

DRILL STEM TEST REPORT

Prepared For: **TDI inc.**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Befort #1

11-15s-19w Ellis,KS

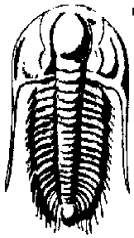
Start Date: 2012.08.10 @ 13:51:00

End Date: 2012.08.10 @ 19:50:00

Job Ticket #: 47913 DST #: 1

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

Printed: 2012.08.15 @ 10:40:23



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TDI inc.

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

11-15s-19w Ellis,KS

Befort #1

Job Ticket: 47913

DST#: 1

Test Start: 2012.08.10 @ 13:51:00

GENERAL INFORMATION:

Formation: **LKC"A-C"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:41:00

Time Test Ended: 19:50:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Andy Carreira

Unit No: 39

Interval: 3346.00 ft (KB) To 3375.00 ft (KB) (TVD)

Total Depth: 3375.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2043.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8372 Outside

Press@RunDepth: 72.84 psig @ 3347.00 ft (KB)

Start Date: 2012.08.10

End Date:

2012.08.10

Start Time: 13:51:05

End Time:

19:49:59

Capacity: 8000.00 psig

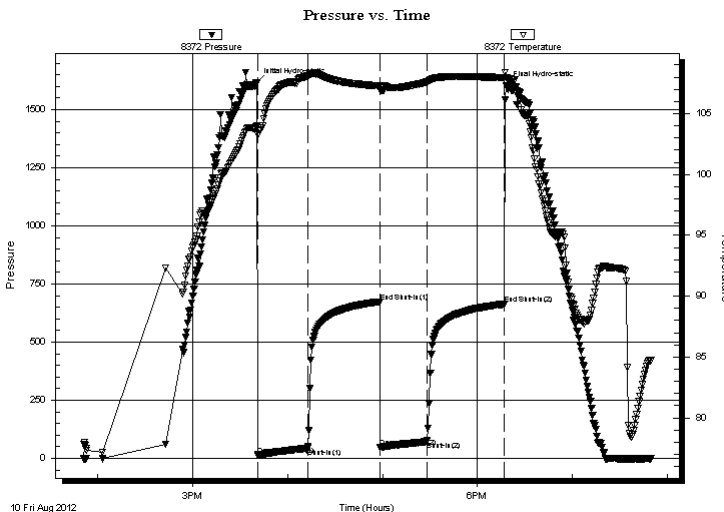
Last Calib.: 2012.08.10

Time On Btm: 2012.08.10 @ 15:40:40

Time Off Btm: 2012.08.10 @ 18:18:09

TEST COMMENT: IF:(30min) Built to 2" in 9 min.
ISl:(45min) No Return
FF:(30min) 1" in 9 min. 2" in 24 min.
FSl:(45min) No Return

PRESSURE SUMMARY



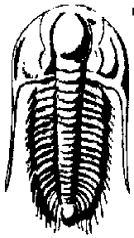
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1614.19	104.02	Initial Hydro-static
1	13.67	103.23	Open To Flow (1)
32	44.75	108.10	Shut-In(1)
78	673.91	107.29	End Shut-In(1)
78	47.57	106.96	Open To Flow (2)
108	72.84	107.58	Shut-In(2)
156	663.64	107.97	End Shut-In(2)
158	1604.03	107.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	MW m=10% w =90%	1.68

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

11-15s-19w Ellis,KS

Befort #1

Job Ticket: 47913

DST#: 1

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Tester: Andy Carreira

Unit No: 39

Interval: 3346.00 ft (KB) To 3375.00 ft (KB) (TVD)

Total Depth: 3375.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2043.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8017 Inside

Press@RunDepth: psig @ 3347.00 ft (KB)

Start Date: 2012.08.10

End Date:

2012.08.10

Start Time: 13:51:05

End Time:

19:49:59

Capacity: 8000.00 psig

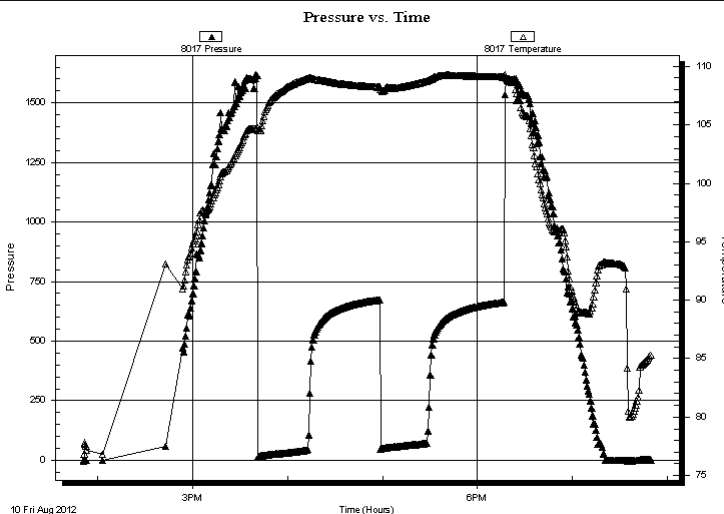
Last Calib.: 2012.08.10

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:(30min) Built to 2" in 9 min.
IS:(45min) No Return
FF:(30min) 1" in 9 min. 2" in 24 min.
FS:(45min) No Return

PRESSURE SUMMARY



Time
(Min.)

Pressure
(psig)

Temp
(deg F)

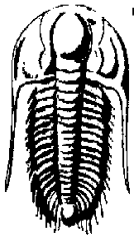
Annotation

Recovery

Length (ft)	Description	Volume (bbl)
120.00	MW m=10% w =90%	1.68

Gas Rates

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



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI inc.

11-15s-19w Ellis,KS

1310 Bison Rd
Hays KS 67601

Befort #1

Job Ticket: 47913

DST#: 1

ATTN: Herb Deines

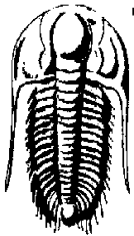
Test Start: 2012.08.10 @ 13:51:00

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:	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:	44000.00 lb
					Total Volume:	46.96 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		22.00 ft					String Weight: Initial	36000.00 lb
Depth to Top Packer:		3346.00 ft					Final	37000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		29.00 ft						
Tool Length:		49.00 ft						
Number of Packers:		2	Diameter:	6.75 inches				
Tool Comments:								

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3327.00	
Shut In Tool	5.00			3332.00	
Hydraulic tool	5.00			3337.00	
Packer	5.00			3342.00	20.00 Bottom Of Top Packer
Packer	4.00			3346.00	
Stubb	1.00			3347.00	
Recorder	0.00	8017	Inside	3347.00	
Recorder	0.00	8372	Outside	3347.00	
Perforations	25.00			3372.00	
Bullnose	3.00			3375.00	29.00 Bottom Packers & Anchor
Total Tool Length:	49.00				



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc.

11-15s-19w Ellis,KS

1310 Bison Rd
Hays KS 67601

Befort #1

Job Ticket: 47913

DST#: 1

ATTN: Herb Deines

Test Start: 2012.08.10 @ 13:51:00

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: 56.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	MW m=10% w=90%	1.683

