



DRILL STEM TEST REPORT

Prepared For: **Bow Creek Oil Company**

1304 Eisenhower Rd
Hays, KS 67601

ATTN: Lyle Herman

Braun #2

34-13s-17w Ellis,KS

Start Date: 2014.06.10 @ 20:09:00

End Date: 2014.06.11 @ 03:56:00

Job Ticket #: 59380 DST #: 1

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

Printed: 2014.06.13 @ 09:46:40



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Bow Creek Oil Company

34-13s-17w Ellis,KS

1304 Eisenhower Rd
Hays, KS 67601

Braun #2

Job Ticket: 59380

DST#: 1

ATTN: Lyle Herman

Test Start: 2014.06.10 @ 20:09:00

GENERAL INFORMATION:

Formation: **LKC "E-F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:32:30

Time Test Ended: 03:56:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Phillip Gage

Unit No: 48

Interval: 3299.00 ft (KB) To 3340.00 ft (KB) (TVD)

Reference Elevations: 1961.00 ft (KB)

Total Depth: 3340.00 ft (KB) (TVD)

1953.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8372

Inside

Press@RunDepth: 19.34 psig @ 3305.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.10

End Date:

2014.06.11

Last Calib.: 2014.06.11

Start Time: 20:09:01

End Time:

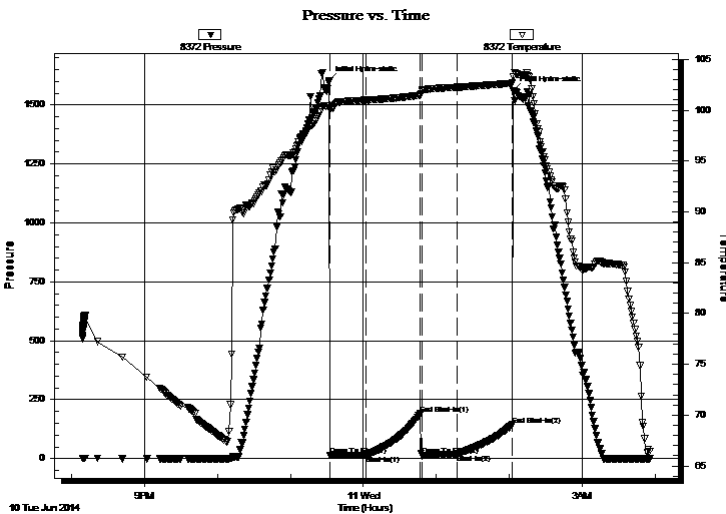
03:56:00

Time On Btm: 2014.06.10 @ 23:32:00

Time Off Btm: 2014.06.11 @ 02:03:30

TEST COMMENT: 30-IF-Built to 2 1/4"
45-ISI-No Return
30-FF-Built to 3 1/4"
45-FSI-No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1602.80	100.40	Initial Hydro-static
1	13.82	100.02	Open To Flow (1)
30	15.20	100.98	Shut-In(1)
75	190.68	101.46	End Shut-In(1)
76	12.59	101.95	Open To Flow (2)
105	19.34	102.25	Shut-In(2)
151	143.97	102.66	End Shut-In(2)
152	1562.41	103.29	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
25.00	SOCM, 10%o, 90%m	0.35

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Bow Creek Oil Company

34-13s-17w Ellis,KS

1304 Eisenhower Rd
Hays, KS 67601

Braun #2

Job Ticket: 59380

DST#: 1

ATTN: Lyle Herman

Test Start: 2014.06.10 @ 20:09:00

Tool Information

Drill Pipe:	Length: 3287.00 ft	Diameter: 3.80 inches	Volume: 46.11 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 46.11 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial	47000.00 lb
Depth to Top Packer:	3299.00 ft			Final	47000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	41.00 ft				
Tool Length:	61.00 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			3280.00	
Shut In Tool	5.00			3285.00	
Hydraulic tool	5.00			3290.00	
Packer	5.00			3295.00	20.00 Bottom Of Top Packer
Packer	4.00			3299.00	
Stubb	1.00			3300.00	
Perforations	4.00			3304.00	
Change Over Sub	1.00			3305.00	
Recorder	0.00	8372	Inside	3305.00	
Recorder	0.00	8321	Outside	3305.00	
Drill Pipe	31.00			3336.00	
Change Over Sub	1.00			3337.00	
Bullnose	3.00			3340.00	41.00 Bottom Packers & Anchor

