



DRILL STEM TEST REPORT

Prepared For: **Hertel Oil Company LLC**

704 E. 12th St
Hays KS 67601-3441

ATTN: Mike Hertel , Marc D

Doerr #H-2

34-15s 19w Ellis,KS

Start Date: 2014.03.10 @ 21:30:29

End Date: 2014.03.11 @ 03:32:23

Job Ticket #: 54080 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.03.17 @ 10:36:06



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC

704 E.12th St
Hays KS 67601-3441

ATTN: Mike Hertel , Marc D

34-15s 19w Ellis,KS

Doerr #H-2

Job Ticket: 54080

DST#: 1

Test Start: 2014.03.10 @ 21:30:29

GENERAL INFORMATION:

Formation: **LKC "E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:48:24

Time Test Ended: 03:32:23

Test Type: Conventional Bottom Hole (Initial)

Tester: Ray Schwager

Unit No: 70

Interval: 3379.00 ft (KB) To 3406.00 ft (KB) (TVD)

Total Depth: 3406.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2042.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8369 Inside

Press@RunDepth: 63.66 psig @ 3383.00 ft (KB)

Start Date: 2014.03.10

End Date:

2014.03.11

Start Time: 21:30:29

End Time:

03:32:23

Capacity: 8000.00 psig

Last Calib.: 2014.03.11

Time On Btm: 2014.03.10 @ 23:46:09

Time Off Btm: 2014.03.11 @ 01:53:23

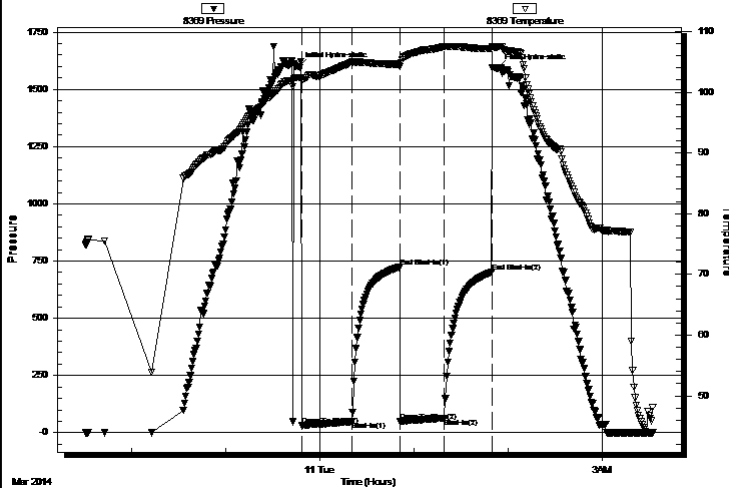
TEST COMMENT: 30-IFP-w k bl 1/2" to 1 1/4" bl , slid tool approx .8' to bottom

30-ISIP-no bl

30-FFP-w k bl , 1/4" bl

30-FSIP-no bl

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1600.19	102.45	Initial Hydro-static
3	32.38	101.83	Open To Flow (1)
34	48.33	104.92	Shut-In(1)
65	723.39	104.62	End Shut-In(1)
65	49.85	104.26	Open To Flow (2)
93	63.66	107.52	Shut-In(2)
124	701.19	107.12	End Shut-In(2)
128	1593.04	107.47	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	Water	0.57
40.00	MW 25%M75%W w/show of oil	0.56

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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704 E.12th St
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ATTN: Mike Hertel , Marc D

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Doerr #H-2

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Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2042.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8700 Outside

Press@RunDepth: psig @ 3383.00 ft (KB)

Start Date: 2014.03.10

End Date:

2014.03.11

Start Time: 21:30:17

End Time:

03:30:56

Capacity: 8000.00 psig

Last Calib.: 2014.03.11

Time On Btm:

Time Off Btm:

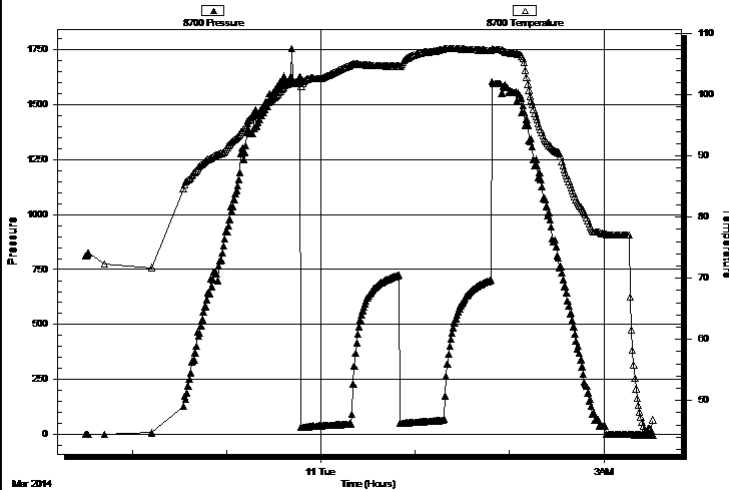
TEST COMMENT: 30-IFP-w k bl 1/2" to 1 1/4" bl , slid tool approx .8' to bottom

30-ISIP-no bl

30-FFP-w k bl , 1/4" bl

30-FSIP-no bl

Pressure vs. Time



PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
60.00	Water	0.57
40.00	MW 25%M75%W w/show of oil	0.56

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil Company LLC

34-15s 19w Ellis,KS

704 E.12th St
Hays KS 67601-3441

Doerr #H-2

Job Ticket: 54080

DST#: 1

ATTN: Mike Hertel , Marc D

Test Start: 2014.03.10 @ 21:30:29

Tool Information

Drill Pipe:	Length:	3361.00 ft	Diameter:	3.80 inches	Volume:	47.15 bbl	Tool Weight:	2200.00 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:	30.00 ft	Diameter:	2.25 inches	Volume:	0.15 bbl	Weight to Pull Loose:	70000.00 lb
					Total Volume:	47.30 bbl	Tool Chased	8.00 ft
Drill Pipe Above KB:		33.00 ft					String Weight: Initial	46000.00 lb
Depth to Top Packer:		3379.00 ft					Final	46000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		27.00 ft						
Tool Length:		48.00 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			3359.00	
Shut In Tool	5.00			3364.00	
Hydraulic tool	5.00			3369.00	
Packer	5.00			3374.00	21.00 Bottom Of Top Packer
Packer	5.00			3379.00	
Stubb	1.00			3380.00	
Perforations	3.00			3383.00	
Recorder	0.00	8369	Inside	3383.00	
Recorder	0.00	8700	Outside	3383.00	
Perforations	20.00			3403.00	
Bullnose	3.00			3406.00	27.00 Bottom Packers & Anchor

Total Tool Length: 48.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Hertel Oil Company LLC

34-15s 19w Ellis,KS

704 E.12th St
Hays KS 67601-3441

Doerr #H-2

Job Ticket: 54080

DST#: 1

ATTN: Mike Hertel , Marc D

Test Start: 2014.03.10 @ 21:30:29

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 48.00 sec/qt

Water Loss: 6.75 in³

Resistivity: ohm.m

Salinity: 1800.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity: 80000 ppm

deg API

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	Water	0.568
40.00	MW 25%M75%W w/show of oil	0.561

