



DRILL STEM TEST REPORT

Prepared For: **H&C Oil Operating Inc**

PO Box 86
Plainville KS 67663

ATTN: Marc Downing

R. Werner #7-3

7-9s-18w Rooks KS

Start Date: 2013.12.04 @ 19:40:00

End Date: 2013.12.05 @ 03:49:45

Job Ticket #: 55362 DST #: 1

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

Printed: 2013.12.06 @ 11:34:16



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

H&C Oil Operating Inc

7-9s-18w Rooks KS

PO Box 86
Plainville KS 67663

R. Werner #7-3

ATTN: Marc Downing

Job Ticket: 55362

DST#: 1

Test Start: 2013.12.04 @ 19:40:00

GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:40:45

Time Test Ended: 03:49:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Cody Bloedorn

Unit No: 53

Interval: 3363.00 ft (KB) To 3405.00 ft (KB) (TVD)

Reference Elevations: 2038.00 ft (KB)

Total Depth: 3405.00 ft (KB) (TVD)

2033.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6799

Inside

Press@RunDepth: 44.85 psig @ 3400.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.12.04 End Date: 2013.12.05

Last Calib.: 2013.12.05

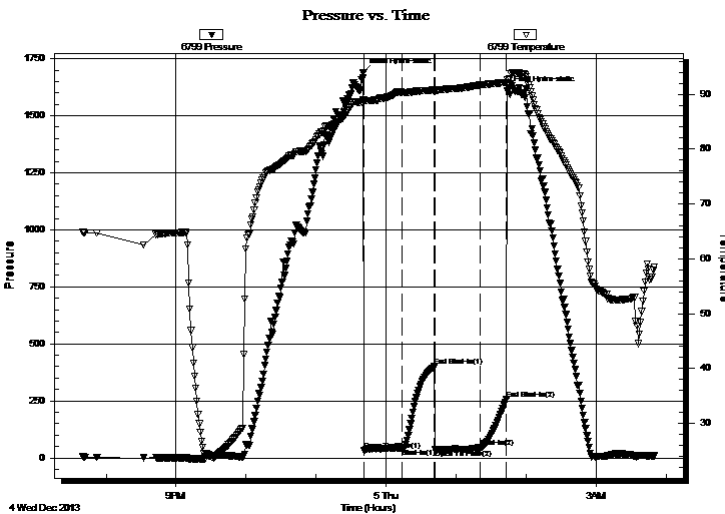
Start Time: 19:40:05 End Time: 03:49:44

Time On Btm: 2013.12.04 @ 23:40:15

Time Off Btm: 2013.12.05 @ 01:43:45

TEST COMMENT: 30 - IF- 3/4" blow
30 - IS- No return
30 - FF- No blow
30 - FS- No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1690.06	89.02	Initial Hydro-static
1	33.90	88.83	Open To Flow (1)
33	43.41	90.33	Shut-In(1)
61	400.36	90.74	End Shut-In(1)
62	35.36	90.70	Open To Flow (2)
100	44.85	91.65	Shut-In(2)
123	257.81	92.16	End Shut-In(2)
124	1609.40	92.57	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud - spots of oil, 100%M	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

H&C Oil Operating Inc

7-9s-18w Rooks KS

PO Box 86
Plainville KS 67663

R. Werner #7-3

Job Ticket: 55362

DST#: 1

ATTN: Marc Downing

Test Start: 2013.12.04 @ 19:40:00

Tool Information

Drill Pipe:	Length: 3336.00 ft	Diameter: 3.80 inches	Volume: 46.80 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: 30000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 46.95 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	3363.00 ft			Final 49000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	42.00 ft			
Tool Length:	63.00 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			3343.00	
Shut In Tool	5.00			3348.00	
Hydraulic tool	5.00			3353.00	
Packer	5.00			3358.00	21.00 Bottom Of Top Packer
Packer	5.00			3363.00	
Stubb	1.00			3364.00	
Perforations	3.00			3367.00	
Change Over Sub	1.00			3368.00	
Drill Pipe	31.00			3399.00	
Change Over Sub	1.00			3400.00	
Recorder	0.00	6799	Inside	3400.00	
Recorder	0.00	8648	Outside	3400.00	
Perforations	2.00			3402.00	
Bullnose	3.00			3405.00	42.00 Bottom Packers & Anchor

