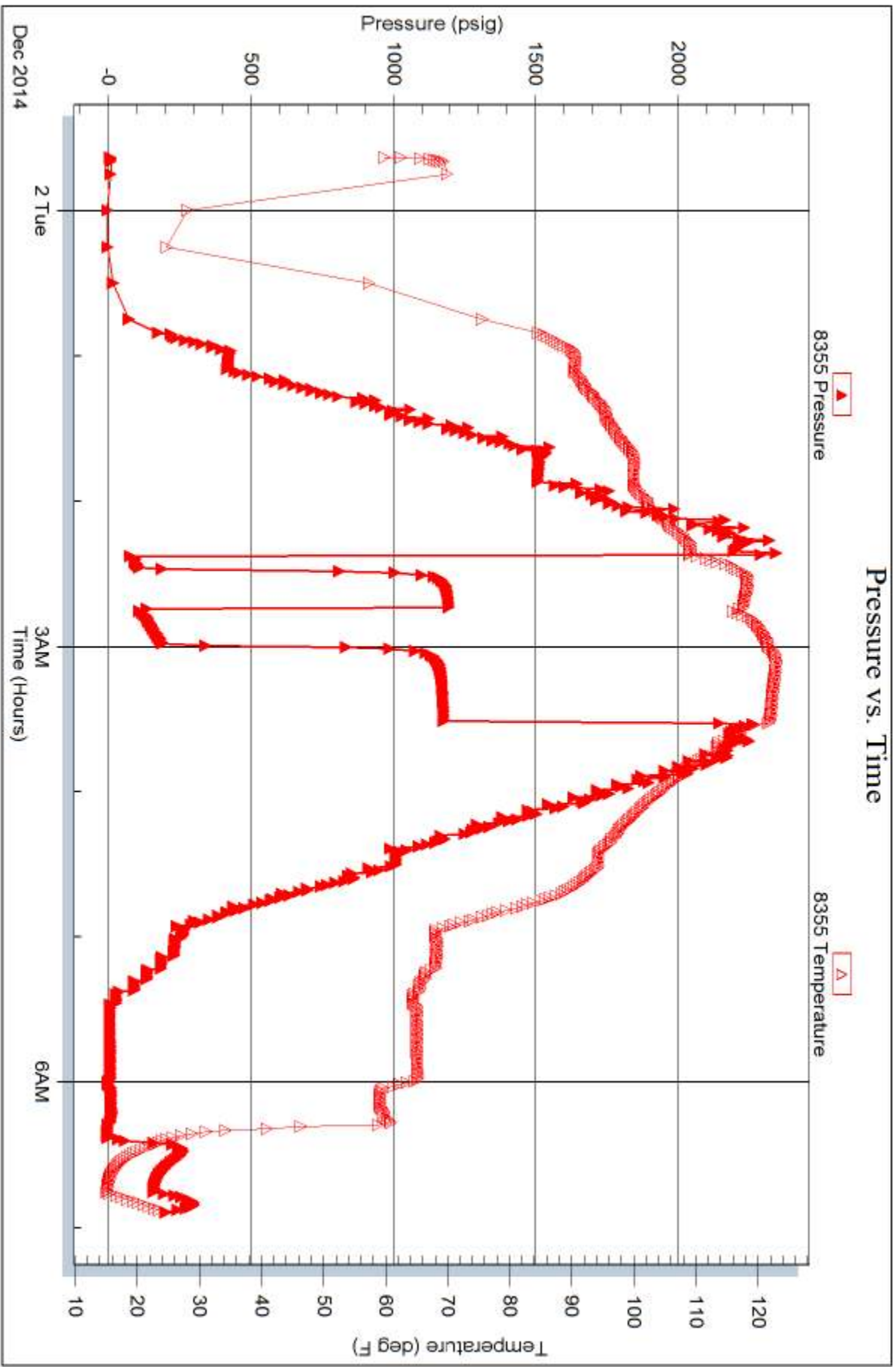
Laboratory Name:

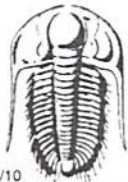
Laboratory Location:

Recovery Comments: API is 31 @ 20f = 35

Pressure vs. Time







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 58720

Well Name & No. Ehmke-Fisher #1-19 Test No. DST #1 Date 11-28-14
 Company Larson Engineering Inc Elevation 2838 KB 2829 GL
 Address 562 W. State Rd 4 Omitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D 3
 Location: Sec. 19 Twp. 17S Rge. 29W Co. Lanc State KS

Interval Tested 4158-4185 Zone Tested LRC "I"
 Anchor Length 27 Drill Pipe Run 4015 Mud Wt. 8.9
 Top Packer Depth 4154 Drill Collars Run 124 Vis Cl
 Bottom Packer Depth 4158 Wt. Pipe Run 0 WL 6.8
 Total Depth 4185 Chlorides 1500 ppm System LCM 116

Blow Description IF - Surface Blow Built to BOB in 4 3/4
ISI - Weak Surface Blow in 14 min
FF - Surface Blow Built to BOB in 5 min
FST - Weak Surface Blow in 3 1/2 min Built to 1"

Rec	Feet of	%gas	%oil	%water	%mud
48	MGCC	6	91	3	
50	GOWCM	11	20	23	46
124	OG-MCW	10	7	45	38
62	OG-MCW	4	3	69	24
186	G-MCW & the SKmat at only	4		81	15

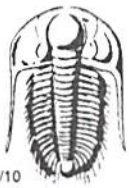
Rec Total 470 BHT 122 Gravity 34 API RW. 313 @ 30 °F Chlorides 54000 ppm

(A) Initial Hydrostatic 2082 Test 1250 T-On Location 12:04
 (B) First Initial Flow 37 Jars 250 T-Started 1:04
 (C) First Final Flow 115 Safety Joint 75 T-Open 5:25
 (D) Initial Shut-In 1096 Circ Sub NIC T-Pulled 5:09
 (E) Second Initial Flow 118 Hourly Standby T-Out 7:17
 (F) Second Final Flow 229 Mileage 48 R/A 74.40 Comments 222' of GIP
 (G) Final Shut-In 1090 Sampler API is 31 @ 30 = 34
 (H) Final Hydrostatic 1957 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 1649.40
 MP/DST Disc't _____
 Sub Total 1649.40

Approved By Vern Schrag 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. 58721

Well Name & No. Ehmke - Fisher #1-19 Test No. DST #2 Date 11-28-14
 Company Larson Engineering Inc Elevation 2838 KB 2829 GL
 Address 562 W. State Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D 3
 Location: Sec. 19 Twp. 17s Rge. 29W Co. Lane State KS

Interval Tested 4184-4210 Zone Tested LRC "J"
 Anchor Length 26 Drill Pipe Run 4045 Mud Wt. 9.0
 Top Packer Depth 4180 Drill Collars Run 124 Vis 55
 Bottom Packer Depth 4184 Wt. Pipe Run 0 WL 6.8
 Total Depth 4210 Chlorides 1700 ppm System LCM 116
 Blow Description IF- Weak Surface Blow Built to 1/2"
ISI- No Blow
FF- Weak Surface Blow
F5I- No Blow

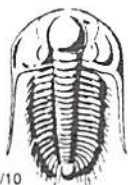
Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>Mud with oil spots in Tool</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 15 BHT 108 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2092 Test 1250 T-On Location 14:54
 (B) First Initial Flow 19 Jars 250 T-Started 15:40
 (C) First Final Flow 25 Safety Joint 75 T-Open 17:38
 (D) Initial Shut-In 1018 Circ Sub NIC T-Pulled _____
 (E) Second Initial Flow 27 Hourly Standby _____ T-Out 20:30
 (F) Second Final Flow 39 Mileage 48 R/T 74.40 Comments _____
 (G) Final Shut-In 1015 Sampler _____
 (H) Final Hydrostatic 2028 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1649.40
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1649.40

