



DRILL STEM TEST REPORT

Prepared For: **TDI, Inc.**

1310 Bison Rd.
Hays, KS 67601

ATTN: Tom Denning

Dreiling "D" #8

21-14s-16w Ellis.KS

Start Date: 2012.11.07 @ 07:54:45

End Date: 2012.11.07 @ 13:44:15

Job Ticket #: 48613 DST #: 1

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

Printed: 2012.11.15 @ 16:15:51

TDI, Inc.
21-14s-16w Ellis.KS
Dreiling "D" #8
DST # 1
Arbuckle
2012.11.07



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TDI, Inc.
1310 Bison Rd.
Hays, KS 67601
ATTN: Tom Denning

21-14s-16w Ellis.KS
Dreiling "D" #8
Job Ticket: 48613 **DST#: 1**
Test Start: 2012.11.07 @ 07:54:45

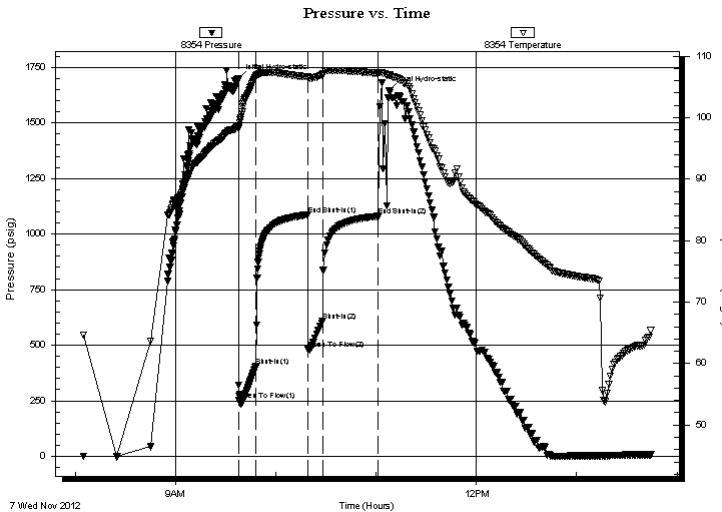
GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:37:45
Time Test Ended: 13:44:15
Interval: **3340.00 ft (KB) To 3420.00 ft (KB) (TVD)**
Total Depth: 3497.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Straddle (Initial)
Tester: Dustin Rash
Unit No: 38
Reference Elevations: 1885.00 ft (KB)
1875.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8354 Inside
Press @ Run Depth: 607.65 psig @ 3346.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.11.07 End Date: 2012.11.07 Last Calib.: 2012.11.07
Start Time: 08:04:45 End Time: 13:44:15 Time On Btm: 2012.11.07 @ 09:37:25
Time Off Btm: 2012.11.07 @ 11:07:45

TEST COMMENT: IF-Strong building blow . BOB in 45 seconds.
ISI-No Return.
FF-Strong building blow . BOB in 45 seconds.
FSI-No Return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1697.90	98.60	Initial Hydro-static
1	251.74	98.46	Open To Flow (1)
11	407.41	106.64	Shut-In(1)
42	1086.34	106.61	End Shut-In(1)
42	481.07	106.43	Open To Flow (2)
51	607.65	106.93	Shut-In(2)
84	1079.97	107.18	End Shut-In(2)
91	1646.97	106.92	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
252.00	5%Oil/90%Water/5%Mud	3.53
819.00	10%Gas/5%Oil/60%Water/30%Mud	11.49
504.00	10%Gas/5%Oil/15%Water/70%Mud	7.07

Gas Rates

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



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TDI, Inc.
 1310 Bison Rd.
 Hays, KS 67601
 ATTN: Tom Denning