Total Tool Length: 63.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

H&C Oil Operating Inc

7-9s-18w Rooks KS

PO Box 86
Plainville KS 67663

R. Werner #7-3

Job Ticket: 55362

DST#: 1

ATTN: Marc Downing

Test Start: 2013.12.04 @ 19:40:00

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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3900.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud - spots of oil, 100%M	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

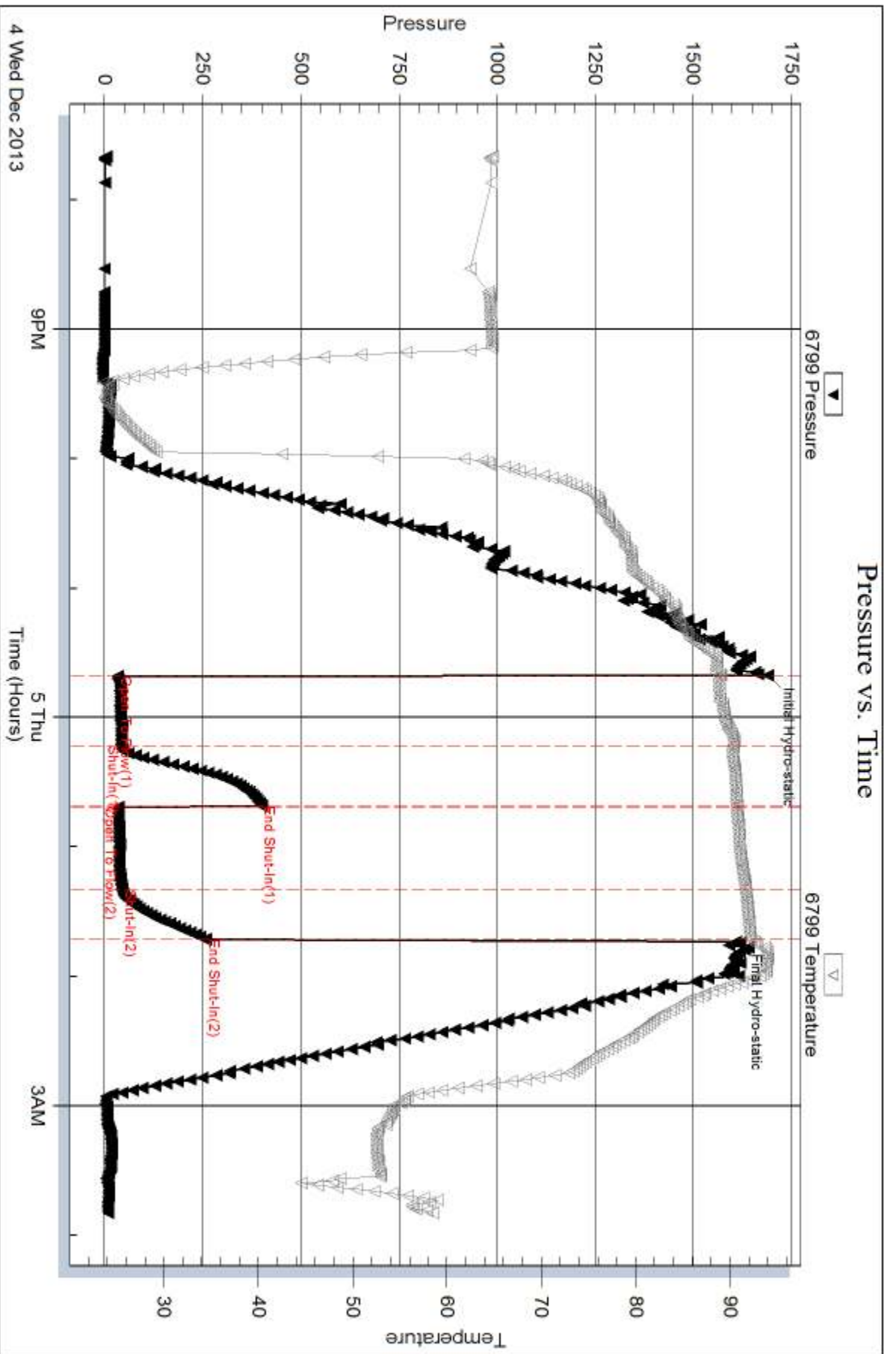
Serial #: 6799

Inside

H&C Oil Operating Inc

R. Werner #7-3

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 55362

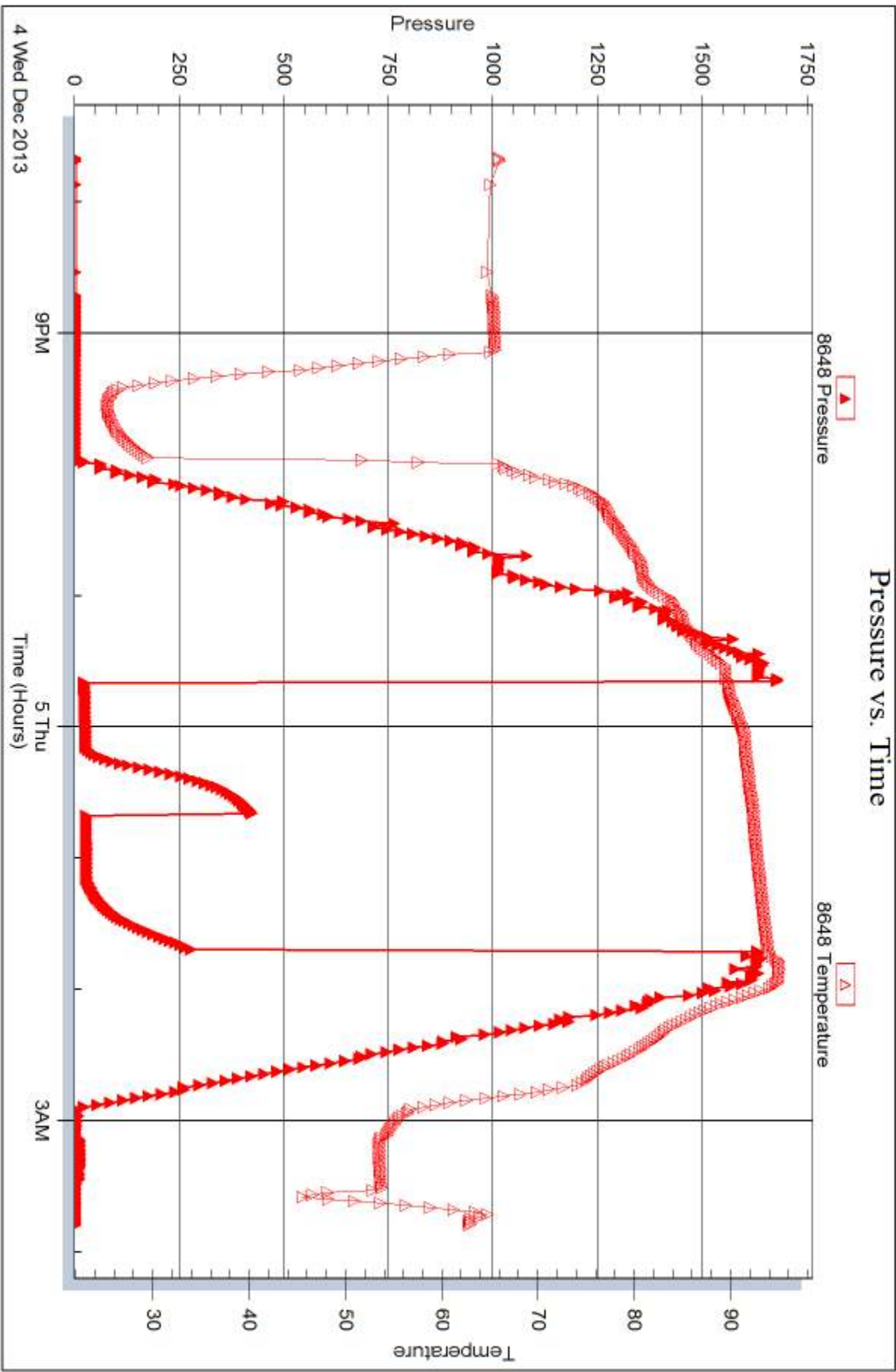
Printed: 2013.12.06 @ 11:34:18

Serial #: 8648

Outside H&C Oil Operating Inc

R. Werner #7-3

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 55362

Printed: 2013.12.06 @ 11:34:18



DRILL STEM TEST REPORT

Prepared For: **H&C Oil Operating Inc**

PO Box 86
Plainville KS 67663

ATTN: Marc Downing

R. Werner #7-3

7-9s-18w Rooks KS

Start Date: 2013.12.06 @ 00:17:05

End Date: 2013.12.06 @ 07:42:59

Job Ticket #: 55363 DST #: 2

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

Printed: 2013.12.06 @ 11:31:00



