



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Herman L. Loeb, LLC.  
 P.O. Box 838  
 Lawrenceville, IL. 62439  
 ATTN: Jon Christensen

**5-28s-18w Kiowa, Co.**  
**Heft #4-5**  
 Job Ticket: 52003 **DST#: 4**  
 Test Start: 2014.04.06 @ 02:25:36

## GENERAL INFORMATION:

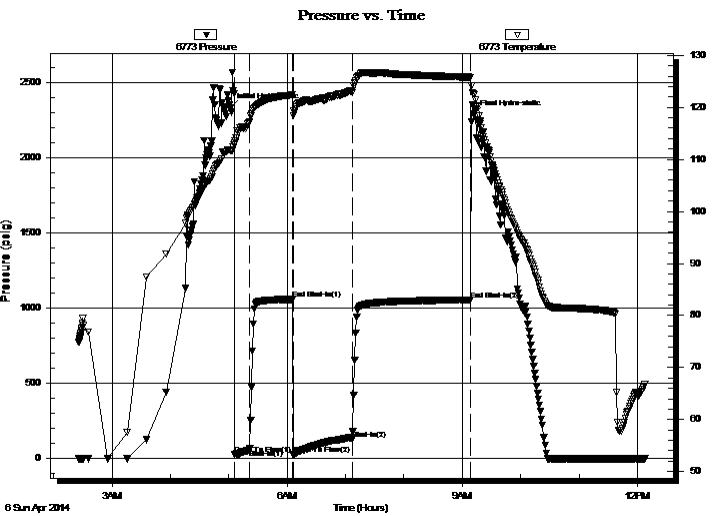
Formation: **Miss. Chert.**  
 Deviated: No Whipstock: 0.00 ft (KB)  
 Time Tool Opened: 05:06:21  
 Time Test Ended: 12:08:06  
 Interval: **4838.00 ft (KB) To 4853.00 ft (KB) (TVD)**  
 Total Depth: 4853.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Matt Smith  
 Unit No: 53  
 Reference Elevations: 2232.00 ft (KB)  
 2219.00 ft (CF)  
 KB to GR/CF: 13.00 ft

## Serial #: 6773

**Outside**

Press @ Run Depth: 129.45 psig @ 4839.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.06 End Date: 2014.04.06 Last Calib.: 2014.04.06  
 Start Time: 02:25:41 End Time: 12:08:06 Time On Btm: 2014.04.06 @ 05:01:21  
 Time Off Btm: 2014.04.06 @ 09:11:36

**TEST COMMENT:** IF: Strong blow . B.O.B. in 1 1/2 mins.  
 IS: Weak blow . Surf., to 1/2".  
 FF: Strong blow . B.O.B. in 20 secs., G.T.S. in 12 mins. Gauged gas see gas report.  
 FSI: No blow . Bleed off 23 mins. thru 1" choke and blow line.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2330.56	111.76	Initial Hydro-static
5	30.20	113.11	Open To Flow (1)
20	58.08	117.12	Shut-In(1)
65	1057.81	122.46	End Shut-In(1)
65	25.65	119.25	Open To Flow (2)
126	129.45	122.80	Shut-In(2)
248	1053.88	125.78	End Shut-In(2)
251	2287.76	122.65	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
32.00	MO 15%w 85%o	0.16
64.00	MOW 15%w 20%o 65%m	0.31
150.00	WCMOG 5%w 15%m 30%g 50%o	0.74
180.00	WCMOG 5%w 20%g 30%o 45%m	1.76
0.00	4,394' G.I.P.	0.00

\* Recovery from multiple tests

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.13	3.50	6.70
Last Gas Rate	0.13	16.50	11.57
Max. Gas Rate	0.13	16.50	11.57



