



DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd
Hays, KS 67601

ATTN: Herb Deines

Kohl #1

8-13-20 Ellis,KS

Start Date: 2012.04.08 @ 17:50:19

End Date: 2012.04.08 @ 23:21:19

Job Ticket #: 45708 DST #: 1

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

Printed: 2012.04.13 @ 09:44:22



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

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

8-13-20 Ellis, KS
Kohl #1
Job Ticket: 45708 **DST#: 1**
Test Start: 2012.04.08 @ 17:50:19

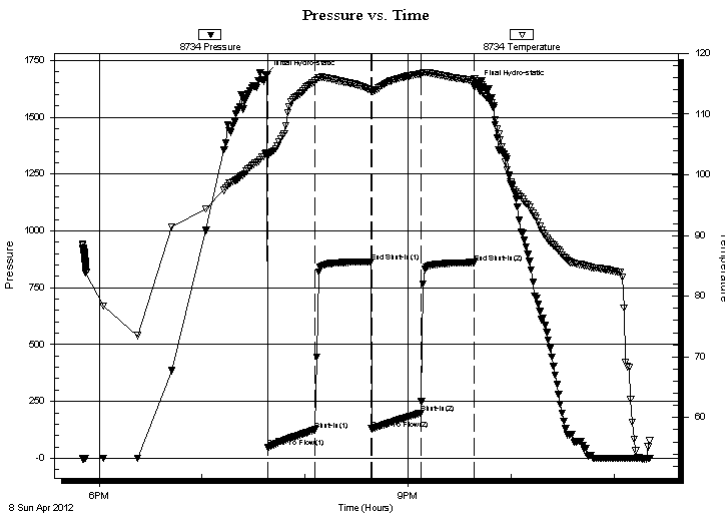
GENERAL INFORMATION:

Formation: **Toronto - LKC "C"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:38:19
Time Test Ended: 23:21:19
Interval: **3400.00 ft (KB) To 3485.00 ft (KB) (TVD)**
Total Depth: 3485.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Reference Elevations: 2154.00 ft (KB)
2146.00 ft (CF)
KB to GR/CF: 8.00 ft
Test Type: Conventional Bottom Hole (Initial)
Tester: Brian Fairbank
Unit No: 41

Serial #: 8734 Outside
Press @ Run Depth: 198.25 psig @ 3403.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.04.08 End Date: 2012.04.08 Last Calib.: 2012.04.08
Start Time: 17:50:20 End Time: 23:21:19 Time On Btm: 2012.04.08 @ 19:37:19
Time Off Btm: 2012.04.08 @ 21:40:19

TEST COMMENT: IFP - BOB 12 min
ISI - no blow back
FFP - BOB 13 min
FSI - sur blow back - died 9 min

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1688.65	103.60	Initial Hydro-static
1	46.96	103.04	Open To Flow (1)
29	125.57	115.42	Shut-In(1)
61	864.60	113.95	End Shut-In(1)
62	129.47	113.69	Open To Flow (2)
90	198.25	116.60	Shut-In(2)
121	860.67	115.55	End Shut-In(2)
123	1645.28	115.51	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
185.00	MW 90%W, 5%M	2.60
60.00	WM 20%W, 80%M	0.84
70.00	SO & WCM 5%O, 5%W,90%M	0.98
10.00	FREE OIL 95%O, 5%M	0.14
0.00	60' GIP	0.00

Gas Rates

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



TRILOBITE TESTING, INC.

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

8-13-20 Ellis, KS
Kohl #1
Job Ticket: 45708 **DST#: 1**
Test Start: 2012.04.08 @ 17:50:19

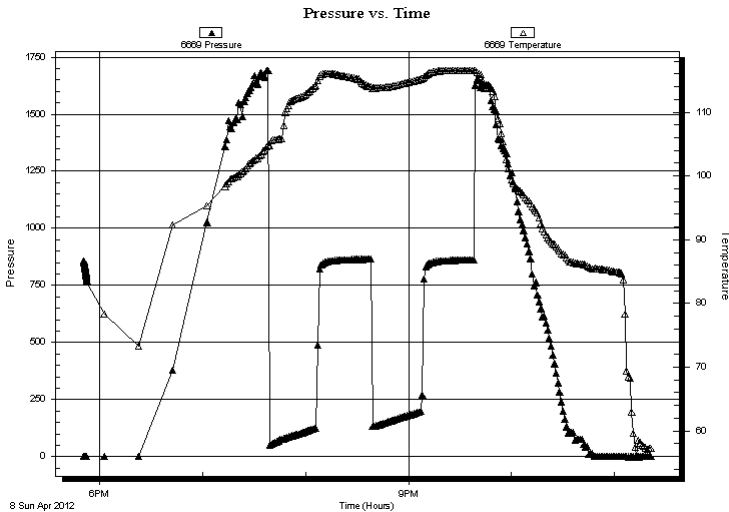
GENERAL INFORMATION:

Formation: **Toronto - LKC "C"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:38:19
Time Test Ended: 23:21:19
Interval: **3400.00 ft (KB) To 3485.00 ft (KB) (TVD)**
Total Depth: 3485.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Initial)
Tester: Brian Fairbank
Unit No: 41
Reference Elevations: 2154.00 ft (KB)
2146.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 6669 **Inside**
Press @ Run Depth: psig @ 3403.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.04.08 End Date: 2012.04.08 Last Calib.: 1899.12.30
Start Time: 17:50:38 End Time: 23:21:37 Time On Btm:
Time Off Btm:

TEST COMMENT: IFP - BOB 12 min
ISI - no blow back
FFP - BOB 13 min
FSI - sur blow back - died 9 min

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
185.00	MW 90%W, 5%M	2.60
60.00	WM 20%W, 80%M	0.84
70.00	SO & WCM 5%O, 5%W,90%M	0.98
10.00	FREE OIL 95%O, 5%M	0.14
0.00	60' GIP	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

8-13-20 Ellis, KS
Kohl #1
Job Ticket: 45708 **DST#: 1**
Test Start: 2012.04.08 @ 17:50:19

Tool Information

Drill Pipe:	Length: 3400.00 ft	Diameter: 3.80 inches	Volume: 47.69 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	44000.00 lb
			<u>Total Volume: 47.69 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	39000.00 lb
Depth to Top Packer:	3400.00 ft			Final	40000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	85.00 ft				
Tool Length:	105.00 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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Shut In Tool	5.00			3385.00	
Hydraulic tool	5.00			3390.00	
Packer	5.00			3395.00	20.00 Bottom Of Top Packer
Packer	5.00			3400.00	
Stubb	1.00			3401.00	
Perforations	1.00			3402.00	
Change Over Sub	1.00			3403.00	
Recorder	0.00	6669	Inside	3403.00	
Recorder	0.00	8734	Outside	3403.00	
Blank Spacing	63.00			3466.00	
Change Over Sub	1.00			3467.00	
Perforations	15.00			3482.00	
Bullnose	3.00			3485.00	85.00 Bottom Packers & Anchor

Total Tool Length: 105.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI **8-13-20 Ellis, KS**
 1310 Bison Rd **Kohl #1**
 Hays, KS 67601 Job Ticket: 45708 **DST#: 1**
 ATTN: Herb Deines Test Start: 2012.04.08 @ 17:50:19

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 42 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 90000 ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.39 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 2000.00 ppm		
Filter Cake: inches		

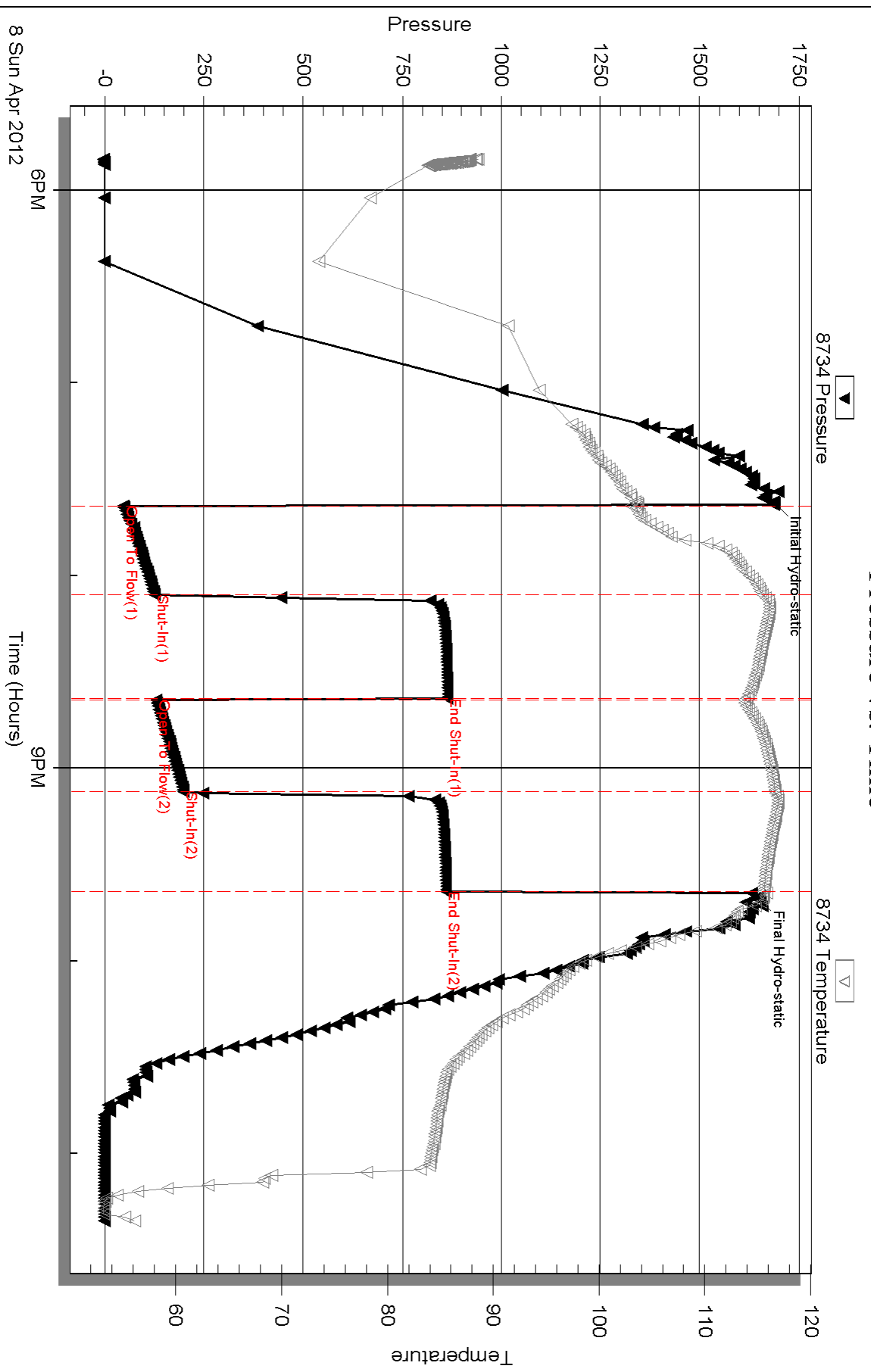
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
185.00	MW 90%W, 5%M	2.595
60.00	WM 20%W, 80%M	0.842
70.00	SO & WCM 5%O, 5%W, 90%M	0.982
10.00	FREE OIL 95%O, 5%M	0.140
0.00	60' GIP	0.000