Approved By Vernon Schrag Our Representative N/A

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 58722

4/10

Well Name & No. Elmore-Fisher #1-19 Test No. DST #3 Date 11-29-14
 Company Lerson Engineering Elevation 2838 KB 2829 GL
 Address 562 W. State Rd 4 Olm. #2 RS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D #3
 Location: Sec. 19 Twp. 17S Rge. 29E Co. Lane State KS

Interval Tested 4219 - 4231 Zone Tested LRC "R"
 Anchor Length 12 Drill Pipe Run 4078 Mud Wt. 9.0
 Top Packer Depth 4215 Drill Collars Run 124 Vis 55
 Bottom Packer Depth 4219 Wt. Pipe Run 0 WL 6.8
 Total Depth 4231 Chlorides 1700 ppm System LCM 115

Blow Description IF - Weak Surface Blow Built to 1/2"
ISI - No Blow
FF - Weak Surface Blow Built to 5"
FSD - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>Mud with a few 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 15 BHT 113 Gravity 1250 API RW @ °F Chlorides ppm
 (A) Initial Hydrostatic 2131 Test 1250 T-On Location 4:50
 (B) First Initial Flow 18 Jars 250 T-Started 5:18
 (C) First Final Flow 20 Safety Joint 75 T-Open 7:36:55
 (D) Initial Shut-In 958 Circ Sub _____ T-Pulled 7:31
 (E) Second Initial Flow 20 Hourly Standby _____ T-Out 11:16
 (F) Second Final Flow 32 Mileage 48 R/T 74.40 Comments _____
 (G) Final Shut-In 954 Sampler _____
 (H) Final Hydrostatic 2094 Straddle _____
 Shale Packer _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1649.40
 Initial Open 5
 Initial Shut-In 15
 Final Flow 30
 Final Shut-In 60
 Sub Total 0
 Total 1649.40
 MP/DST Disc't _____

Approved By Vern Schrag Our Representative _____

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Test Ticket

NO. 58723

Well Name & No. EhmK-Fisher #1-19 Test No. DST #4 Date 11-29-14
 Company Larson Engineering Inc Elevation 2838 KB 2829 GL
 Address 562 W. State Rd Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D R5B
 Location: Sec. 19 Twp. 17S Rge. 29W Co. Lane State KS

Interval Tested 4255-4274 Zone Tested LRC "L"
 Anchor Length 19 Drill Pipe Run 4112 Mud Wt. 9.2
 Top Packer Depth 4251 Drill Collars Run 124 Vis 49
 Bottom Packer Depth 4255 Wt. Pipe Run 0 WL 6.8
 Total Depth 4274 Chlorides 1800 ppm System LCM 116

Blow Description IF-Weak Surface Blow
ISI- No Blow
FF- No Blow
FST- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>Mud with o.l 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 1 BHT 111 Gravity 1250 API RW 74.40 @ 74.40 °F Chlorides 1800 ppm

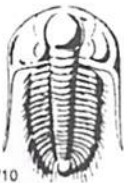
(A) Initial Hydrostatic 2160 Test 1250 T-On Location 23:48
 (B) First Initial Flow 16 Jars 250 T-Started 00:10
 (C) First Final Flow 18 Safety Joint 75 T-Open 2:11
 (D) Initial Shut-In 25 Circ Sub MC T-Pulled 3:20
 (E) Second Initial Flow 16 Hourly Standby _____ T-Out 4:57
 (F) Second Final Flow 18 Mileage 48 RIT Comments _____
 (G) Final Shut-In 49 Sampler _____
 (H) Final Hydrostatic 2027 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1649.40

