



## DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays KS 67601

ATTN: Herb Deines

**LJ #1**

**13-15s-19w Ellis,KS**

Start Date: 2012.07.23 @ 13:32:05

End Date: 2012.07.23 @ 19:03:59

Job Ticket #: 47900                      DST #: 1

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

Printed: 2012.07.26 @ 08:51:16

TDI Inc  
13-15s-19w Ellis,KS  
LJ #1  
DST # 1  
LJC"A-C"  
2012.07.23



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**13-15s-19w Ellis,KS**  
**LJ #1**  
 Job Ticket: 47900      **DST#: 1**  
 Test Start: 2012.07.23 @ 13:32:05

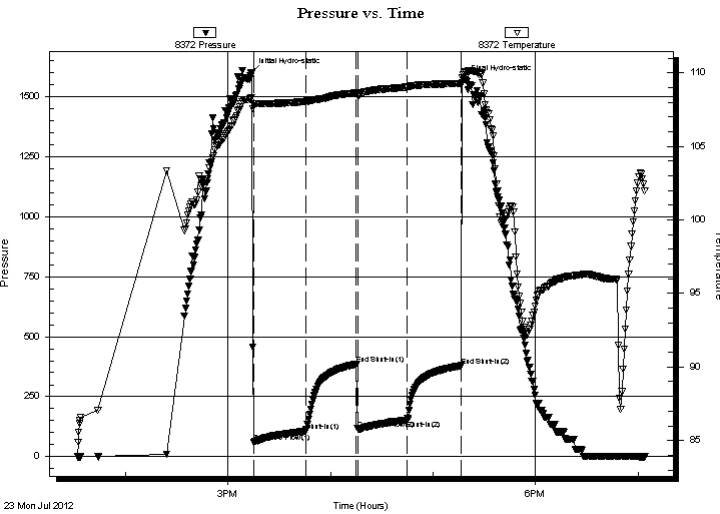
## GENERAL INFORMATION:

Formation: **LKC"A-C"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:15:00  
 Time Test Ended: 19:03:59  
 Interval: **3276.00 ft (KB) To 3329.00 ft (KB) (TVD)**  
 Total Depth: 3329.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Andy Carreira  
 Unit No: 39  
 Reference Elevations: 2002.00 ft (KB)  
 1995.00 ft (CF)  
 KB to GR/CF: 7.00 ft

## Serial #: 8372 Outside

Press @ Run Depth: 152.78 psig @ 3288.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.07.23 End Date: 2012.07.23 Last Calib.: 2012.07.23  
 Start Time: 13:32:05 End Time: 19:03:59 Time On Btm: 2012.07.23 @ 15:13:40  
 Time Off Btm: 2012.07.23 @ 17:18:00

TEST COMMENT: IF:(30min) BOB, 2 min  
 IS:(30min) No Return  
 FF:(30min) BOB, 2 min. Gas To Surface 20 min.  
 FS:(30min) Return Blow Built to 6", Decreased to 1"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1600.69	108.26	Initial Hydro-static
2	60.94	107.90	Open To Flow (1)
33	106.87	108.05	Shut-In(1)
62	385.94	108.62	End Shut-In(1)
63	116.10	108.47	Open To Flow (2)
92	152.78	109.03	Shut-In(2)
124	379.03	109.27	End Shut-In(2)
125	1570.42	109.91	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	MCGO m=20% g=35% o=45%	1.68
200.00	MCGO m=20% g=35% o=50%	2.81
50.00	HOCGM g=20% o=35% m=45%	0.70