Total Length: 325.00 ft Total Volume: 4.559 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Pressure vs. Time

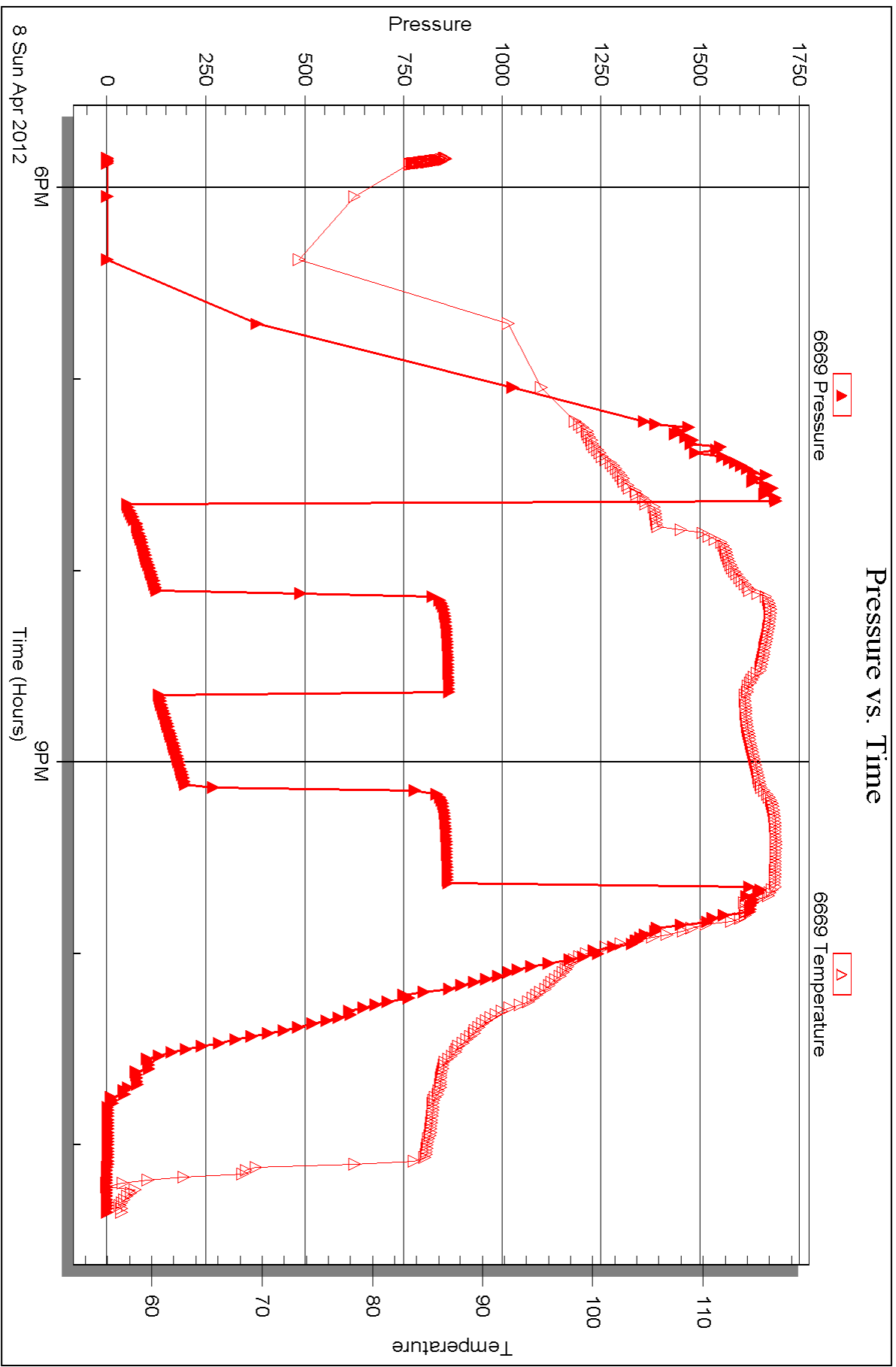


Serial #: 6669

Inside TDI

Kohl #1

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 45708

Printed: 2012.04.13 @ 09:44:25



DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd
Hays, KS 67601

ATTN: Herb Deines

Kohl #1

8-13-20 Ellis,KS

Start Date: 2012.04.10 @ 16:54:31

End Date: 2012.04.10 @ 22:50:31

Job Ticket #: 45709 DST #: 2

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

Printed: 2012.04.13 @ 09:43:29

TDI
8-13-20 Ellis,KS
Kohl #1
DST # 2
Arbuckle
2012.04.10



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

8-13-20 Ellis, KS
Kohl #1
Job Ticket: 45709 **DST#: 2**
Test Start: 2012.04.10 @ 16:54:31

