



DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd
Hays KS 67601-9696

ATTN: Herb Deines

Zimmerman Unit #2

22 15s 18w Ellis,KS

Start Date: 2014.09.14 @ 19:22:00

End Date: 2014.09.15 @ 01:00:00

Job Ticket #: 56139 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
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**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TDI Inc
1310 Bison Rd
Hays KS 67601-9696
ATTN: Herb Deines

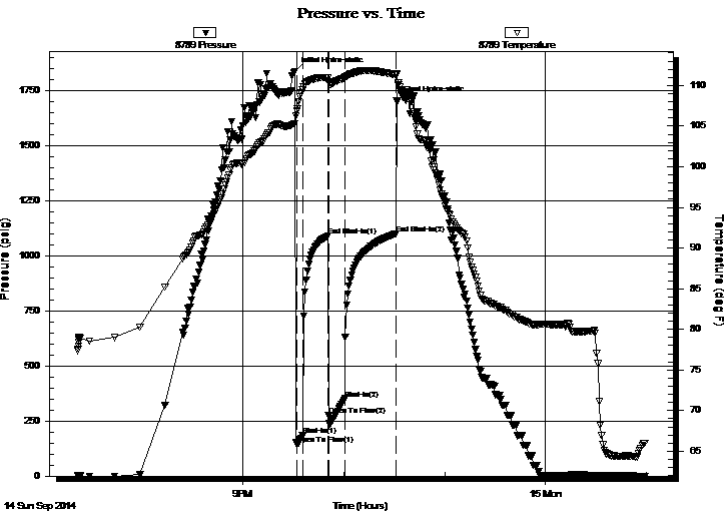
22 15s 18w Ellis,KS
Zimmerman Unit #2
Job Ticket: 56139 **DST#: 1**
Test Start: 2014.09.14 @ 19:22:00

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:32:15
Time Test Ended: 01:00:00
Interval: **3569.00 ft (KB) To 3586.00 ft (KB) (TVD)**
Total Depth: 3756.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Straddle (Initial)
Tester: Jim Svaty
Unit No: 76
Reference Elevations: 2018.00 ft (KB)
2008.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8789 **Inside**
Press@RunDepth: 350.99 psig @ 3572.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.09.14 End Date: 2014.09.15 Last Calib.: 2014.09.15
Start Time: 19:22:02 End Time: 00:59:00 Time On Btm: 2014.09.14 @ 21:31:00
Time Off Btm: 2014.09.14 @ 22:31:30

TEST COMMENT: 5-IFP- BOB in 50 sec.
15-ISIP- Surface Blow
10-FFP- BOB in 1 min.
30-FSIP- 5 in. Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1838.40	105.31	Initial Hydro-static
2	142.84	106.84	Open To Flow (1)
5	186.52	109.51	Shut-In(1)
20	1091.68	110.90	End Shut-In(1)
20	274.41	110.39	Open To Flow (2)
30	350.99	110.92	Shut-In(2)
60	1100.81	111.34	End Shut-In(2)
61	1705.00	111.49	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
63.00	MCO 30% m 70% o	0.88
819.00	CO 100%	11.49
0.00	252 GIP	0.00

Gas Rates

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



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TOOL DIAGRAM

TDI Inc
1310 Bison Rd
Hays KS 67601-9696
ATTN: Herb Deines

22 15s 18w Ellis,KS
Zimmerman Unit #2
Job Ticket: 56139 **DST#: 1**
Test Start: 2014.09.14 @ 19:22:00