Total Length: 120.00 ft

Total Volume: 1.683 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

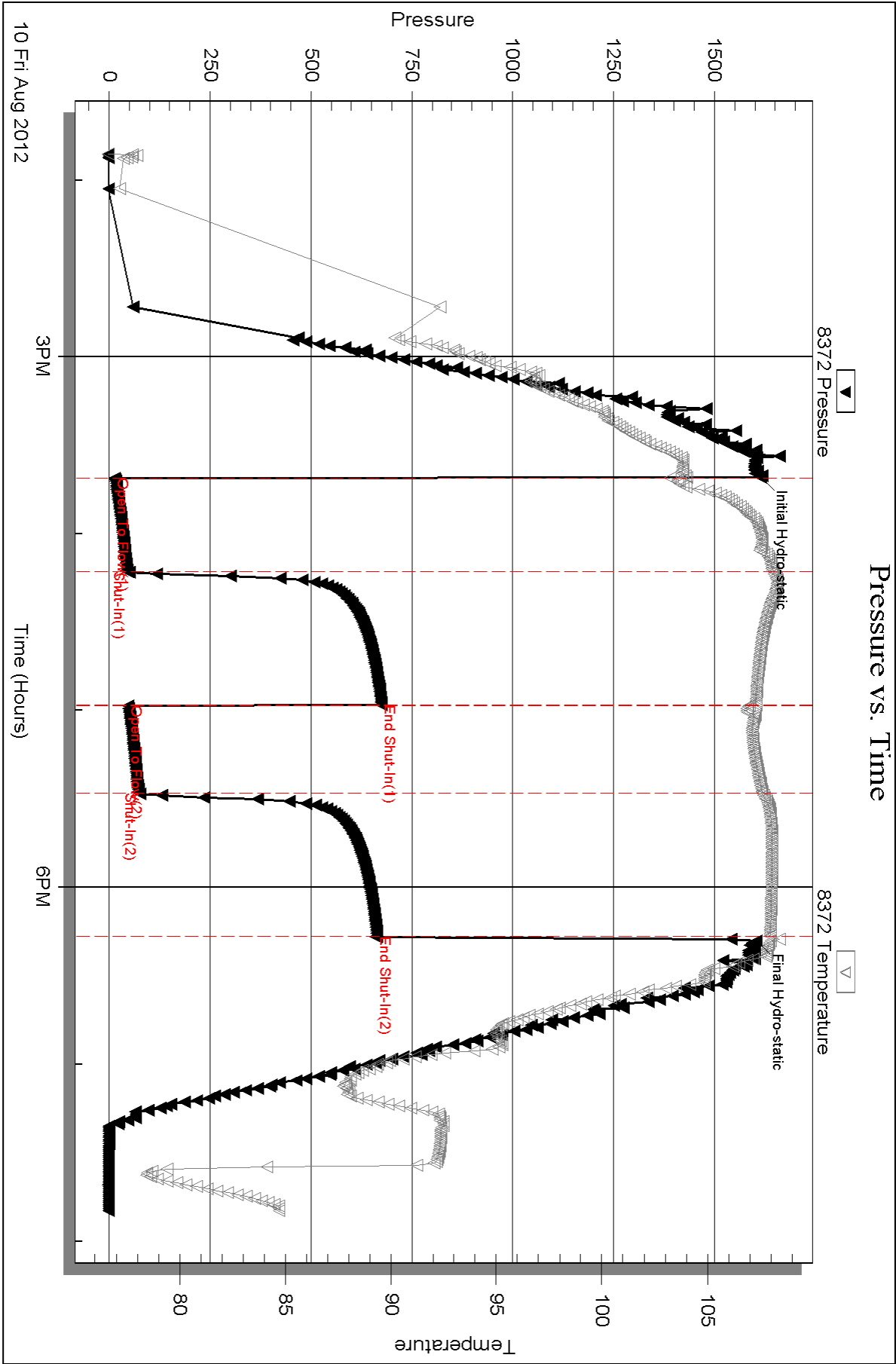
Recovery Comments:

Serial #: 8372

Outside TDI inc.