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

H&C Oil Operating Inc

7-9s-18w Rooks KS

PO Box 86
Plainville KS 67663

R. Werner #7-3

ATTN: Marc Downing

Job Ticket: 55363

DST#: 2

Test Start: 2013.12.06 @ 00:17:05

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 02:29:45
 Tester: Cody Bloedorn
 Time Test Ended: 07:42:59
 Unit No: 53
 Interval: **3440.00 ft (KB) To 3474.00 ft (KB) (TVD)**
 Reference Elevations: 2038.00 ft (KB)
 Total Depth: 3474.00 ft (KB) (TVD)
 2033.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 5.00 ft

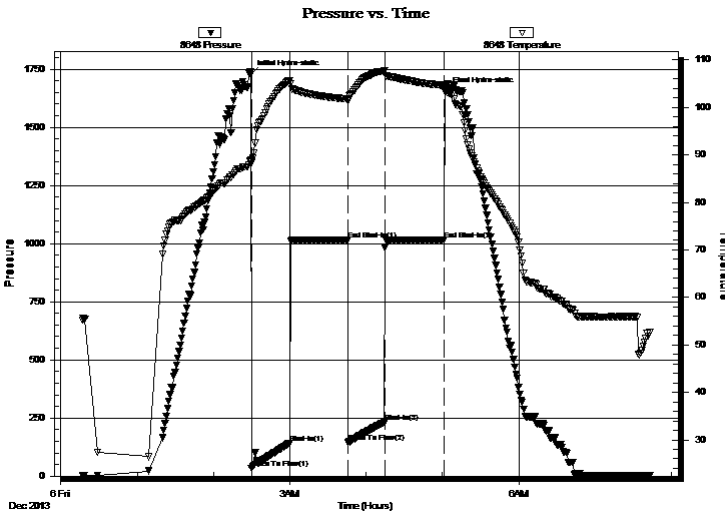
Serial #: 8648

Outside

Press@RunDepth: 233.14 psig @ 3444.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.12.06 End Date: 2013.12.06 Last Calib.: 2013.12.06
 Start Time: 00:17:05 End Time: 07:42:59 Time On Btm: 2013.12.06 @ 02:29:15
 Time Off Btm: 2013.12.06 @ 05:02:29

TEST COMMENT: 30 - IF- B.O.B. in 8 minutes
 45 - IS- service return
 30 - FF- B.O.B. in 10 minutes
 45 - -FSI- 1/4" return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1726.36	88.95	Initial Hydro-static
1	32.12	88.44	Open To Flow (1)
31	142.66	105.64	Shut-In(1)
76	1015.34	101.76	End Shut-In(1)
77	144.76	101.33	Open To Flow (2)
105	233.14	107.63	Shut-In(2)
