



DRILL STEM TEST REPORT

Prepared For: **TDI, Inc**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Lang #7

21-14s-16w Eliis KS

Start Date: 2013.11.28 @ 08:50:00

End Date: 2013.11.28 @ 15:18:15

Job Ticket #: 55360 DST #: 1

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

Printed: 2013.11.29 @ 13:05:25

TDI, Inc
21-14s-16w Eliis KS
Lang #7
DST # 1
Arbuckle
2013.11.28



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

TDI, Inc
 1310 Bison Rd
 Hays KS 67601
 ATTN: Herb Deines

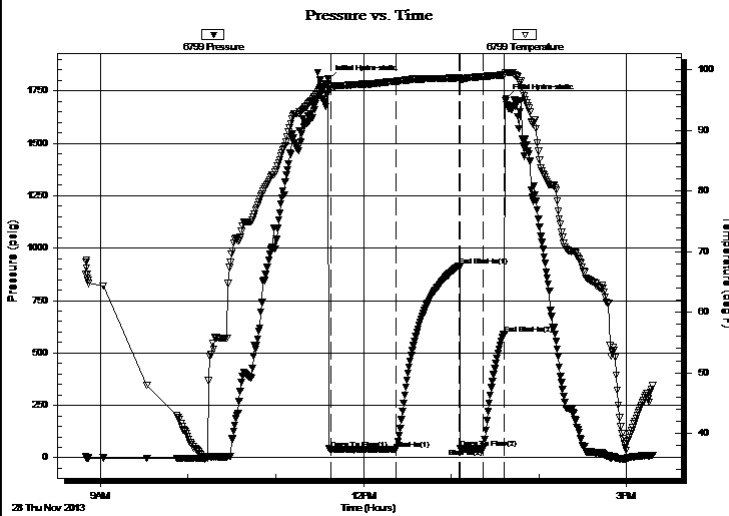
21-14s-16w Eliis KS
Lang #7
 Job Ticket: 55360 **DST#: 1**
 Test Start: 2013.11.28 @ 08:50:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:37:45
 Time Test Ended: 15:18:15
 Interval: **3338.00 ft (KB) To 3405.00 ft (KB) (TVD)**
 Total Depth: 3567.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Straddle (Initial)
 Tester: Cody Bloedorn
 Unit No: 53
 Reference Elevations: 1863.00 ft (KB)
 1853.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 6799 Inside
 Press@RunDepth: 43.17 psig @ 3339.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.11.28 End Date: 2013.11.28 Last Calib.: 2013.11.28
 Start Time: 08:50:05 End Time: 15:18:14 Time On Btm: 2013.11.28 @ 11:36:00
 Time Off Btm: 2013.11.28 @ 13:37:30

TEST COMMENT: 45 - IF- 1" blow
 45 - IS- No return
 15 - FF- No blow
 15 - FS- No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1806.20	97.81	Initial Hydro-static
2	41.56	97.31	Open To Flow (1)
47	41.99	98.13	Shut-In(1)
90	916.88	98.70	End Shut-In(1)
90	44.15	98.48	Open To Flow (2)
106	43.17	98.90	Shut-In(2)
121	591.68	99.18	End Shut-In(2)
122	1712.68	99.56	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
25.00	Mud - Oil spots, 100%M	0.35

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI, Inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

21-14s-16w Eliis KS
Lang #7
Job Ticket: 55360 **DST#: 1**
Test Start: 2013.11.28 @ 08:50:00

Tool Information

Drill Pipe:	Length: 3349.00 ft	Diameter: 3.80 inches	Volume: 46.98 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	42000.00 lb
			<u>Total Volume: 46.98 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	38000.00 lb
Depth to Top Packer:	3338.00 ft			Final	38000.00 lb
Depth to Bottom Packer:	3405.00 ft				
Interval between Packers:	67.00 ft				
Tool Length:	253.00 ft				
Number of Packers:	3	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3318.00	
Shut In Tool	5.00			3323.00	
Hydraulic tool	5.00			3328.00	
Packer	5.00			3333.00	21.00 Bottom Of Top Packer
Packer	5.00			3338.00	
Stubb	1.00			3339.00	
Recorder	0.00	6799	Inside	3339.00	
Recorder	0.00	8648	Outside	3339.00	
Perforations	5.00			3344.00	
Change Over Sub	1.00			3345.00	
Drill Pipe	31.00			3376.00	
Change Over Sub	1.00			3377.00	
Perforations	27.00			3404.00	
Blank Off Sub	1.00			3405.00	67.00 Tool Interval
Packer	4.00			3409.00	
Change Over Sub	1.00			3410.00	
Drill Pipe	155.00			3565.00	
Recorder	0.00	8655	Below	3565.00	
Perforations	2.00			3567.00	
Bullnose	3.00			3570.00	165.00 Bottom Packers & Anchor