Total Tool Length: 61.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Bow Creek Oil Company

34-13s-17w Ellis,KS

1304 Eisenhower Rd
Hays, KS 67601

Braun #2

Job Ticket: 59380

DST#: 1

ATTN: Lyle Herman

Test Start: 2014.06.10 @ 20:09:00

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: 46.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
25.00	SOCM, 10%o, 90%m	0.351

Total Length: 25.00 ft Total Volume: 0.351 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

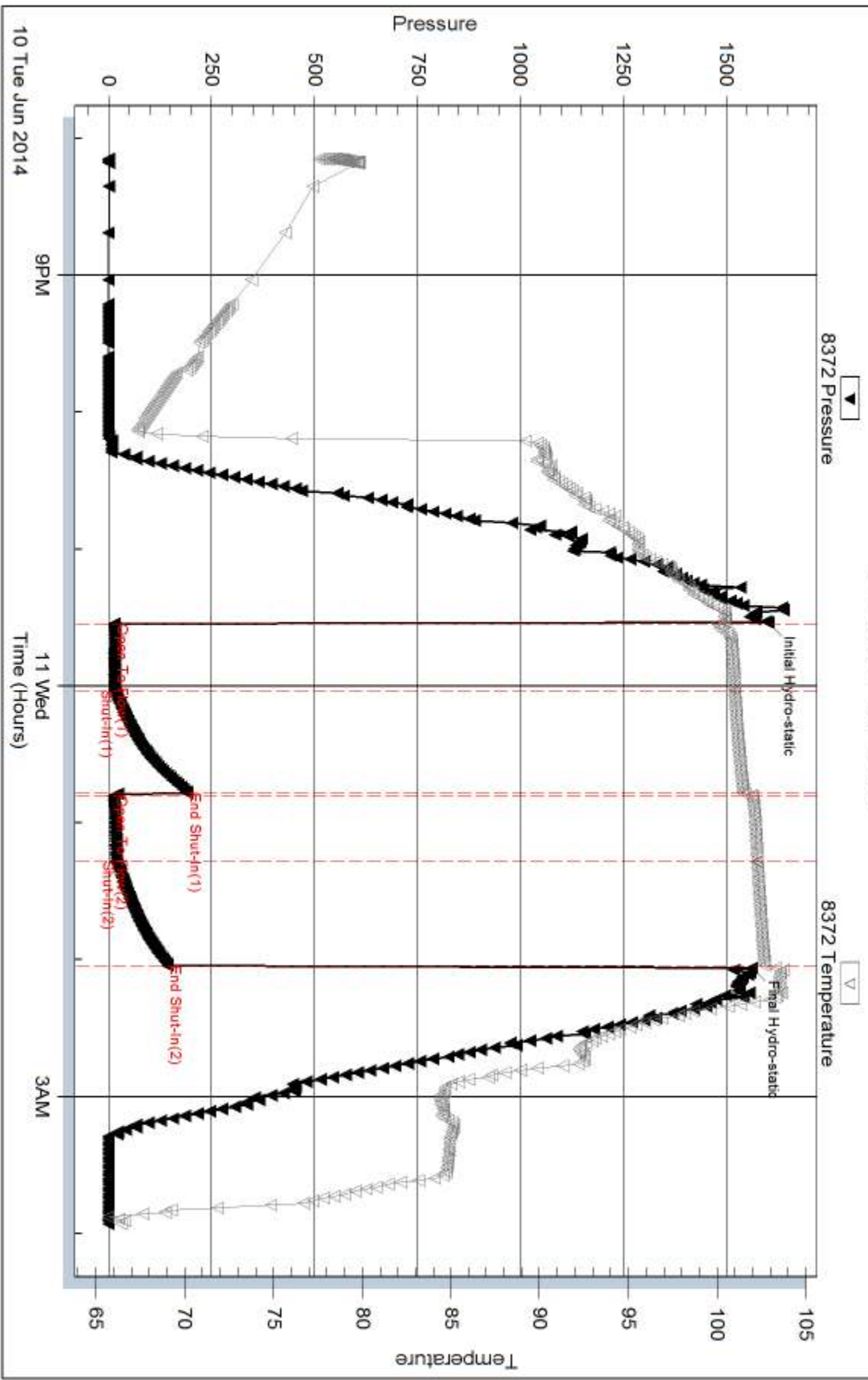
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