Total Length: 100.00 ft

Total Volume: 1.129 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .11@60F

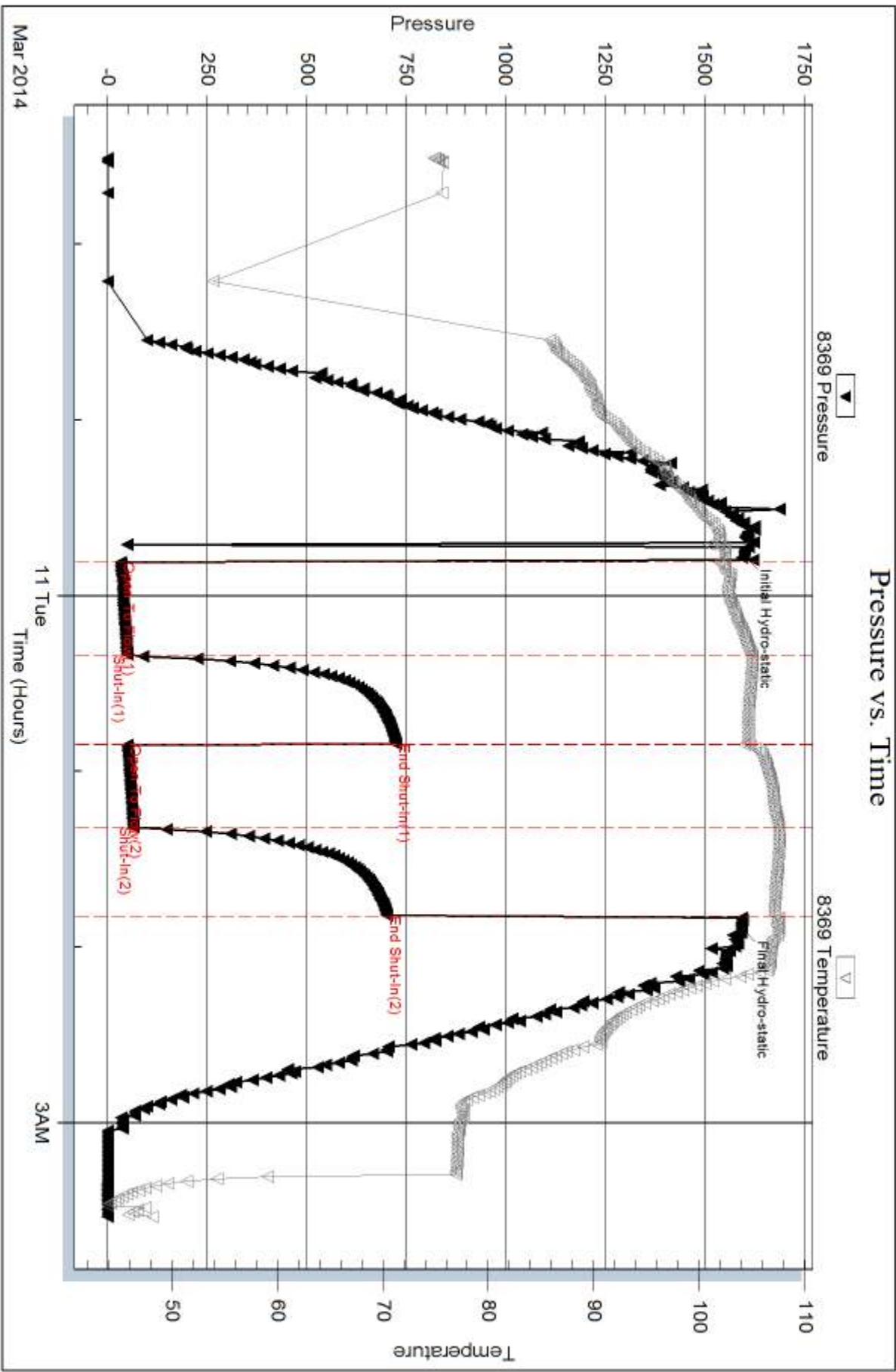
Serial #: 8369

Inside

Hertel Oil Company LLC

Doerr #4-2

DST Test Number: 1

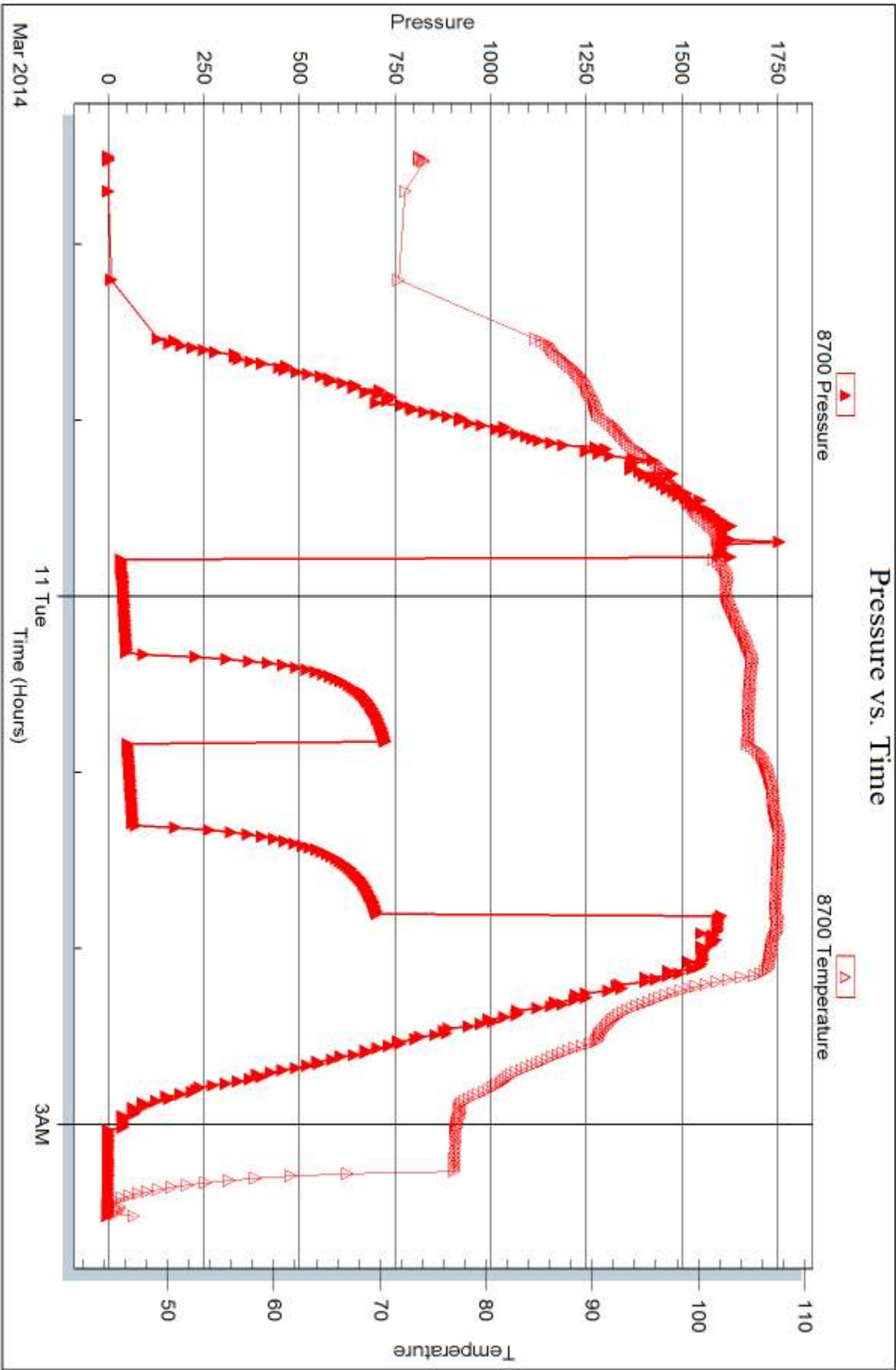


Serial #: 8700

Outside Hertel Oil Company LLC

Doerr #H-2

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Hertel Oil Company LLC**

704 E. 12th St
Hays KS 67601-3441

ATTN: Mike Hertel , Marc D

Doerr #H-2

34-15s 19w Ellis,KS

Start Date: 2014.03.11 @ 16:35:35

End Date: 2014.03.11 @ 22:25:44

Job Ticket #: 54081 DST #: 2

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

Printed: 2014.03.17 @ 10:35:45



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC

704 E.12th St
Hays KS 67601-3441

ATTN: Mike Hertel , Marc D

34-15s 19w Ellis,KS

Doerr #H-2

Job Ticket: 54081

DST#: 2

Test Start: 2014.03.11 @ 16:35:35

GENERAL INFORMATION:

Formation: **LKC H-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:44:00

Time Test Ended: 22:25:44

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 70

Interval: 3454.00 ft (KB) To 3530.00 ft (KB) (TVD)

Total Depth: 3530.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2042.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8369 Inside

Press@RunDepth: 52.11 psig @ 3462.00 ft (KB)

Start Date: 2014.03.11

End Date:

2014.03.11

Start Time: 16:35:35

End Time:

22:25:44

Capacity: 8000.00 psig

Last Calib.: 2014.03.11

Time On Btm: 2014.03.11 @ 18:41:45

Time Off Btm: 2014.03.11 @ 20:48:00

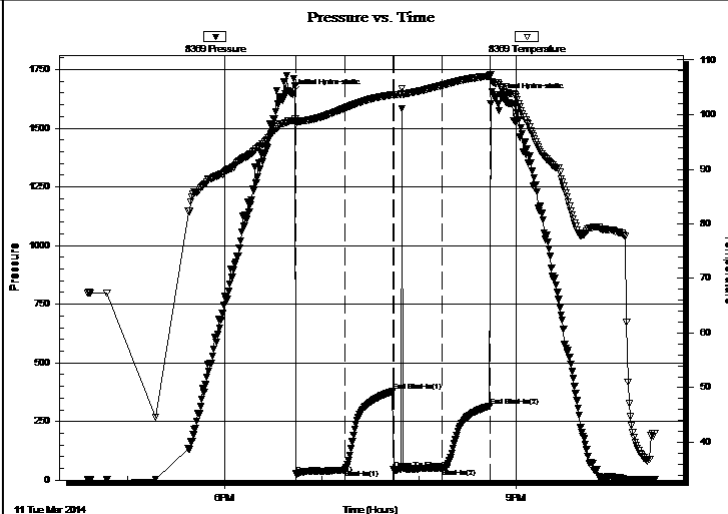
TEST COMMENT: 30-IFP-w k surface bl, died in 8 min

