



DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Rd.
Hays, KS 67601

ATTN: Herb Deines

Marsha #1

21-15s-18w Eliis,KS

Start Date: 2013.08.24 @ 15:06:13

End Date: 2013.08.24 @ 21:58:22

Job Ticket #: 54390 DST #: 1

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

Printed: 2013.08.27 @ 13:34:29

TDI Inc.
21-15s-18w Eliis,KS
Marsha #1
DST # 1
A-D
2013.08.24



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

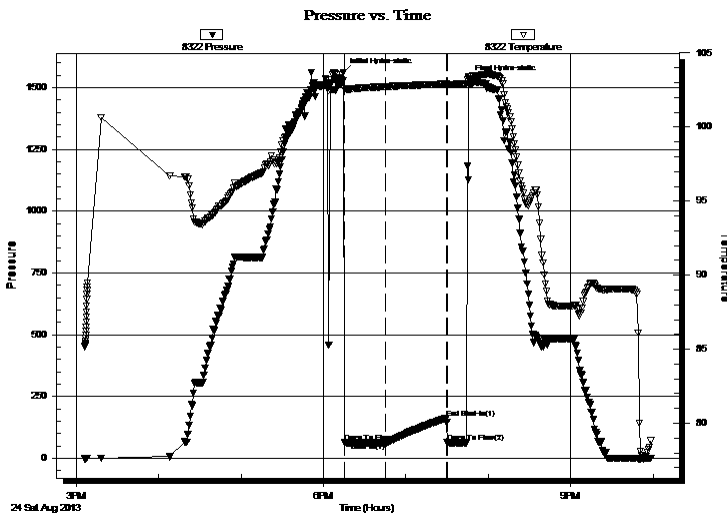
21-15s-18w Eliis,KS
Marsha #1
Job Ticket: 54390 **DST#: 1**
Test Start: 2013.08.24 @ 15:06:13

GENERAL INFORMATION:

Formation: **A-D**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:15:33
Time Test Ended: 21:58:22
Interval: **3220.00 ft (KB) To 3290.00 ft (KB) (TVD)**
Total Depth: 3290.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Initial)
Tester: Tate Lang
Unit No: 41
Reference Elevations: 1964.00 ft (KB)
1954.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8322 Outside
Press @ Run Depth: 63.44 psig @ 3221.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2013.08.24 End Date: 2013.08.24 Last Calib.: 2013.08.24
Start Time: 15:06:14 End Time: 21:58:23 Time On Btm: 2013.08.24 @ 18:14:43
Time Off Btm: 2013.08.24 @ 19:45:43

TEST COMMENT: Slid 20 ft Weak surface blow started at 3 1/4" Died back to 2 1/2"
Dead no blow back
Dead no blow Flushed tool @ 15 mins no blow tried 3 times think i unseated packers on the 3rd try.
pulled it



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1561.44	103.15	Initial Hydro-static
1	63.49	102.59	Open To Flow (1)
31	63.44	102.73	Shut-In(1)
75	163.93	102.91	End Shut-In(1)
76	63.54	102.88	Open To Flow (2)
91	1534.00	103.42	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
100.00	100%M	1.40

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

21-15s-18w Eliis,KS
Marsha #1
Job Ticket: 54390 **DST#: 1**
Test Start: 2013.08.24 @ 15:06:13

Tool Information

Drill Pipe:	Length: 3223.00 ft	Diameter: 3.80 inches	Volume: 45.21 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:	20000.00 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: 45.21 bbl</u>	Tool Chased	20.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial	34000.00 lb
Depth to Top Packer:	3220.00 ft			Final	34000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	70.00 ft				
Tool Length:	90.00 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			3201.00	
Shut In Tool	5.00			3206.00	
Hydraulic tool	5.00			3211.00	
Recorder	5.00			3216.00	
Packer	4.00			3220.00	20.00 Bottom Of Top Packer
Stubb	1.00			3221.00	
Recorder	0.00	6752	Inside	3221.00	
Recorder	0.00	8322	Outside	3221.00	
Perforations	2.00			3223.00	
Change Over Sub	1.00			3224.00	
Drill Pipe	62.00			3286.00	
Change Over Sub	1.00			3287.00	
Bullnose	3.00			3290.00	70.00 Anchor Tool