152	1015.46	104.63	End Shut-In(2)
154	1652.35	103.92	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
186.00	GMW, 10%G, 40%M, 50%W	2.34
124.00	GOCWM, 5%G, 5%W, 20%O, 70%M	1.74
186.00	GO, 10%G, 90%O	2.61
0.00	124' of G.I.P.	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

H&C Oil Operating Inc

7-9s-18w Rooks KS

PO Box 86
Plainville KS 67663

R. Werner #7-3

Job Ticket: 55363

DST#: 2

ATTN: Marc Downing

Test Start: 2013.12.06 @ 00:17:05

Tool Information

Drill Pipe:	Length: 3399.00 ft	Diameter: 3.80 inches	Volume: 47.68 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: 30000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 47.83 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 39000.00 lb
Depth to Top Packer:	3440.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	34.00 ft			
Tool Length:	55.00 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			3420.00	
Shut In Tool	5.00			3425.00	
Hydraulic tool	5.00			3430.00	
Packer	5.00			3435.00	21.00 Bottom Of Top Packer
Packer	5.00			3440.00	
Stubb	1.00			3441.00	
Perforations	3.00			3444.00	
Recorder	0.00	6799	Inside	3444.00	
Recorder	0.00	8648	Outside	3444.00	
Perforations	27.00			3471.00	
Bullnose	3.00			3474.00	34.00 Bottom Packers & Anchor