30-ISIP-no bl

30-FFP-no bl , flushed tool

30-FSIP-no bl

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1646.40	98.87	Initial Hydro-static
3	26.60	98.25	Open To Flow (1)
33	44.11	101.21	Shut-In(1)
63	378.46	103.67	End Shut-In(1)
63	44.24	103.60	Open To Flow (2)
93	52.11	105.37	Shut-In(2)
123	315.92	107.06	End Shut-In(2)
127	1631.28	105.81	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
65.00	MW 10%M90%W	0.64

Gas Rates

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



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Hertel Oil Company LLC

704 E.12th St
Hays KS 67601-3441

ATTN: Mike Hertel , Marc D

34-15s 19w Ellis,KS

Doerr #H-2

Job Ticket: 54081

DST#: 2

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Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:44:00

Time Test Ended: 22:25:44

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 70

Interval: 3454.00 ft (KB) To 3530.00 ft (KB) (TVD)

Total Depth: 3530.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2042.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8700 Outside

Press@RunDepth: psig @ 3462.00 ft (KB)

Start Date: 2014.03.11

End Date:

2014.03.11

Start Time: 16:35:58

End Time:

22:24:52

Capacity: 8000.00 psig

Last Calib.:

2014.03.11

Time On Btm:

Time Off Btm:

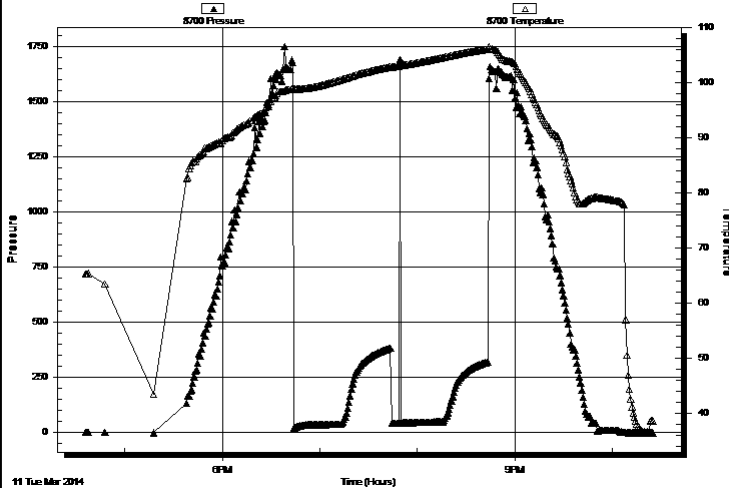
TEST COMMENT: 30-IFP-w k surface bl, died in 8 min

30-ISIP-no bl

30-FFP-no bl , flushed tool

30-FSIP-no bl

Pressure vs. Time



PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
65.00	MW 10%M90%W	0.64

Gas Rates

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

* Recovery from multiple tests



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DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil Company LLC

34-15s 19w Ellis,KS

704 E.12th St
Hays KS 67601-3441

Doerr #H-2

Job Ticket: 54081

DST#: 2

ATTN: Mike Hertel , Marc D

Test Start: 2014.03.11 @ 16:35:35

Tool Information

Drill Pipe:	Length:	3423.00 ft	Diameter:	3.80 inches	Volume:	48.02 bbl	Tool Weight:	2200.00 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:	30.00 ft	Diameter:	2.25 inches	Volume:	0.15 bbl	Weight to Pull Loose:	55000.00 lb
					Total Volume:	48.17 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		20.00 ft					String Weight: Initial	49000.00 lb
Depth to Top Packer:		3454.00 ft					Final	49000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		76.00 ft						
Tool Length:		97.00 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			3434.00	
Shut In Tool	5.00			3439.00	
Hydraulic tool	5.00			3444.00	
Packer	5.00			3449.00	21.00 Bottom Of Top Packer
Packer	5.00			3454.00	
Stubb	1.00			3455.00	
Perforations	7.00			3462.00	
Recorder	0.00	8369	Inside	3462.00	
Recorder	0.00	8700	Outside	3462.00	
Blank Spacing	65.00			3527.00	
Bullnose	3.00			3530.00	76.00 Bottom Packers & Anchor

Total Tool Length: 97.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

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34-15s 19w Ellis,KS

704 E.12th St
Hays KS 67601-3441

Doerr #H-2

Job Ticket: 54081

DST#: 2

ATTN: Mike Hertel , Marc D

Test Start: 2014.03.11 @ 16:35:35

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 60.00 sec/qt

Water Loss: 6.75 in³

Resistivity: ohm.m

Salinity: 2500.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

deg API

Water Salinity: 58000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
65.00	MW 10% M90% W	0.638

Total Length: 65.00 ft Total Volume: 0.638 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .18@ 50F