Total Tool Length: 90.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc. **21-15s-18w Eliis,KS**
 1310 Bison Rd. **Marsha #1**
 Hays, KS 67601 Job Ticket: 54390 **DST#: 1**
 ATTN: Herb Deines Test Start: 2013.08.24 @ 15:06:13

Mud and Cushion Information

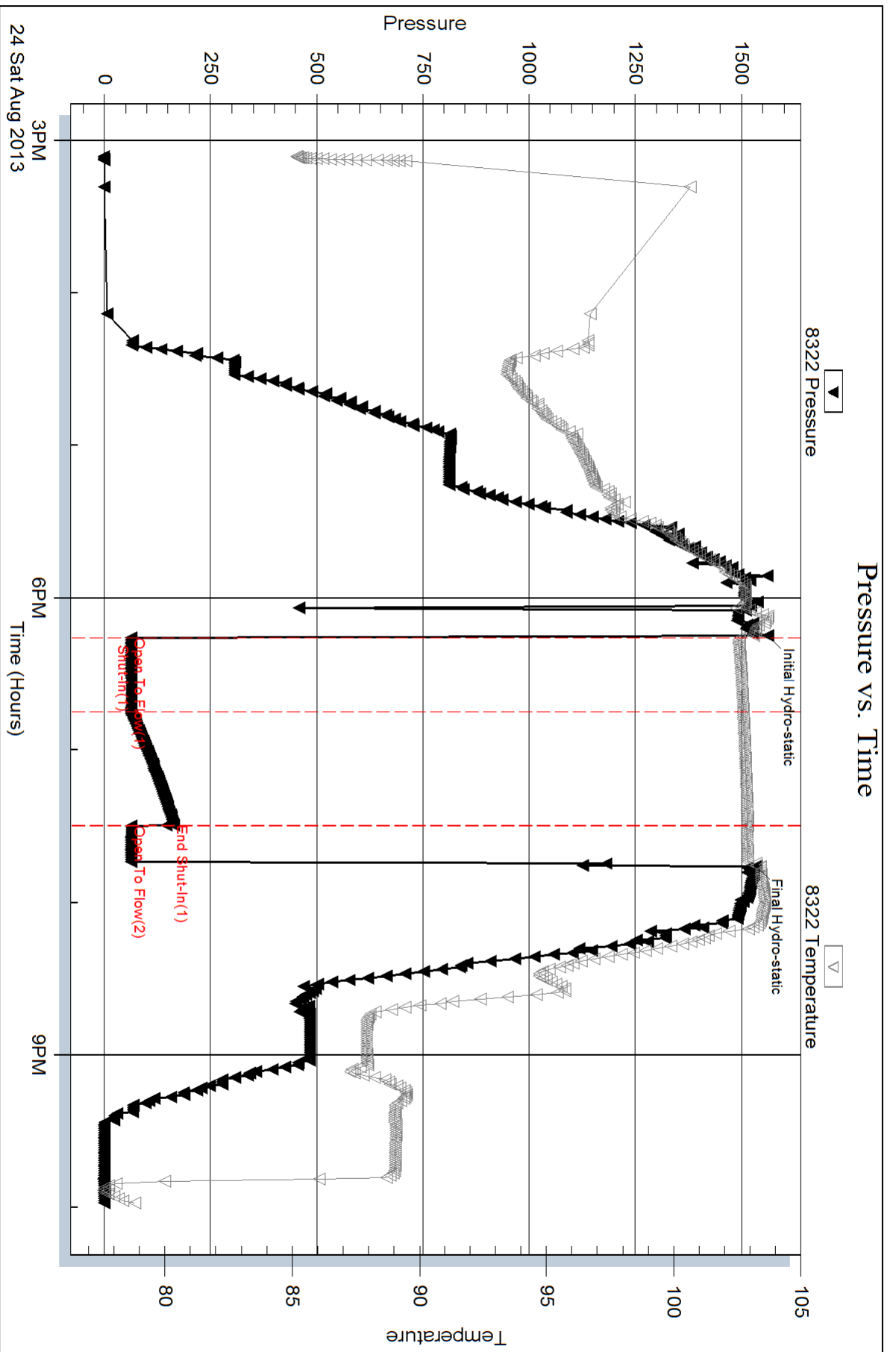
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 40.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.98 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2800.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
100.00	100%M	1.403