Total Tool Length: 55.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

H&C Oil Operating Inc

7-9s-18w Rooks KS

PO Box 86
Plainville KS 67663

R. Werner #7-3

Job Ticket: 55363

DST#: 2

ATTN: Marc Downing

Test Start: 2013.12.06 @ 00:17:05

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 54.00 sec/qt
Water Loss: 6.39 in³
Resistivity: ohm.m
Salinity: 4100.00 ppm
Filter Cake: 6.00 inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psig

Oil API: deg API
Water Salinity: ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
186.00	GMW, 10%G, 40%M, 50%W	2.336
124.00	GOCWM, 5%G, 5%W, 20%O, 70%M	1.739
186.00	GO, 10%G, 90%O	2.609
0.00	124' of G.I.P.	0.000

Total Length: 496.00 ft Total Volume: 6.684 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

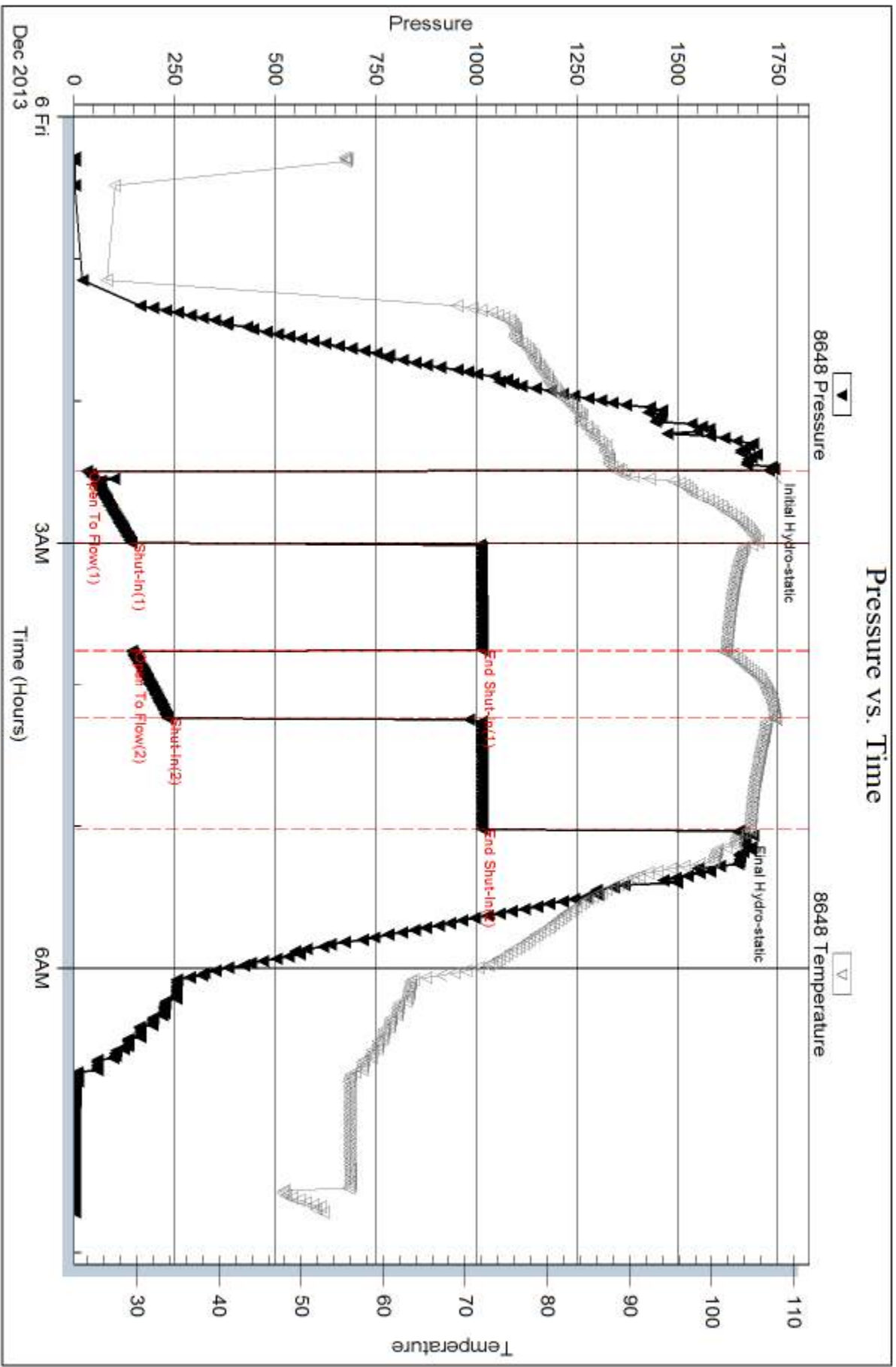
Recovery Comments: Oil w as very thick!

