



DRILL STEM TEST REPORT

Prepared For: **Downing-Nelson Oil CO Inc**

Po Box 1019
Hays KS 67601

ATTN: Marc Downing

Keith #1-4

4-9s-24w Graham KS

Start Date: 2014.03.28 @ 23:10:00

End Date: 2014.03.29 @ 09:14:00

Job Ticket #: 56095 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.04.02 @ 16:42:12



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning-Nelson Oil CO Inc

4-9s-24w Graham KS

Po Box 1019
Hays KS 67601

Keith #1-4

Job Ticket: 56095

DST#: 1

ATTN: Marc Dow ning

Test Start: 2014.03.28 @ 23:10:00

GENERAL INFORMATION:

Formation: **LKC "C-D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:58:30

Time Test Ended: 09:14:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Cody Bloedorn

Unit No: 73

Interval: 3782.00 ft (KB) To 3825.00 ft (KB) (TVD)

Reference Elevations: 2424.00 ft (KB)

Total Depth: 3825.00 ft (KB) (TVD)

2416.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8940 Outside

Press@RunDepth: 22.90 psig @ 3818.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.03.28

End Date:

2014.03.29

Last Calib.:

2014.03.29

Start Time: 23:10:05

End Time:

09:14:00

Time On Btm:

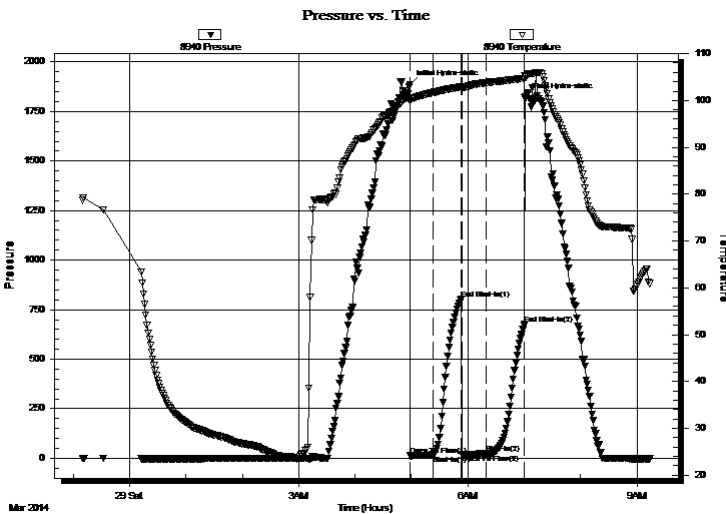
2014.03.29 @ 04:58:15

Time Off Btm:

2014.03.29 @ 07:00:45

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	1886.49	100.55	Initial Hydro-static
1	12.96	99.93	Open To Flow (1)
25	16.98	101.68	Shut-In(1)
55	804.14	102.90	End Shut-In(1)
56	18.25	102.60	Open To Flow (2)
82	22.90	103.81	Shut-In(2)
122	676.29	104.74	End Shut-In(2)
123	1817.66	105.22	Final Hydro-static

Recovery

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

Gas Rates

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



TRILOBITE TESTING, INC

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4-9s-24w Graham KS

Po Box 1019
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Keith #1-4

Job Ticket: 56095

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Total Depth: 3825.00 ft (KB) (TVD)

2416.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8648

Inside

Press@RunDepth: psig @ 3818.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.03.28

End Date:

2014.03.29

Last Calib.:

2014.03.29

Start Time: 23:10:05

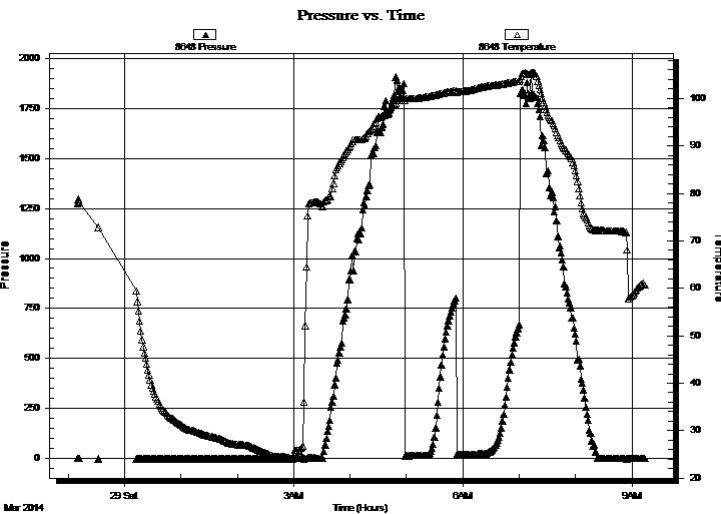
End Time:

09:14:00

Time On Btm:

Time Off Btm:

TEST COMMENT:
30 - IF- 3/4" blow
30 - ISI- No return
30 - FF- No blow
30 - FSI- No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud - Show 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

Dow ning-Nelson Oil CO Inc

4-9s-24w Graham KS

Po Box 1019
Hays KS 67601

Keith #1-4

Job Ticket: 56095

DST#: 1

ATTN: Marc Dow ning

Test Start: 2014.03.28 @ 23:10:00

Tool Information

Drill Pipe:	Length: 3757.00 ft	Diameter: 3.80 inches	Volume: 52.70 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: 55000.00 lb
			<u>Total Volume: 52.85 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 51000.00 lb
Depth to Top Packer:	3782.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval betw een Packers:	43.00 ft			
Tool Length:	64.00 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			3762.00	
Shut In Tool	5.00			3767.00	
Hydraulic tool	5.00			3772.00	
Packer	5.00			3777.00	21.00 Bottom Of Top Packer
Packer	5.00			3782.00	
Stubb	1.00			3783.00	
Perforations	2.00			3785.00	
Change Over Sub	1.00			3786.00	
Drill Pipe	31.00			3817.00	
Change Over Sub	1.00			3818.00	
Recorder	0.00	8648	Inside	3818.00	
Recorder	0.00	8940	Outside	3818.00	
Perforations	4.00			3822.00	
Bullnose	3.00			3825.00	43.00 Bottom Packers & Anchor

Total Tool Length: 64.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil CO Inc

4-9s-24w Graham KS

Po Box 1019
Hays KS 67601

Keith #1-4

Job Ticket: 56095

DST#: 1

ATTN: Marc Dow ning

Test Start: 2014.03.28 @ 23:10:00

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: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: 1.50 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud - Show 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:

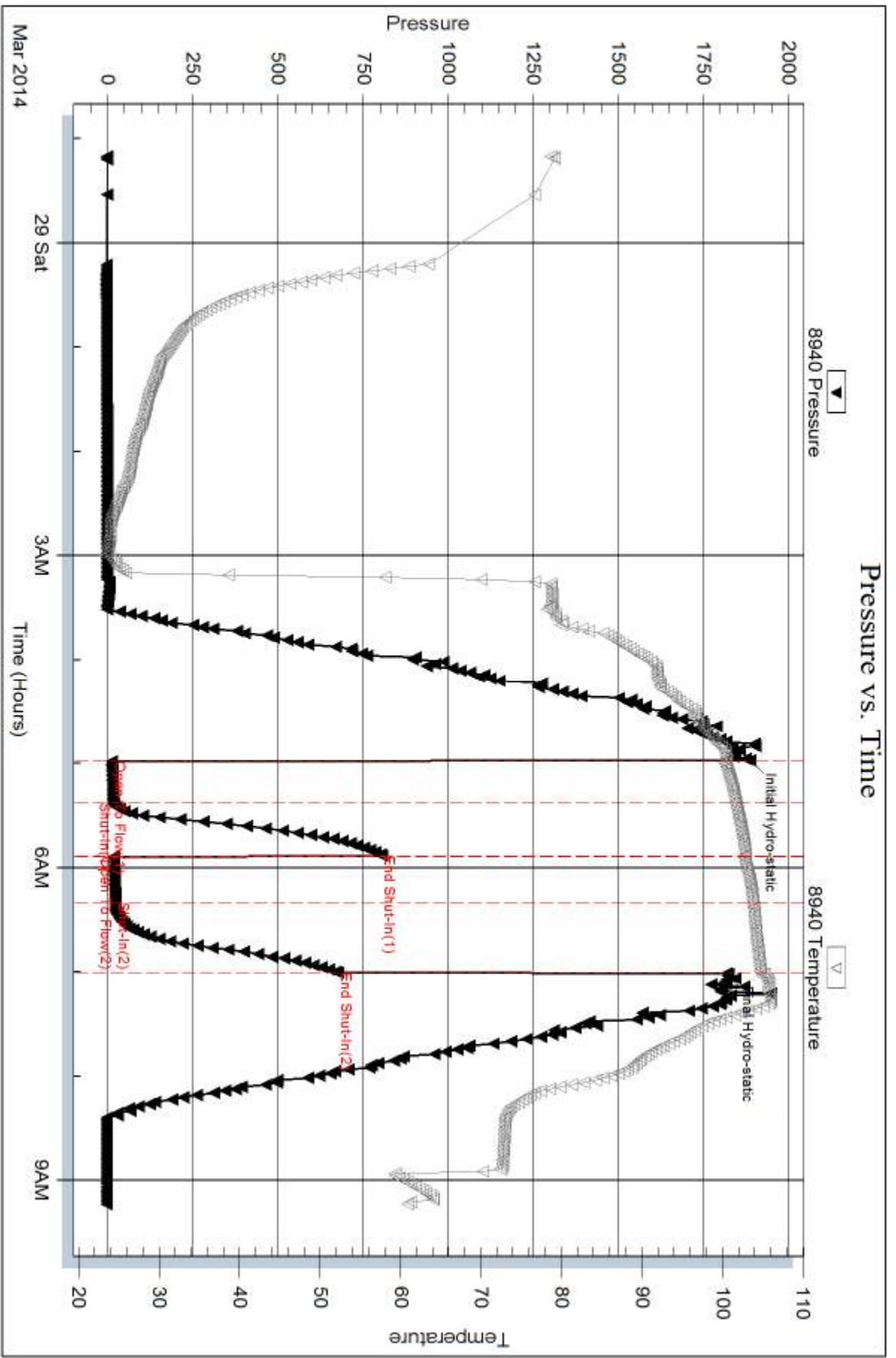
Recovery Comments:

Serial #: 8940

Outside Dow nrg-Nelson Oil CO Inc

Keith #1-4

DST Test Number: 1



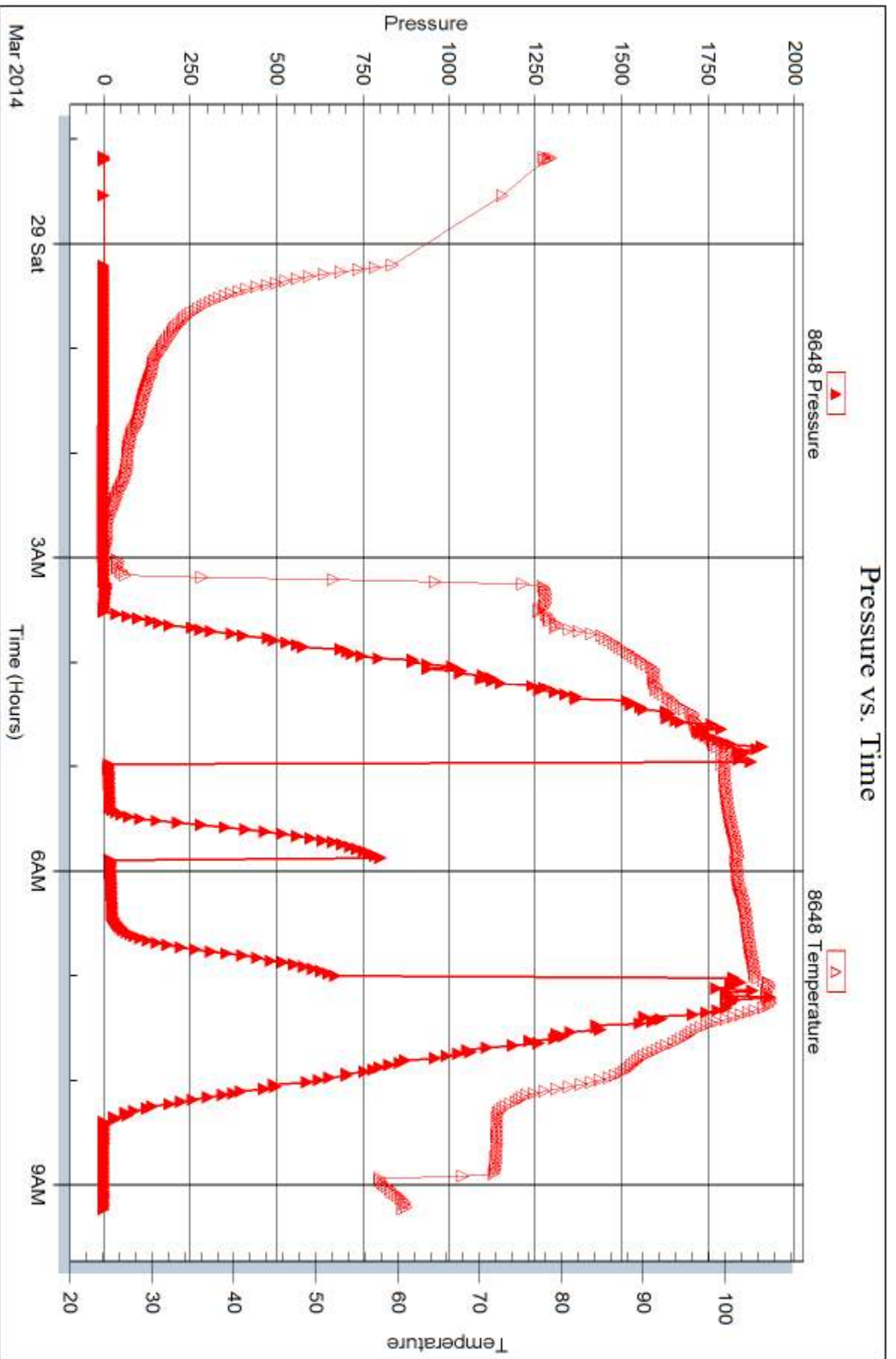
Serial #: 8648

Inside

Dow nng-Nelson Oil CO Inc

Keith #1-4

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 56095

Printed: 2014.04.02 @ 16:42:15



DRILL STEM TEST REPORT

Prepared For: **Downing-Nelson Oil CO Inc**

Po Box 1019
Hays KS 67601

ATTN: Marc Downing

Keith #1-4

4-9s-24w Graham KS

Start Date: 2014.03.29 @ 21:59:00

End Date: 2014.03.30 @ 03:22:30

Job Ticket #: 56096 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.04.02 @ 16:41:27



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning-Nelson Oil CO Inc

4-9s-24w Graham KS

Po Box 1019
Hays KS 67601

Keith #1-4

Job Ticket: 56096

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.03.29 @ 21:59:00

GENERAL INFORMATION:

Formation: **LKC "I"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:42:15

Time Test Ended: 03:22:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Cody Bloedorn

Unit No: 73

Interval: 3902.00 ft (KB) To 3922.00 ft (KB) (TVD)

Reference Elevations: 2424.00 ft (KB)

Total Depth: 3922.00 ft (KB) (TVD)

2416.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8940 Outside

Press@RunDepth: 36.53 psig @ 3905.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.03.29

End Date:

2014.03.30

Last Calib.: 2014.03.30

Start Time: 21:59:05

End Time:

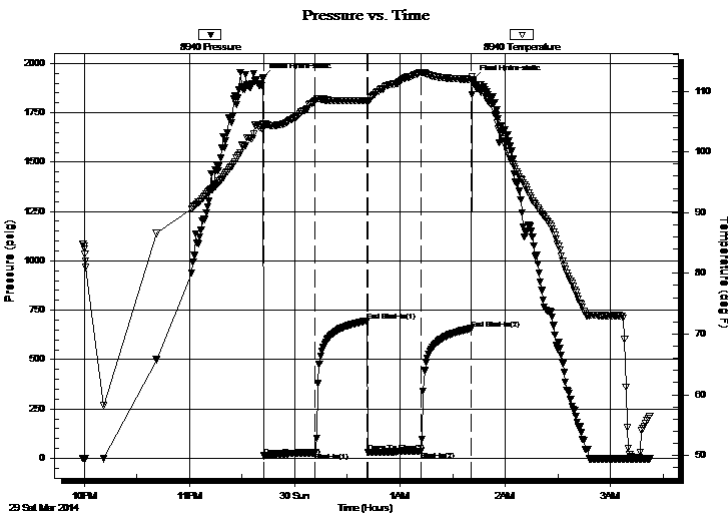
03:22:29

Time On Btm: 2014.03.29 @ 23:42:00

Time Off Btm: 2014.03.30 @ 01:41:30

TEST COMMENT: 30 - IF- 1" blow
30 - IS- No return
30 - FF- 1" blow
30 - FS- No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1926.29	104.59	Initial Hydro-static
1	12.51	103.95	Open To Flow (1)
30	28.77	108.36	Shut-In(1)
60	696.29	108.41	End Shut-In(1)
60	29.44	108.32	Open To Flow (2)
90	36.53	113.08	Shut-In(2)
119	656.63	111.93	End Shut-In(2)
120	1915.98	111.40	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	VOSMW, 2%O, 40%M, 58%W	0.07

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning-Nelson Oil CO Inc

4-9s-24w Graham KS

Po Box 1019
Hays KS 67601

Keith #1-4

Job Ticket: 56096

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.03.29 @ 21:59:00

GENERAL INFORMATION:

Formation: **LKC "I"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:42:15

Time Test Ended: 03:22:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Cody Bloedorn

Unit No: 73

Interval: 3902.00 ft (KB) To 3922.00 ft (KB) (TVD)

Total Depth: 3922.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2424.00 ft (KB)

2416.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8648 Inside

Press@RunDepth: psig @ 3905.00 ft (KB)

Start Date: 2014.03.29

End Date:

2014.03.30

Start Time: 21:59:05

End Time:

03:22:29

Capacity: 8000.00 psig

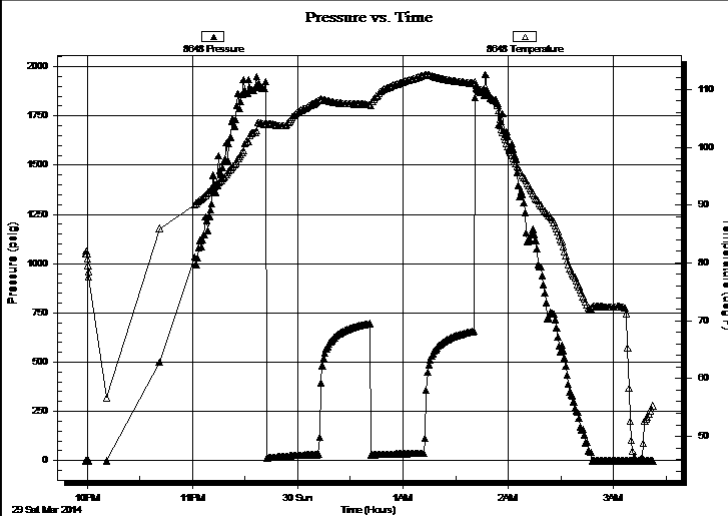
Last Calib.: 2014.03.30

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 - IF- 1" blow
30 - IS- No return
30 - FF- 1" blow
30 - FS- No return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
15.00	VOSMW, 2%O, 40%M, 58%W	0.07

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning-Nelson Oil CO Inc

4-9s-24w Graham KS

Po Box 1019
Hays KS 67601

Keith #1-4

Job Ticket: 56096

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.03.29 @ 21:59:00

Tool Information

Drill Pipe:	Length: 3881.00 ft	Diameter: 3.80 inches	Volume: 54.44 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: 62000.00 lb
			<u>Total Volume: 54.59 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3902.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval betw een Packers:	20.00 ft			
Tool Length:	41.00 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			3882.00	
Shut In Tool	5.00			3887.00	
Hydraulic tool	5.00			3892.00	
Packer	5.00			3897.00	21.00 Bottom Of Top Packer
Packer	5.00			3902.00	
Stubb	1.00			3903.00	
Perforations	2.00			3905.00	
Recorder	0.00	8648	Inside	3905.00	
Recorder	0.00	8940	Outside	3905.00	
Perforations	14.00			3919.00	
Bullnose	3.00			3922.00	20.00 Bottom Packers & Anchor

Total Tool Length: 41.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil CO Inc