Serial #: 8369

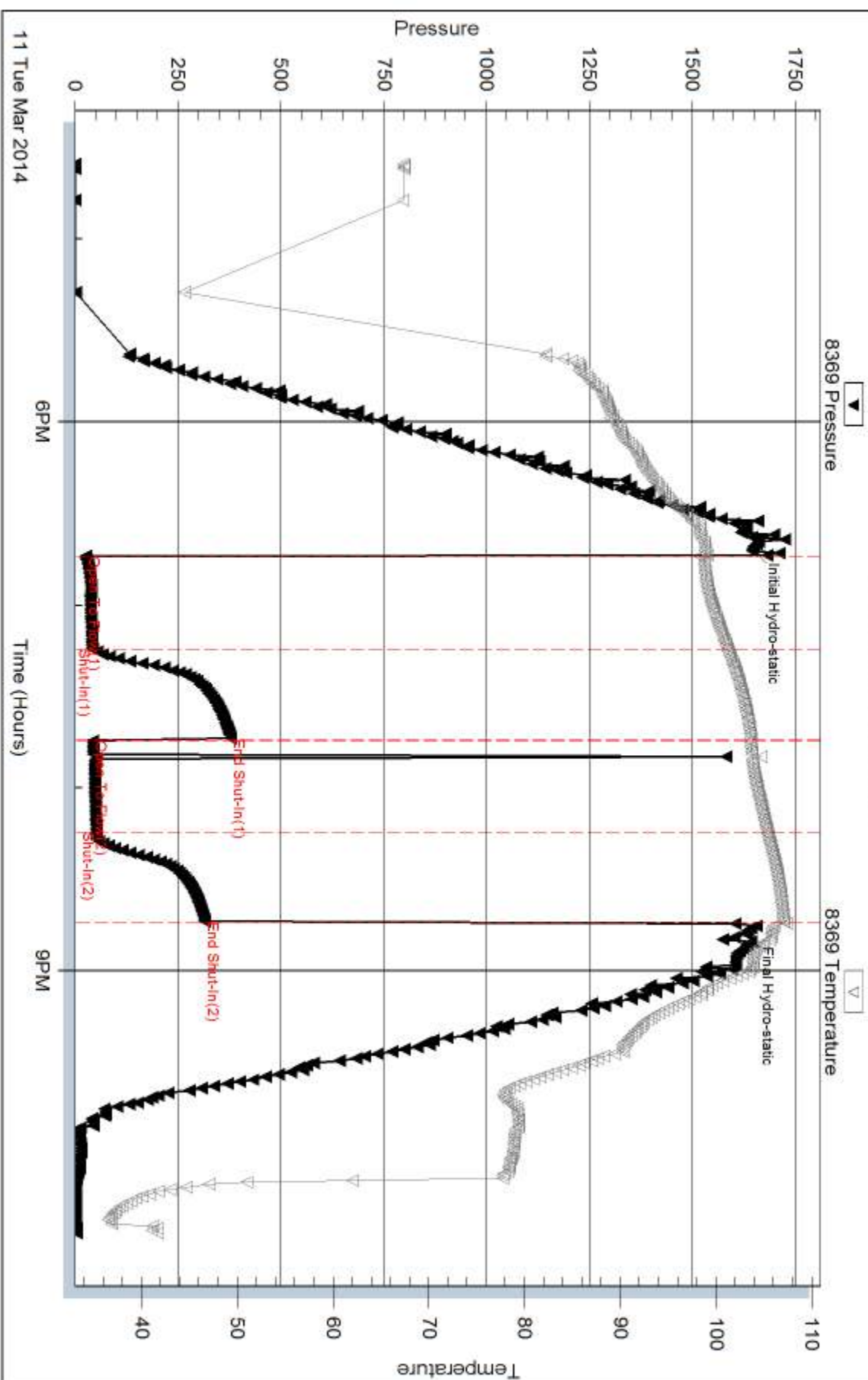
Inside

Hertel Oil Company LLC

Doerr #4-2

DST Test Number: 2

Pressure vs. Time

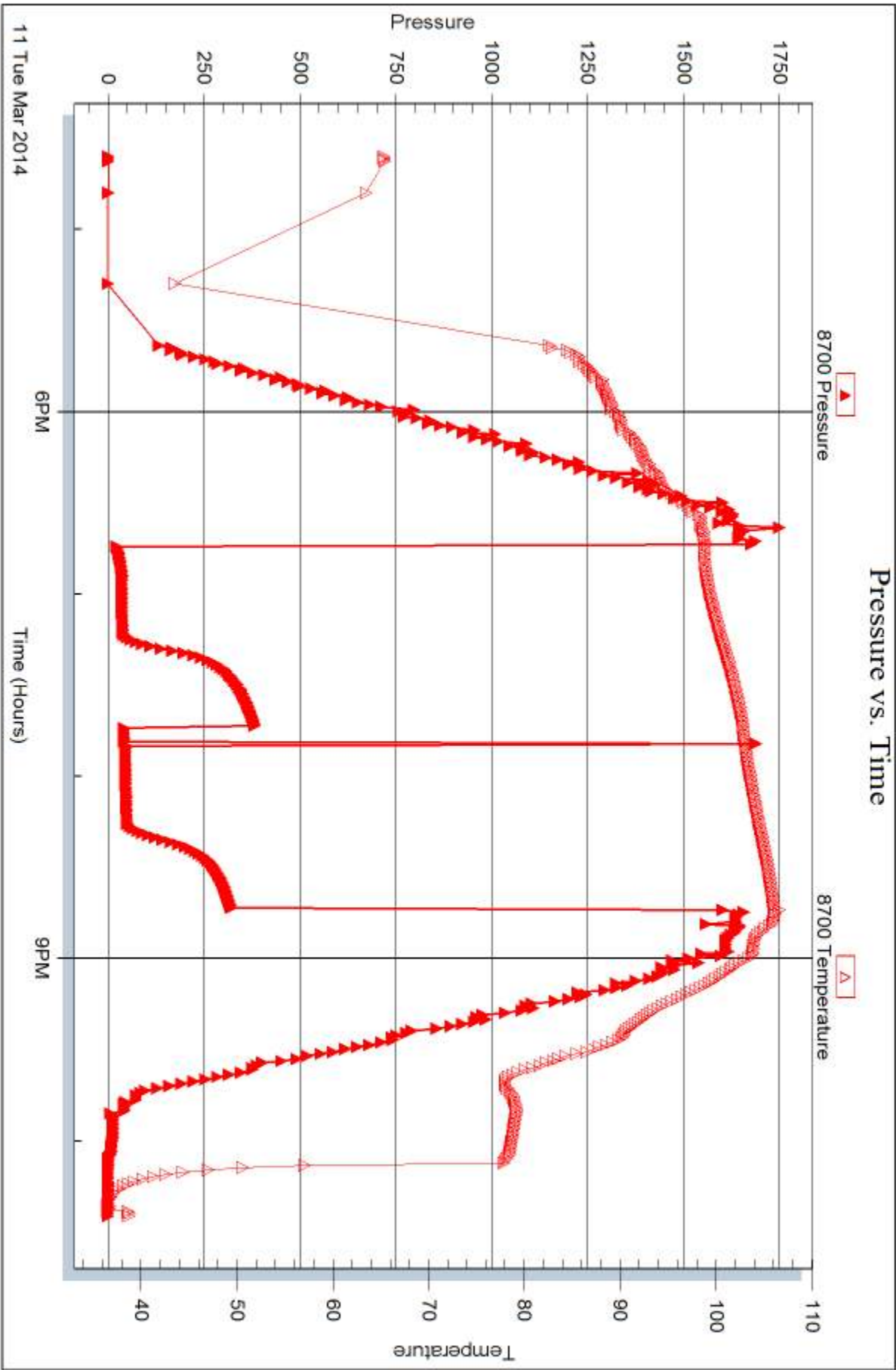


Serial #: 8700

Outside Hertel Oil Company LLC

Doerr #H-2

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Hertel Oil Company LLC**

704 E. 12th St
Hays KS 67601-3441

ATTN: Mike Hertel , Marc D

Doerr #H-2

34-15s 19w Ellis,KS

Start Date: 2014.03.12 @ 09:10:06

End Date: 2014.03.12 @ 15:24:45

Job Ticket #: 54082 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.03.17 @ 10:35:20



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC

704 E.12th St
Hays KS 67601-3441

ATTN: Mike Hertel , Marc D

34-15s 19w Ellis,KS

Doerr #H-2

Job Ticket: 54082

DST#: 3

Test Start: 2014.03.12 @ 09:10:06

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:52:16

Time Test Ended: 15:24:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 70

Interval: 3626.00 ft (KB) To 3640.00 ft (KB) (TVD)

Total Depth: 3640.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2042.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8369 Inside

Press@RunDepth: 39.13 psig @ 3632.00 ft (KB)

Start Date: 2014.03.12

End Date:

2014.03.12

Start Time: 09:10:06

End Time:

15:24:45

Capacity: 8000.00 psig

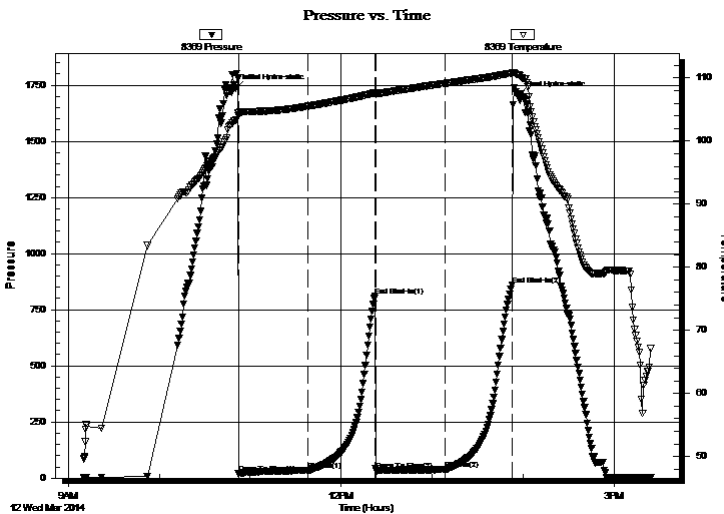
Last Calib.: 2014.03.12

Time On Btm: 2014.03.12 @ 10:50:31

Time Off Btm: 2014.03.12 @ 13:56:45

TEST COMMENT: 45-IFP-w k bl thru-out 1/4" to 1 1/4" bl
45-ISIP-no bl
45-FFP-w k bl thru-out 1/4" to 1 1/4" bl
45-FSIP-no bl

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1733.71	103.33	Initial Hydro-static
2	19.91	104.07	Open To Flow (1)
48	33.95	105.51	Shut-In(1)
92	811.01	107.65	End Shut-In(1)
93	33.30	107.49	Open To Flow (2)
138	39.13	109.14	Shut-In(2)
183	859.79	110.77	End Shut-In(2)
187	1704.10	110.50	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	30'GIP	0.00
30.00	MGO 5%G40%M55%O	0.15
25.00	CO	0.35

Gas Rates

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



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DRILL STEM TEST REPORT

Hertel Oil Company LLC

704 E.12th St
Hays KS 67601-3441

ATTN: Mike Hertel, Marc D

34-15s 19w Ellis,KS

Doerr #H-2

Job Ticket: 54082

DST#: 3

Test Start: 2014.03.12 @ 09:10:06

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:52:16

Time Test Ended: 15:24:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 70

Interval: 3626.00 ft (KB) To 3640.00 ft (KB) (TVD)

Total Depth: 3640.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2042.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8700 Outside

Press@RunDepth: psig @ 3632.00 ft (KB)

Start Date: 2014.03.12

End Date:

2014.03.12

Start Time: 09:11:01

End Time:

15:24:25

Capacity: 8000.00 psig

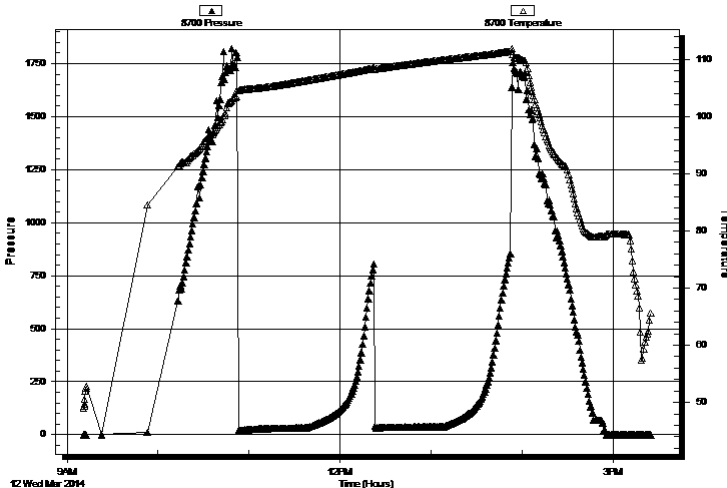
Last Calib.: 2014.03.12

Time On Btm:

Time Off Btm:

TEST COMMENT: 45-IFP-w k bl thru-out 1/4" to 1 1/4" bl
45-ISIP-no bl
45-FFP-w k bl thru-out 1/4" to 1 1/4" bl
45-FSIP-no bl

Pressure vs. Time



PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
0.00	30'GIP	0.00
30.00	MGO 5%G40%M55%O	0.15
25.00	CO	0.35

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

Hertel Oil Company LLC

34-15s 19w Ellis,KS

704 E.12th St
Hays KS 67601-3441

Doerr #H-2

Job Ticket: 54082

DST#: 3

ATTN: Mike Hertel , Marc D

Test Start: 2014.03.12 @ 09:10:06

Tool Information

Drill Pipe:	Length:	3583.00 ft	Diameter:	3.80 inches	Volume:	50.26 bbl	Tool Weight:	2200.00 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:	30.00 ft	Diameter:	2.25 inches	Volume:	0.15 bbl	Weight to Pull Loose:	65000.00 lb
					Total Volume:	50.41 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		8.00 ft					String Weight: Initial	49000.00 lb
Depth to Top Packer:		3626.00 ft					Final	50000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		14.00 ft						
Tool Length:		35.00 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			3606.00	
Shut In Tool	5.00			3611.00	
Hydraulic tool	5.00			3616.00	
Packer	5.00			3621.00	21.00 Bottom Of Top Packer
Packer	5.00			3626.00	
Stubb	1.00			3627.00	
Perforations	5.00			3632.00	
Recorder	0.00	8369	Inside	3632.00	
Recorder	0.00	8700	Outside	3632.00	
Perforations	5.00			3637.00	
Bullnose	3.00			3640.00	14.00 Bottom Packers & Anchor

Total Tool Length: 35.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Hertel Oil Company LLC

34-15s 19w Ellis,KS

704 E.12th St
Hays KS 67601-3441

Doerr #H-2

Job Ticket: 54082

DST#: 3

ATTN: Mike Hertel , Marc D

Test Start: 2014.03.12 @ 09:10:06

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 56.00 sec/qt

Water Loss: 6.38 in³

Resistivity: ohm.m

Salinity: 2700.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

36 deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	30'GIP	0.000
30.00	MGO 5%G40%M55%O	0.148
25.00	CO	0.351