Total Length: 100.00 ft Total Volume: 1.403 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:



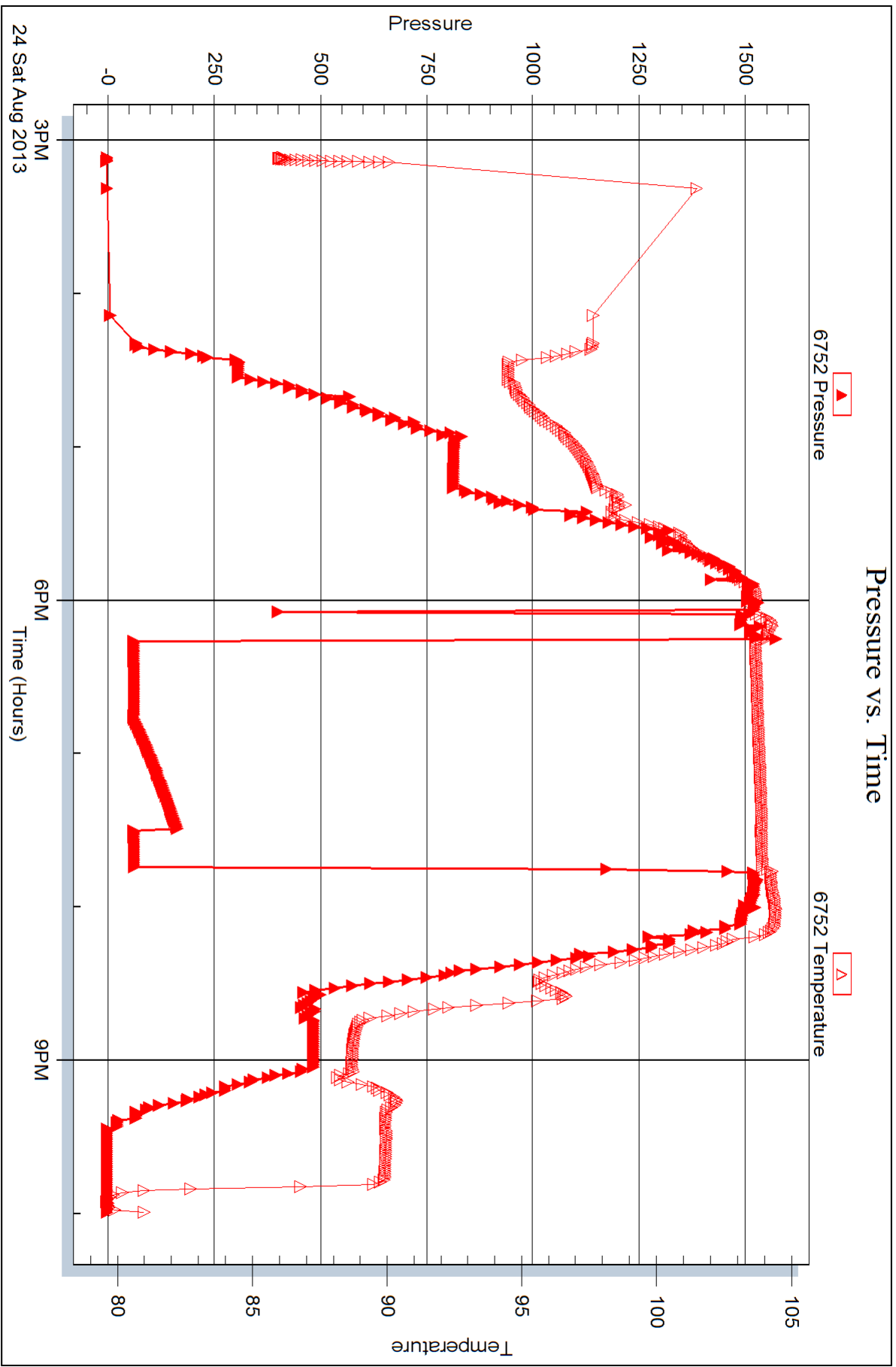
Serial #: 6752

Inside

TDI Inc.