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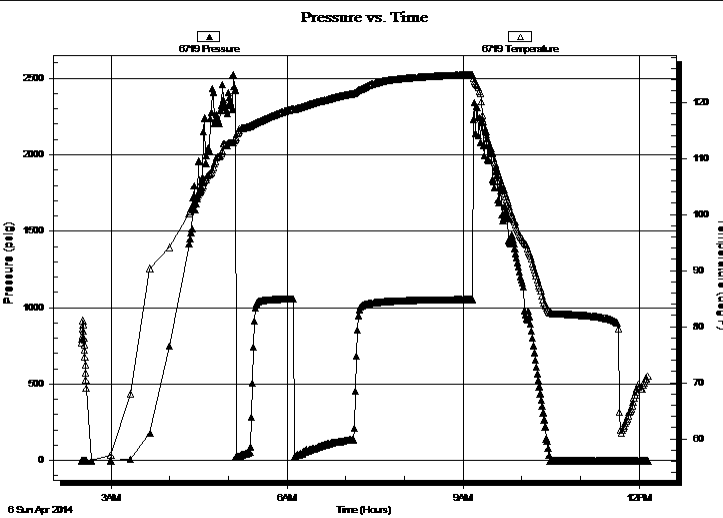
**5-28s-18w Kiowa, Co.**  
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 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Matt Smith  
 Unit No: 53  
 Reference Elevations: 2232.00 ft (KB)  
 2219.00 ft (CF)  
 KB to GR/CF: 13.00 ft

**Serial #: 6719 Outside**  
 Press @ Run Depth:                      psig @    4839.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2014.04.06                  End Date: 2014.04.06      Last Calib.: 2014.04.06  
 Start Time: 02:29:41                      End Time: 12:09:21      Time On Btm:  
    Time Off Btm:

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 IS: Weak blow . Surf., to 1/2".  
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PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery		
Length (ft)	Description	Volume (bbl)
32.00	MO 15%m 85%o	0.16
64.00	MOW 15%w 20%o 65%m	0.31
150.00	WCMOG 5%w 15%m 30%g 50%o	0.74
180.00	WCMOG 5%w 20%g 30%o 45%m	1.76
0.00	4,394' G.I.P.	0.00
* Recovery from multiple tests		

Gas Rates			
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.13	3.50	6.70
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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Herman L. Loeb, LLC.  
P.O. Box 838  
Lawrenceville, IL. 62439  
ATTN: Jon Christensen

**5-28s-18w Kiowa, Co.**  
**Heft #4-5**  
Job Ticket: 52003      **DST#: 4**  
Test Start: 2014.04.06 @ 02:25:36

## 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:	21000 ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl		
Water Loss: 9.18 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 6000.00 ppm			
Filter Cake: 0.20 inches			

## Recovery Information

Recovery Table

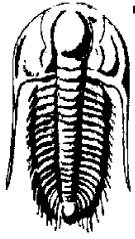
Length ft	Description	Volume bbl
32.00	MO 15% <sub>m</sub> 85% <sub>o</sub>	0.157
64.00	MOW 15% <sub>w</sub> 20% <sub>o</sub> 65% <sub>m</sub>	0.315
150.00	WCMOG 5% <sub>w</sub> 15% <sub>m</sub> 30% <sub>g</sub> 50% <sub>o</sub>	0.738
180.00	WCMOG 5% <sub>w</sub> 20% <sub>g</sub> 30% <sub>o</sub> 45% <sub>m</sub>	1.760
0.00	4,394' G.I.P.	0.000

Total Length: 426.00 ft      Total Volume: 2.970 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #: M.S.1 dst #4

Laboratory Name: Caraway      Laboratory Location: Liberal, KS

Recovery Comments: Gauged gas see report.  
Gravity 33.8 @ 62 degrees.  
Rw is .37 @ 60 degrees.



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## DRILL STEM TEST REPORT

**GAS RATES**

Herman L. Loeb, LLC.

