



DRILL STEM TEST REPORT

Prepared For: **TDI inc**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

GR #1

14-15s-19w Ellis,KS

Start Date: 2012.12.04 @ 21:35:05

End Date: 2012.12.05 @ 02:22:50

Job Ticket #: 50766 DST #: 1

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

Printed: 2012.12.06 @ 15:45:33

TDI inc
14-15s-19w Ellis,KS
GR #1
DST # 1
LKC"C"
2012.12.04



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

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

14-15s-19w Ellis,KS
GR #1
Job Ticket: 50766 **DST#: 1**
Test Start: 2012.12.04 @ 21:35:05

GENERAL INFORMATION:

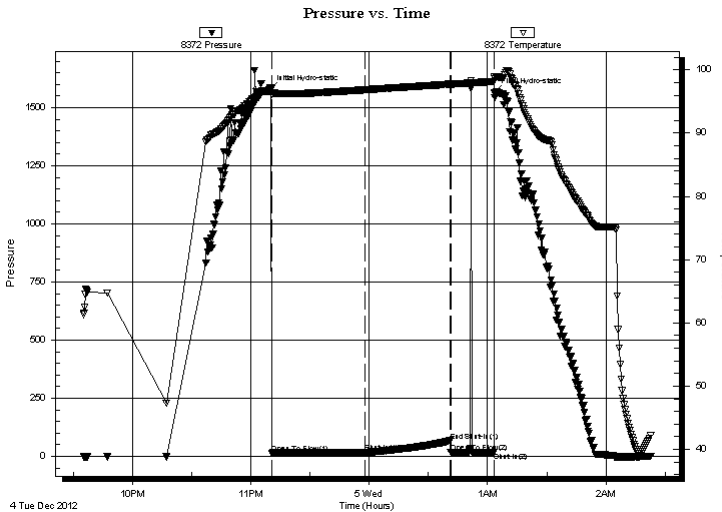
Formation: **LKC"C"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:10:40
Time Test Ended: 02:22:50
Interval: **3294.00 ft (KB) To 3349.00 ft (KB) (TVD)**
Total Depth: 3349.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor
Test Type: Conventional Bottom Hole (Initial)
Tester: Andy Carreira
Unit No: 39
Reference Elevations: 2021.00 ft (KB)
2011.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8372 Outside

Press @ Run Depth: 16.91 psig @ 3301.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.12.04 End Date: 2012.12.05 Last Calib.: 2012.12.05
Start Time: 21:35:05 End Time: 02:22:50 Time On Btm: 2012.12.04 @ 23:09:20
Time Off Btm: 2012.12.05 @ 01:03:20

TEST COMMENT: IF:(45min) Blow died in 19 min.
IS:(45min) No Return
FF:(20min) No Blow , Flushed, Surged, No Blow . Pulled Tool.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1577.76	96.61	Initial Hydro-static
2	14.88	96.15	Open To Flow (1)
49	16.91	96.84	Shut-In(1)
92	66.92	97.74	End Shut-In(1)
92	16.46	97.72	Open To Flow (2)
114	17.32	98.15	Shut-In(2)
114	1564.72	98.93	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud	0.07

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

14-15s-19w Ellis,KS
GR #1
Job Ticket: 50766 **DST#: 1**
Test Start: 2012.12.04 @ 21:35:05

Tool Information

Drill Pipe:	Length: 3294.00 ft	Diameter: 3.80 inches	Volume: 46.21 bbl	Tool Weight:	2500.00 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:	36000.00 lb
			<u>Total Volume: 46.21 bbl</u>	Tool Chased	5.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	30000.00 lb
Depth to Top Packer:	3294.00 ft			Final	30000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	55.00 ft				
Tool Length:	75.00 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			3275.00	
Shut In Tool	5.00			3280.00	
Hydraulic tool	5.00			3285.00	
Packer	5.00			3290.00	20.00 Bottom Of Top Packer
Packer	4.00			3294.00	
Stubb	1.00			3295.00	
Perforations	5.00			3300.00	
Change Over Sub	1.00			3301.00	
Recorder	0.00	8844	Inside	3301.00	
Recorder	0.00	8372	Outside	3301.00	
Drill Pipe	31.00			3332.00	
Change Over Sub	1.00			3333.00	
Perforations	13.00			3346.00	
Bullnose	3.00			3349.00	55.00 Bottom Packers & Anchor