Marsha #1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 54390

Printed: 2013.08.27 @ 13:34:31



DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Rd.
Hays, KS 67601

ATTN: Herb Deines

Marsha #1

21-15s-18w Eliis,KS

Start Date: 2013.08.25 @ 14:50:42

End Date: 2013.08.25 @ 21:08:42

Job Ticket #: 54391 DST #: 2

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

Printed: 2013.08.27 @ 13:33:36

TDI Inc. 21-15s-18w Eliis,KS Marsha #1 DST # 2 H,I,J,K 2013.08.25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

21-15s-18w Eliis,KS
Marsha #1
Job Ticket: 54391 **DST#: 2**
Test Start: 2013.08.25 @ 14:50:42

GENERAL INFORMATION:

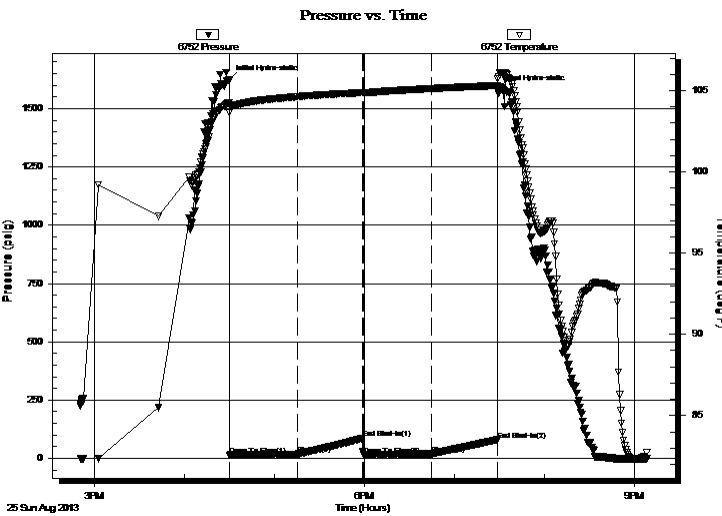
Formation: **H,I,J,K**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:30:02
Time Test Ended: 21:08:42
Interval: **3354.00 ft (KB) To 3445.00 ft (KB) (TVD)**
Total Depth: 3445.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Reference Elevations: 1964.00 ft (KB)
1954.00 ft (CF)
KB to GR/CF: 10.00 ft
Test Type: Conventional Bottom Hole (Reset)
Tester: Tate Lang
Unit No: 41

Serial #: 6752

Inside

Press @ Run Depth: 18.33 psig @ 3357.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2013.08.25 End Date: 2013.08.25 Last Calib.: 2013.08.25
Start Time: 14:50:43 End Time: 21:08:42 Time On Btm: 2013.08.25 @ 16:29:52
Time Off Btm: 2013.08.25 @ 19:29:02

TEST COMMENT: Fair surface blow built to 4 1/2"
Dead no blow back
Fair surface blow built to 5"
Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1624.80	104.26	Initial Hydro-static
1	13.53	103.64	Open To Flow (1)
46	16.64	104.63	Shut-In(1)
89	85.04	104.88	End Shut-In(1)
90	15.12	104.87	Open To Flow (2)
136	18.33	105.13	Shut-In(2)
179	78.79	105.31	End Shut-In(2)
180	1580.47	105.73	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	8%O 92%M	0.28
0.00	100' GIP	0.00