Before #1

DST Test Number: 1



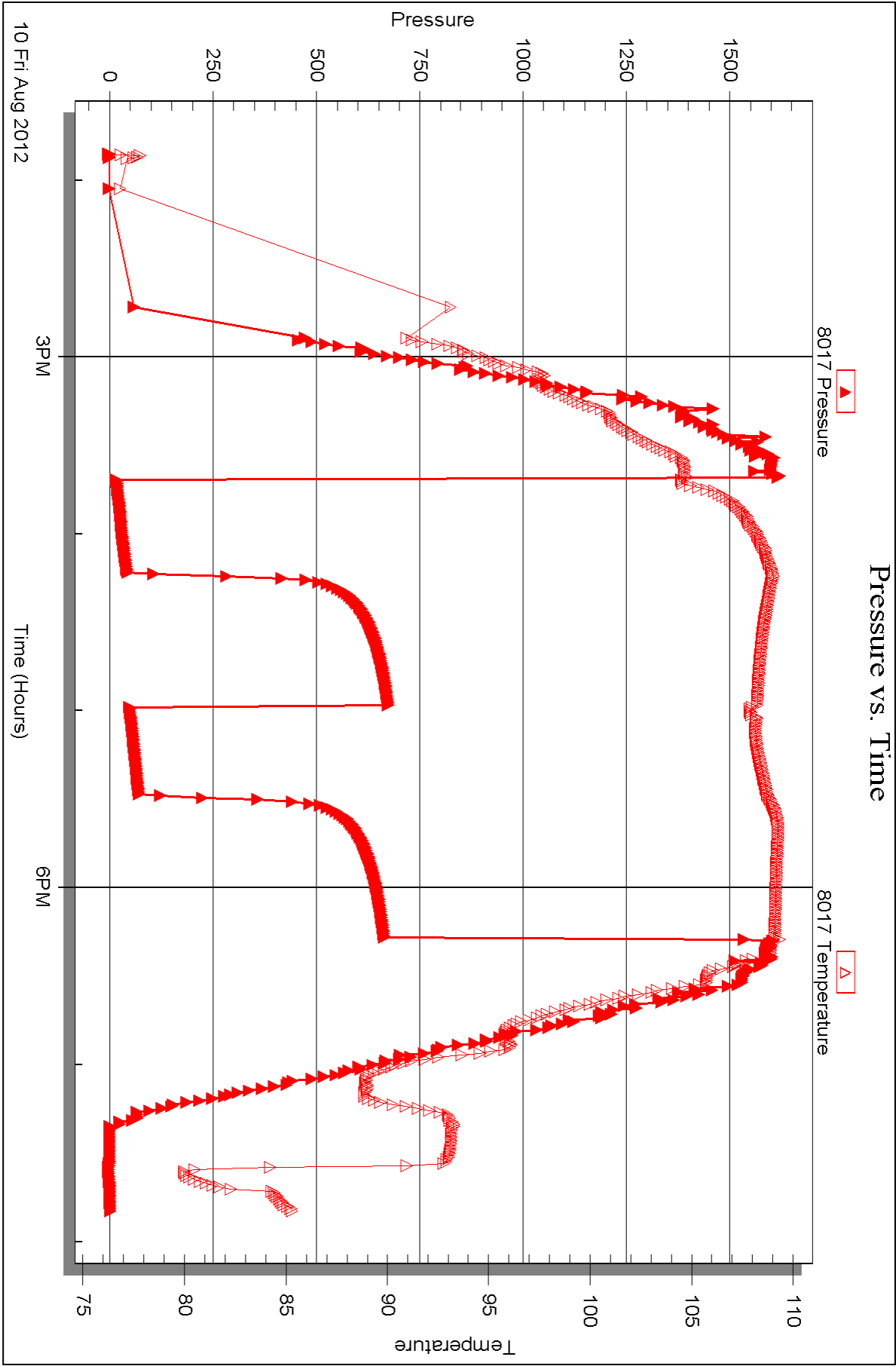
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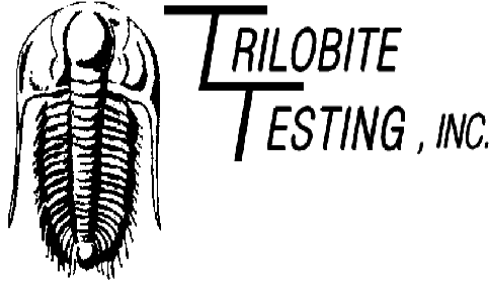
Inside

TD/Inc.

Be/fort #1

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **TDI inc.**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Befort #1

11-15s-19w Ellis,KS

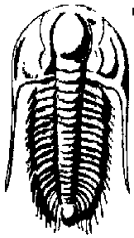
Start Date: 2012.08.11 @ 10:45:05

End Date: 2012.08.11 @ 17:04:09

Job Ticket #: 47914 DST #: 2

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

Printed: 2012.08.15 @ 10:39:01



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TDI inc.

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

11-15s-19w Ellis,KS

Befort #1

Job Ticket: 47914

DST#: 2

Test Start: 2012.08.11 @ 10:45:05

GENERAL INFORMATION:

Formation: **LKC "I-J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:10:20

Time Test Ended: 17:04:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Andy Carreira

Unit No: 39

Interval: 3486.00 ft (KB) To 3535.00 ft (KB) (TVD)

Total Depth: 3535.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2043.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8372 Outside

Press@RunDepth: 60.59 psig @ 3493.00 ft (KB)

Start Date: 2012.08.11

End Date:

2012.08.11

Start Time: 10:45:05

End Time:

17:04:10

Capacity: 8000.00 psig

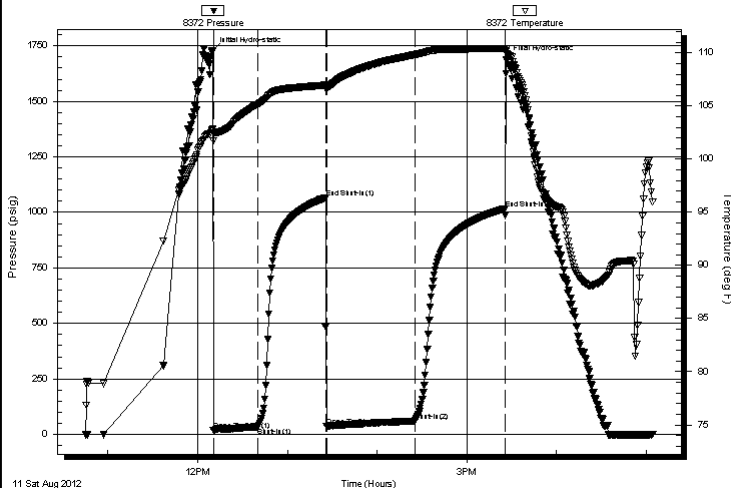
Last Calib.: 2012.08.11

Time On Btm: 2012.08.11 @ 12:09:50

Time Off Btm: 2012.08.11 @ 15:26:20

TEST COMMENT: IF:(30min) Built & held steady at 2" in 15 min.
ISl:(45min) No Return
FF:(60min) 1" in 5 min. Decreased to surface blow.
FSl:(60min) No Return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1726.26	102.78	Initial Hydro-static
1	18.14	101.75	Open To Flow (1)
31	34.78	105.16	Shut-In(1)
76	1065.75	106.96	End Shut-In(1)
77	37.88	106.70	Open To Flow (2)
136	60.59	109.82	Shut-In(2)
196	1016.79	110.42	End Shut-In(2)
197	1687.03	110.17	Final Hydro-static

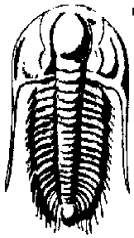
Recovery

Length (ft)	Description	Volume (bbl)
95.00	OSMW o=tr m=30% w=70%	1.33

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



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TESTING, INC.

DRILL STEM TEST REPORT

TDI inc.

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

11-15s-19w Ellis,KS

Before #1

Job Ticket: 47914

DST#: 2

Test Start: 2012.08.11 @ 10:45:05

GENERAL INFORMATION:

Formation: **LKC "I-J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:10:20

Time Test Ended: 17:04:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Andy Carreira

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Interval: 3486.00 ft (KB) To 3535.00 ft (KB) (TVD)

Total Depth: 3535.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2043.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8017 Inside

Press@RunDepth: psig @ 3493.00 ft (KB)

Start Date: 2012.08.11

End Date:

2012.08.11

Start Time: 10:45:05

End Time:

17:04:20

Capacity: 8000.00 psig

Last Calib.:

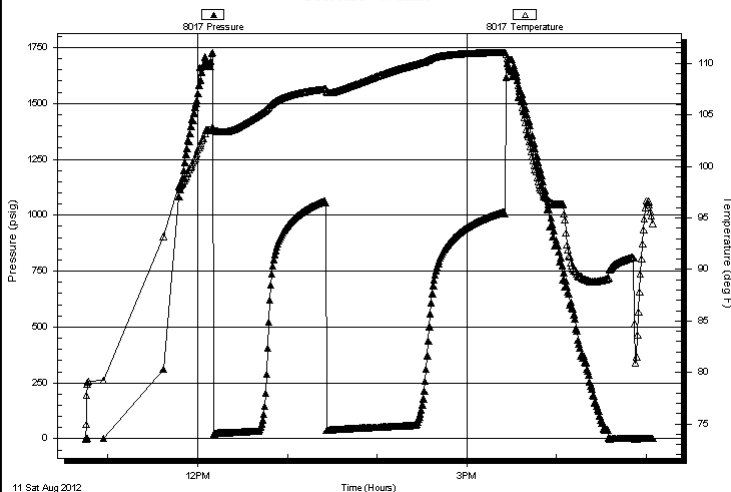
2012.08.11

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:(30min) Built & held steady at 2" in 15 min.
ISl:(45min) No Return
FF:(60min) 1" in 5 min. Decreased to surface blow.
FSl:(60min) No Return

Pressure vs. Time



PRESSURE SUMMARY

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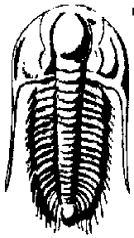
Recovery

Length (ft)	Description	Volume (bbl)
95.00	OSMW o=tr m=30% w=70%	1.33

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI inc.

11-15s-19w Ellis,KS

1310 Bison Rd
Hays KS 67601

Befort #1

Job Ticket: 47914

DST#: 2

ATTN: Herb Deines

Test Start: 2012.08.11 @ 10:45:05

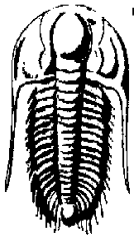
Tool Information

Drill Pipe:	Length:	3488.00 ft	Diameter:	3.80 inches	Volume:	48.93 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:	44000.00 lb
					Total Volume:	48.93 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		22.00 ft					String Weight: Initial	37000.00 lb
Depth to Top Packer:		3486.00 ft					Final	38000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		49.00 ft						
Tool Length:		69.00 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			3467.00	
Shut In Tool	5.00			3472.00	
Hydraulic tool	5.00			3477.00	
Packer	5.00			3482.00	20.00 Bottom Of Top Packer
Packer	4.00			3486.00	
Stubb	1.00			3487.00	
Perforations	5.00			3492.00	
Change Over Sub	1.00			3493.00	
Recorder	0.00	8017	Inside	3493.00	
Recorder	0.00	8372	Outside	3493.00	
Drill Pipe	32.00			3525.00	
Change Over Sub	1.00			3526.00	
Perforations	6.00			3532.00	
Bullnose	3.00			3535.00	49.00 Bottom Packers & Anchor

Total Tool Length: 69.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc.