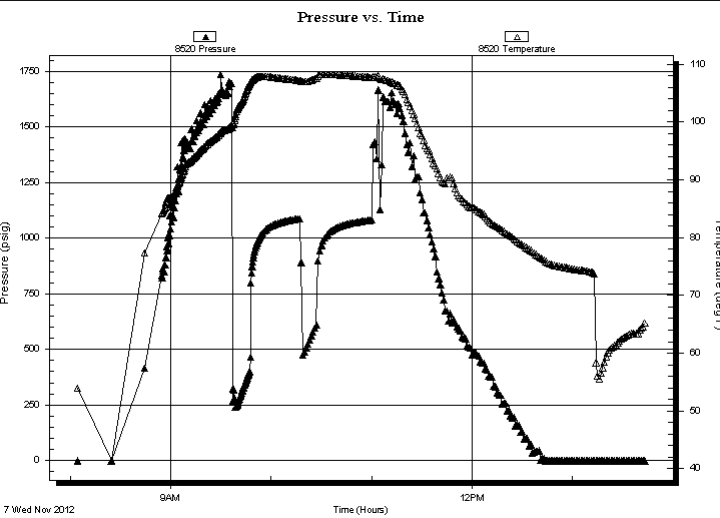
21-14s-16w Ellis.KS
Dreiling "D" #8
 Job Ticket: 48613 **DST#: 1**
 Test Start: 2012.11.07 @ 07:54:45

GENERAL INFORMATION:

Formation: **Arbuckle**
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 Time Test Ended: 13:44:15
Interval: 3340.00 ft (KB) To 3420.00 ft (KB) (TVD)
 Total Depth: 3497.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Straddle (Initial)
 Tester: Dustin Rash
 Unit No: 38
 Reference Elevations: 1885.00 ft (KB)
 1875.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8520 Outside
 Press @ Run Depth: psig @ 3346.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.11.07 End Date: 2012.11.07 Last Calib.: 2012.11.07
 Start Time: 08:04:30 End Time: 13:43:00 Time On Btm:
 Time Off Btm:

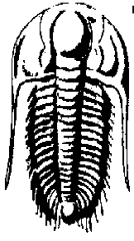
TEST COMMENT: IF-Strong building blow . BOB in 45 seconds.
 IS-No Return.
 FF-Strong building blow . BOB in 45 seconds.
 FS-No Return.



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

Recovery		
Length (ft)	Description	Volume (bbl)
252.00	5%Oil/90%Water/5%Mud	3.53
819.00	10%Gas/5%Oil/60%Water/30%Mud	11.49
504.00	10%Gas/5%Oil/15%Water/70%Mud	7.07

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



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DRILL STEM TEST REPORT

TDI, Inc.
 1310 Bison Rd.
 Hays, KS 67601
 ATTN: Tom Denning

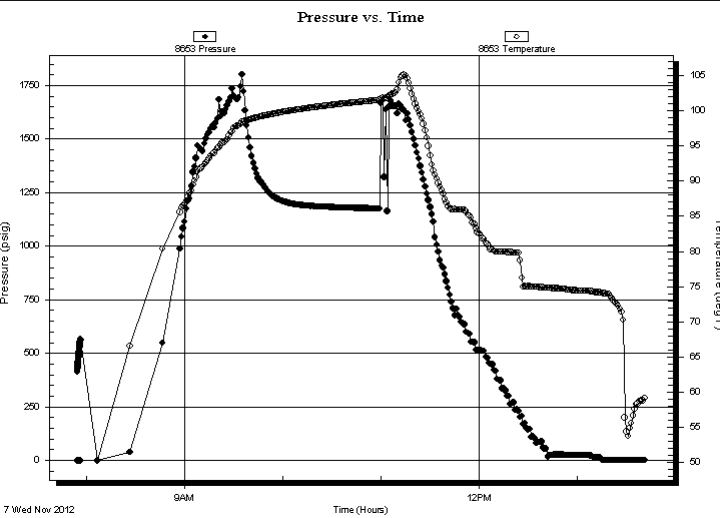
21-14s-16w Ellis.KS
Dreiling "D" #8
 Job Ticket: 48613 **DST#: 1**
 Test Start: 2012.11.07 @ 07:54:45

GENERAL INFORMATION:

Formation: Arbuckle		
Deviated: No Whipstock:	ft (KB)	Test Type: Conventional Straddle (Initial)
Time Tool Opened: 09:37:45		Tester: Dustin Rash
Time Test Ended: 13:44:15		Unit No: 38
Interval: 3340.00 ft (KB) To 3420.00 ft (KB) (TVD)		Reference Elevations: 1885.00 ft (KB)
Total Depth: 3497.00 ft (KB) (TVD)		1875.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Fair	KB to GR/CF: 10.00 ft

Serial #: 8653	Below (Straddle)			
Press @ Run Depth: psig @	3422.00 ft (KB)	Capacity:	8000.00 psig	
Start Date: 2012.11.07	End Date: 2012.11.07	Last Calib.:	2012.11.07	
Start Time: 07:54:46	End Time: 13:41:15	Time On Btm:		
		Time Off Btm:		