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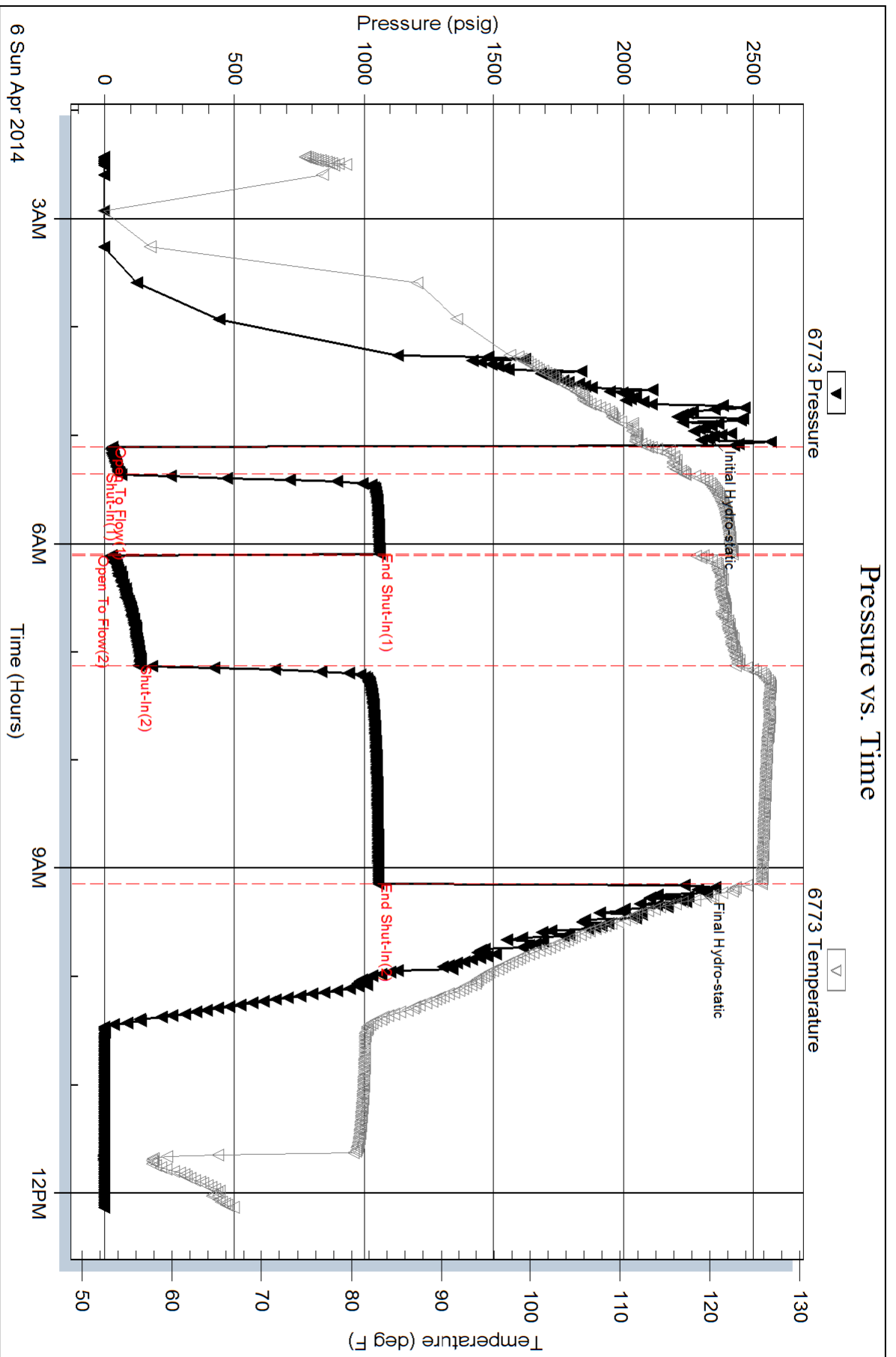
Test Start: 2014.04.06 @ 02:25:36

### Gas Rates Information

Temperature: 59 (deg F)  
Relative Density: 0.65  
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
2	20	0.13	3.50	6.70
2	20	0.13	3.50	6.70
2	30	0.13	8.50	8.57
2	40	0.13	13.00	10.26
2	50	0.13	16.50	11.57