## 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

**13-15s-19w Ellis,KS**  
**LJ #1**  
Job Ticket: 47900      **DST#: 1**  
Test Start: 2012.07.23 @ 13:32:05

**Tool Information**

Drill Pipe:	Length: 3270.00 ft	Diameter: 3.80 inches	Volume: 45.87 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	22000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	42000.00 lb
			<u>Total Volume: 45.87 bbl</u>	Tool Chased	6.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial	32000.00 lb
Depth to Top Packer:	3276.00 ft			Final	34000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	53.00 ft				
Tool Length:	73.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Change Over Sub	1.00			3257.00	
Shut In Tool	5.00			3262.00	
Hydraulic tool	5.00			3267.00	
Packer	5.00			3272.00	20.00      Bottom Of Top Packer
Packer	4.00			3276.00	
Stubb	1.00			3277.00	
Perforations	10.00			3287.00	
Change Over Sub	1.00			3288.00	
Recorder	0.00	8017	Inside	3288.00	
Recorder	0.00	8372	Outside	3288.00	
Drill Pipe	32.00			3320.00	
Change Over Sub	1.00			3321.00	
Perforations	5.00			3326.00	
Bullnose	3.00			3329.00	53.00      Bottom Packers & Anchor

**Total Tool Length: 73.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**13-15s-19w Ellis,KS**  
**LJ #1**  
Job Ticket: 47900  
Test Start: 2012.07.23 @ 13:32:05

**DST#: 1**

## 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:	ppm
Viscosity: 51.00 sec/qt	Cushion Volume: bbl		
Water Loss: 9.16 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

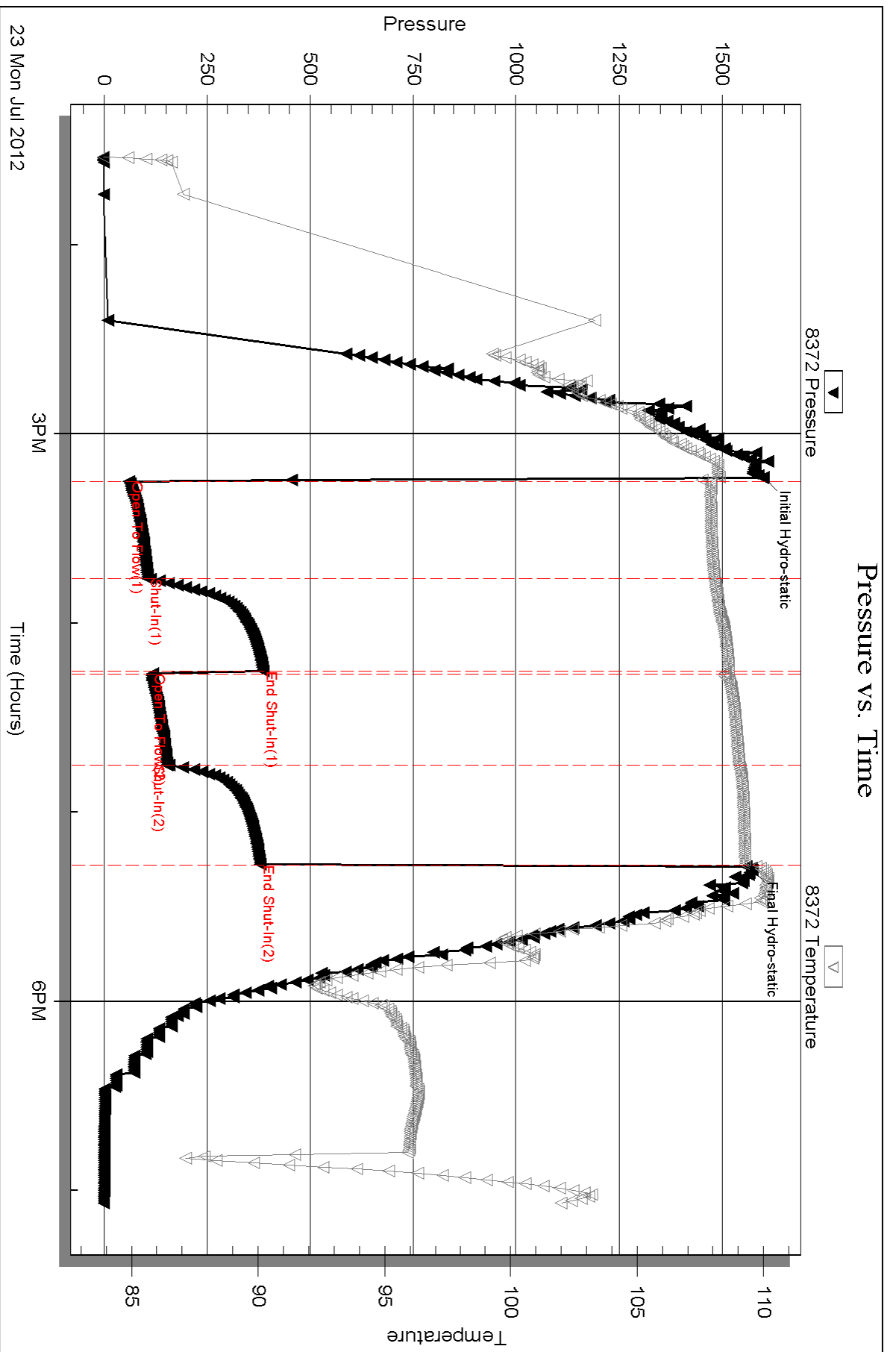
Length ft	Description	Volume bbl
120.00	MCGO m=20% g=35% o=45%	1.683
200.00	MCGO m=20% g=35% o=50%	2.805
50.00	HOCGM g=20% o=35% m=45%	0.701