TEST COMMENT: IF-Strong building blow . BOB in 45 seconds.
 IS-No Return.
 FF-Strong building blow . BOB in 45 seconds.
 FS-No Return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
252.00	5%Oil/90%Water/5%Mud	3.53
819.00	10%Gas/5%Oil/60%Water/30%Mud	11.49
504.00	10%Gas/5%Oil/15%Water/70%Mud	7.07

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: Tom Denning

21-14s-16w Ellis.KS
Dreiling "D" #8
Job Ticket: 48613 **DST#: 1**
Test Start: 2012.11.07 @ 07:54:45

Tool Information

Drill Pipe:	Length: 3328.00 ft	Diameter: 3.80 inches	Volume: 46.68 bbl	Tool Weight: 3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 20000.00 lb
		Total Volume: 46.68 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	3340.00 ft			Final 36000.00 lb
Depth to Bottom Packer:	3417.00 ft			
Interval between Packers:	77.00 ft			
Tool Length:	177.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3321.00	
Shut In Tool	5.00			3326.00	
Hydraulic tool	5.00			3331.00	
Packer	5.00			3336.00	20.00 Bottom Of Top Packer
Packer	4.00			3340.00	
Stubb	1.00			3341.00	
Perforations	5.00			3346.00	
Recorder	0.00	8354	Inside	3346.00	
Recorder	0.00	8520	Outside	3346.00	
Change Over Sub	1.00			3347.00	
Drill Pipe	62.00			3409.00	
Change Over Sub	1.00			3410.00	
Perforations	6.00			3416.00	
Blank Off Sub	1.00			3417.00	77.00 Tool Interval
Packer	4.00			3421.00	
Change Over Sub	1.00			3422.00	
Recorder	0.00	8653	Below	3422.00	
Drill Pipe	62.00			3484.00	
Change Over Sub	1.00			3485.00	
Perforations	9.00			3494.00	
Bullnose	3.00			3497.00	80.00 Bottom Packers & Anchor

Total Tool Length: 177.00



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FLUID SUMMARY

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1310 Bison Rd.
Hays, KS 67601
ATTN: Tom Denning

21-14s-16w Ellis.KS
Dreiling "D" #8
Job Ticket: 48613 **DST#: 1**
Test Start: 2012.11.07 @ 07:54:45

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:	19000 ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbbl		
Water Loss:	7.97 in ³	Gas Cushion Type:			
Resistivity:	0.38 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4500.00 ppm				
Filter Cake:	inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
252.00	5%Oil/90%Water/5%Mud	3.535
819.00	10%Gas/5%Oil/60%Water/30%Mud	11.488
504.00	10%Gas/5%Oil/15%Water/70%Mud	7.070

Total Length: 1575.00 ft Total Volume: 22.093 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