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

Sub Total 0
 Total 1649.40
 MP/DST Disc't _____

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 58724

Well Name & No. Fhmke-Fisher #1-19 Test No. DST #5 Date 11-30-14
 Company Larson Engineering Inc Elevation 2838 KB 2829 GL
 Address 562 W. State Rd 4 Omitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-03
 Location: Sec. 19 Twp. 17s Rge. 29W Co. Lane State KS

Interval Tested 4295-4400 Zone Tested Marmanton
 Anchor Length 105 Drill Pipe Run 4172 Mud Wt. 9.1
 Top Packer Depth 4291 Drill Collars Run 124 Vis 54
 Bottom Packer Depth 4295 Wt. Pipe Run 0 WL 6.8
 Total Depth 4400 Chlorides 1800 ppm System LCM 1 1/2 lb

Blow Description IF - Weak Surface Blow 1/2"
ISI - No Blow
FF - Weak Surface Blow
ISI - No Blow

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

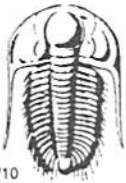
Rec Total 5 BHT 108 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2239 Test 1250 T-On Location 20:24
 (B) First Initial Flow 21 Jars 250 T-Started 21:18
 (C) First Final Flow 22 Safety Joint 75 T-Open 23:49
 (D) Initial Shut-In 226 Circ Sub N/C T-Pulled 00:57
 (E) Second Initial Flow 22 Hourly Standby _____ T-Out 3:00
 (F) Second Final Flow 24 Mileage 48 RIT 74.40 Comments _____
 (G) Final Shut-In 385 Sampler _____
 (H) Final Hydrostatic 2083 Straddle _____
 Shale Packer _____
 Ruined 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 1649.40
 MP/DST Disc't _____
 Sub Total 1649.40

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **58725**

4/10

Well Name & No. Ehmer - Fisher #1-19 Test No. DST #6 Date 12-1-14
 Company Larson Engineering Inc Elevation 2838 KB 2829 GL
 Address 562 W. State Rd 4 Olathe KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D 3
 Location: Sec. 19 Twp. 17S Rge. 29W Co. Lane State KS

Interval Tested 4433-4560 Zone Tested CheroRcc
 Anchor Length 127 Drill Pipe Run 4296 Mud Wt. 9.1
 Top Packer Depth 4429 Drill Collars Run 124 Vis 59
 Bottom Packer Depth 4433 Wt. Pipe Run 0 WL 6.4
 Total Depth 4560 Chlorides 2000 ppm System LCM 216

Blow Description IF - Surface Blow Built to BOB in 2 1/4 min
ISI - Weak Surface Blow in 1 min Built to 1/4"
FF - Surface Blow Built to BOB in 2 min
FSI - Weak Surface Blow Built to BOB in 11 3/4 min

Rec	Feet of	%gas	%oil	%water	%mud
72	GO	14	86		
62	GMCO	23	51	26	
62	OMCG	45	18	37	
62 62	WOGCM	22	15	3	60
186	WOGCM	31	18	4	47

Rec Total 444 BHT 121 Gravity 35 API RW @ 74.40 °F Chlorides _____ ppm

(A) Initial Hydrostatic 2288 Test 1250 T-On Location 22:14
 (B) First Initial Flow 52 Jars 250 T-Started 23:38
 (C) First Final Flow 103 Safety Joint 75 T-Open 2:21
 (D) Initial Shut-In 1199 Circ Sub NIC T-Pulled 8:30
 (E) Second Initial Flow 102 Hourly Standby _____ T-Out 6:53
 (F) Second Final Flow 188 Mileage 48 RIT 74.40 Comments API is 81 @ 20ft = 35
 (G) Final Shut-In 1181 Sampler _____ 1546 GIP
 (H) Final Hydrostatic 2154 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1649.40
 Accessibility _____ MP/DST Disc't _____

Initial Open 5
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30
 Sub Total 1649.40

Approved By [Signature] Our Representative [Signature]

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