Tool Information

Drill Pipe:	Length: 3555.00 ft	Diameter: 3.80 inches	Volume: 49.87 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 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: 50000.00 lb
			<u>Total Volume: 49.87 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3569.00 ft			Final 49000.00 lb
Depth to Bottom Packer:	3586.00 ft			
Interval between Packers:	17.00 ft			
Tool Length:	207.00 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			3549.00	
Shut In Tool	5.00			3554.00	
Hydraulic tool	5.00			3559.00	
Packer	5.00			3564.00	21.00 Bottom Of Top Packer
Packer	5.00			3569.00	
Stubb	1.00			3570.00	
Perforations	2.00			3572.00	
Recorder	0.00	8789	Inside	3572.00	
Recorder	0.00	8289	Outside	3572.00	
Perforations	10.00			3582.00	
Blank Off Sub	1.00			3583.00	
Blank Spacing	3.00			3586.00	17.00 Tool Interval
Packer	1.00			3587.00	
Perforations	7.00			3594.00	
Change Over Sub	1.00			3595.00	
Recorder	0.00	6668	Below	3595.00	
Blank Spacing	156.00			3751.00	
Change Over Sub	1.00			3752.00	
Bullnose	3.00			3755.00	169.00 Bottom Packers & Anchor

Total Tool Length: 207.00



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FLUID SUMMARY

TDI Inc **22 15s 18w Ellis,KS**
 1310 Bison Rd **Zimmerman Unit #2**
 Hays KS 67601-9696 Job Ticket: 56139 **DST#: 1**
 ATTN: Herb Deines Test Start: 2014.09.14 @ 19:22:00

Mud and Cushion Information

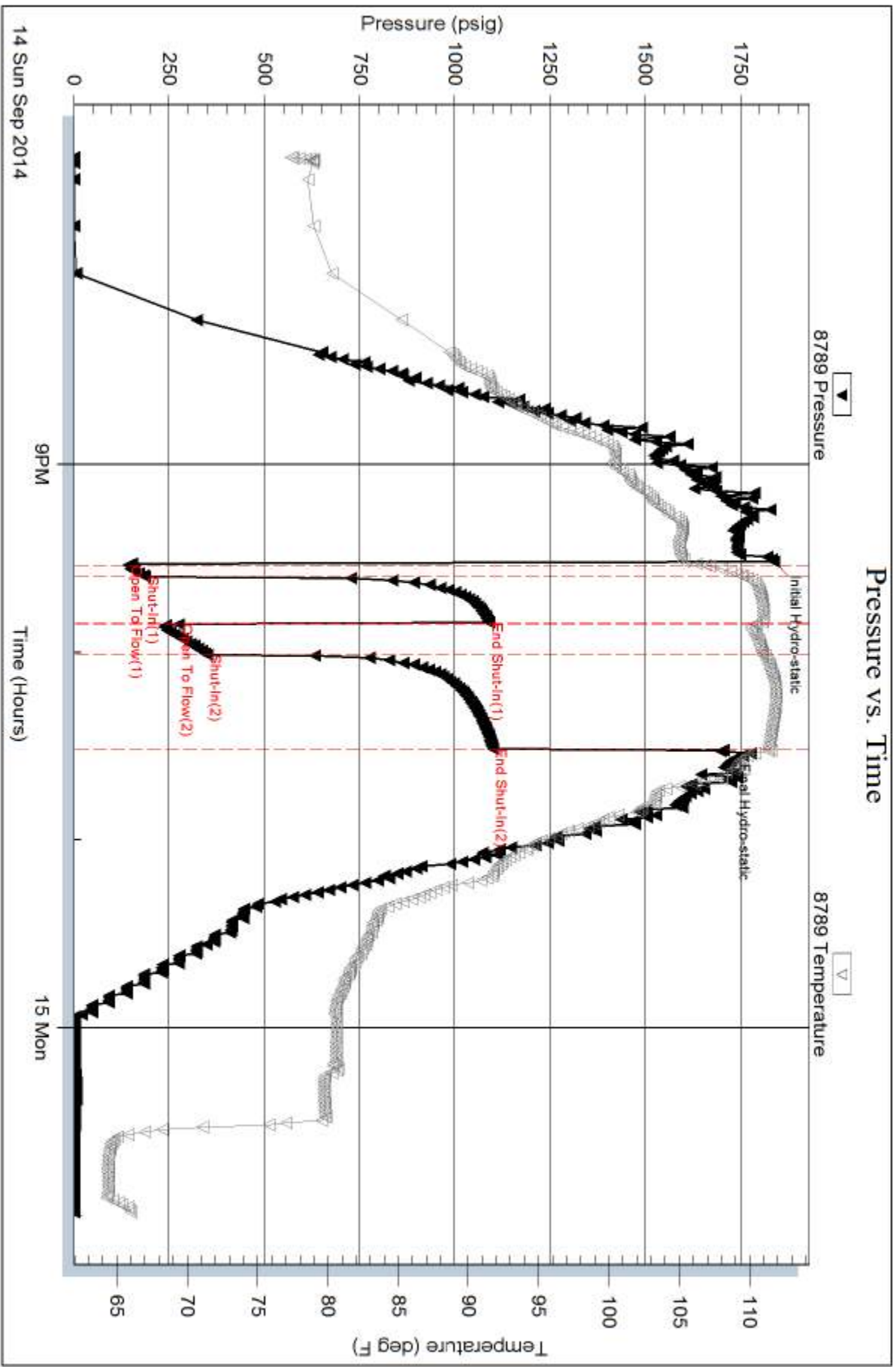
Mud Type: Gel Chem	Cushion Type:	Oil API:	31 deg API
Mud Weight: 10.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 9.17 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6600.00 ppm			
Filter Cake: 2.00 inches			