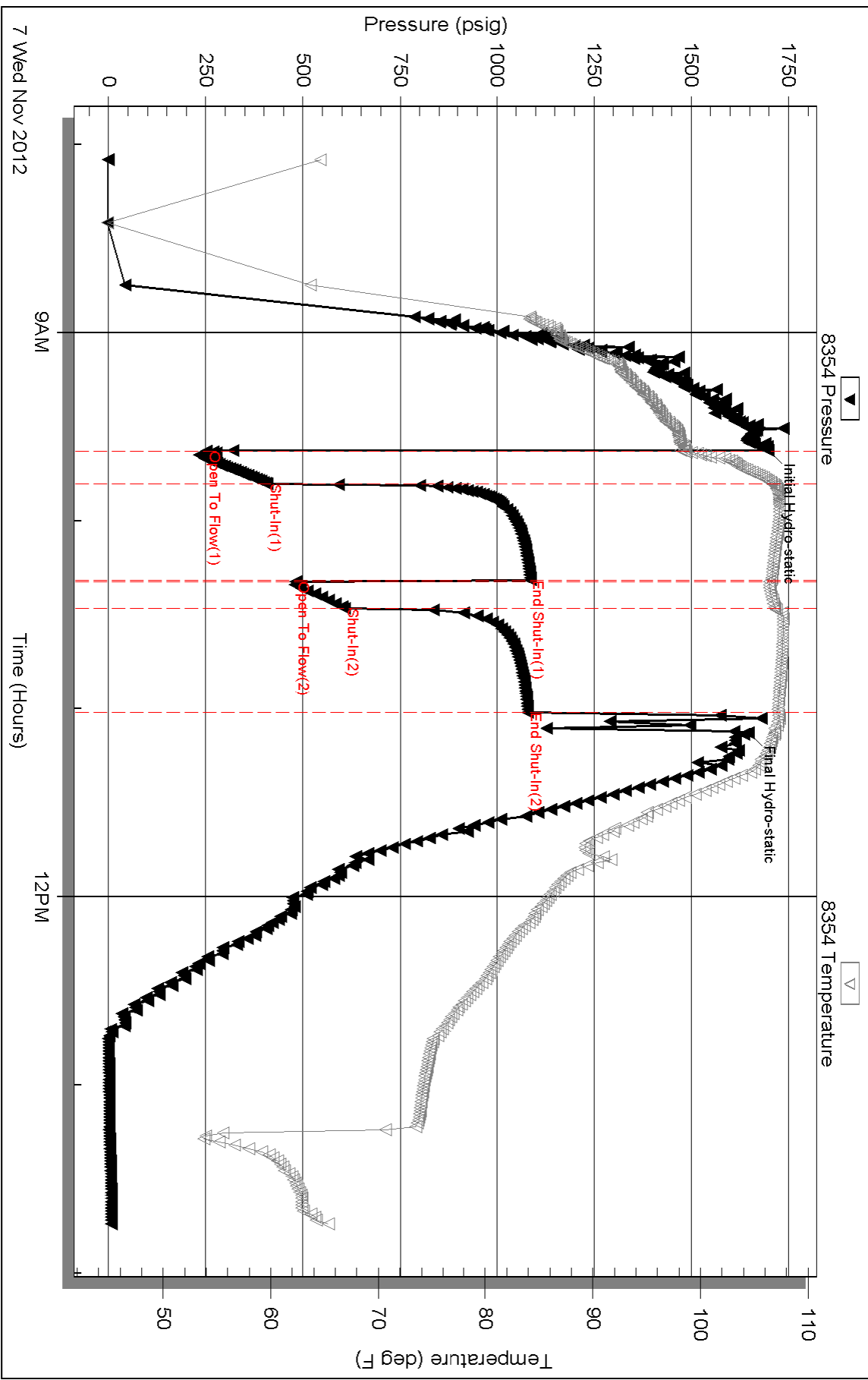
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