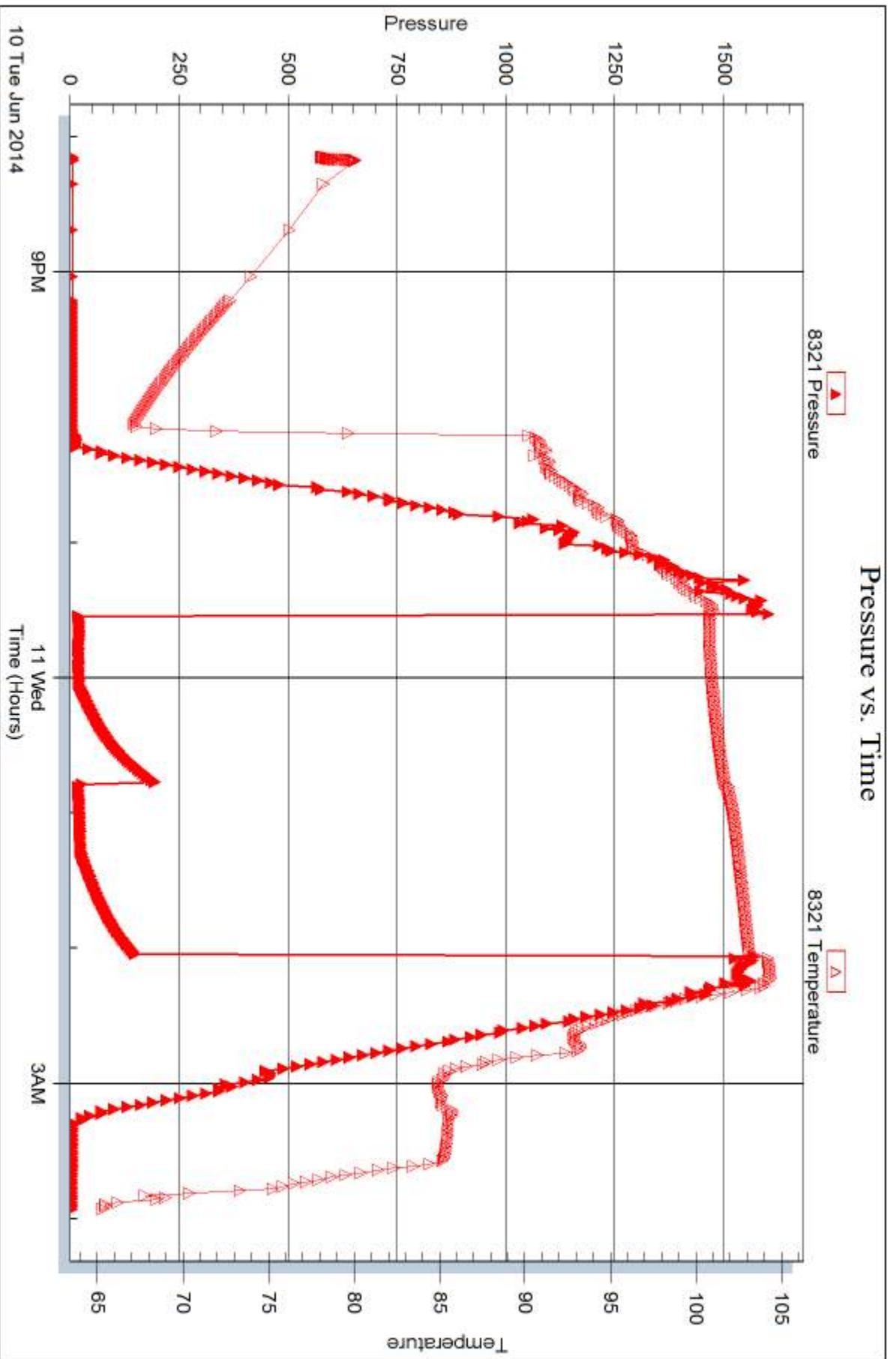


Serial #: 8321

Outside Bow Creek Oil Company

Braun #2

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Bow Creek Oil Company**

1304 Eisenhower Rd
Hays, KS 67601

ATTN: Lyle Herman

Braun #2

34-13s-17w Ellis,KS

Start Date: 2014.06.11 @ 13:47:00

End Date: 2014.06.11 @ 22:26:00

Job Ticket #: 59381 DST #: 2

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

Printed: 2014.06.13 @ 09:46:02

Bow Creek Oil Company
34-13s-17w Ellis,KS
Braun #2
DST # 2
LKC "I-J"
2014.06.11



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Bow Creek Oil Company

34-13s-17w Ellis,KS

1304 Eisenhower Rd
Hays, KS 67601

Braun #2

Job Ticket: 59381

DST#: 2

ATTN: Lyle Herman

Test Start: 2014.06.11 @ 13:47:00

GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:31:00

Time Test Ended: 22:26:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Phillip Gage

Unit No: 48

Interval: 3382.00 ft (KB) To 3435.00 ft (KB) (TVD)

Reference Elevations: 1961.00 ft (KB)

Total Depth: 3435.00 ft (KB) (TVD)

1953.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8372 Inside

Press@RunDepth: 26.12 psig @ 3383.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.11

End Date:

2014.06.11

Last Calib.:

2014.06.11

Start Time: 13:47:01

End Time:

22:26:00

Time On Btm:

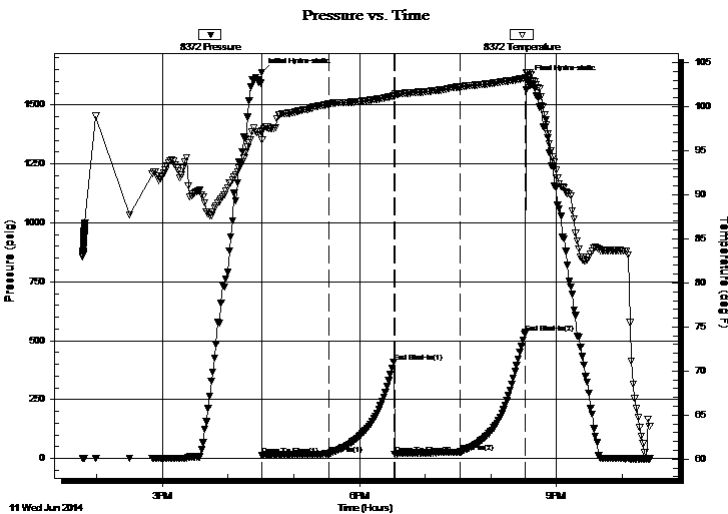
2014.06.11 @ 16:30:30

Time Off Btm:

2014.06.11 @ 20:33:30