Total Length: 55.00 ft

Total Volume: 0.499 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8369

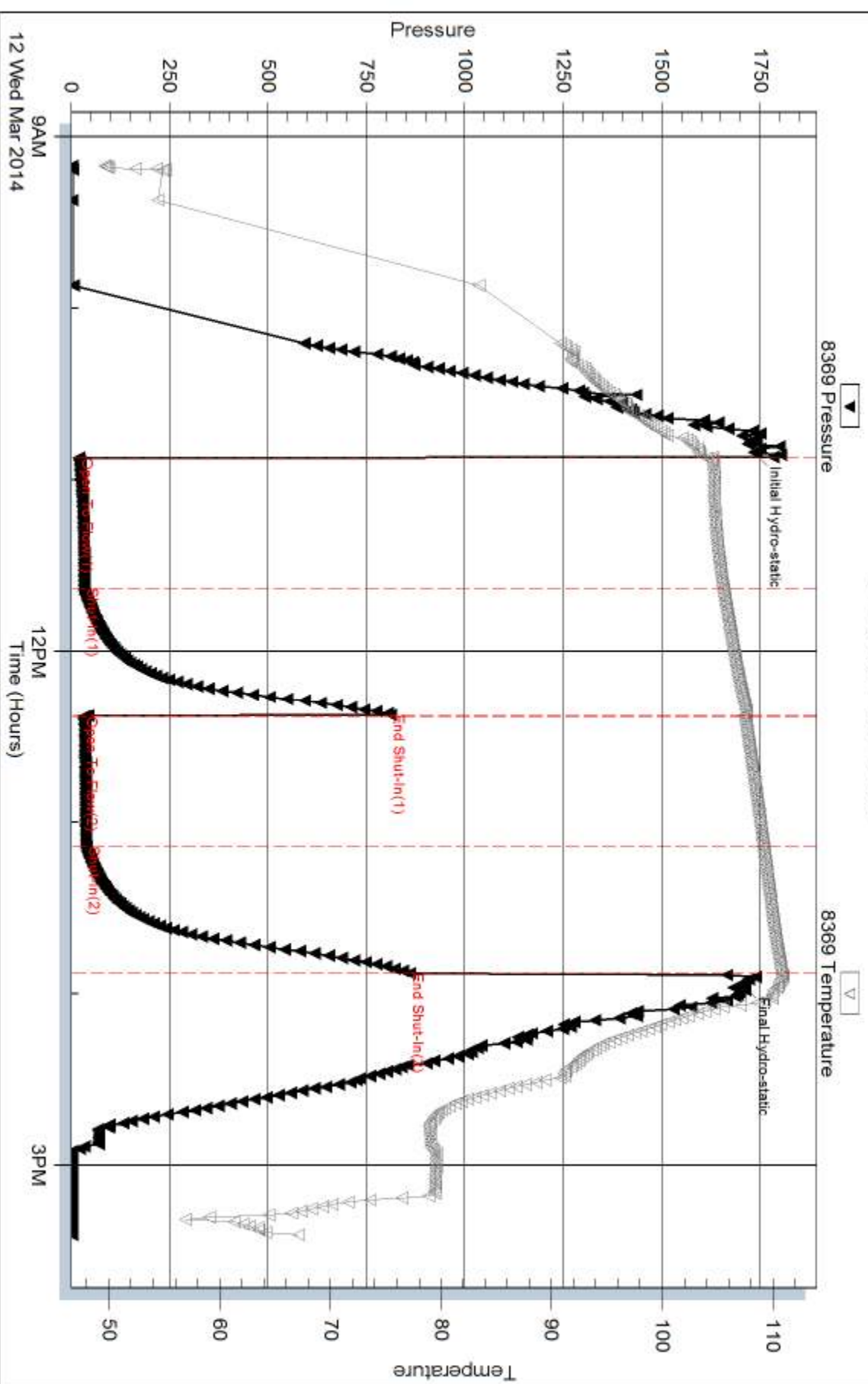
Inside

Hertel Oil Company LLC

Doerr #4-2

DST Test Number: 3

Pressure vs. Time

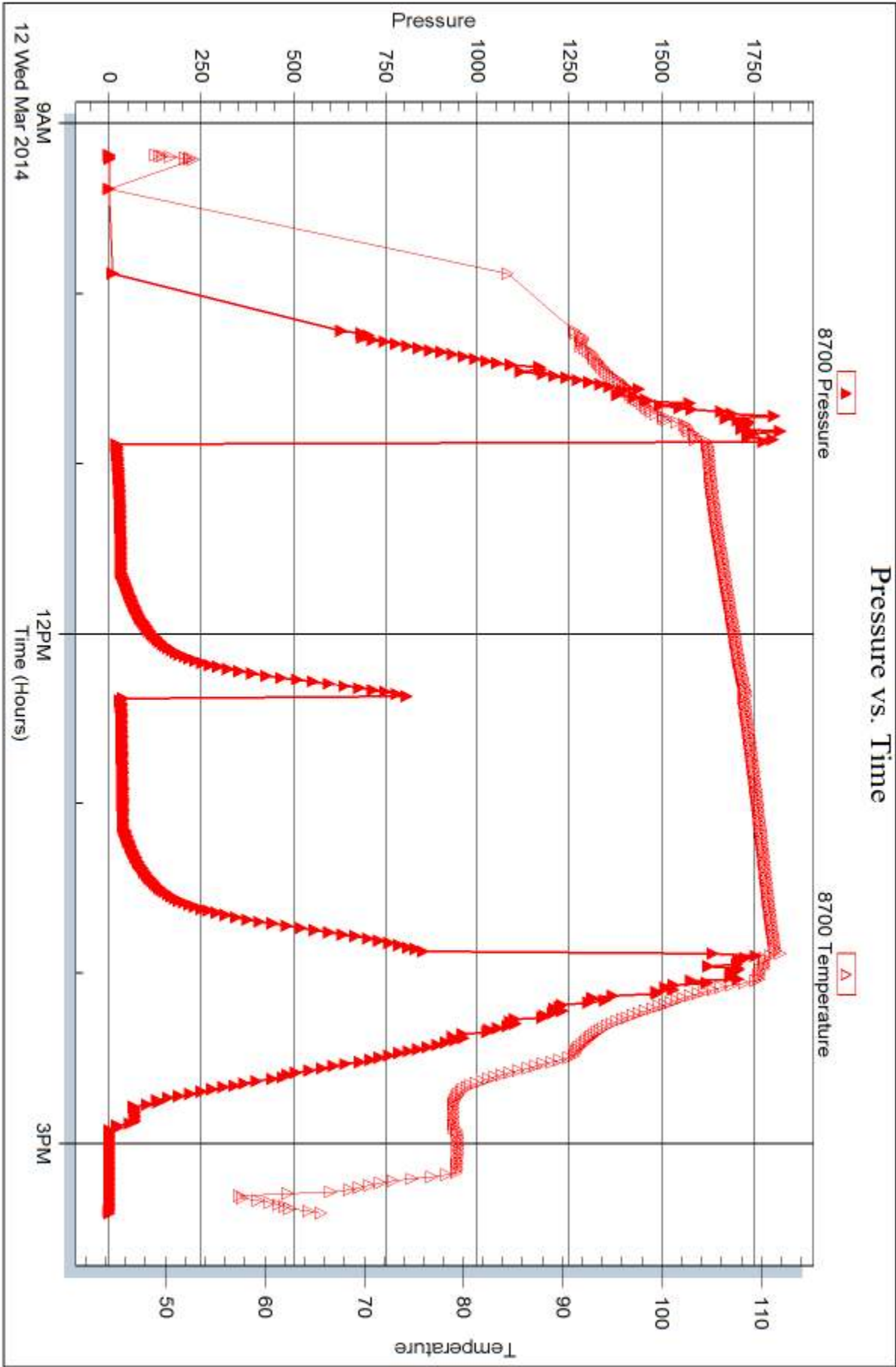


Serial #: 8700

Outside Hertel Oil Company LLC

Doerr #4-2

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Hertel Oil Company LLC**

704 E. 12th St
Hays KS 67601-3441

ATTN: Mike Hertel , Marc D

Doerr #H-2

34-15s 19w Ellis,KS

Start Date: 2014.03.12 @ 21:10:33

End Date: 2014.03.13 @ 02:57:57

Job Ticket #: 54083 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.03.17 @ 10:34:43



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC

704 E.12th St
Hays KS 67601-3441

ATTN: Mike Hertel, Marc D

34-15s 19w Ellis,KS

Doerr #H-2

Job Ticket: 54083

DST#: 4

Test Start: 2014.03.12 @ 21:10:33

GENERAL INFORMATION:

Formation: **Reagan Sd**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:21:43

Time Test Ended: 02:57:57

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 70

Interval: 3624.00 ft (KB) To 3645.00 ft (KB) (TVD)

Total Depth: 3645.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2042.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8369 Inside

Press@RunDepth: 755.97 psig @ 3625.00 ft (KB)

Start Date: 2014.03.12

End Date:

2014.03.13

Start Time: 21:10:33

End Time:

02:57:57

Capacity: 8000.00 psig

Last Calib.: 2014.03.13

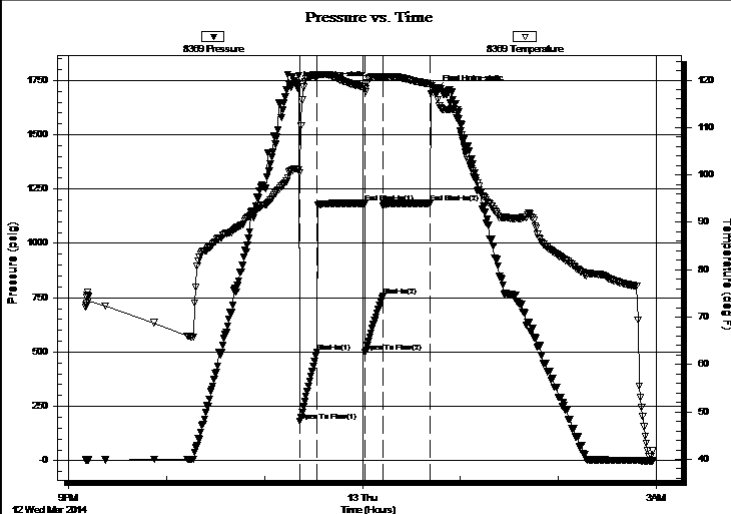
Time On Btm: 2014.03.12 @ 23:19:58

Time Off Btm: 2014.03.13 @ 00:44:58

TEST COMMENT: 10-IFP-strg bl thru-out
30-ISIP-no bl
10-FFP-strg bl in 1 min
30-FSIP-no bl

PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1727.18	101.34	Initial Hydro-static
2	183.08	100.42	Open To Flow (1)
13	500.57	120.83	Shut-In(1)
42	1185.09	118.54	End Shut-In(1)
42	498.71	118.18	Open To Flow (2)
53	755.97	120.51	Shut-In(2)
82	1184.89	119.19	End Shut-In(2)
85	1709.05	117.28	Final Hydro-static



Recovery

Length (ft)	Description	Volume (bbl)
1550.00	Water	21.47

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

Hertel Oil Company LLC

704 E.12th St
Hays KS 67601-3441

ATTN: Mike Hertel , Marc D

34-15s 19w Ellis,KS

Doerr #H-2

Job Ticket: 54083

DST#: 4

Test Start: 2014.03.12 @ 21:10:33

GENERAL INFORMATION:

Formation: **Reagan Sd**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:21:43

Time Test Ended: 02:57:57

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

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Interval: 3624.00 ft (KB) To 3645.00 ft (KB) (TVD)

Total Depth: 3645.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2050.00 ft (KB)

2042.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8700 Outside

Press@RunDepth: psig @ 3625.00 ft (KB)

Start Date: 2014.03.12

End Date:

2014.03.13

Start Time: 21:10:57

End Time:

02:57:06

Capacity: 8000.00 psig

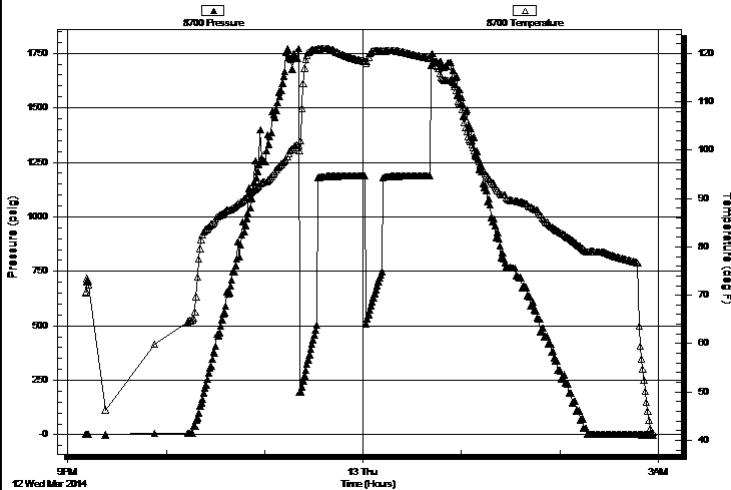
Last Calib.: 2014.03.13

Time On Btm:

Time Off Btm:

TEST COMMENT: 10-IFP-strg bl thru-out
30-ISIP-no bl
10-FFP-strg bl in 1 min
30-FSIP-no bl

Pressure vs. Time



PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
1550.00	Water	21.47

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil Company LLC

34-15s 19w Ellis,KS

704 E.12th St
Hays KS 67601-3441

Doerr #H-2

Job Ticket: 54083

DST#: 4

ATTN: Mike Hertel , Marc D

Test Start: 2014.03.12 @ 21:10:33

Tool Information

Drill Pipe:	Length:	3583.00 ft	Diameter:	3.80 inches	Volume:	50.26 bbl	Tool Weight:	2200.00 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:	30.00 ft	Diameter:	2.25 inches	Volume:	0.15 bbl	Weight to Pull Loose:	60000.00 lb
					Total Volume:	50.41 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		10.00 ft					String Weight: Initial	49000.00 lb
Depth to Top Packer:		3624.00 ft					Final	55000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		21.00 ft						
Tool Length:		42.00 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			3604.00	
Shut In Tool	5.00			3609.00	
Hydraulic tool	5.00			3614.00	
Packer	5.00			3619.00	21.00 Bottom Of Top Packer
Packer	5.00			3624.00	
Stubb	1.00			3625.00	
Recorder	0.00	8369	Inside	3625.00	
Recorder	0.00	8700	Outside	3625.00	
Perforations	17.00			3642.00	
Bullnose	3.00			3645.00	21.00 Bottom Packers & Anchor
Total Tool Length:	42.00				