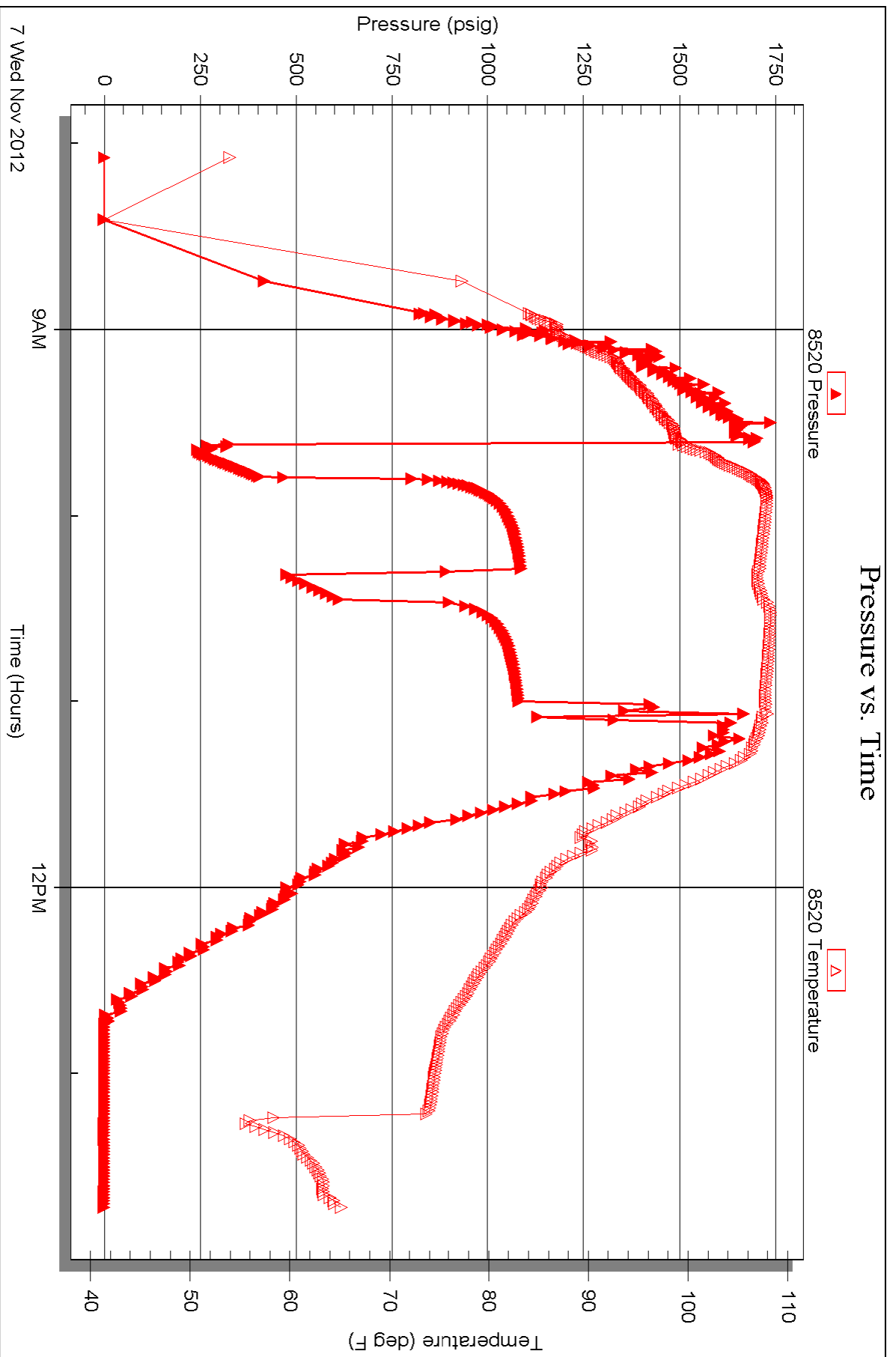


Serial #: 8520

Outside TDI, Inc.

Drilling "D" #8

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 48613

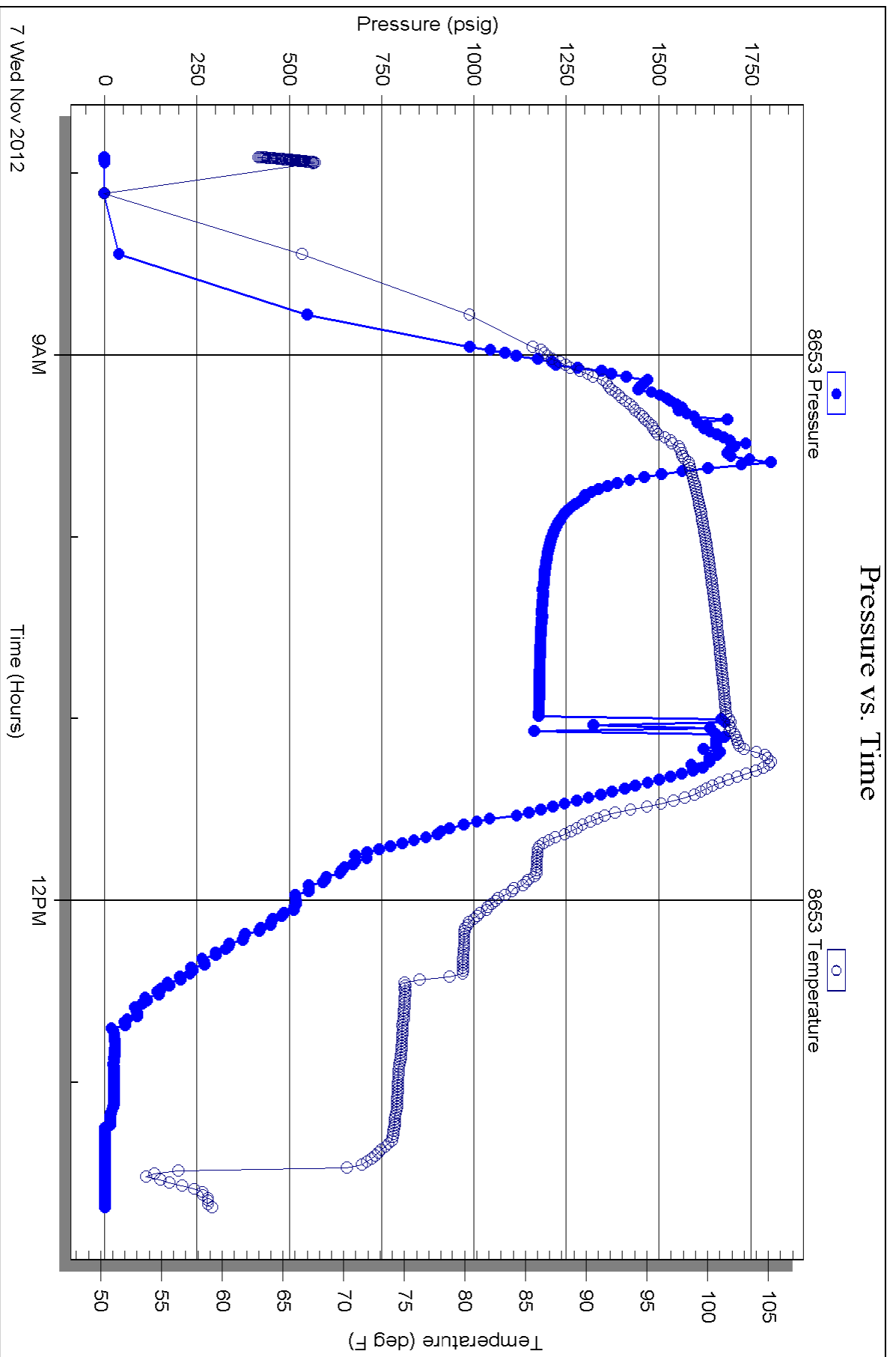
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Serial #: 8653