* Recovery from multiple tests

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: Herb Deines

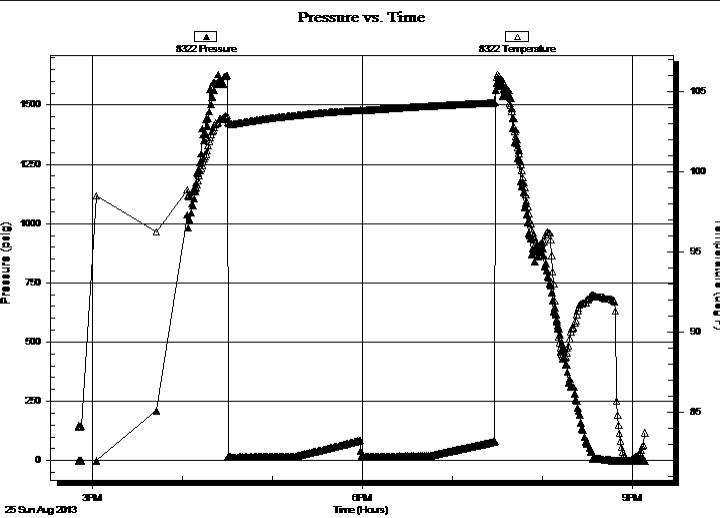
21-15s-18w Eliis, KS
Marsha #1
Job Ticket: 54391 **DST#: 2**
Test Start: 2013.08.25 @ 14:50:42

GENERAL INFORMATION:

Formation: **H,I,J,K**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 16:30:02 Tester: Tate Lang
Time Test Ended: 21:08:42 Unit No: 41
Interval: 3354.00 ft (KB) To 3445.00 ft (KB) (TVD) Reference Elevations: 1964.00 ft (KB)
Total Depth: 3445.00 ft (KB) (TVD) 1954.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 10.00 ft

Serial #: 8322 **Outside**
Press @ RunDepth: psig @ 3357.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2013.08.25 End Date: 2013.08.25 Last Calib.: 2013.08.25
Start Time: 14:50:41 End Time: 21:08:50 Time On Btm:
Time Off Btm:

TEST COMMENT: Fair surface blow buit to 4 1/2"
Dead no blow back
Fair surface blow buit to 5"
Dead no blow back



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

Recovery		
Length (ft)	Description	Volume (bbl)
20.00	8%O 92%M	0.28
0.00	100' GIP	0.00

* Recovery from multiple tests

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

21-15s-18w Eliis,KS
Marsha #1
Job Ticket: 54391 **DST#: 2**
Test Start: 2013.08.25 @ 14:50:42

Tool Information

Drill Pipe:	Length: 3348.00 ft	Diameter: 3.80 inches	Volume: 46.96 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:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	45000.00 lb
			<u>Total Volume: 46.96 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial	38000.00 lb
Depth to Top Packer:	3354.00 ft			Final	40000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	91.00 ft				
Tool Length:	111.00 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			3335.00	
Shut In Tool	5.00			3340.00	
Hydraulic tool	5.00			3345.00	
Recorder	5.00			3350.00	
Packer	4.00			3354.00	20.00 Bottom Of Top Packer
Stubb	1.00			3355.00	
Perforations	2.00			3357.00	
Recorder	0.00	6752	Inside	3357.00	
Recorder	0.00	8322	Outside	3357.00	
Change Over Sub	1.00			3358.00	
Drill Pipe	63.00			3421.00	
Change Over Sub	1.00			3422.00	
Perforations	20.00			3442.00	
Bullnose	3.00			3445.00	91.00 Anchor Tool

Total Tool Length: 111.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc. **21-15s-18w Eliis,KS**
 1310 Bison Rd. **Marsha #1**
 Hays, KS 67601 Job Ticket: 54391 **DST#: 2**
 ATTN: Herb Deines Test Start: 2013.08.25 @ 14:50:42

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: 40.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.98 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2800.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	8%O 92%M	0.281
0.00	100' GIP	0.000

Total Length: 20.00 ft Total Volume: 0.281 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