Total Tool Length: 75.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc **14-15s-19w Ellis,KS**
 1310 Bison Rd **GR #1**
 Hays KS 67601 Job Ticket: 50766 **DST#: 1**
 ATTN: Herb Deines Test Start: 2012.12.04 @ 21:35:05

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: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.38 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4200.00 ppm			
Filter Cake: inches			

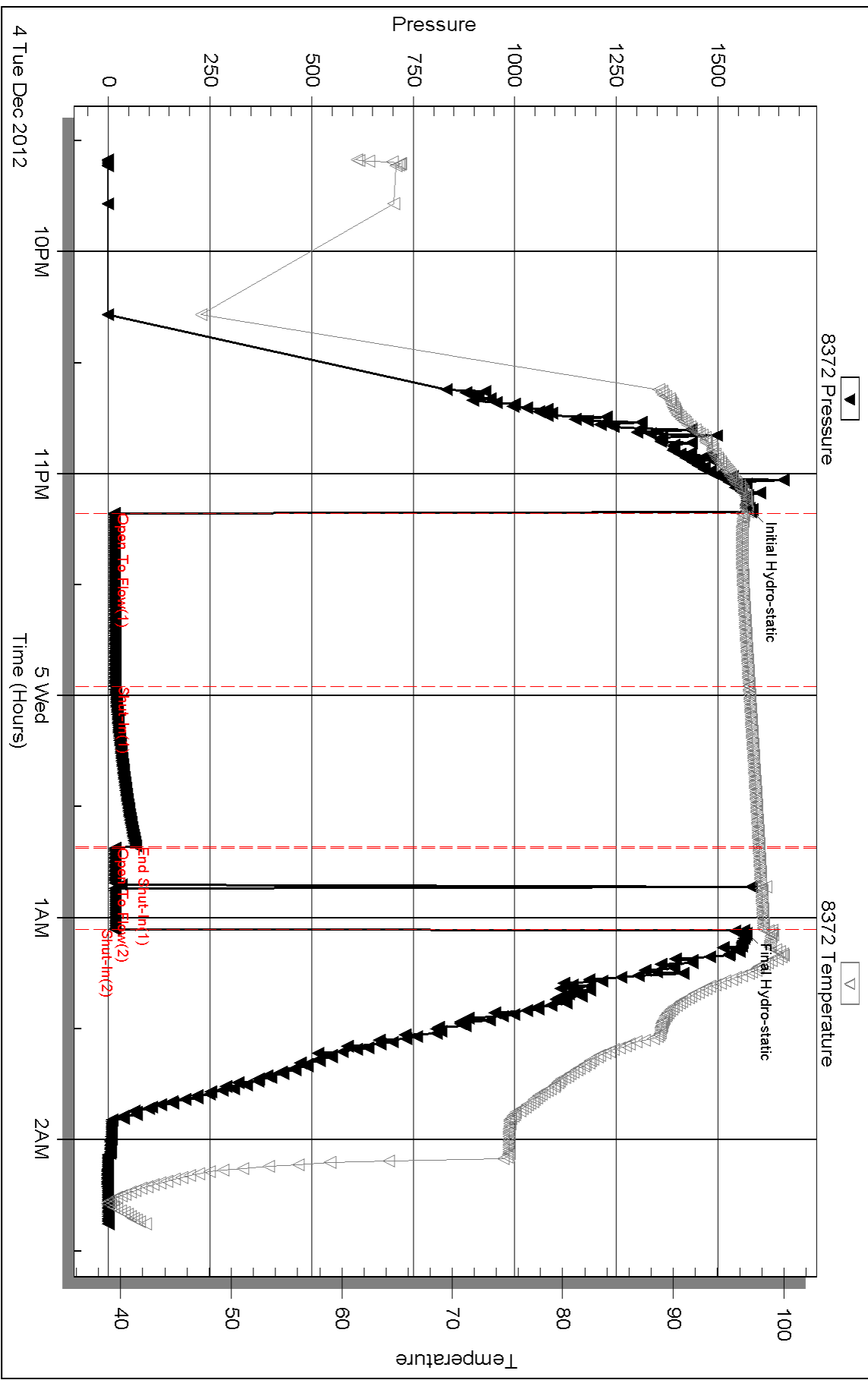
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud	0.070

Total Length: 5.00 ft Total Volume: 0.070 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Pressure vs. Time



