



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

TDI Inc  
1310 Bison Rd  
Hays Ks 67601-9696  
ATTN: Tom Denning

**Willard #1**  
**22-15s-18w Ellis**  
Job Ticket: 44555 **DST#: 1**  
Test Start: 2011.09.04 @ 00:45:15

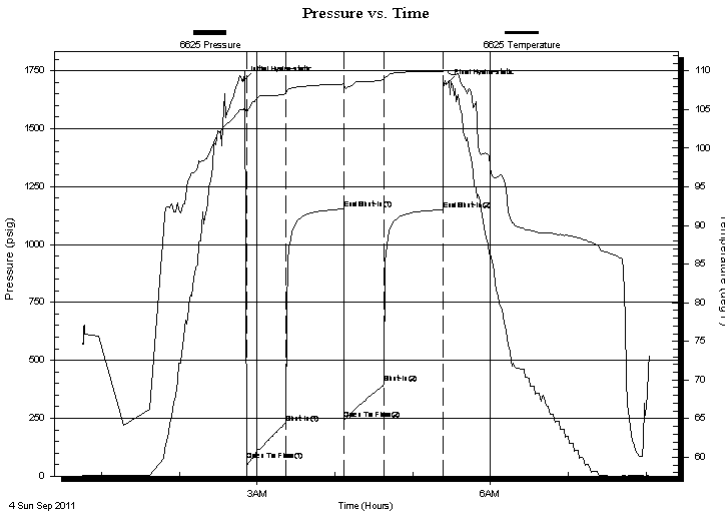
## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 02:51:40  
Time Test Ended: 08:02:39  
Interval: **3530.00 ft (KB) To 3612.00 ft (KB) (TVD)**  
Total Depth: 3612.00 ft (KB) (TVD)  
Hole Diameter: 7.85 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole  
Tester: Ray Schwager  
Unit No: 42  
Reference Elevations: 2038.00 ft (KB)  
2026.00 ft (CF)  
KB to GR/CF: 12.00 ft

**Serial #: 6625 Inside**  
Press @ Run Depth: 402.34 psig @ 3544.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2011.09.04 End Date: 2011.09.04 Last Calib.: 2011.09.04  
Start Time: 00:45:15 End Time: 08:02:39 Time On Btm: 2011.09.04 @ 02:49:10  
Time Off Btm: 2011.09.04 @ 05:26:09

**TEST COMMENT:** 30-IFP-strg bl in 4 min  
45-ISIP-1/2"bl bk  
30-FFP-strg bl in 6 min  
45-FSIP-surface bl

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1706.73	105.03	Initial Hydro-static
3	66.31	104.75	Open To Flow (1)
33	230.70	107.07	Shut-In(1)
78	1152.89	108.30	End Shut-In(1)
78	245.94	108.09	Open To Flow (2)
109	402.34	108.86	Shut-In(2)
154	1149.48	109.87	End Shut-In(2)
157	1693.93	110.04	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	350'GIP	0.00
425.00	CO	5.96
280.00	MGO 15%G40%M45%O	3.93
250.00	MGO 25%G15%M60%O	3.51

## Gas Rates

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



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**FLUID SUMMARY**

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**Willard #1**  
**22-15s-18w Ellis**  
Job Ticket: 44555      **DST#: 1**  
Test Start: 2011.09.04 @ 00:45:15

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 32 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.80 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 2900.00 ppm		
Filter Cake: 1.00 inches		

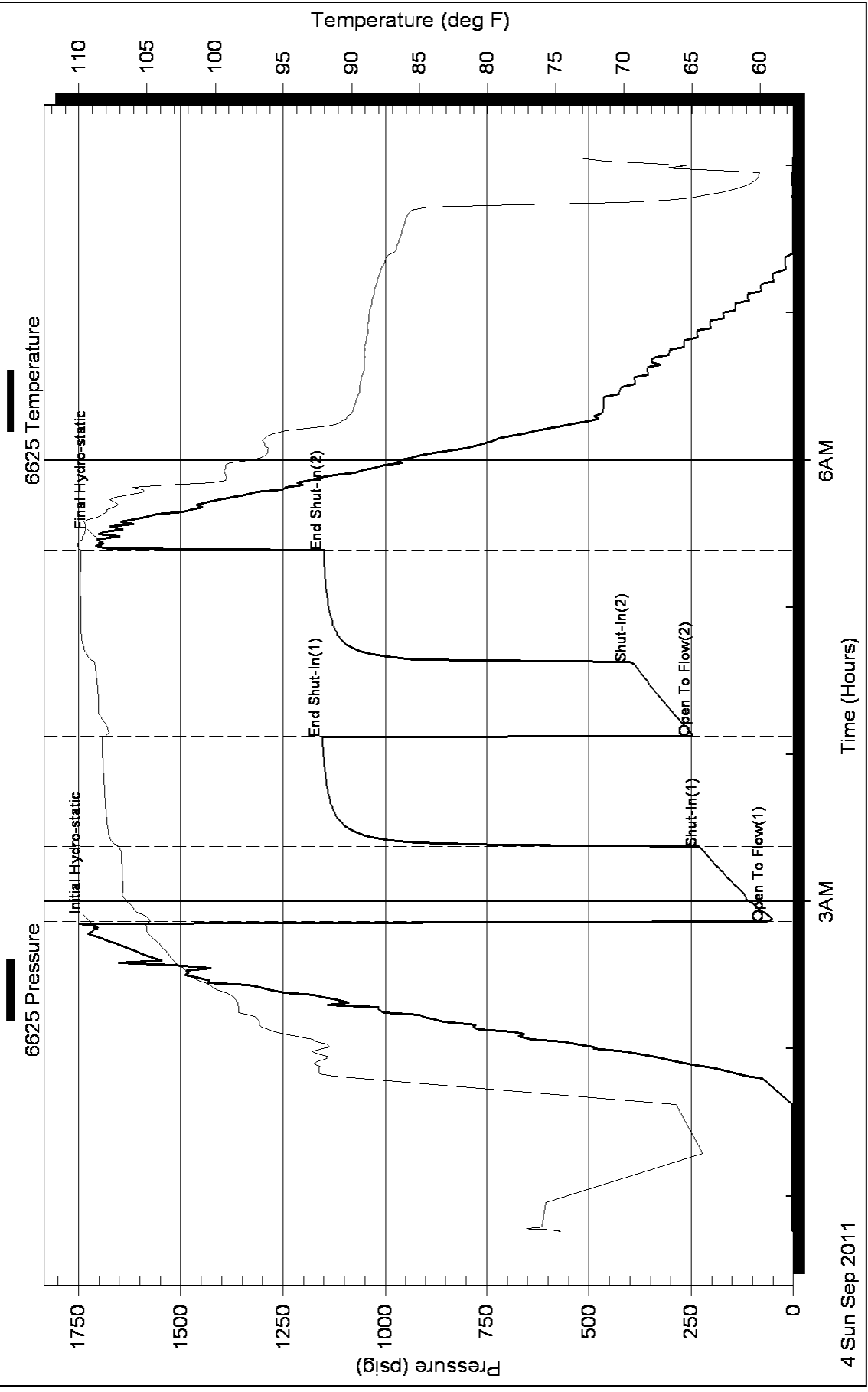
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	350'GIP	0.000
425.00	CO	5.962
280.00	MGO 15%G40%M45%O	3.928
250.00	MGO 25%G15%M60%O	3.507

Total Length: 955.00 ft      Total Volume: 13.397 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

# Pressure vs. Time



4 Sun Sep 2011

Time (Hours)

6AM

3AM