11-15s-19w Ellis,KS

1310 Bison Rd
Hays KS 67601

Befort #1

Job Ticket: 47914

DST#: 2

ATTN: Herb Deines

Test Start: 2012.08.11 @ 10:45:05

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: 59.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
95.00	OSMW o=tr m=30% w=70%	1.333

Total Length: 95.00 ft

Total Volume: 1.333 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

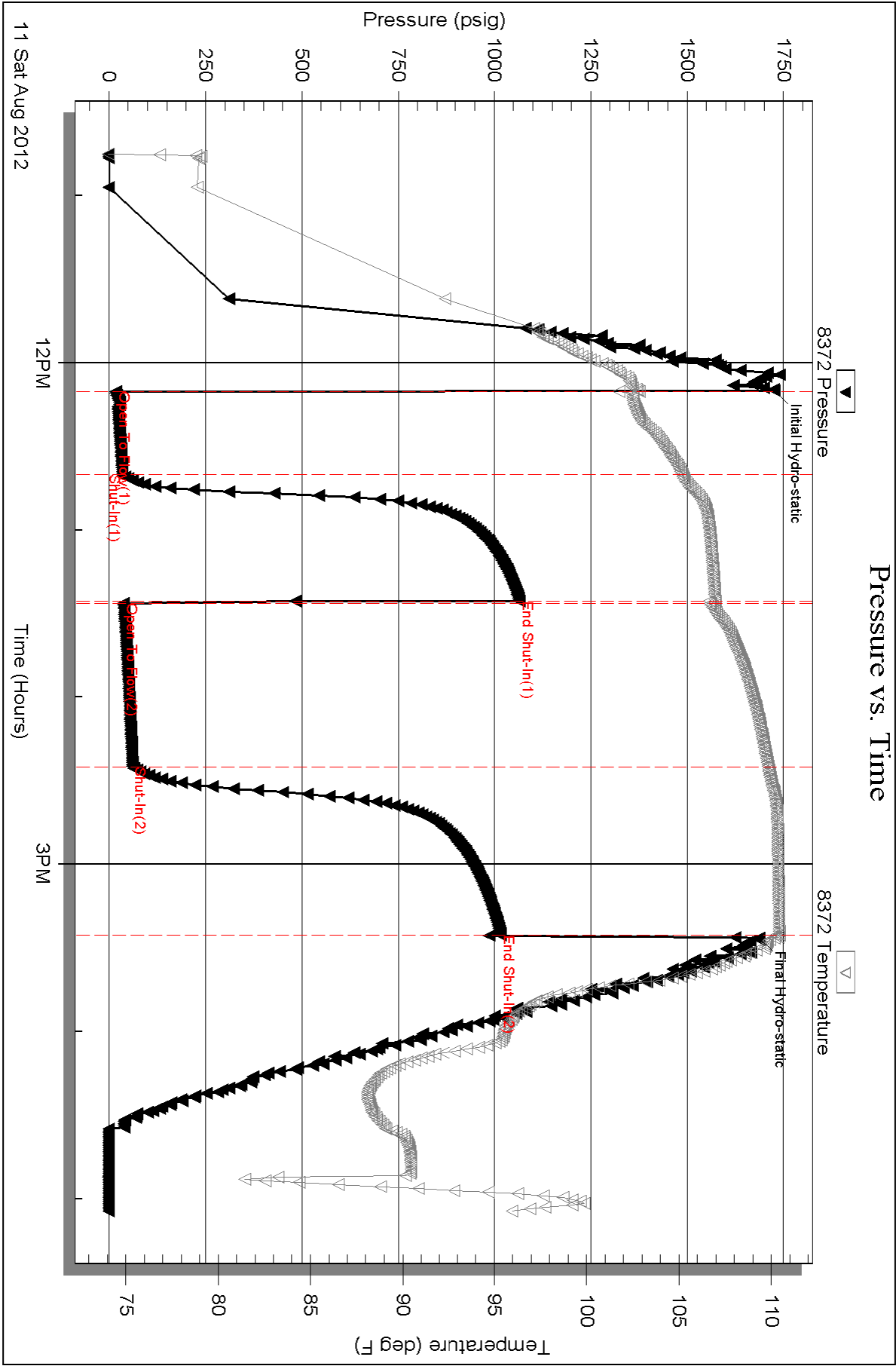
Recovery Comments:

Serial #: 8372

Outside TD Inc.