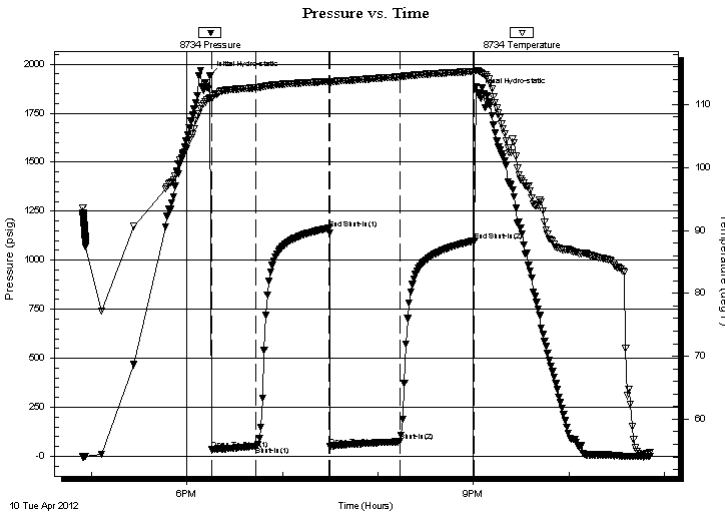
GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:15:31
Time Test Ended: 22:50:31
Interval: **3766.00 ft (KB) To 3822.00 ft (KB) (TVD)**
Total Depth: 3950.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Straddle (Reset)
Tester: Brian Fairbank
Unit No: 41
Reference Elevations: 2154.00 ft (KB)
2146.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8734 Outside
Press @ Run Depth: 74.99 psig @ 3769.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.04.10 End Date: 2012.04.10 Last Calib.: 2012.04.10
Start Time: 16:54:32 End Time: 22:50:31 Time On Btm: 2012.04.10 @ 18:14:31
Time Off Btm: 2012.04.10 @ 21:02:31

TEST COMMENT: IFP - weak to good blow 1/4" - 7 1/2"
ISI - no blow back
FFP - BOB 32 min
FSI - sur blow back - died 3 min

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1943.33	111.06	Initial Hydro-static
1	33.50	110.88	Open To Flow (1)
29	49.82	112.68	Shut-In(1)
75	1162.59	113.69	End Shut-In(1)
76	52.01	113.48	Open To Flow (2)
119	74.99	114.40	Shut-In(2)
166	1099.10	115.26	End Shut-In(2)
168	1852.82	115.36	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
70.00	GMCO 5%G, 60%O, 45%M	0.98
50.00	FREE OIL 95%O, 5%M	0.70
0.00	90' 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
1310 Bison Rd
Hays, KS 67601

ATTN: Herb Deines

8-13-20 Ellis, KS

Kohl #1
Job Ticket: 45709 **DST#: 2**
Test Start: 2012.04.10 @ 16:54:31

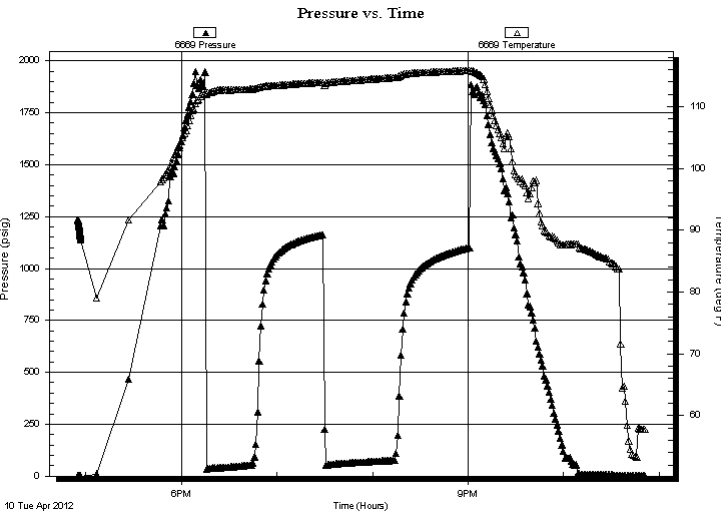
GENERAL INFORMATION:

Formation: Arbuckle			
Deviated: No Whipstock:	ft (KB)	Test Type: Conventional Straddle (Reset)	
Time Tool Opened: 18:15:31		Tester: Brian Fairbank	
Time Test Ended: 22:50:31		Unit No: 41	
Interval: 3766.00 ft (KB) To 3822.00 ft (KB) (TVD)		Reference Elevations: 2154.00 ft (KB)	
Total Depth: 3950.00 ft (KB) (TVD)		2146.00 ft (CF)	
Hole Diameter: 7.88 inches	Hole Condition: Good	KB to GR/CF: 8.00 ft	

Serial #: 6669 Outside

Press @ Run Depth: psig @ 3769.00 ft (KB)	Capacity: 8000.00 psig	
Start Date: 2012.04.10	End Date: 2012.04.10	Last Calib.: 1899.12.30
Start Time: 16:54:49	End Time: 22:50:48	Time On Btm: Time Off Btm:

TEST COMMENT: IFP - weak to good blow 1/4" - 7 1/2"
ISI - no blow back
FFP - BOB 32 min
FSI - sur blow back - died 3 min



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
70.00	GMCO 5%G, 60%O, 45%M	0.98
50.00	FREE OIL 95%O, 5%M	0.70
0.00	90' 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
1310 Bison Rd
Hays, KS 67601
ATTN: Herb Deines

8-13-20 Ellis, KS
Kohl #1
Job Ticket: 45709 **DST#: 2**
Test Start: 2012.04.10 @ 16:54:31

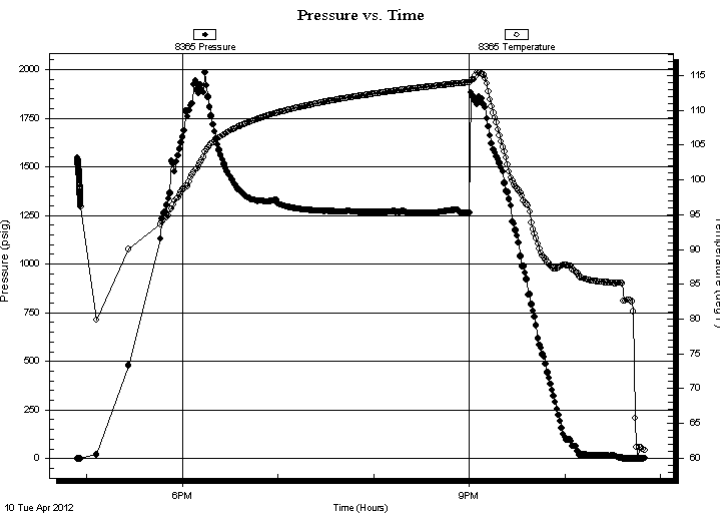
GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:15:31
Time Test Ended: 22:50:31
Interval: 3766.00 ft (KB) To 3822.00 ft (KB) (TVD)
Total Depth: 3950.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Straddle (Reset)
Tester: Brian Fairbank
Unit No: 41
Reference Elevations: 2154.00 ft (KB)
2146.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8365 Below (Straddle)

Press @ Run Depth: psig @ 3828.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.04.10 End Date: 2012.04.10 Last Calib.: 1899.12.30
Start Time: 16:54:07 End Time: 22:50:36 Time On Btm:
Time Off Btm:

TEST COMMENT: IFP - weak to good blow 1/4" - 7 1/2"
ISI - no blow back
FFP - BOB 32 min
FSI - sur blow back - died 3 min



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
70.00	GMCO 5%G, 60%O, 45%M	0.98
50.00	FREE OIL 95%O, 5%M	0.70
0.00	90' GIP	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

8-13-20 Ellis, KS
Kohl #1
Job Ticket: 45709 **DST#: 2**
Test Start: 2012.04.10 @ 16:54:31

Tool Information

Drill Pipe:	Length: 3774.00 ft	Diameter: 3.80 inches	Volume: 52.94 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	48000.00 lb
			<u>Total Volume: 52.94 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	42000.00 lb
Depth to Top Packer:	3766.00 ft			Final	43000.00 lb
Depth to Bottom Packer:	3822.00 ft				
Interval between Packers:	56.00 ft				
Tool Length:	209.00 ft				
Number of Packers:	3	Diameter:	6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3751.00	
Hydraulic tool	5.00			3756.00	
Packer	5.00			3761.00	20.00 Bottom Of Top Packer
Packer	5.00			3766.00	
Stubb	1.00			3767.00	
Perforations	2.00			3769.00	
Recorder	0.00	8372	Inside	3769.00	
Recorder	0.00	6669	Outside	3769.00	
Change Over Sub	1.00			3770.00	
Blank Spacing	31.00			3801.00	
Change Over Sub	1.00			3802.00	
Perforations	15.00			3817.00	
Blank Off Sub	1.00			3818.00	
Blank Spacing	4.00			3822.00	56.00 Tool Interval
Packer	5.00			3827.00	
Stubb	1.00			3828.00	
Recorder	0.00	8365	Below	3828.00	
Change Over Sub	1.00			3829.00	
Blank Spacing	126.00			3955.00	133.00 Bottom Packers & Anchor

Total Tool Length: 209.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI **8-13-20 Ellis, KS**
 1310 Bison Rd **Kohl #1**
 Hays, KS 67601 Job Ticket: 45709 **DST#: 2**
 ATTN: Herb Deines Test Start: 2012.04.10 @ 16:54:31