Total Length: 370.00 ft      Total Volume: 5.189 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:



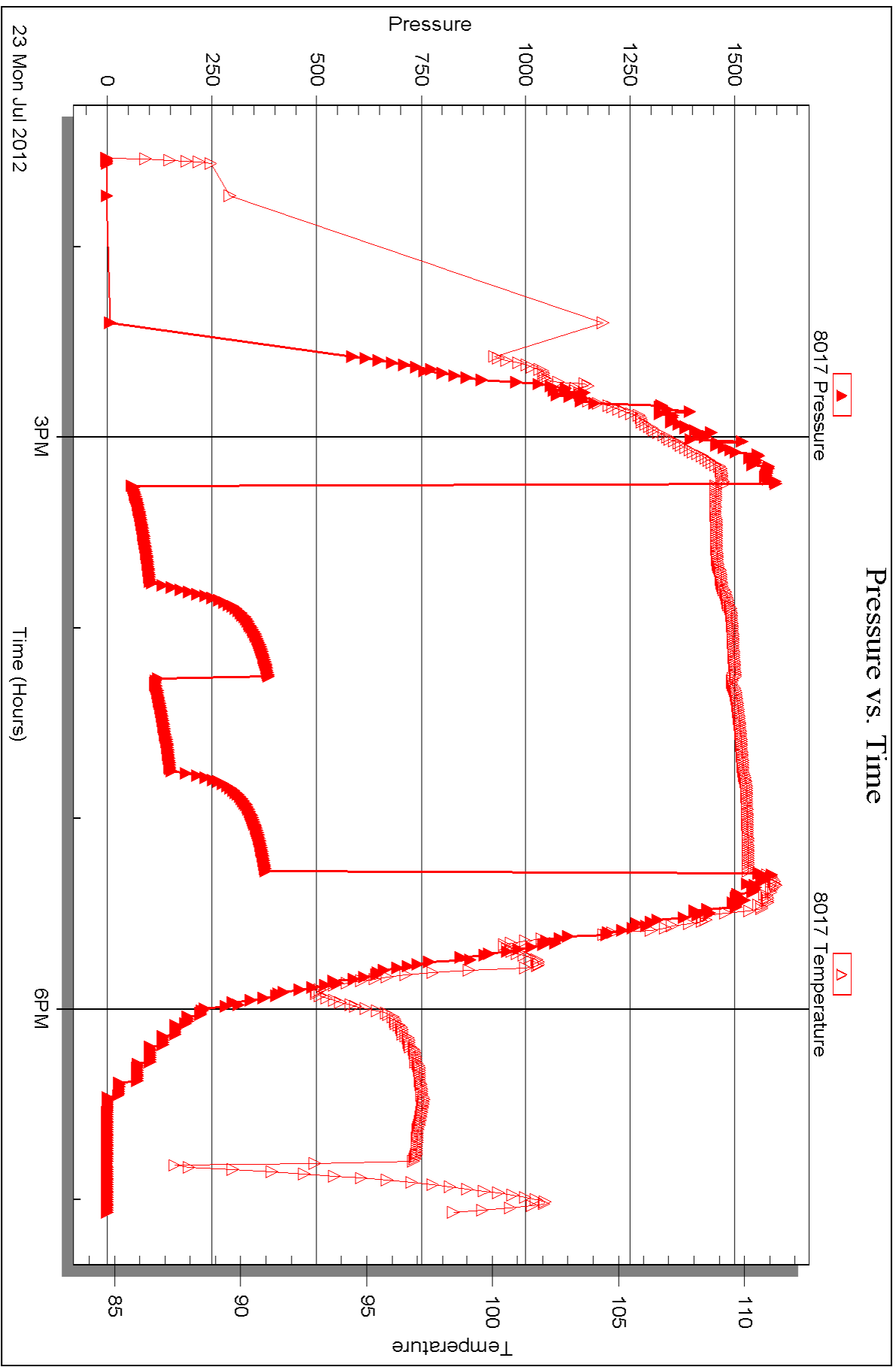
Serial #: 8017

Inside

TDI Inc

LJ#1

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 47900

Printed: 2012.07.26 @ 08:51:18



## DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays KS 67601

ATTN: Herb Deines

**LJ #1**

**13-15s-19w Ellis,KS**

Start Date: 2012.07.24 @ 09:25:05

End Date: 2012.07.24 @ 14:55:59

Job Ticket #: 47901                      DST #: 2

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

Printed: 2012.07.26 @ 08:50:20

TDI Inc  
13-15s-19w Ellis,KS  
LJ #1  
DST # 2  
LJC:"H,I,J"  
2012.07.24









**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

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

**13-15s-19w Ellis,KS**  
**LJ #1**  
Job Ticket: 47901      **DST#: 2**  
Test Start: 2012.07.24 @ 09:25:05

**Tool Information**

Drill Pipe:	Length: 3424.00 ft	Diameter: 3.80 inches	Volume: 48.03 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	40000.00 lb
			<u>Total Volume: 48.03 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	32000.00 lb
Depth to Top Packer:	3414.00 ft			Final	32000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	71.00 ft				
Tool Length:	91.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Change Over Sub	1.00			3395.00	
Shut In Tool	5.00			3400.00	
Hydraulic tool	5.00			3405.00	
Packer	5.00			3410.00	20.00      Bottom Of Top Packer
Packer	4.00			3414.00	
Stubb	1.00			3415.00	
Perforations	5.00			3420.00	
Change Over Sub	1.00			3421.00	
Recorder	0.00	8017	Inside	3421.00	
Recorder	0.00	8372	Outside	3421.00	
Drill Pipe	32.00			3453.00	
Change Over Sub	1.00			3454.00	
Perforations	28.00			3482.00	
Bullnose	3.00			3485.00	71.00      Bottom Packers & Anchor

**Total Tool Length: 91.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI Inc **13-15s-19w Ellis,KS**  
 1310 Bison Rd **LJ #1**  
 Hays KS 67601 Job Ticket: 47901 **DST#: 2**  
 ATTN: Herb Deines Test Start: 2012.07.24 @ 09:25:05

## 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:	ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.37 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3600.00 ppm			
Filter Cake: inches			