Serial #: 8648

Outside H&C Oil Operating Inc

R. Werner #7-3

DST Test Number: 2



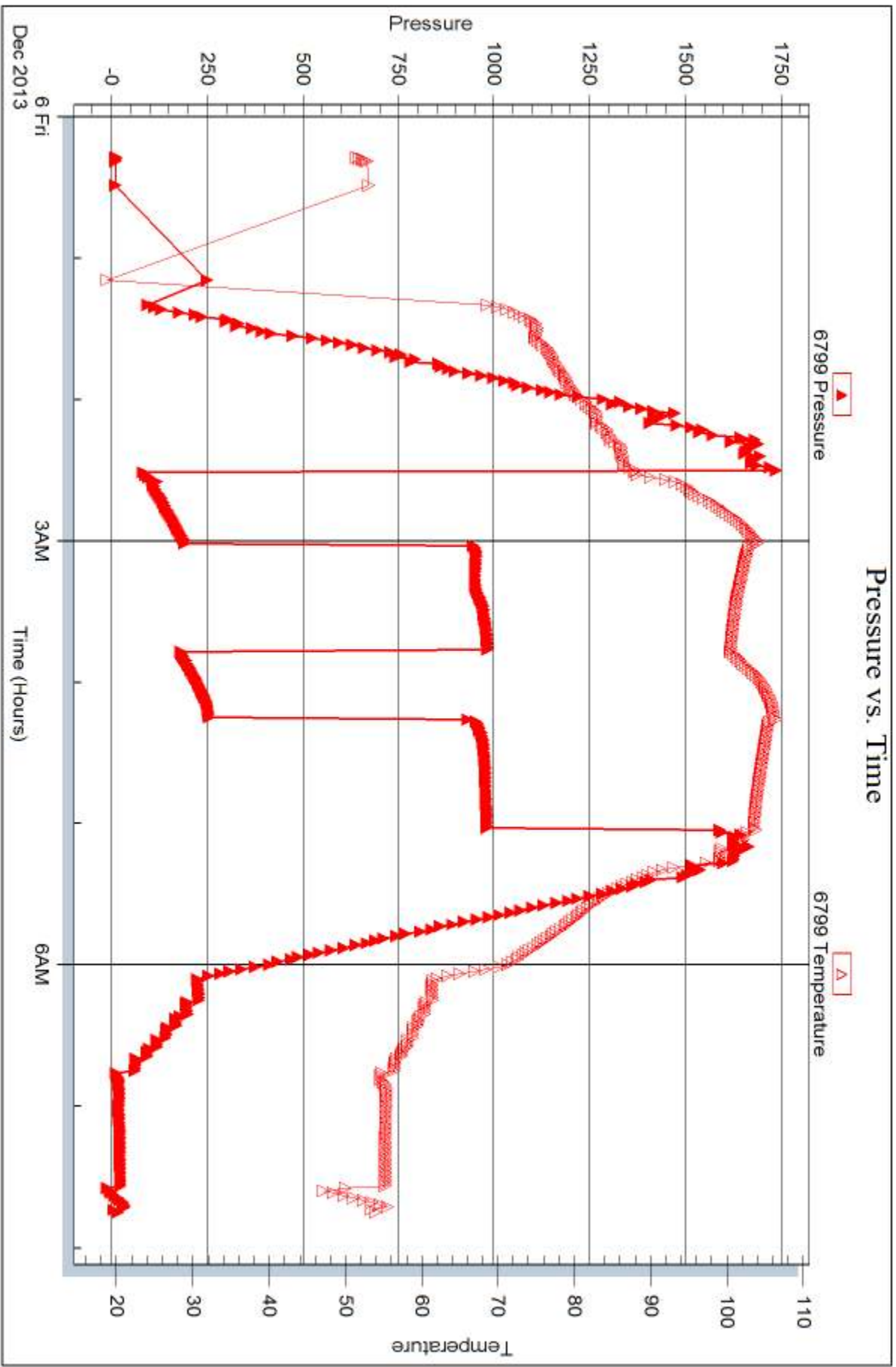
Serial #: 6799

Inside

H&C Oil Operating Inc

R. Werner #7-3

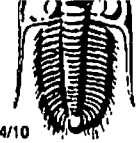
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 55363