Mud and Cushion Information

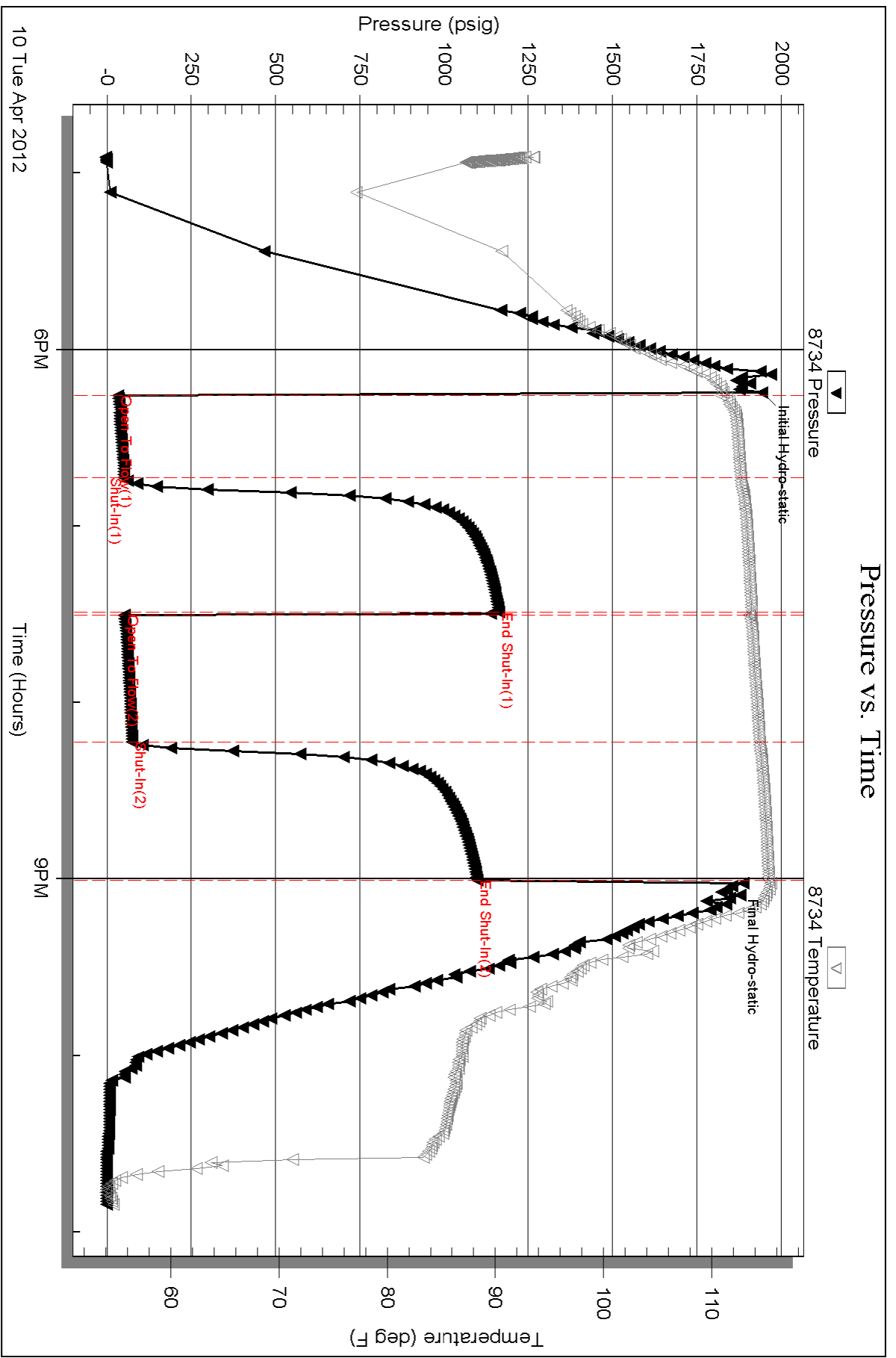
Mud Type: Gel Chem	Cushion Type:	Oil API: 38 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.79 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 1800.00 ppm		
Filter Cake: inches		