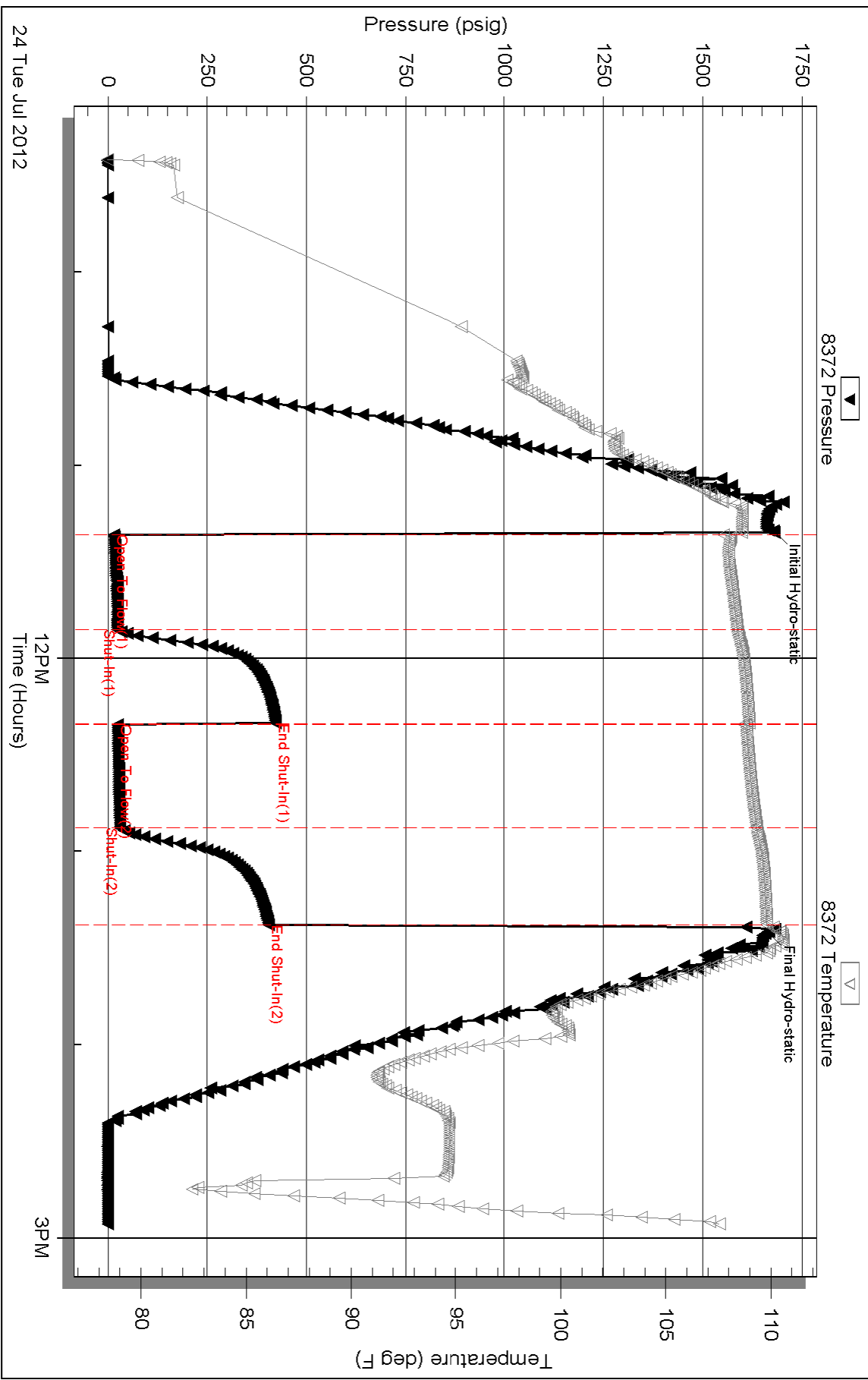
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
35.00	SOSM	0.491

Total Length: 35.00 ft      Total Volume: 0.491 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