Total Tool Length: 253.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI, Inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

21-14s-16w Eliis KS
Lang #7
Job Ticket: 55360 **DST#: 1**
Test Start: 2013.11.28 @ 08:50:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 10.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 59.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.79 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4100.00 ppm			
Filter Cake: inches			

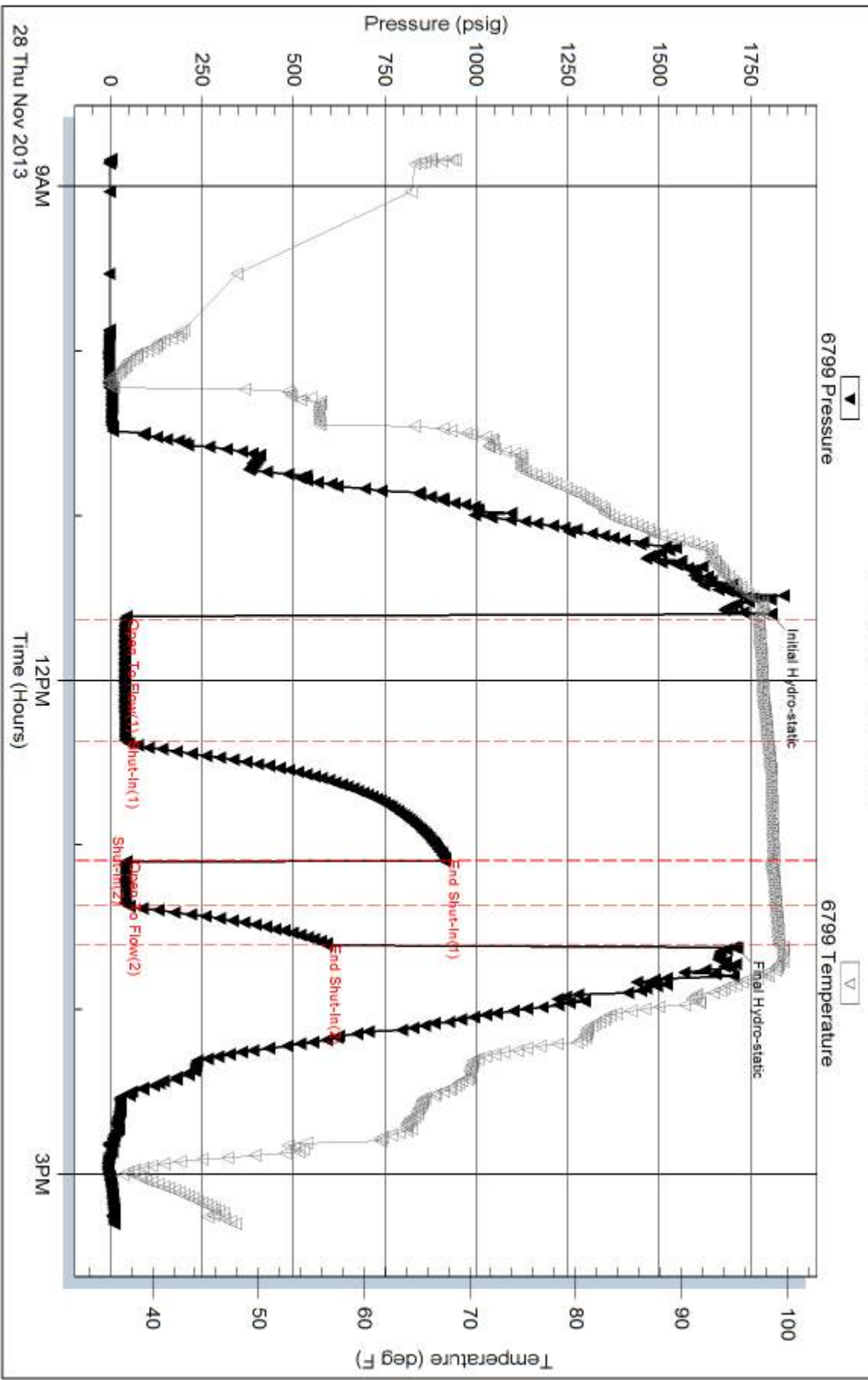
Recovery Information

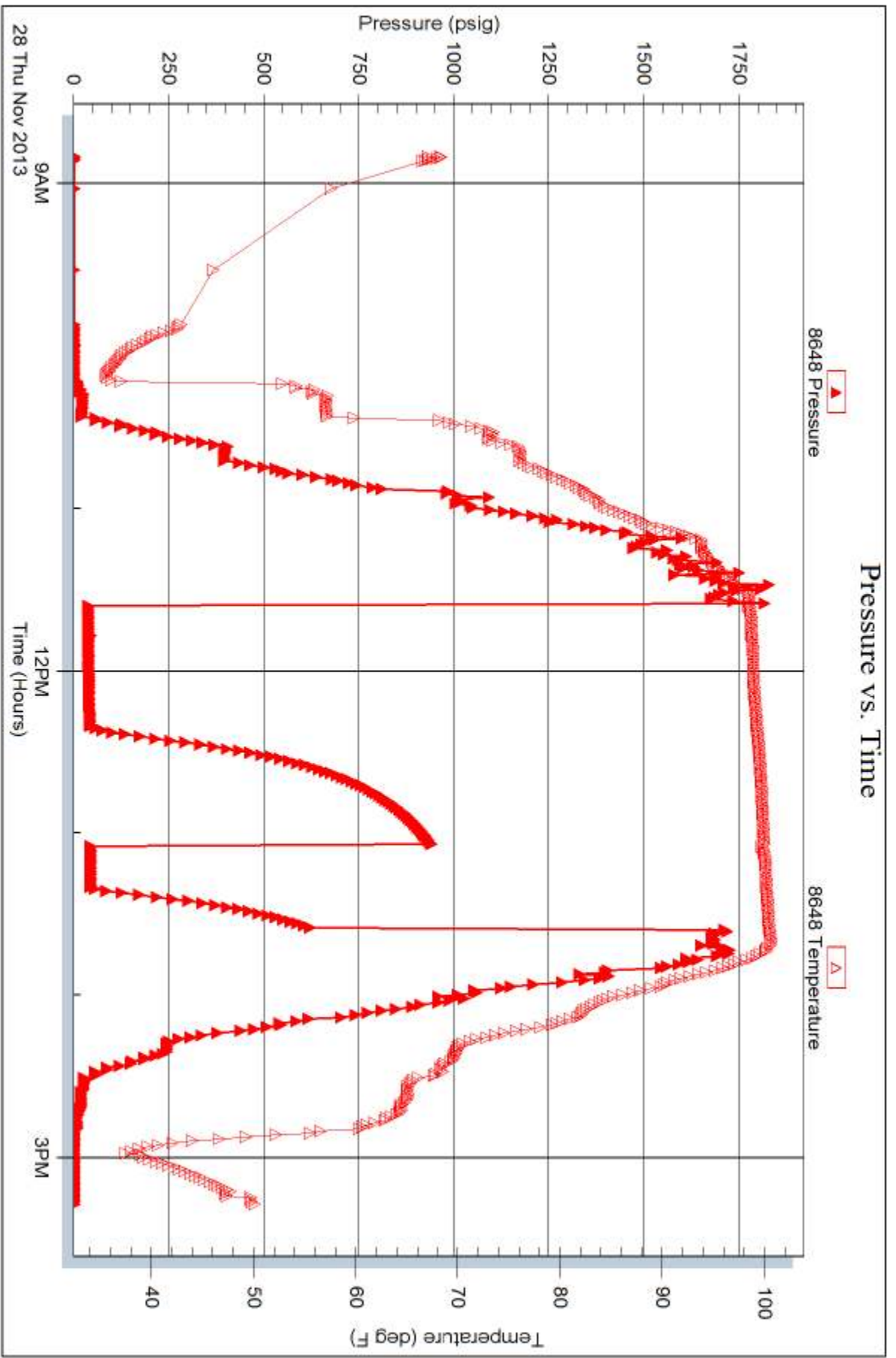
Recovery Table

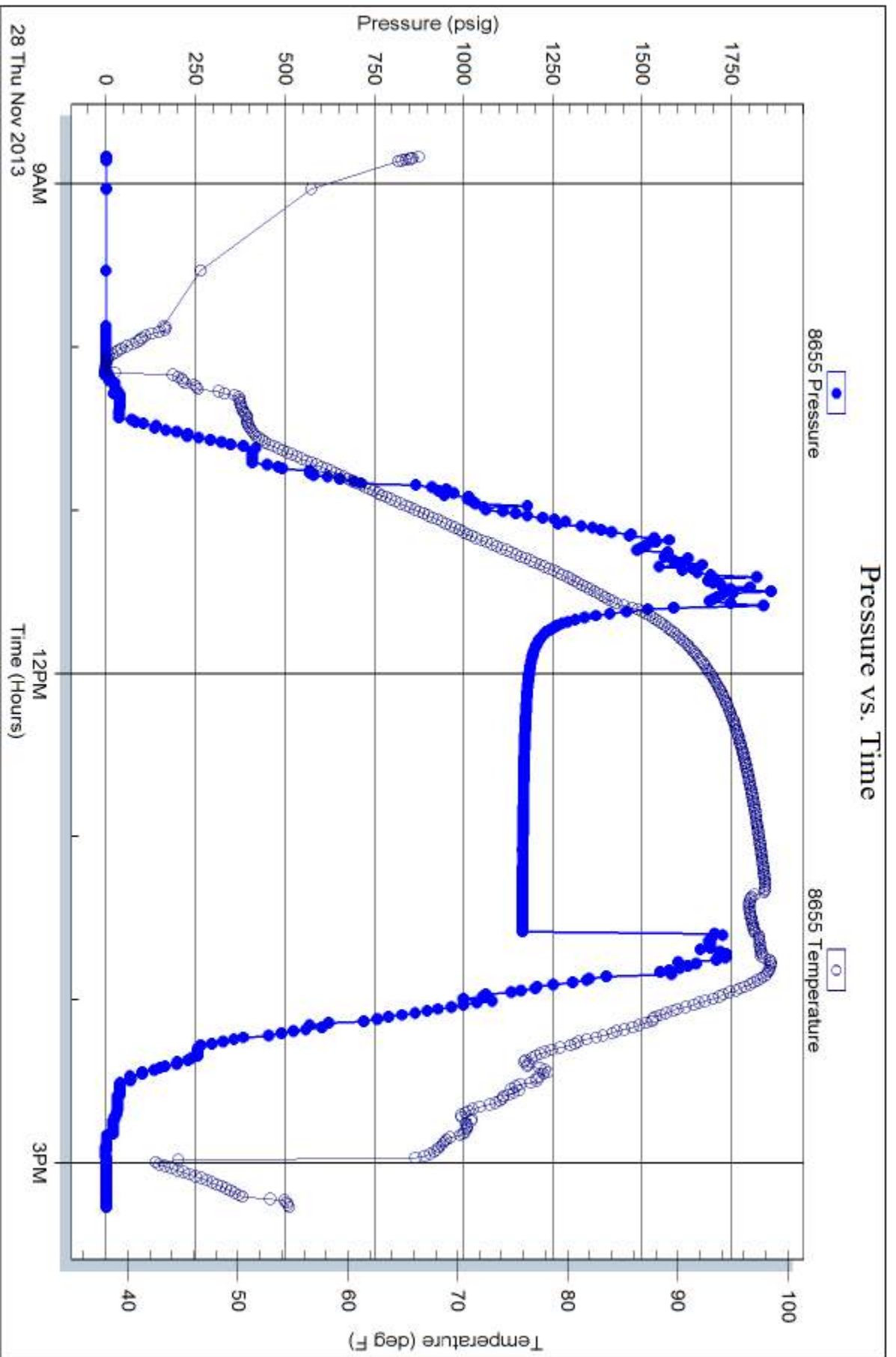
Length ft	Description	Volume bbl
25.00	Mud - Oil spots, 100%M	0.351

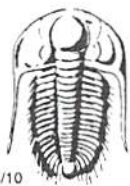