TEST COMMENT: 60-IF-Built to 7"
60-ISI-No Return
60-FF-BOB in 48 mins
60-FSI-No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1638.05	97.22	Initial Hydro-static
1	12.65	96.24	Open To Flow (1)
61	19.53	100.28	Shut-In(1)
121	410.71	101.20	End Shut-In(1)
122	17.40	101.29	Open To Flow (2)
181	26.12	102.25	Shut-In(2)
241	534.66	103.24	End Shut-In(2)
243	1605.65	103.88	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
35.00	GOCM, 15%g, 25%o, 60%m	0.49
0.00	GIP, 60'	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

Bow Creek Oil Company

34-13s-17w Ellis,KS

1304 Eisenhower Rd
Hays, KS 67601

Braun #2

Job Ticket: 59381

DST#: 2

ATTN: Lyle Herman

Test Start: 2014.06.11 @ 13:47:00

Tool Information

Drill Pipe:	Length: 3381.00 ft	Diameter: 3.80 inches	Volume: 47.43 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 47.43 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3382.00 ft			Final 48000.00 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:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3363.00	
Shut In Tool	5.00			3368.00	
Hydraulic tool	5.00			3373.00	
Packer	5.00			3378.00	20.00 Bottom Of Top Packer
Packer	4.00			3382.00	
Stubb	1.00			3383.00	
Recorder	0.00	8372	Inside	3383.00	
Recorder	0.00	8321	Outside	3383.00	
Perforations	16.00			3399.00	
Change Over Sub	1.00			3400.00	
Drill Pipe	31.00			3431.00	
Change Over Sub	1.00			3432.00	
Bullnose	3.00			3435.00	53.00 Bottom Packers & Anchor