# Pressure vs. Time



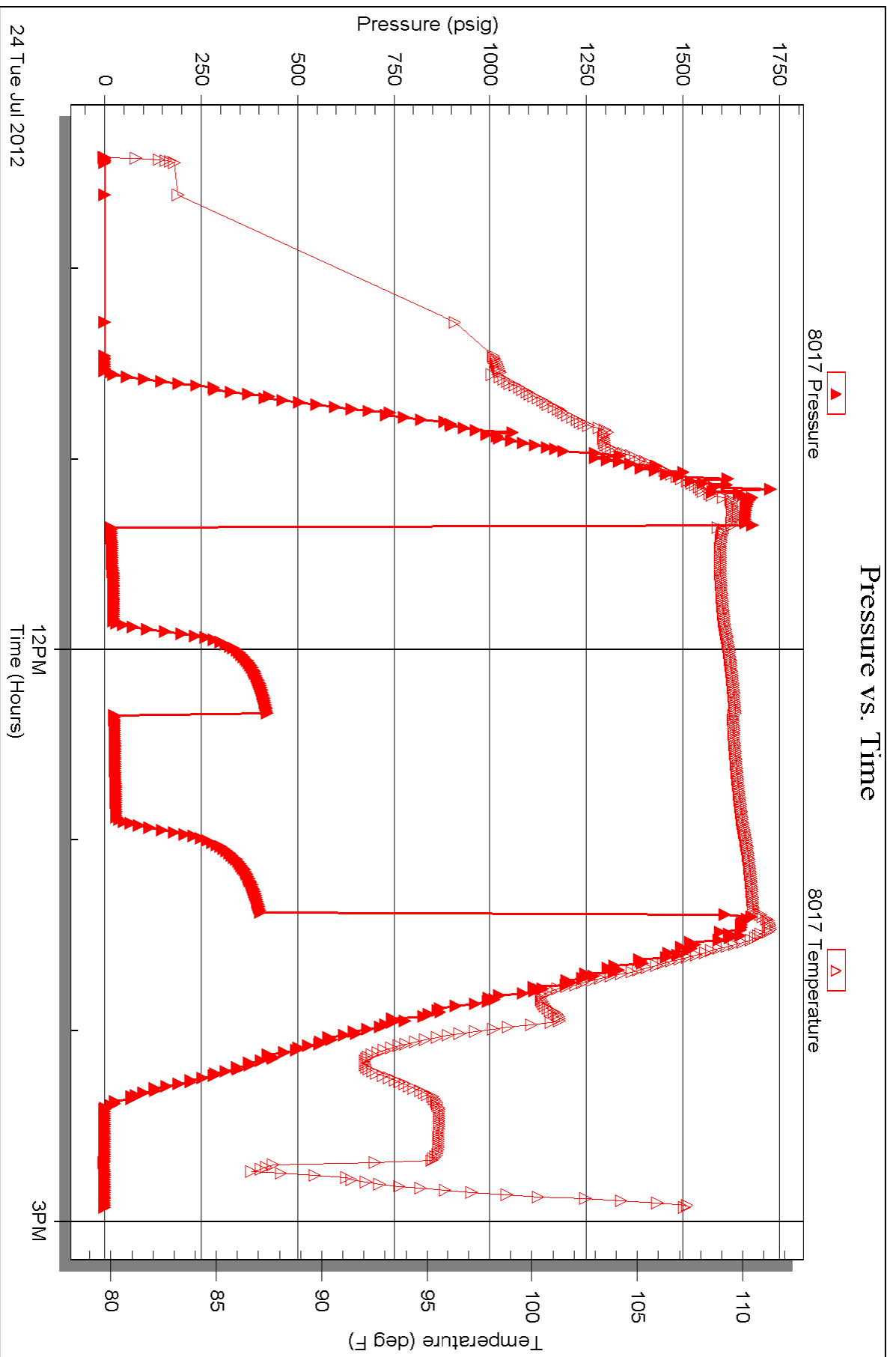
Serial #: 8017

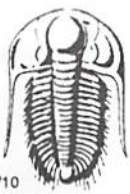
Inside

TDI Inc

LJ #1

DST Test Number: 2





# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 47900

Well Name & No. LJ #1 Test No. 1 Date 7-23-12  
 Company IDI inc. Elevation 2002 KB 1995 GL  
 Address 1310 BISON RD Hays Ks. 67601 + 9696  
 Co. Rep / Geo. Heb DEINES Rig Southwind #1  
 Location: Sec. 13 Twp. 15 S Rge. 19 W Co. Ellis State Ks