Before #1

DST Test Number: 2



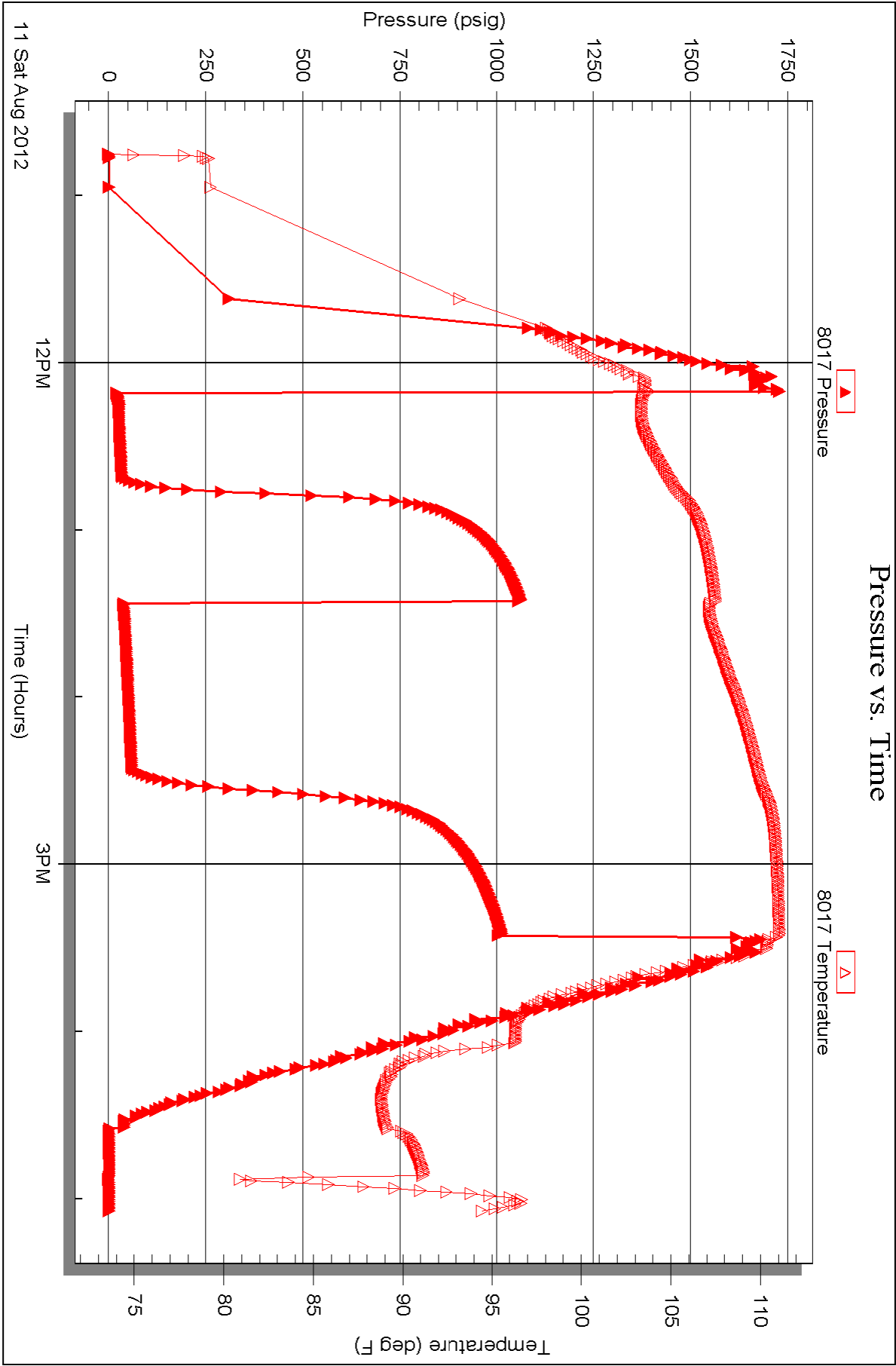
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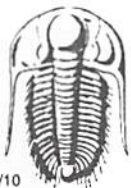
Inside

TD inc.