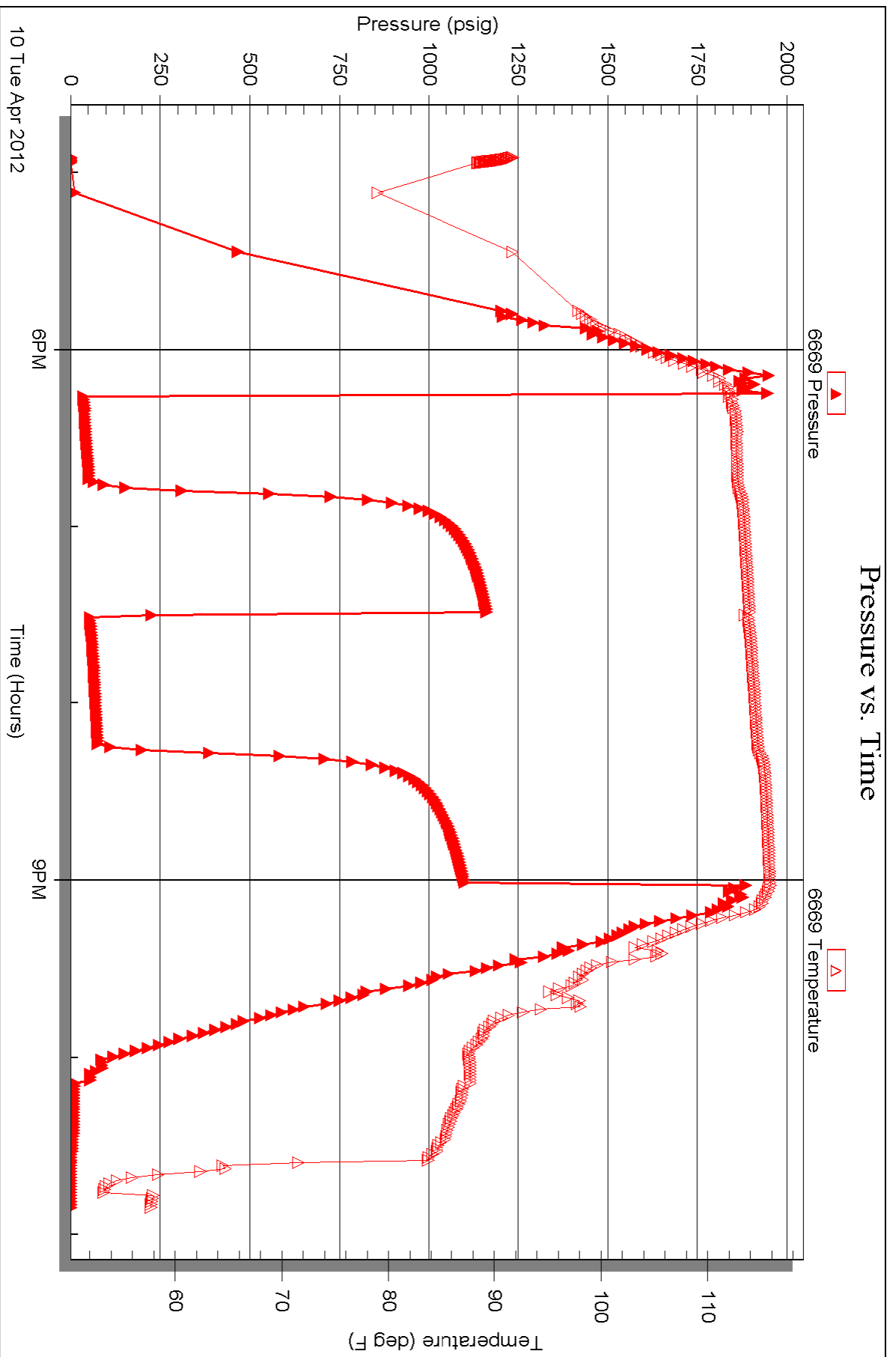
Recovery Information

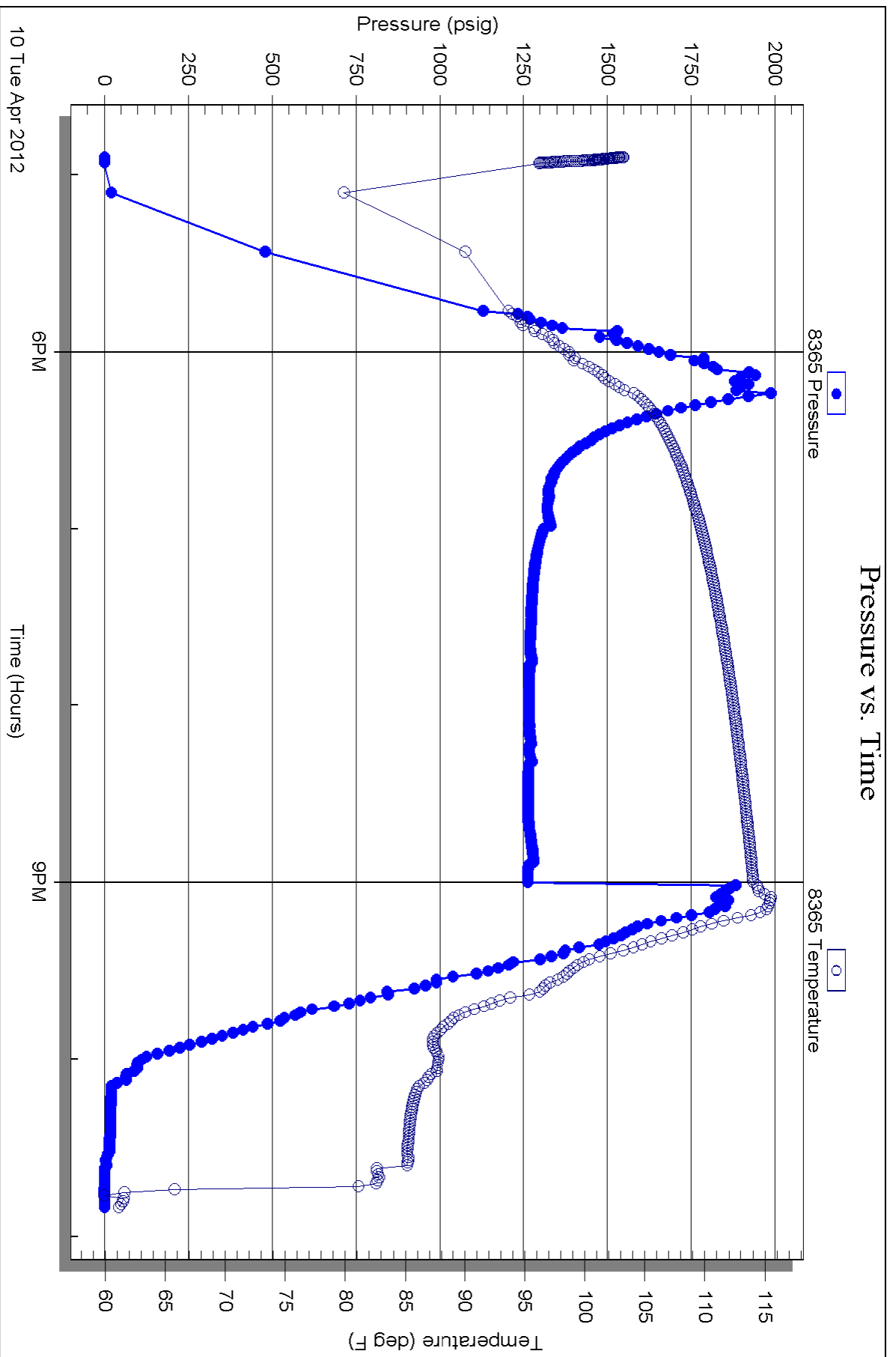
Recovery Table

Length ft	Description	Volume bbl
70.00	GMCO 5%G, 60%O, 45%M	0.982
50.00	FREE OIL 95%O, 5%M	0.701
0.00	90' GIP	0.000