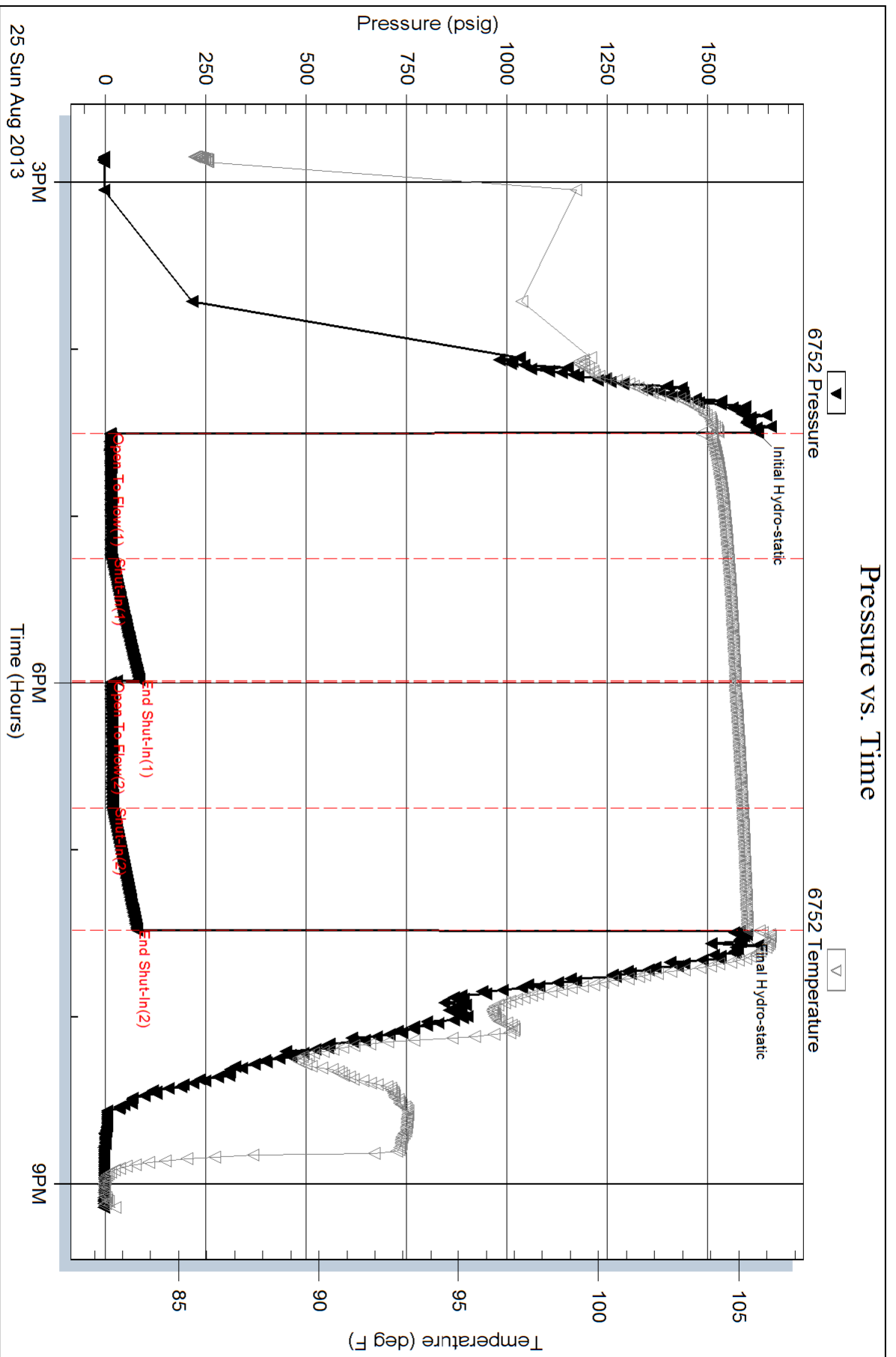
Serial #: 6752

Inside

TDI Inc.