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Hertel Oil Company LLC

34-15s 19w Ellis,KS

704 E.12th St
Hays KS 67601-3441

Doerr #H-2

Job Ticket: 54083

DST#: 4

ATTN: Mike Hertel , Marc D

Test Start: 2014.03.12 @ 21:10:33

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: 2700.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

Oil API:

deg API

Water Salinity: 32000 ppm

ft

bbl

psig

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1550.00	Water	21.469

Total Length: 1550.00 ft Total Volume: 21.469 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .24@60F

Serial #: 8369

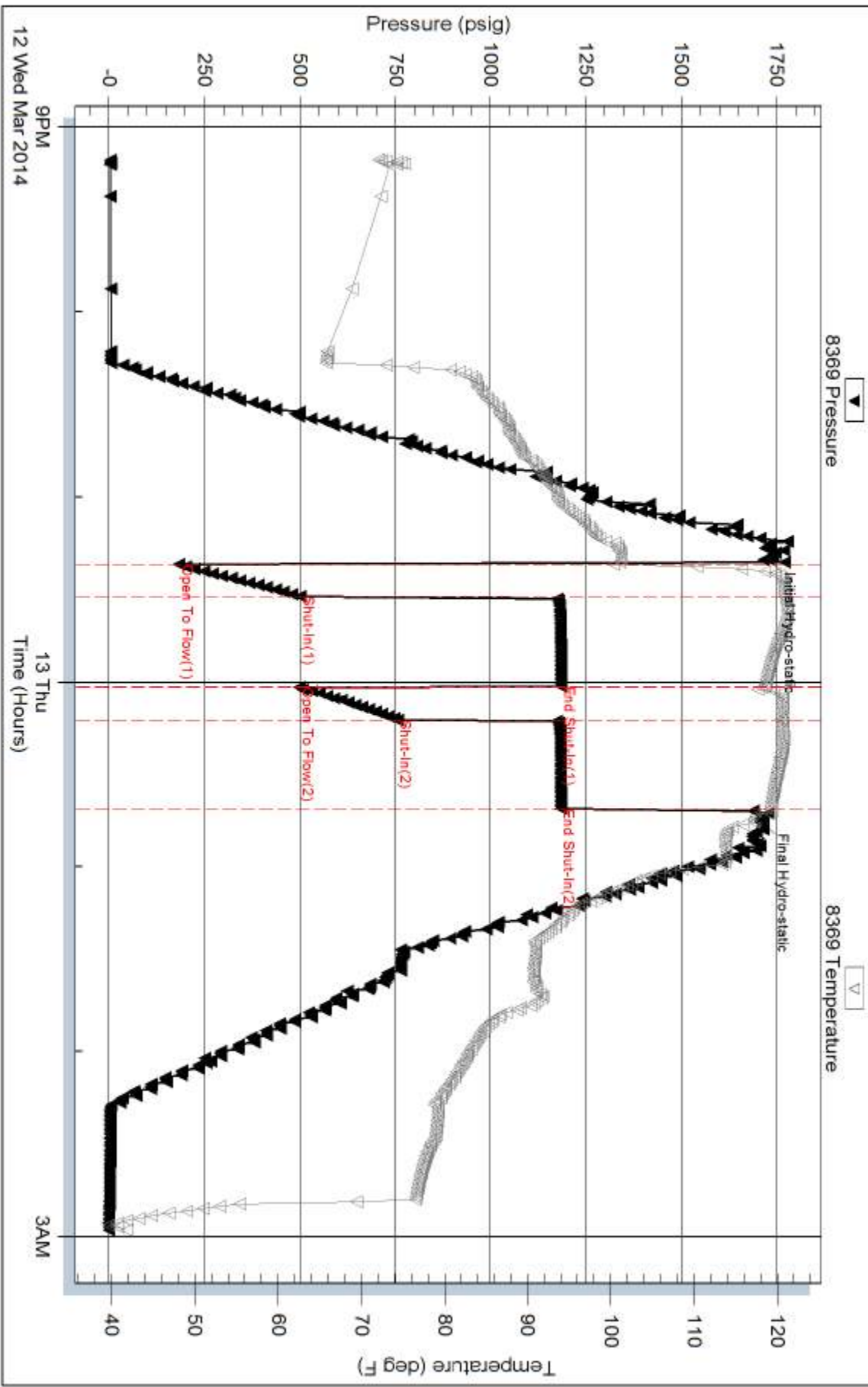
Inside

Hertel Oil Company LLC

Doerr #4-2

DST Test Number: 4

Pressure vs. Time

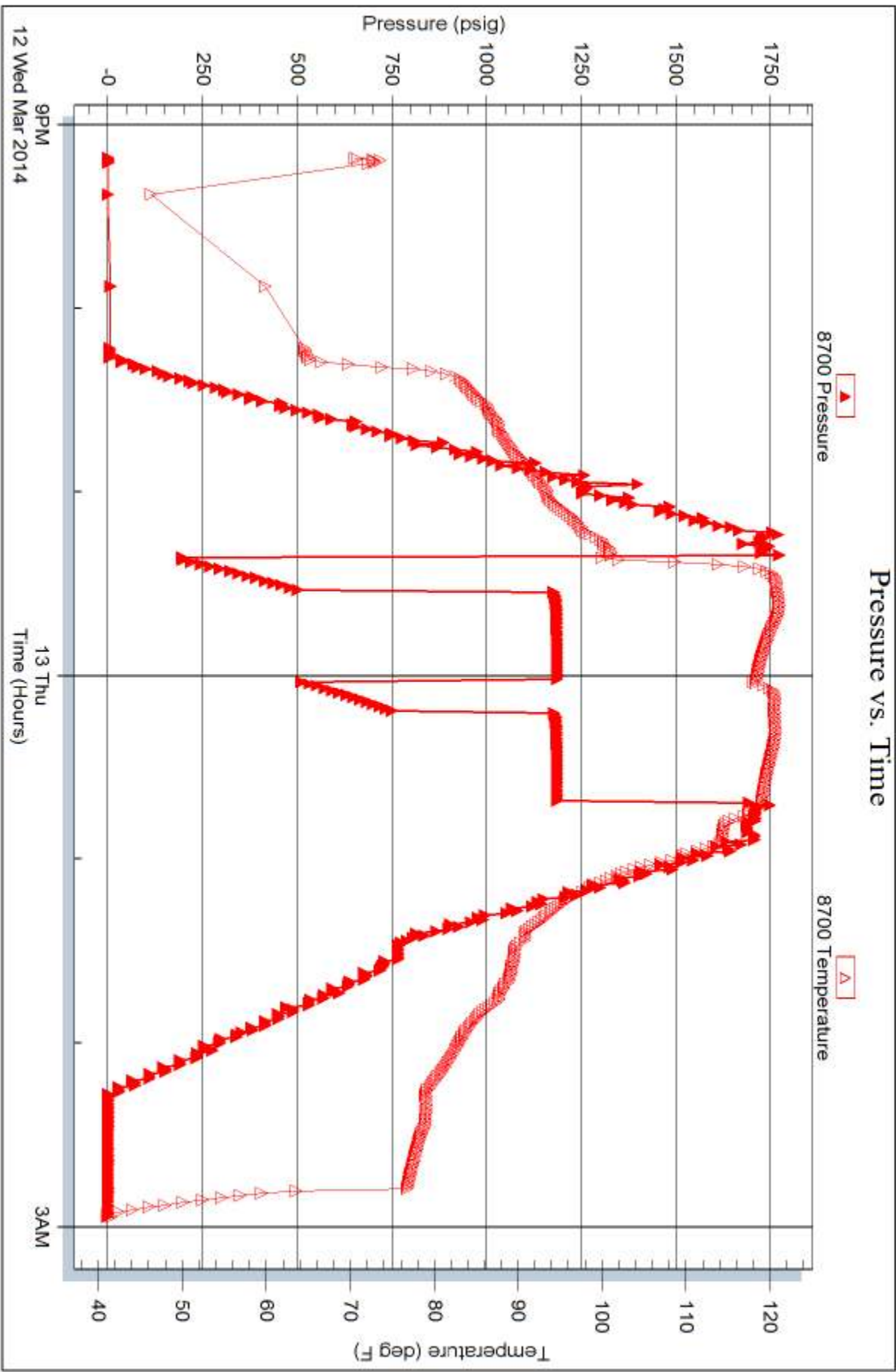


Serial #: 8700

Outside Hertel Oil Company LLC

Doerr #H-2

DST Test Number: 4





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54080

Well Name & No. Doerr #H-2 Test No. 1 Date 3-10-14
 Company Hertal Oil Company LLC Elevation 2050 KB 2042 GL
 Address 704 E. 12th ST. Hays, KS 67601-3441
 Co. Rep / Geo. Ron Nelson Rig Discovery rig 3
 Location: Sec. 34 Twp. 15^s Rge. 19^w Co. Ellis State K