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:









TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED
APR 12 2012

Test Ticket

NO. 45708

Well Name & No. Kohl #1 Test No. 1 Date 4-8-12
 Company TDL Elevation 2154 KB 2146 GL
 Address 1310 Bison Rd Hays, ks 67601
 Co. Rep / Geo. Herb Deines Rig Southwind 2
 Location: Sec. 8 Twp. 13 Rge. 20 Co. Ellis State Ks

Interval Tested 3400 - 3485 Zone Tested Tenato-LKC 'C'
 Anchor Length 85 Drill Pipe Run 3400 Mud Wt. 8.9
 Top Packer Depth 3395 Drill Collars Run — Vis 50
 Bottom Packer Depth 3400 Wt. Pipe Run — WL 6.4
 Total Depth 3485 Chlorides 2000 ppm System LCM
 Blow Description IFP- BOB 12 min
ISI- no blow back
FFP- BOB 13 min
FST- see blow back - died 9 min

Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>GIP</u>				
<u>10</u>	<u>Free oil</u>		<u>95%</u>		<u>5%</u>
<u>70</u>	<u>SOWCM</u>		<u>5%</u>	<u>5%</u>	<u>90%</u>
<u>60</u>	<u>WM</u>			<u>20%</u>	<u>80%</u>
<u>185</u>	<u>MW</u>			<u>90%</u>	<u>10%</u>

Rec Total 325 BHT 116 Gravity 42 API RW .121 @ 54° F Chlorides 90,000 ppm
 A) Initial Hydrostatic 1689 Test 1125 T-On Location 1644
 B) First Initial Flow 47 Jars T-Started 1750
 C) First Final Flow 126 Safety Joint T-Open 1938
 D) Initial Shut-In 865 Circ Sub T-Pulled 2138
 E) Second Initial Flow 129 Hourly Standby T-Out 2321
 F) Second Final Flow 198 Mileage 36 RT 50⁴⁰ Comments
 G) Final Shut-In 861 Sampler
 H) Final Hydrostatic 1645 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies
 Initial Open 30
 Initial Shut-In 30
 Initial Flow 30
 Initial Shut-In 30
 Day Standby
 Accessibility
 Sub Total 1175.40 MP/DST Disc't

Approved By _____ Our Representative Brian Fairbank
 TriLOBITE TESTING INC. shall not be liable for damaged or 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

RECEIVED
APR 12 2012
BY: _____

Test Ticket

NO. 45709

Well Name & No. Kohl #1 Test No. 2 Date 4-10-12
 Company TDI Elevation 2154 KB 2146 GL
 Address _____
 Co. Rep / Geo. Herb Demeo Rig Saturday 2
 Location: Sec. 8 Twp. 13 Rge. 20 Co. Ellis State ks

Interval Tested 3766-3822 Zone Tested Arkk6
 Anchor Length 56 Drill Pipe Run 3774 Mud Wt. 9.2
 Top Packer Depth 3761 Drill Collars Run — Vis 54
 Bottom Packer Depth ~~3822~~ 3766 Wt. Pipe Run — WL 7.8
 Total Depth 3950 Chlorides 1800 ppm System LCM _____

Blow Description IFP - weak to good blow 1/4" - 7 1/2"
ISI - no blow back
FFP - BOB 32 min
FBI - sur blow back - died 3 min

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>GIP</u>				
<u>60</u>	<u>Free oil</u>		<u>95</u>		<u>5</u>
<u>70</u>	<u>G.MCO</u>	<u>5</u>	<u>60</u>		<u>45</u>
<u>60</u>					

Rec Total 130 BHT 115 Gravity 38 API RW @ _____ °F Chlorides _____ ppm
 (A) Initial Hydrostatic 1943 Test 1125' T-On Location 0329 1529
 (B) First Initial Flow 34 Jars T-Started 1654
 (C) First Final Flow 50 Safety Joint T-Open 1815
 (D) Initial Shut-In 1163 Circ Sub T-Pulled 2100
 (E) Second Initial Flow 52 Hourly Standby T-Out 2251
 (F) Second Final Flow 75 Mileage 360 RT 55.40 Comments _____
 (G) Final Shut-In 1099 Sampler _____
 (H) Final Hydrostatic 1853 Straddle 600' Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____

Initial Open 30 Extra Packer _____ Extra Copies _____
 Initial Shut-In 45 Extra Recorder _____ Sub Total 541.78
 Final Flow 45 Day Standby 1 day + 11 1/4 hrs Total 2317.18
 Final Shut-In 45 Accessibility _____ MP/DST Disc't _____
 Sub Total 1775.40

Approved By _____ Our Representative Brian Farber

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.