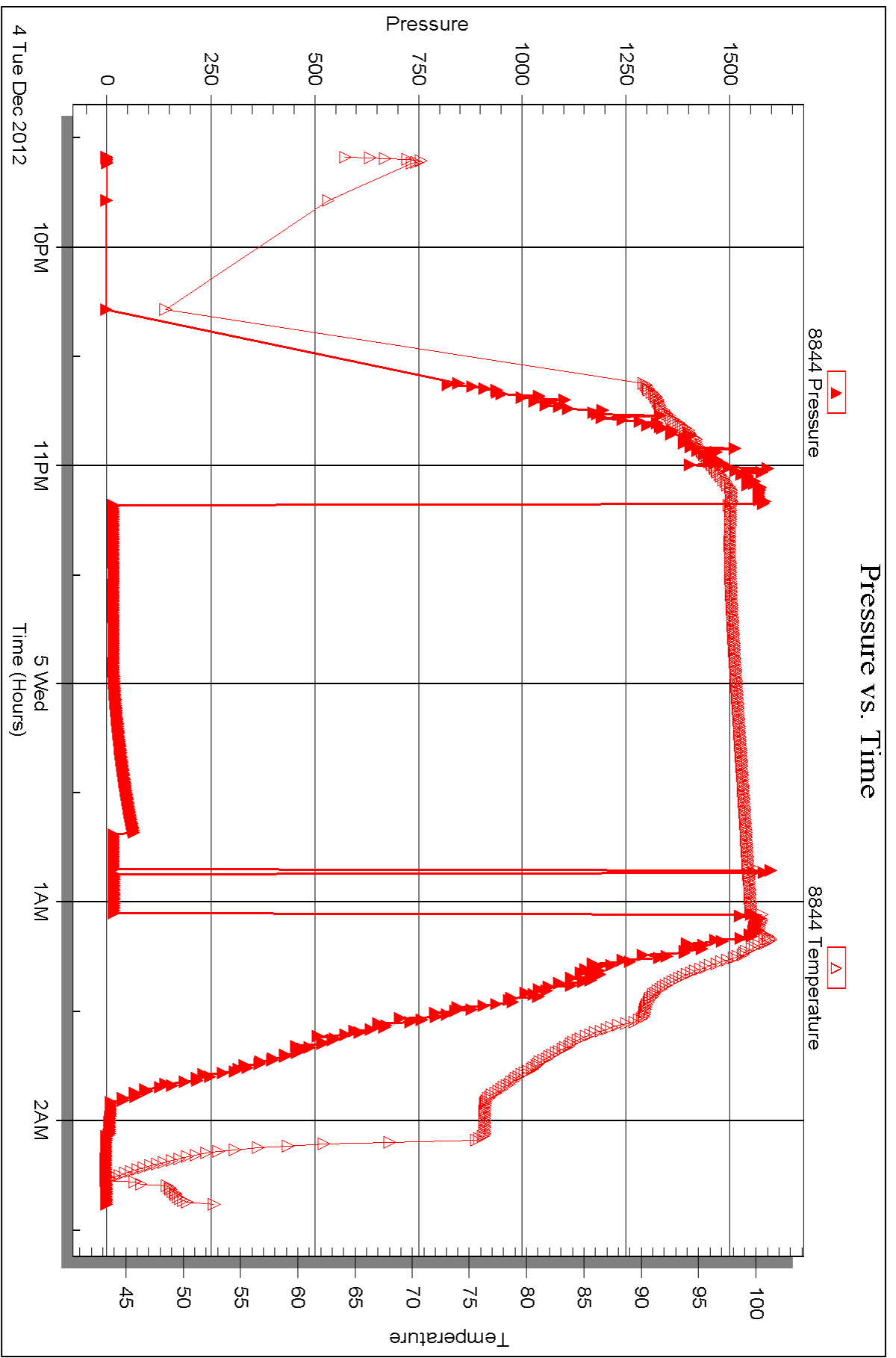
Serial #: 8844

Inside

TD/Inc

GR #1

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **TDI inc**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

GR #1

14-15s-19w Ellis,KS

Start Date: 2012.12.05 @ 18:08:05

End Date: 2012.12.06 @ 01:10:59

Job Ticket #: 50767 DST #: 2

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

Printed: 2012.12.06 @ 15:44:53

TDI inc
14-15s-19w Ellis,KS
GR #1
DST # 2
LKC-"H,I,J"
2012.12.05



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

14-15s-19w Ellis,KS
GR #1
Job Ticket: 50767 **DST#: 2**
Test Start: 2012.12.05 @ 18:08:05