Interval Tested 3276-3329 Zone Tested LKC "ABC"  
 Anchor Length 53' Drill Pipe Run 3270 Mud Wt. 9.2  
 Top Packer Depth 3271 Drill Collars Run 0 Vis 51  
 Bottom Packer Depth 3276 Wt. Pipe Run 0 WL 9.2  
 Total Depth 3329 Chlorides 3500 ppm System LCM 1#

Blow Description IPI BOB 2min  
ISI: No Return  
FF: BOB, 2min. Gas to surface 20min  
FSL: Return Blow built to 6" decreased to 1"

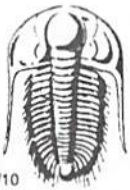
Rec	Feet of	%gas	%oil	%water	%mud
<u>50'</u>	<u>HOCGM</u>	<u>20%</u>	<u>35%</u>	<u>45%</u>	<u></u>
<u>200'</u>	<u>MCGO</u>	<u>30%</u>	<u>50%</u>	<u>20%</u>	<u></u>
<u>120'</u>	<u>MCGO</u>	<u>35%</u>	<u>45%</u>	<u>20%</u>	<u></u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 370' BHT 1090 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1600  Test 1150 T-On Location 12:05  
 (B) First Initial Flow 60  Jars \_\_\_\_\_ T-Started 13:32  
 (C) First Final Flow 106  Safety Joint \_\_\_\_\_ T-Open 15:15  
 (D) Initial Shut-In 385  Circ Sub \_\_\_\_\_ T-Pulled 17:15  
 (E) Second Initial Flow 116  Hourly Standby \_\_\_\_\_ T-Out 19:04  
 (F) Second Final Flow 152  Mileage 33RT 49.60 Comments \_\_\_\_\_  
 (G) Final Shut-In 399  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1570  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 30  Day Standby \_\_\_\_\_ Total 1199.60  
 Final Flow 30  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 30 Sub Total 1199.60

Approved By \_\_\_\_\_ Our Representative [Signature]

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.



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 47901

Well Name & No. LJ #1 Test No. 2 Date 7-24-12  
 Company IDI inc. Elevation 2002 KB 1995 GL  
 Address 1310, BISON RD Hays Ks 67601 + 9696  
 Co. Rep / Geo. HERB DEINES Rig Southwind #1  
 Location: Sec. 13 Twp. 15s Rge. 19w Co. Ellis State Ks

Interval Tested 3414 - 3485 Zone Tested LK<sup>u</sup> HIJ<sup>s</sup>  
 Anchor Length 71' Drill Pipe Run 3424 Mud Wt. 9.0  
 Top Packer Depth 3409 Drill Collars Run 0 Vis 50  
 Bottom Packer Depth 3414 Wt. Pipe Run 0 WL 8.4  
 Total Depth 3485 Chlorides 3600 ppm System LCM 1

Blow Description IF: Intermittent surface blow  
ISI: NO RETURN  
FF: Intermittent surface blow  
FSI: NO RETURN

Rec	Feet of	%gas	%oil	%water	%mud
<u>35</u>	<u>505m</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 35 BHT 109 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1677  Test 1150 T-On Location 08:02  
 (B) First Initial Flow 15  Jars T-Started 09:25  
 (C) First Final Flow 23  Safety Joint T-Open 11:20  
 (D) Initial Shut-In 422  Circ Sub T-Pulled 13:20  
 (E) Second Initial Flow 24  Hourly Standby T-Out 14:56  
 (F) Second Final Flow 30  Mileage 33RT 49.60 Comments \_\_\_\_\_  
 (G) Final Shut-In 404  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1663  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 30  
 Final Flow 30  
 Final Shut-In 30  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1199.60 Total 1199.60 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative [Signature]  
 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.