Marsha #1

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 54391

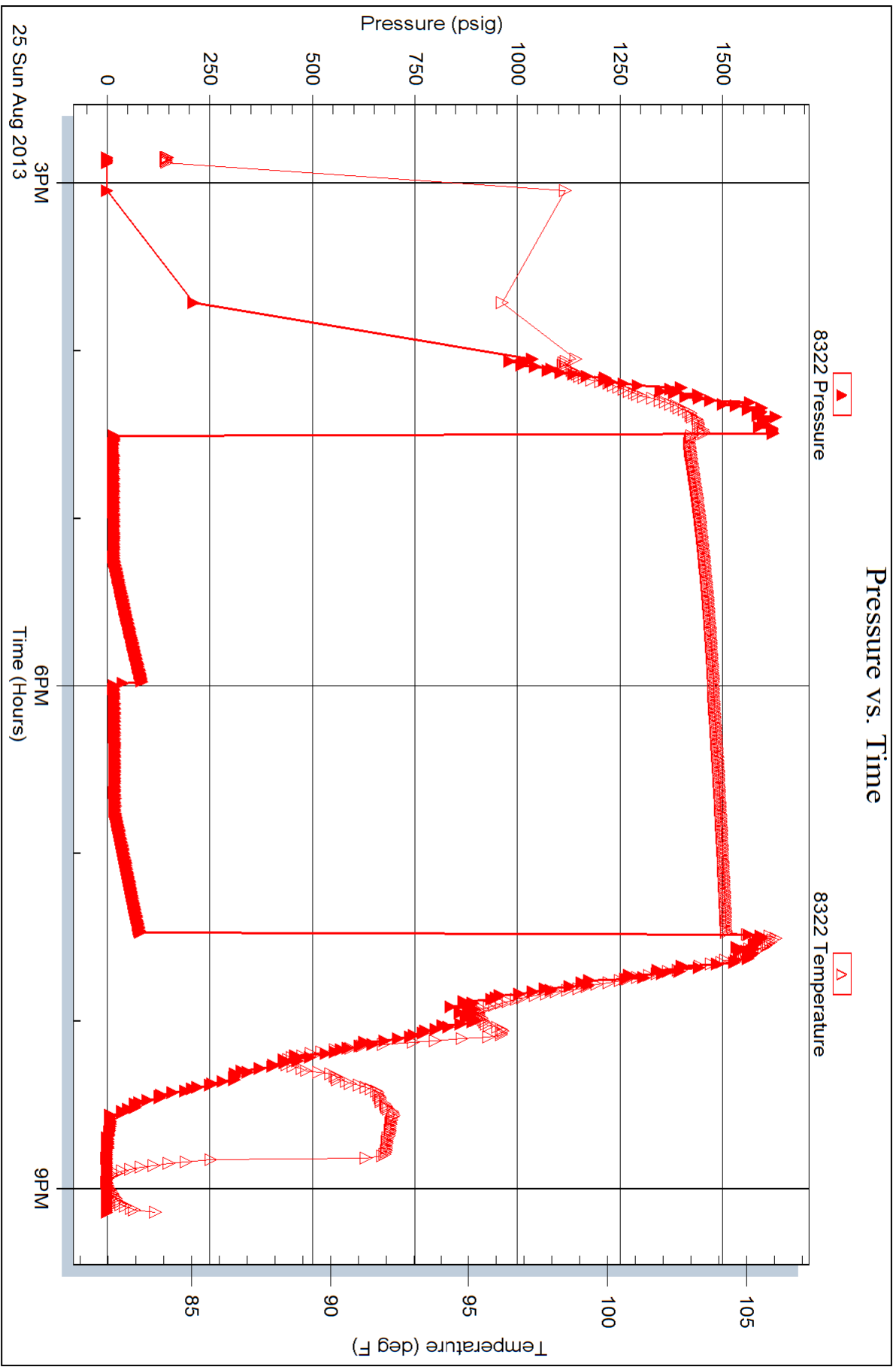
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Serial #: 8322

Outside TDI Inc.