GENERAL INFORMATION:

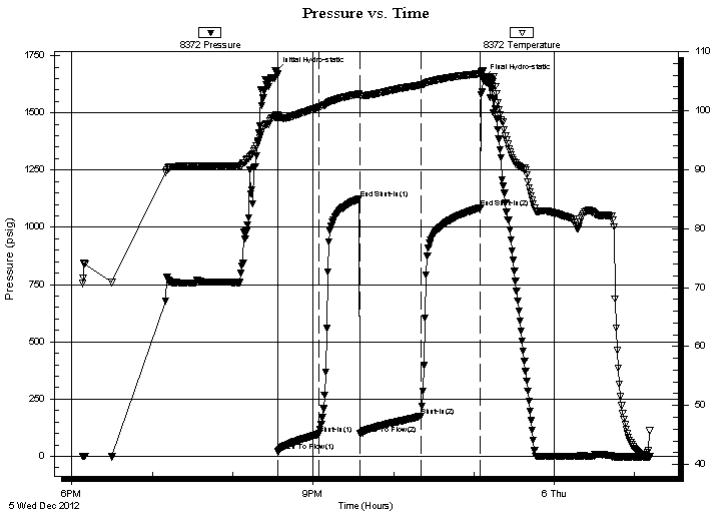
Formation: **LKC "H,I,J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:33:40
Time Test Ended: 01:10:59
Interval: **3430.00 ft (KB) To 3510.00 ft (KB) (TVD)**
Total Depth: 3510.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor
Test Type: Conventional Bottom Hole (Reset)
Tester: Andy Carreira
Unit No: 39
Reference Elevations: 2021.00 ft (KB)
2011.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8372 Outside

Press @ Run Depth: 175.35 psig @ 3437.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.12.05 End Date: 2012.12.06 Last Calib.: 2012.12.06
Start Time: 18:08:05 End Time: 01:10:59 Time On Btm: 2012.12.05 @ 20:32:00
Time Off Btm: 2012.12.05 @ 23:06:29

TEST COMMENT: IF:(30min) BOB in 5 min.
IS:(30min) Return Blow built to 2"
FF:(45min) BOB in 2 min.
FS:(45min) Return Blow built to 4"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1678.89	98.88	Initial Hydro-static
2	19.93	98.61	Open To Flow (1)
33	96.54	100.58	Shut-In(1)
63	1125.02	102.82	End Shut-In(1)
64	98.26	102.48	Open To Flow (2)
109	175.35	104.33	Shut-In(2)
153	1084.86	106.27	End Shut-In(2)
155	1650.49	106.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
315.00	GMCO g=20% m=20% o=60%	4.42
65.00	GMCO g=20% m=30% o=50%	0.91
30.00	GOCM g=5% o=15% m=80%	0.42
0.00	GIP = 1165 ft	0.00

* Recovery from multiple tests

Gas Rates

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



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DRILL STEM TEST REPORT

TOOL DIAGRAM

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

14-15s-19w Ellis,KS
GR #1
Job Ticket: 50767 **DST#: 2**
Test Start: 2012.12.05 @ 18:08:05

Tool Information

Drill Pipe:	Length: 3430.00 ft	Diameter: 3.80 inches	Volume: 48.11 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:	24000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	44000.00 lb
			<u>Total Volume: 48.11 bbl</u>	Tool Chased	5.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	32000.00 lb
Depth to Top Packer:	3430.00 ft			Final	34000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	80.00 ft				
Tool Length:	100.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments: Rig down 1 hr. on trip in. Work on draw works

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3411.00	
Shut In Tool	5.00			3416.00	
Hydraulic tool	5.00			3421.00	
Packer	5.00			3426.00	20.00 Bottom Of Top Packer
Packer	4.00			3430.00	
Stubb	1.00			3431.00	
Perforations	5.00			3436.00	
Change Over Sub	1.00			3437.00	
Recorder	0.00	8844	Inside	3437.00	
Recorder	0.00	8372	Outside	3437.00	
Drill Pipe	63.00			3500.00	
Change Over Sub	1.00			3501.00	
Perforations	6.00			3507.00	
Bullnose	3.00			3510.00	80.00 Bottom Packers & Anchor