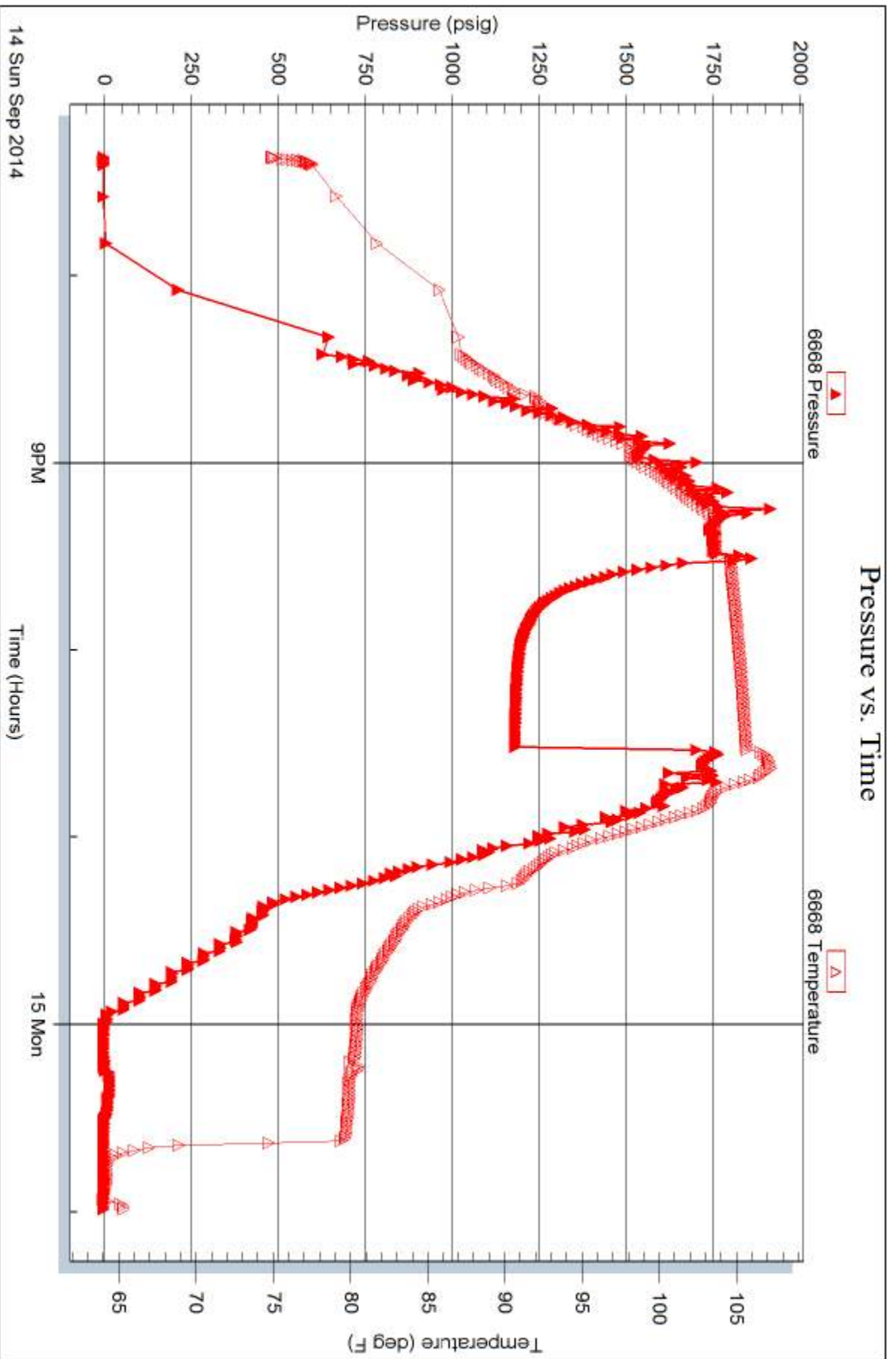
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
63.00	MCO 30% _m 70% _o	0.884
819.00	CO 100%	11.488
0.00	252 GIP	0.000