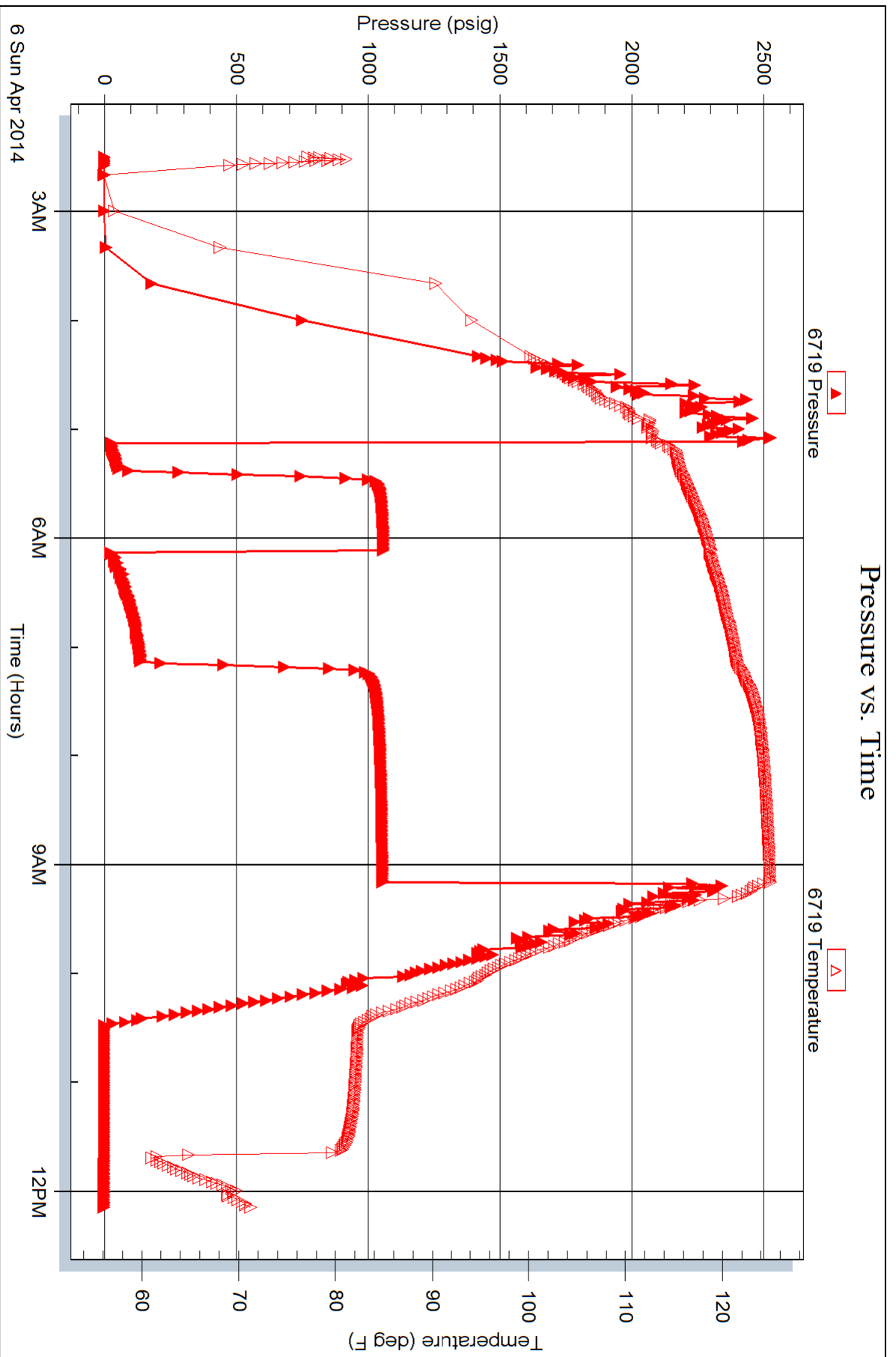


Serial #: 6719

Outside Herran L. Loeb, LLC.

Heft #4-5

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 52003

Printed: 2014.04.06 @ 16:15:08