Total Tool Length: 100.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc **14-15s-19w Ellis,KS**
 1310 Bison Rd **GR #1**
 Hays KS 67601 Job Ticket: 50767 **DST#: 2**
 ATTN: Herb Deines Test Start: 2012.12.05 @ 18:08:05

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: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4000.00 ppm			
Filter Cake: inches			

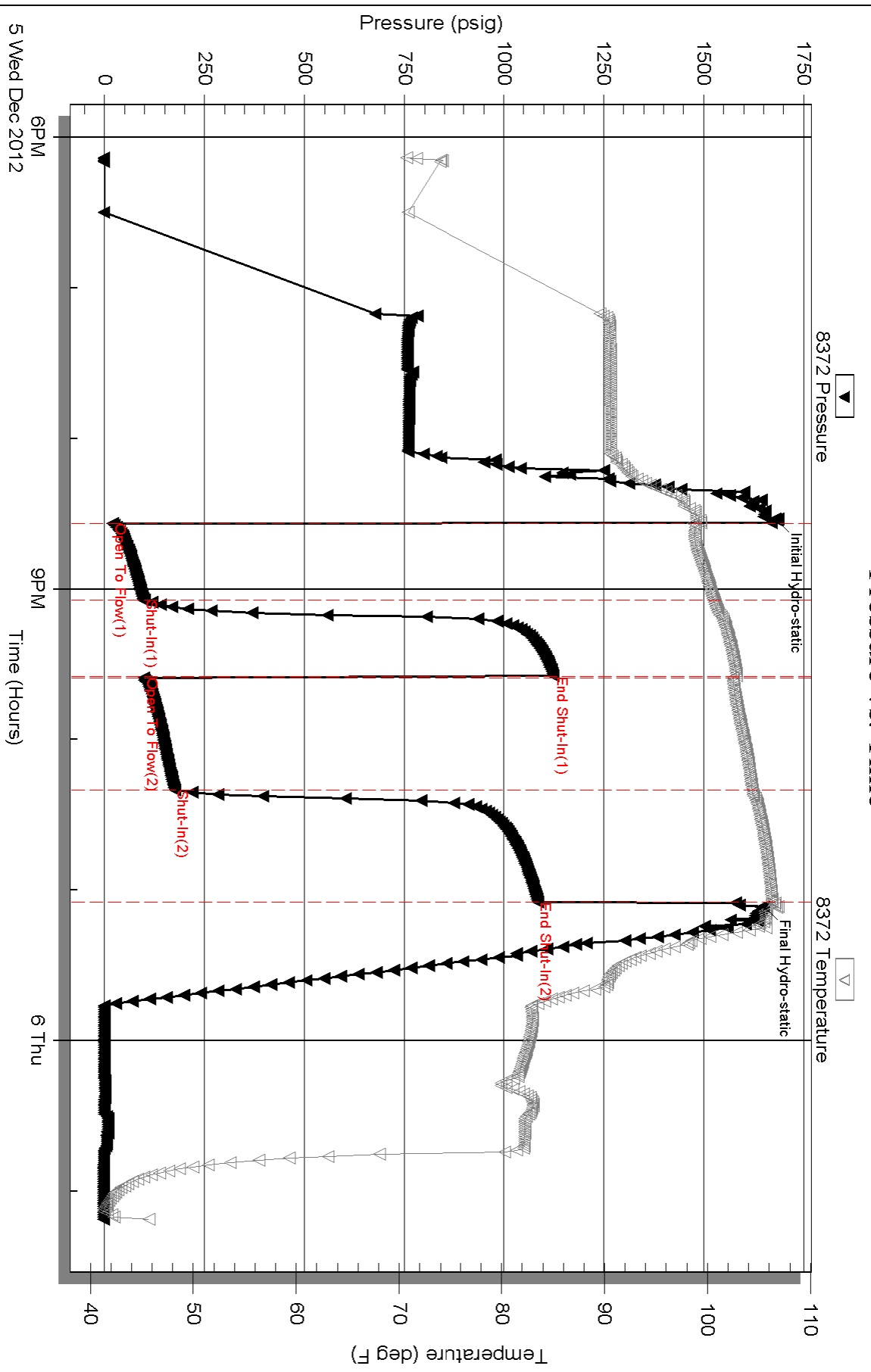
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
315.00	GMCO g=20% m=20% o=60%	4.419
65.00	GMCO g=20% m=30% o=50%	0.912
30.00	GOCM g=5% o=15% m=80%	0.421
0.00	GIP = 1165 ft	0.000