Total Tool Length: 73.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Bow Creek Oil Company

34-13s-17w Ellis,KS

1304 Eisenhower Rd
Hays, KS 67601

Braun #2

Job Ticket: 59381

DST#: 2

ATTN: Lyle Herman

Test Start: 2014.06.11 @ 13:47:00

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: 46.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
35.00	GOCM, 15%g, 25%o, 60%m	0.491
0.00	GIP, 60'	0.000

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:

Serial #: 8372

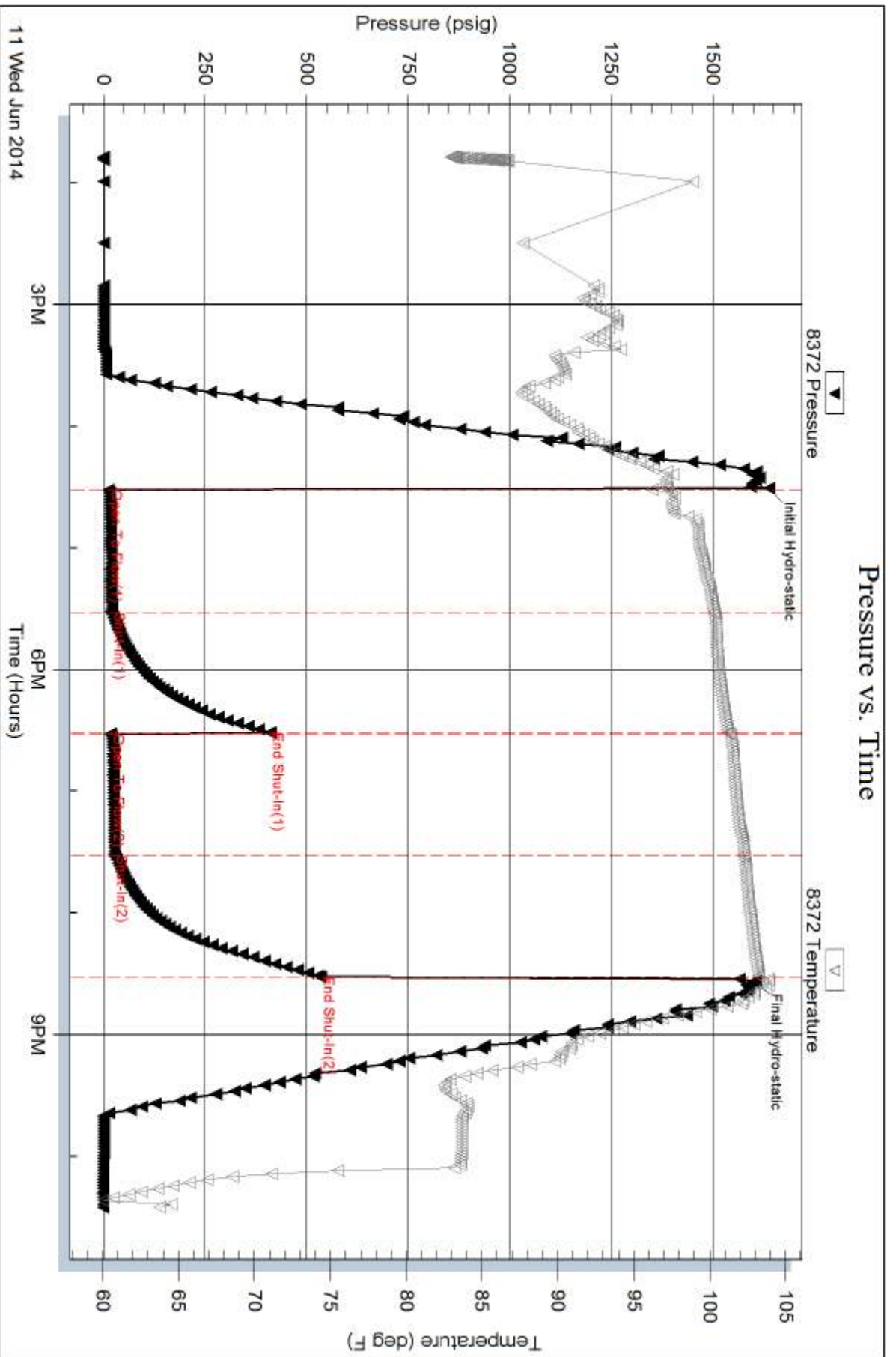
Inside

Bow Creek Oil Company

Braun #2

DST Test Number: 2

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 59381

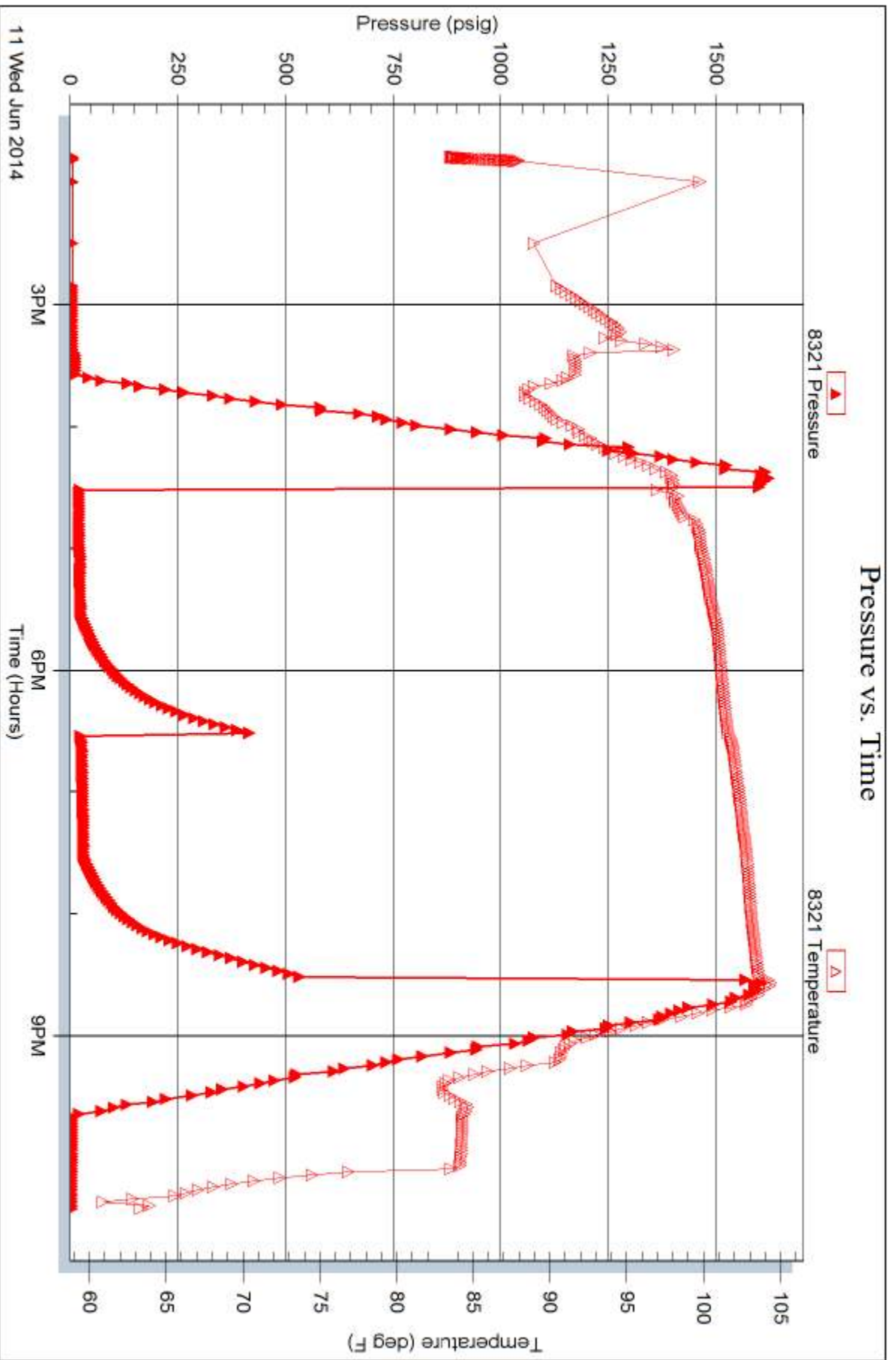
Printed: 2014.06.13 @ 09:46:03

Serial #: 8321

Outside Bow Creek Oil Company

Braun #2

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59380

4/10

Well Name & No. Braun #2 Test No. 1 Date 6-10-14
 Company Bow Creek Oil Company Elevation 1961 KB 1953 GL
 Address 1304 Eisenhower Rd Hays, KS 67601
 Co. Rep / Geo. Lyle Herman Rig Discovery Rig 2
 Location: Sec. 34 Twp. 13s Rge. 17w Co. Ellis State KS

Interval Tested 3294-3340 Zone Tested LKL "E-F"
 Anchor Length 41' Drill Pipe Run 3287 Mud Wt. 9
 Top Packer Depth 3294 Drill Collars Run 0 Vis 46
 Bottom Packer Depth 3294 Wt. Pipe Run 0 WL 9.2