Before #1

DST Test Number: 2





TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 47913

Well Name & No. BePort #1 Test No. 1 Date 8-10-12
 Company IDI inc. Elevation 2050 KB ~~2043~~ 2043 GL
 Address 1310 BISON RD Hays, Ks. 67601
 Co. Rep / Geo. Herb Deines Rig Southwind 4
 Location: Sec. 11 Twp. 15S Rge. 19W Co. Ellis State Ks

Interval Tested 3346-3375 Zone Tested LKC "A-C"
 Anchor Length 29' Drill Pipe Run 3348 Mud Wt. 9.0
 Top Packer Depth 3341 Drill Collars Run 0 Vis 56
 Bottom Packer Depth 3346 Wt. Pipe Run 0 WL 7.6
 Total Depth 3375 Chlorides 3700 ppm System LCM 1

Blow Description IF: Built to 2" in 9min
ISL: No Return
FF: 1" in 9min, 2" in 24min
FSL: No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>MW</u>			<u>90%</u>	<u>10%</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 120' BHT 107 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1614</u>	☒ Test <u>1150</u>	T-On Location <u>12:59</u>
(B) First Initial Flow <u>13</u>	☐ Jars _____	T-Started <u>13:51</u>
(C) First Final Flow <u>44</u>	☐ Safety Joint _____	T-Open <u>15:45</u>
(D) Initial Shut-In <u>673</u>	☐ Circ Sub _____	T-Pulled <u>18:15</u>
(E) Second Initial Flow <u>47</u>	☐ Hourly Standby _____	T-Out <u>19:52</u>
(F) Second Final Flow <u>72</u>	☒ Mileage <u>← 30RT</u> 46.50	Comments _____
(G) Final Shut-In <u>663</u>	☐ Sampler _____	
(H) Final Hydrostatic <u>1604</u>	☐ Straddle _____	☐ Ruined Shale Packer _____

Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 45

☐ Shale Packer _____
☐ Extra Packer _____
☐ Extra Recorder _____
☐ Day Standby _____
☐ Accessibility _____

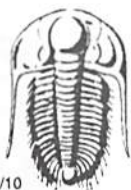
Sub Total 1196.50

Sub Total 1196.50

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. 47914

Well Name & No. BePort #1 Test No. 2 Date 8-11-12
 Company TDI INC Elevation 2050 KB 2043 GL
 Address 1310 BISON RD Hays KS 67601
 Co. Rep / Geo. Herb Deines Rig Southwind 4
 Location: Sec. 11 Twp. 15S Rge. 19W Co. Ellis State Ks

Interval Tested 3486-3535 Zone Tested LKC "J-J"
 Anchor Length 49 Drill Pipe Run 3488 Mud Wt. 9.1
 Top Packer Depth 3481 Drill Collars Run 0 Vis 59
 Bottom Packer Depth 3486 Wt. Pipe Run 0 WL 7.8
 Total Depth 3535 Chlorides 7800 ppm System LCM 1

Blow Description IF: Built & held steady at 2" in 15 min
ISI: NO Return
FF: 1" in 5 min. DECREASED to surface blow
FSL: NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>95</u>	<u>05 MW</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 95' BHT 110° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1726</u>	☒ Test <u>1150</u>	T-On Location <u>10:21</u>
(B) First Initial Flow <u>18</u>	☐ Jars _____	T-Started <u>10:45</u>
(C) First Final Flow <u>34</u>	☐ Safety Joint _____	T-Open <u>12:10</u>
(D) Initial Shut-In <u>1065</u>	☐ Circ Sub _____	T-Pulled <u>15:25</u>
(E) Second Initial Flow <u>37</u>	☐ Hourly Standby _____	T-Out <u>17:05</u>
(F) Second Final Flow <u>60</u>	☒ Mileage <u>30 RT</u> <u>46.50</u>	Comments _____
(G) Final Shut-In <u>1016</u>	☐ Sampler _____	
(H) Final Hydrostatic <u>1687</u>	☐ Straddle _____	☐ Ruined Shale Packer _____

Initial Open 30
 Initial Shut-In 45
 Final Flow 60
 Final Shut-In 60

☐ Shale Packer _____
☐ Extra Packer _____
☐ Extra Recorder _____
☐ Day Standby _____
☐ Accessibility _____

Sub Total 1196.50

MP/DST Disc't _____

Approved By _____ Our Representative Andy Co

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