Total Length: 410.00 ft Total Volume: 5.752 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Pressure vs. Time



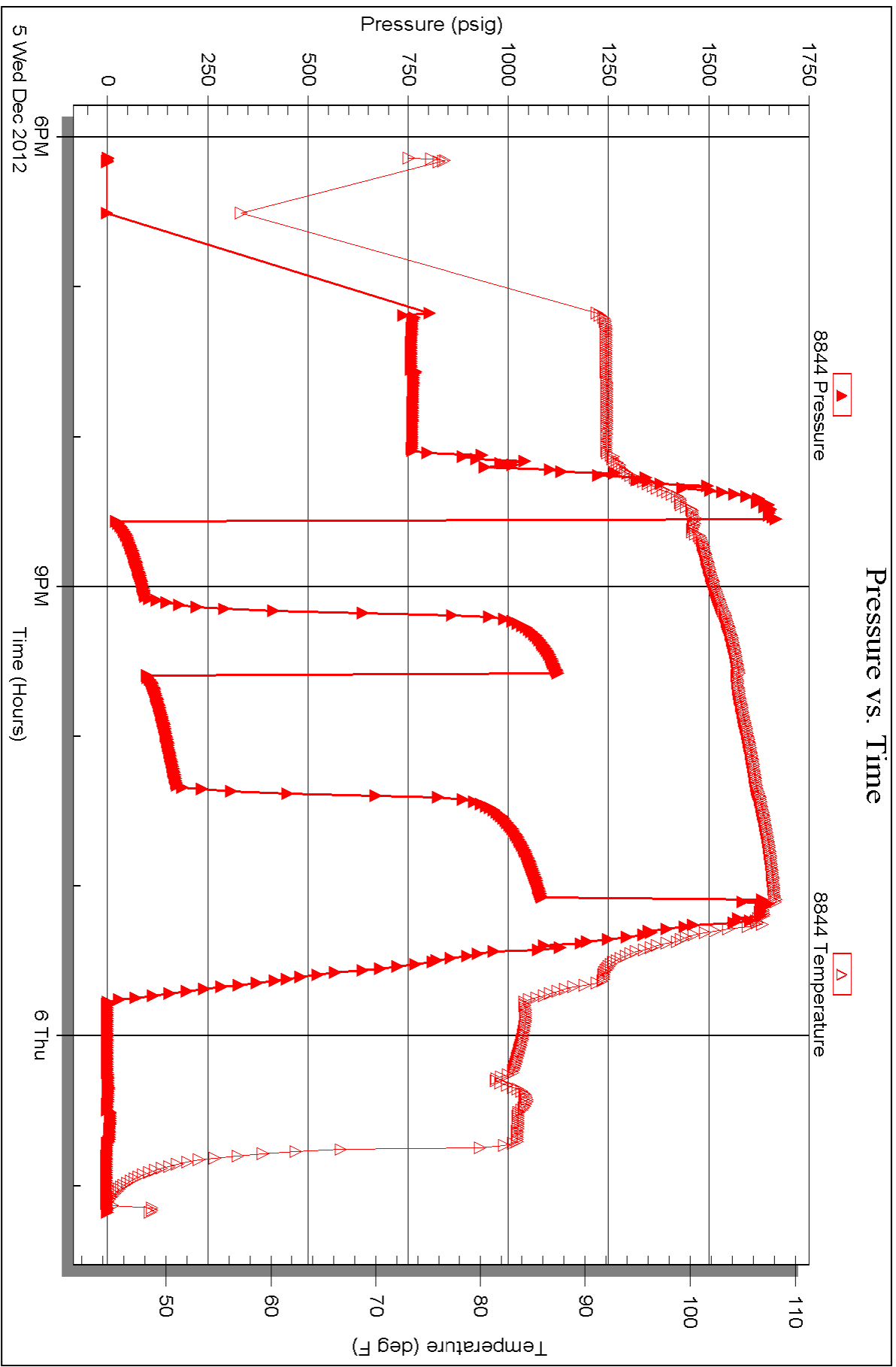
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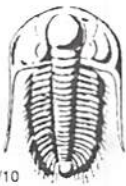
Inside