Total Length: 882.00 ft Total Volume: 12.372 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:



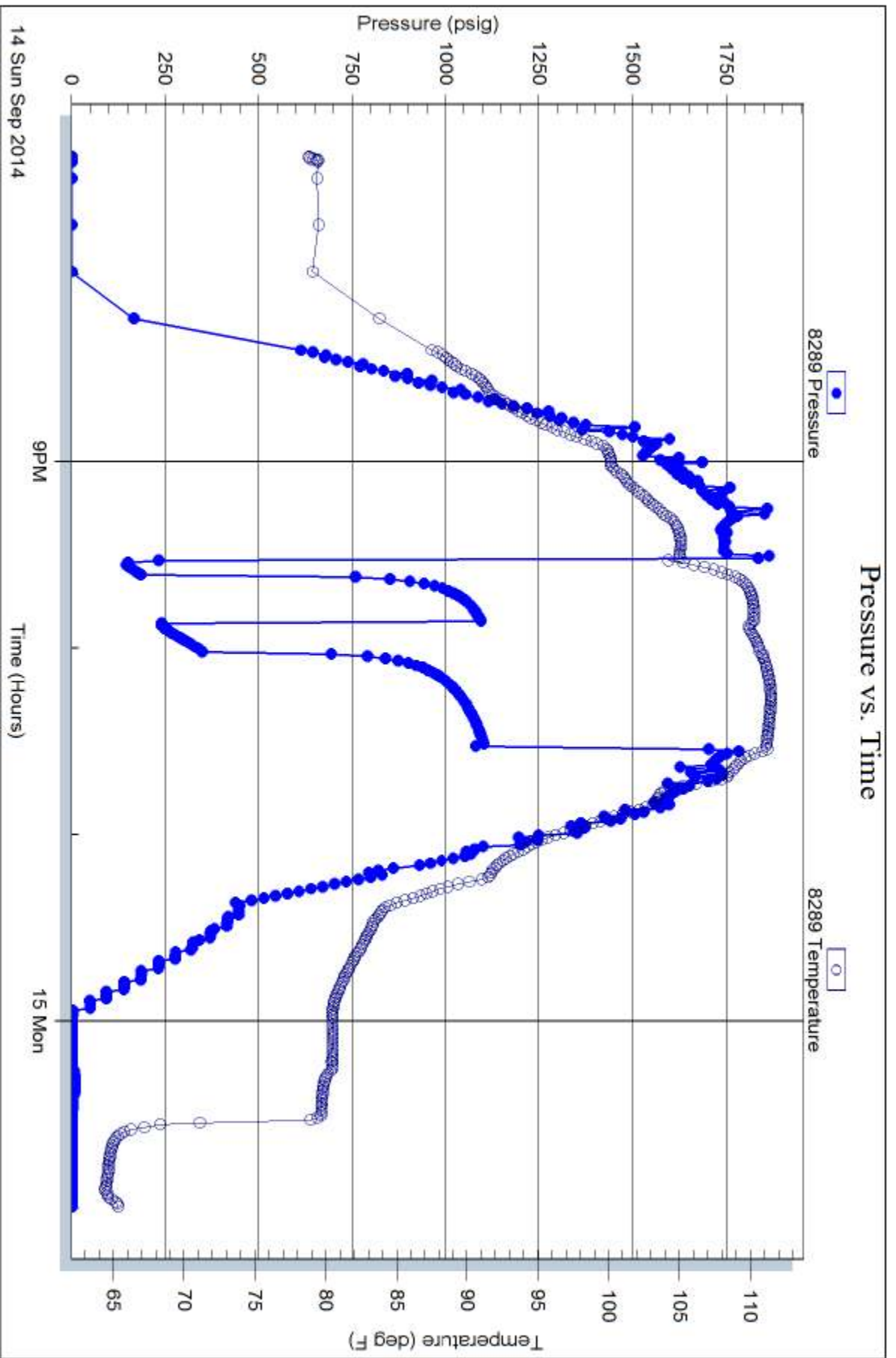


Serial #: 8289

Outside TDI Inc

Zimmerman Unit #2

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 56139

Printed: 2014.09.16 @ 10:35:57



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56139

Well Name & No. Zimmerman Unit #2 Test No. 1 Date 9-14-14
 Company TDI Inc. Elevation 2018 KB 2008 GL
 Address 1310 Bison Rd Hays KS 67601-9696
 Co. Rep / Geo. Herb Dienes Rig Southwind #1
 Location: Sec. 22 Twp. 15^s Rge. 18^w Co. Ellis State KS

Interval Tested 3569-3586 Zone Tested Arbuckle
 Anchor Length 17 - 170TP Drill Pipe Run 3555 Mud Wt. 9.5
 Top Packer Depth 3569 Drill Collars Run 0 Vis 53
 Bottom Packer Depth 3586 Wt. Pipe Run 0 WL 9.2
 Total Depth 3756 LTD Chlorides 6600 ppm System LCM 2

Blow Description IFP- BOB in 50 sec.
ISIP- Surface Blow
FFP- BOB in 1 min.
FSIP- 5 in. Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>63</u>	<u>mco</u>	<u>70</u>		<u>30</u>	
<u>819</u>	<u>CO</u>	<u>100</u>			
	<u>252 WIP</u>				

Rec Total 882 BHT 111 Gravity 31 API RW @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1838 Test 1150 T-On Location 18:39
 (B) First Initial Flow 142 Jars _____ T-Started 19:22
 (C) First Final Flow 186 Safety Joint _____ T-Open 21:32
 (D) Initial Shut-In 1091 Circ Sub _____ T-Pulled 22:32
 (E) Second Initial Flow 274 Hourly Standby _____ T-Out 01:00
 (F) Second Final Flow 350 Mileage 24 RT 37.20 Comments _____
 (G) Final Shut-In 1100 Sampler _____
 (H) Final Hydrostatic 1705 Straddle 600 Ruined Shale Packer _____

Initial Open 5 Shale Packer _____ Ruined Packer _____
 Initial Shut-In ~~15~~ Extra Packer _____ Extra Copies _____
 Final Flow 10 Extra Recorder _____ Sub Total 0
 Final Shut-In 30 Day Standby _____ Total 1787.20
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1787.20

Approved By _____ Our Representative [Signature]

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