Printed: 2013.12.06 @ 11:31:02



TRIBOTITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 55362

Well Name & No. L. Werner # 7-3 Test No. 1 Date 12-4-13
 Company H&C Oil Operating Inc Elevation 2038 KB 2033 GL
 Address Placerville KS, 67663
 Co. Rep / Geo. Marc Downing Rig American Eagle #3
 Location: Sec. 7 Twp. 9S Rge. 18W Co. Rooks State KS

Interval Tested 3363 - 3405 Zone Tested LKC "I & J"
 Anchor Length 42' Drill Pipe Run 3336' Mud Wt. 9.0
 Top Packer Depth 3358 Drill Collars Run 30' Vis 00+
 Bottom Packer Depth 3363 Wt. Pipe Run — WL 6.0
 Total Depth 3405 Chlorides 3,900 ppm System LCM —

Blow Description IF- 3/4" blow
ISI- No return
FF- No blow
FSI- No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud - Spots of oil</u>			<u>100</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

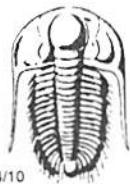
Rec Total 10 BHT 92° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 1690 Test 1150 T-On Location 1902
 (B) First Initial Flow 33 Jars — T-Started 1940 7:40pm
 (C) First Final Flow 43 Safety Joint — T-Open 2341
 (D) Initial Shut-In 400 Circ Sub — T-Pulled 0141
 (E) Second Initial Flow 35 Hourly Standby — T-Out 0350
 (F) Second Final Flow 44 Mileage 72 RT 111.60 Comments —
 (G) Final Shut-In 257 Sampler —
 (H) Final Hydrostatic 1609 Straddle — Ruined Shale Packer —
 Shale Packer — Ruined Packer —
 Extra Packer — Extra Copies —
 Extra Recorder — Sub Total 0
 Day Standby — Total 1261.60
 Accessibility — MP/DST Disc't —
 Sub Total 1261.60

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

Approved By _____ Our Representative Cody Blot

Tribotite 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. **55363**

Well Name & No. R. Wermer # 7-3 Test No. 2 Date 12-5-13
 Company H&C Oil Operating Inc Elevation 2038 KB 2033 GL
 Address Plainville KS, 67663
 Co. Rep / Geo. Marc Downing Rig American Eagle #3
 Location: Sec. 7 Twp. 9S Rge. 18W Co. Rooks State KS

Interval Tested 3440 - 3474 Zone Tested Arbuckle
 Anchor Length 34' Drill Pipe Run 3399' Mud Wt. 9.0
 Top Packer Depth 3435 Drill Collars Run 30' Vis 54
 Bottom Packer Depth 3440 Wt. Pipe Run - WL 6.4
 Total Depth 3474 Chlorides 4,100 ppm System LCM 0#

Blow Description IF - B.O.B. in 8 minutes
ISI - Surface return
FF - B.O.B. in 10 minutes
FSI - 1/4" return

Rec	Feet of	%gas	%oil	%water	%mud
<u>186</u>	<u>6 MW</u>	<u>10</u>	<u>50</u>	<u>40</u>	<u>0</u>
<u>124</u>	<u>60 CWM</u>	<u>5</u>	<u>20</u>	<u>50</u>	<u>70</u>
<u>196</u>	<u>60</u>	<u>10</u>	<u>90</u>		
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of <u>124' G.I.P.</u>	%gas	%oil	%water	%mud

Rec Total 496' BHT 103° Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 1736 Test 1150 T-On Location 2353
 (B) First Initial Flow 80 Jars T-Started 0017 12:17am
 (C) First Final Flow 190 Safety Joint T-Open 0231
 (D) Initial Shut-In 984 Circ Sub T-Pulled 0501
 (E) Second Initial Flow 183 Hourly Standby T-Out 0745
 (F) Second Final Flow 254 Mileage 72RT 111.60 Comments Thick oil!
 (G) Final Shut-In 982 Sampler Ruined Shale Packer
 (H) Final Hydrostatic 1659 Straddle Ruined Packer
 Shale Packer Extra Copies
 Extra Packer Extra Recorder
 Extra Recorder Sub Total 0
 Day Standby Total 1261.60
 Accessibility MP/DST Disc't
 Sub Total 1261.60

Approved By _____ Our Representative Cody B. [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.