Marsha #1

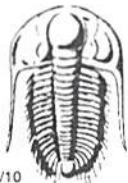
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 54391

Printed: 2013.08.27 @ 13:33:38



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54390

Well Name & No. Marsha #1 Test No. 1 Date 8-24-13
 Company TDI Inc Elevation 1964 KB 1954 GL
 Address 1310 Bison Rd, Hays, KS 67601
 Co. Rep / Geo. Herb Deines Rig Southwind #1
 Location: Sec. 21 Twp. 15 Rge. 18 Co. Ellis State KS

Interval Tested 3220 3240 Zone Tested A-D
 Anchor Length 70' Drill Pipe Run 3223 Mud Wt. 8.8
 Top Packer Depth 3216 Drill Collars Run 0 Vis 40
 Bottom Packer Depth 3220 Wt. Pipe Run 0 WL 8.0
 Total Depth 3290 Chlorides 2800 ppm System LCM #

Blow Description Slid 20ft surface blow started @ 3 1/4 in died back to 2 1/2 in
Dead w/ blow back
Dead w/ blow flush too @ 5 min tried 3 time no blow think unseated packer 3rd time pulled it

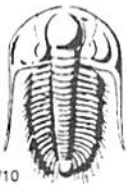
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 100 BHT 103 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic 1561 Test 1150 T-On Location 13:15
 (B) First Initial Flow 63 Jars — T-Started 15:06
 (C) First Final Flow 63 Safety Joint — T-Open 18:15
 (D) Initial Shut-In 164 Circ Sub — T-Pulled 20:00
 (E) Second Initial Flow 64 Hourly Standby — T-Out 22:00
 (F) Second Final Flow NA Mileage 26 R/1 40.30 Comments —
 (G) Final Shut-In — Sampler —
 (H) Final Hydrostatic 1534 Straddle — Ruined Shale Packer —

Initial Open 30 Shale Packer — Ruined Packer —
 Initial Shut-In 45 Extra Packer — Extra Copies —
 Final Flow 30 Extra Recorder — Sub Total 0
 Final Shut-In pull it Day Standby — Total 1190.30
 Accessibility — MP/DST Disc't —
 Sub Total 1190.30

Approved By — Our Representative [Signature] Thanks
 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.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54391

Well Name & No. Marsha #1 Test No. 2 Date 8-25-13
 Company TDI Inc. Elevation 1964 KB 1954 GL
 Address 1310 Bison Rd Hays, KS 67601
 Co. Rep / Geo. Herb Deines Rig Southwind #1
 Location: Sec. 21 Twp. 15 Rge. 18 Co. Ellis State KS

Interval Tested 3354 3445 Zone Tested "H.I.S.K"
 Anchor Length 91 Drill Pipe Run 3348 Mud Wt. 8.9
 Top Packer Depth 3350 Drill Collars Run 0 Vis 46
 Bottom Packer Depth 3354 Wt. Pipe Run 0 WL 7.8
 Total Depth 3445 Chlorides 4000 ppm System LCM 1#

Blow Description Fair surface blow built to 4 1/2 in.
Dead no blow back
Fair surface blow built to 5 in
Dead no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>100</u>	<u>GIA</u>	<u>100</u>			
<u>20</u>	<u>VS OCM</u>		<u>8</u>		<u>92</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 20 BHT 105 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 1625 Test 1150 T-On Location 13:30
 (B) First Initial Flow 14 Jars — T-Started 14:50
 (C) First Final Flow 17 Safety Joint — T-Open 16:30
 (D) Initial Shut-In 85 Circ Sub — T-Pulled 19:30
 (E) Second Initial Flow 15 Hourly Standby — T-Out 21:09
 (F) Second Final Flow 18 Mileage 26 R/T 40.30 Comments —
 (G) Final Shut-In 79 Sampler —
 (H) Final Hydrostatic 1580 Straddle — Ruined Shale Packer —
 Shale Packer — Ruined Packer —
 Extra Packer — Extra Copies —
 Initial Open 45 Extra Recorder — Sub Total 0
 Initial Shut-In 45 Day Standby — Total 1190.30
 Final Flow 45 Accessibility — MP/DST Disc't —
 Final Shut-In 45 Sub Total 1190.30

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.