TD/Inc

GR #1

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50766

4/10

Well Name & No. GR #1 Test No. 1 Date 12-4-12
 Company T D I inc. Elevation 2021 KB 2011 GL
 Address 1310 BISON RD Hays Ks. 67601
 Co. Rep / Geo. Herb DEINES Rig Southwind #1
 Location: Sec. 14 Twp. 15 Rge. 19 Co. Ellis State Ks

Interval Tested 3294-3349 Zone Tested LKC "C"
 Anchor Length 55 Drill Pipe Run 3294 Mud Wt. 8.9
 Top Packer Depth 3289 Drill Collars Run Ø Vis 53
 Bottom Packer Depth 3294 Wt. Pipe Run Ø WL 7.4
 Total Depth 3349 Chlorides 4200 ppm System LCM 1

Blow Description IF: Blow died in 19min
FSI: NO Return
FP: NO Blow, Flushed, surged, NO Blow, Pulled Tool
FSI: NA

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 98° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

- (A) Initial Hydrostatic 1577
- (B) First Initial Flow ~~1577~~ 14
- (C) First Final Flow ~~14~~ 16
- (D) Initial Shut-In ~~16~~ 66
- (E) Second Initial Flow ~~66~~ 16
- (F) Second Final Flow ~~16~~ 17
- (G) Final Shut-In _____
- (H) Final Hydrostatic 1564

Initial Open 45
 Initial Shut-In 45
 Final Flow 20
 Final Shut-In _____

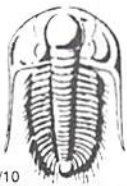
- Test 1150
- Jars _____
- Safety Joint _____
- Circ Sub _____
- Hourly Standby _____
- Mileage 49.60
- Sampler _____
- Straddle _____
- Shale Packer _____
- Extra Packer _____
- Extra Recorder _____
- Day Standby _____
- Accessibility _____

T-On Location 19:50
 T-Started 21:35
 T-Open 23:11
 T-Pulled 01:01
 T-Out 02:23

Comments _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1199.60
 MP/DST Disc't _____

Approved By _____ Our Representative *Ordy C*

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. 50767

4/10

Well Name & No. GR #1 Test No. 2 Date 12-5-12
 Company TDI INC. Elevation 2021 KB 2011 GL
 Address 1310 BISON RD Hays Ks. 67601
 Co. Rep / Geo. Herb Deines Rig Southwind #1
 Location: Sec. 14 Twp. 15 Rge. 19 Co. Ellis State Ks

Interval Tested 3430-3510 Zone Tested LKC "H, I, J"
 Anchor Length 80 Drill Pipe Run 3430 Mud Wt. 9.0
 Top Packer Depth 3425 Drill Collars Run 0 Vis 55
 Bottom Packer Depth 3430 Wt. Pipe Run 0 WL 7.6
 Total Depth 3510 Chlorides 4000 ppm System LCM 1

Blow Description IF: BOB 5 min.
ISI: Return ~~before~~ blow built to 2"
FF: BOB, 2 min.
FSI: Return blow built to 4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>60 cm</u>	<u>5</u>	<u>15</u>	<u>80</u>	<u>0</u>
<u>65</u>	<u>GmCO</u>	<u>20</u>	<u>50</u>	<u>30</u>	<u>0</u>
<u>315</u>	<u>GmCO</u>	<u>20</u>	<u>60</u>	<u>20</u>	<u>0</u>
<u>1165</u>	<u>GIP</u>				

Rec Total 410' BHT 106° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1678 Test 1150 T-On Location 16:55
 (B) First Initial Flow 19 Jars _____ T-Started 18:08
 (C) First Final Flow 95 Safety Joint _____ T-Open 20:35
 (D) Initial Shut-In 1125 Circ Sub _____ T-Pulled 23:05
 (E) Second Initial Flow 98 Hourly Standby _____ T-Out 01:11
 (F) Second Final Flow 175 Mileage 32RT 49.60 Comments Rig down 1 hr
 (G) Final Shut-In 1084 Sampler _____ on trip in. work on
 (H) Final Hydrostatic 1650 Straddle _____ Drawworks

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 30 Ruined Packer _____
 Final Flow 45 Extra Packer _____
 Final Shut-In 45 Extra Copies _____
 Sub Total 0
 Total 1199.60
 Sub 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.