Total Length: 25.00 ft Total Volume: 0.351 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Pressure vs. Time









TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **55360**

4/10

Well Name & No. Lang #7 Test No. 1 Date 11-28-13
 Company TDI INC Elevation 1863 KB 1858 GL
 Address 1310 Bison Rd, Hays KS, 67601
 Co. Rep / Geo. Herb Rig Southwind #1
 Location: Sec. 21 Twp. 14s Rge. 16w Co. Ellis State KS

Interval Tested 3338-3405 TD 3567 Zone Tested Arbuckle
 Anchor Length 67' Drill Pipe Run 3349' Mud Wt. 9.6
 Top Packer Depth 3333 Drill Collars Run - Vis 59
 Bottom Packer Depth 3338 Wt. Pipe Run - WL 7.8
 Total Depth 3405 Chlorides 4.100 ppm System LCM -

Blow Description IF- 1" blow
ISI- No return
FF- No blow
FSI- No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>25</u>	<u>Mud - oil spots</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 25' BHT 99° Gravity - API RW - @ - °F Chlorides - ppm
 (A) Initial Hydrostatic 1806 Test 1150 T-On Location 8:22 am
 (B) First Initial Flow 41 Jars - T-Started 8:50 am
 (C) First Final Flow 41 Safety Joint - T-Open 12:25
 (D) Initial Shut-In 916 Circ Sub - T-Pulled 14:02
 (E) Second Initial Flow 44 Hourly Standby - T-Out 15:44
 (F) Second Final Flow 43 Mileage 49.60 Comments -
 (G) Final Shut-In 591 Sampler -
 (H) Final Hydrostatic 1712 Straddle 32 RT 600 Ruined Shale Packer -

Initial Open 45 Shale Packer - Ruined Packer -
 Initial Shut-In 45 Extra Packer - Extra Copies -
 Final Flow 15 Extra Recorder - Sub Total 0
 Final Shut-In 15 Day Standby - Total 1799.60
 Accessibility - MP/DST Disc't -
 Sub Total 1799.60

Approved By _____ Our Representative Cody B...

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.