Below (Straddle)

Drilling "D" #8

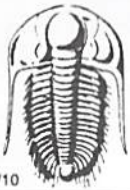
DST Test Number: 1



Triobite Testing, Inc

Ref. No: 48613

Printed: 2012.11.15 @ 16:15:57



TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 48613

Well Name & No. Dwelling "A" #8 Test No. 1 Date 11-7-12
 Company TDI, Inc. Elevation 1885 KB 1875 GL
 Address 1310, Bison Rd. Hays, KS 67601
 Co. Rep / Geo. Herb Dernes Rig Southwind 1
 Location: Sec. 21 Twp. 14S Rge. 16W Co. Ellis State KS

Interval Tested 3340-3420 Zone Tested Arbuckle
 Anchor Length 80' 71' TP Drill Pipe Run 3328 Mud Wt. 9.3
 Top Packer Depth 3335 Drill Collars Run 0 Vis 56
 Bottom Packer Depth 3340 Wt. Pipe Run 0 WL 8.0
 Total Depth 3499 Chlorides 4500 ppm System LCM 2#

Blow Description IF-Strong building blow, BOB in 45 seconds.
ISI-No Return.
FF-Strong building blow, BOB in 45 seconds.
FST-No Return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>504</u>	<u>GOCWM</u>	<u>10</u>	<u>5</u>	<u>15</u>	<u>70</u>
<u>819</u>	<u>GOCMW</u>	<u>10</u>	<u>5</u>	<u>80</u>	<u>30</u>
<u>252</u>	<u>SOCMW</u>	<u>0</u>	<u>5</u>	<u>90</u>	<u>5</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1575 BHT _____ Gravity _____ API RW 1381 @ 65 ° F Chlorides 19,000 ppm

(A) Initial Hydrostatic 1698 Test 1150 T-On Location 0600
 (B) First Initial Flow 252 Jars _____ T-Started 0800
 (C) First Final Flow 407 Safety Joint _____ T-Open 0937
 (D) Initial Shut-In 1086 Circ Sub _____ T-Pulled 1100
 (E) Second Initial Flow 481 Hourly Standby _____ T-Out 1345
 (F) Second Final Flow 608 Mileage 17X2 52.70 Comments But-0754
 (G) Final Shut-In 1080 Sampler _____
 (H) Final Hydrostatic 1647 Straddle 600 Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 10 Extra Recorder _____ Sub Total 0
 Initial Shut-In 30 Day Standby _____ Total 1802.70
 Final Flow 10 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 30 Sub Total 1802.70

Approved By _____ Our Representative D. Rash

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.