 Total Depth 3340 Chlorides 5000 ppm System LCM #2

Blow Description DF- Build to 2 1/4"
DSI- No Return
FF- Build to 3 1/4"
FSI- No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>251</u>	<u>VSOCM</u>	<u>10</u>		<u>90</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 251 BHT 103 Gravity — API RW @ °F Chlorides — ppm
 (A) Initial Hydrostatic 1602 Test 1150 T-On Location 18:37
 (B) First Initial Flow 13 Jars _____ T-Started 20:09
 (C) First Final Flow 15 Safety Joint _____ T-Open 23:32
 (D) Initial Shut-In 190 Circ Sub _____ T-Pulled 03:03
 (E) Second Initial Flow 12 Hourly Standby _____ T-Out 03:56
 (F) Second Final Flow 19 Mileage 10 RT 15.50 Comments _____
 (G) Final Shut-In 143 Sampler _____
 (H) Final Hydrostatic 1562 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1165.50
 Accessibility _____ MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 45
 Sub Total 1165.50

Approved By _____ Our Representative Phil Guss Thank You

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. 59381

Well Name & No. Brown #2 Test No. 2 Date 6-11-14
 Company Bow Creek Oil Company Elevation 1961 KB 1953 GL
 Address 1304 Eisenhower RD Hays, KS 67601
 Co. Rep / Geo. Lyle Herman Rig Discovery Rig 2
 Location: Sec. 34 Twp. 13s Rge. 7W Co. Ellis State KS