Interval Tested 3379-3406 Zone Tested LKC "E"
 Anchor Length 27 Drill Pipe Run 3361 Mud Wt. 8.8
 Top Packer Depth 3374 Drill Collars Run 30 Vis 48
 Bottom Packer Depth 3379 Wt. Pipe Run — WL 6.8
 Total Depth 3406 Chlorides 1800 ppm System LCM 2#

Blow Description IFP - Weak Blow 1/2" To 1 1/4" Blow
ISIP - NO Blow
FFP - Weak Blow 1/4" Blow
FSIP - NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>MW w/show floor</u>		<u>75</u>	<u>25</u>	
<u>60</u>	<u>WATER</u>				

Rec Total 100 BHT 107 Gravity — API RW .11 @ 60 °F Chlorides 80000 ppm
 (A) Initial Hydrostatic 1600 ☒ Test 1150 T-On Location 1930
 (B) First Initial Flow 32 ☐ Jars T-Started 2130
 (C) First Final Flow 48 ☐ Safety Joint T-Open 2345
 (D) Initial Shut-In 723 ☐ Circ Sub T-Pulled 0145
 (E) Second Initial Flow 49 ☐ Hourly Standby T-Out 0332
 (F) Second Final Flow 63 ☒ Mileage 40 RT 62 Comments Slid Tool Approx 8' To
 (G) Final Shut-In 701 ☐ Sampler Bottom
 (H) Final Hydrostatic 1593 ☐ Straddle ☐ Ruined Shale Packer
☐ Shale Packer ☐ Ruined Packer
☐ Extra Packer ☐ Extra Copies

Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30
 Sub Total 1212
 MP/DST Disc't —

Approved By _____

Our Representative

Ray Schwager Thank you

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54081

Well Name & No. DOERR #H-2 Test No. 2 Date 3-11-14
 Company HERTAL OIL COMPANY LLC Elevation 2050 KB 2042 GL
 Address 704 E. 12TH ST. HAYS, KS 67601-3441
 Co. Rep / Geo. MARC DOWNING Rig Discovery rig 3
 Location: Sec. 34 Twp. 15^E Rge. 19^W Co. ELLIS State KS

Interval Tested 3454-3530 Zone Tested LKC H-J
 Anchor Length 27 Drill Pipe Run 3423 Mud Wt. 9
 Top Packer Depth 3449 Drill Collars Run 30 Vis 60
 Bottom Packer Depth 3454 Wt. Pipe Run — WL 6.8
 Total Depth 3530 Chlorides 2500 ppm System LCM 2#

Blow Description IFP - WEAK SURFACE BLOW, died in 8 min
ISIP - NO BLOW
FFP - NO BLOW, flushed Tool
FSIP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>65</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

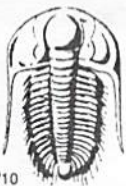
Rec Total 65 BHT 107 Gravity — API RW .#8 @ 50 °F Chlorides 58000 ppm
 (A) Initial Hydrostatic 1646 ☒ Test 1150 T-On Location 1600
 (B) First Initial Flow 26 ☐ Jars — T-Started 1635
 (C) First Final Flow 44 ☐ Safety Joint — T-Open 1845
 (D) Initial Shut-In 378 ☐ Circ Sub — T-Pulled 2045
 (E) Second Initial Flow 44 ☐ Hourly Standby — T-Out 2225
 (F) Second Final Flow 52 ☒ Mileage 40 RT 62 Comments —
 (G) Final Shut-In 315 ☐ Sampler —
 (H) Final Hydrostatic 1631 ☐ Straddle —
☐ Shale Packer —
☐ Extra Packer —
☐ Extra Recorder —
☐ Day Standby —
☐ Accessibility —

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

Sub Total 1212 MP/DST Disc't —

Approved By — Our Representative RAY SCHWAGER Thank you

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54082

Well Name & No. Doerr H-2 Test No. 3 Date 3-12-14
Company Hertal Oil Company LLC Elevation 2050 KB 2042 GL
Address 704 E. 12th St. Hays, KS 67601-3441
Co. Rep / Geo. MARC Downing Rig Discovery rig 3
Location: Sec. 34 Twp. 15th Rge. 19th Co. Ellis State Ks

Interval Tested 3626-3640 Zone Tested Arbuckle
Anchor Length 14 Drill Pipe Run 3583 Mud Wt. 8.9
Top Packer Depth 3621 Drill Collars Run 30 Vis 56
Bottom Packer Depth 3626 Wt. Pipe Run - WL 6.4
Total Depth 3640 Chlorides 2700 ppm System LCM 2nd

Blow Description IFP- Weak Blow Thru-out, 1/4" To 1 1/4" Blow
ISIP- NO Blow
FFP- Weak Blow Thru-out, 1/4" To 1 1/4" Blow
FSIP- NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>GIP</u>				
<u>25</u>	<u>CO</u>				
<u>30</u>	<u>MGO</u>	<u>5</u>	<u>55</u>		<u>40</u>

Rec Total 55 BHT 110 Gravity 36 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic	(B) First Initial Flow	(C) First Final Flow	(D) Initial Shut-In	(E) Second Initial Flow	(F) Second Final Flow	(G) Final Shut-In	(H) Final Hydrostatic
<u>1733</u>	<u>19</u>	<u>33</u>	<u>811</u>	<u>33</u>	<u>39</u>	<u>859</u>	<u>1704</u>

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

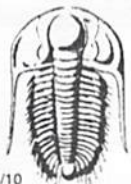
☒ Test 1150
☐ Jars
☐ Safety Joint
☐ Circ Sub
☐ Hourly Standby
☒ Mileage 40 RT 62
☐ Sampler
☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility
Sub Total 1212

T-On Location 0850
T-Started 0910
T-Open 1050
T-Pulled 1350
T-Out 1524
Comments
☐ Ruined Shale Packer
☐ Ruined Packer
☐ Extra Copies
Sub Total 0
Total 1212
MP/DST Disc't

Approved By _____

Our Representative Ray Schwaner Thank you

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54083

Well Name & No. DOCAR H-2 Test No. 4 Date 3-13-14
 Company HERTAL OIL COMPANY LLC Elevation 2050 KB 2042 GL
 Address 704 E. 12th ST. Hays, KS 67601-3441
 Co. Rep / Geo. MARC DOWNING Rig DISCOVERY rig 3
 Location: Sec. 34 Twp. 15^s Rge. 19^w Co. ELLIS State K

Interval Tested 3624-3645 Zone Tested REAGAN SD
 Anchor Length 21 Drill Pipe Run 3583 Mud Wt. 9
 Top Packer Depth 3619 Drill Collars Run 30 Vis 54
 Bottom Packer Depth 3624 Wt. Pipe Run - WL 6.4
 Total Depth 3645 Chlorides 2700 ppm System LCM 2#

Blow Description IFP - STRONG Blow thru-out
ISIP - NO Blow
FFP - STRONG Blow in 1 min
FSIP - NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1550</u>	<u>WATER</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 1550 BHT 119 Gravity - API RW .24 @ 60 ° F Chlorides 32000 ppm

(A) Initial Hydrostatic 1727
 (B) First Initial Flow 183
 (C) First Final Flow 500
 (D) Initial Shut-In 1185
 (E) Second Initial Flow 498
 (F) Second Final Flow 755
 (G) Final Shut-In 1184
 (H) Final Hydrostatic 1709

☒ Test 1150
☐ Jars
☐ Safety Joint
☐ Circ Sub
☐ Hourly Standby
☒ Mileage 40 RT 62
☐ Sampler
☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility

T-On Location 2040
 T-Started 2110
 T-Open 2320
 T-Pulled 0040
 T-Out 0257

Comments

Initial Open 10
 Initial Shut-In 30
 Final Flow 10
 Final Shut-In 30

☐ Ruined Shale Packer
☐ Ruined Packer
☐ Extra Copies
 Sub Total 0
 Total 1212
 MP/DST Disc't

Approved By

Our Representative

Ray Schwager Mark
404

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