Interval Tested 3382-3435 Zone Tested LKC "I-5"
 Anchor Length 53' Drill Pipe Run 3381 Mud Wt. 9
 Top Packer Depth 3377 Drill Collars Run 0 Vis 46
 Bottom Packer Depth 3382 Wt. Pipe Run 0 WL 8
 Total Depth 3435 Chlorides 9,000 ppm System LCM 2#
 Blow Description FF - Built to 7"
DST - No Return
FF - BOB in 48 min.
FSI - No Return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>35</u>	<u>60CM</u>	<u>15</u>	<u>25</u>	<u>60</u>	
<u>0</u>	<u>OIP 60'</u>	<u>100</u>			

Rec Total 35' BHT 103 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1638 Test 1150 T-On Location 13:19
 (B) First Initial Flow 12 Jars _____ T-Started 13:47
 (C) First Final Flow 19 Safety Joint _____ T-Open 16:37
 (D) Initial Shut-In 410 Circ Sub _____ T-Pulled 20:32
 (E) Second Initial Flow 17 Hourly Standby _____ T-Out 22:27
 (F) Second Final Flow 26 Mileage 10 RT 15.50 Comments _____
 (G) Final Shut-In 534 Sampler _____ loaded tools 6/12 16:00
 (H) Final Hydrostatic 1605 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 60 Extra Recorder _____ Sub Total 0
 Initial Shut-In 60 Day Standby _____ Total 1165.50
 Final Flow 60 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 60 Sub Total 1165.50

Approved By _____ Our Representative Phil Logg Thank You
 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.