4-9s-24w Graham KS

Po Box 1019
Hays KS 67601

Keith #1-4

Job Ticket: 56096

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.03.29 @ 21:59:00

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:

36000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.50 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
15.00	VOSMW, 2%O, 40%M, 58%W	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbf

Num Fluid Samples: 0

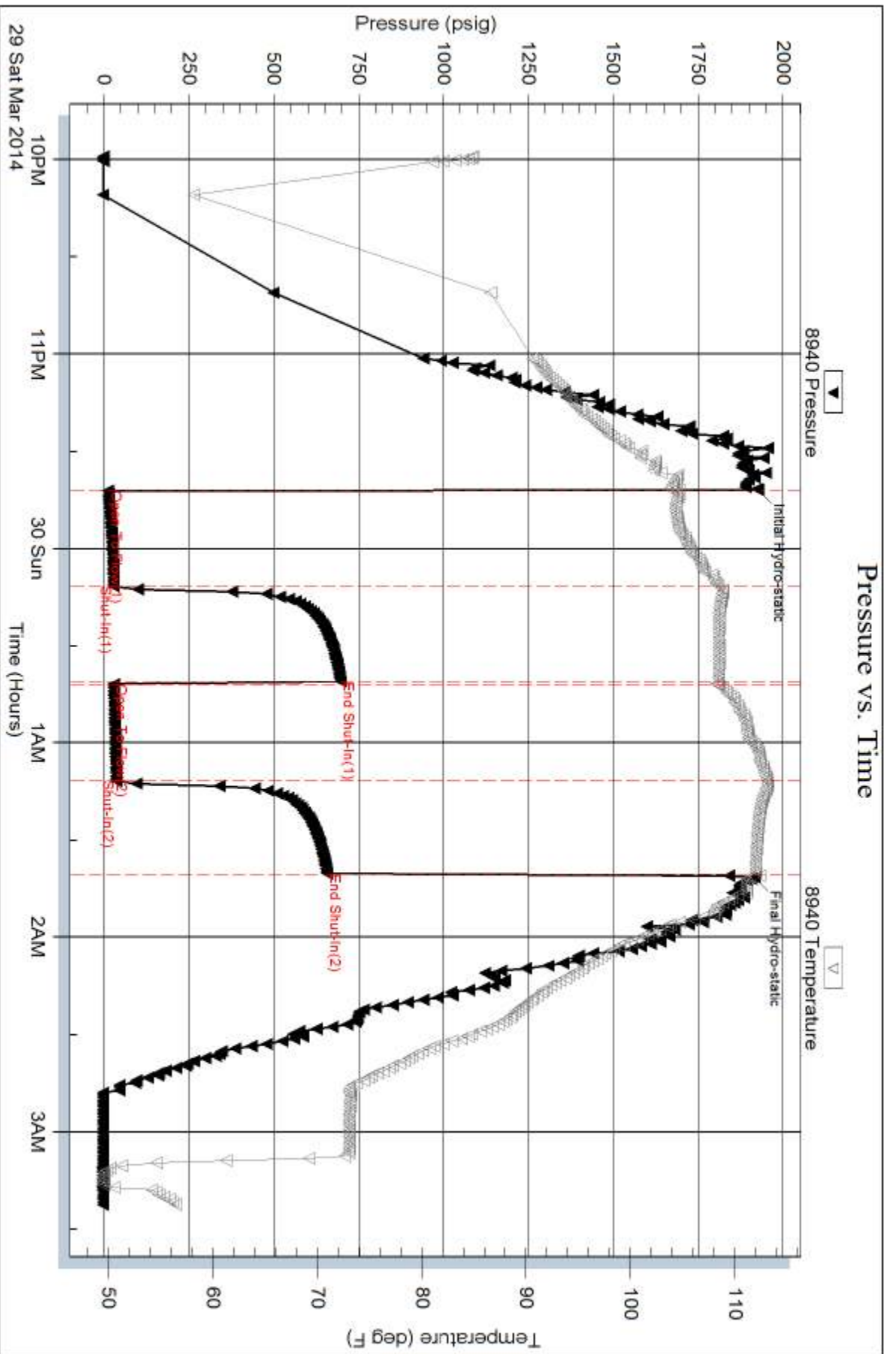
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .26 @ 51 Degrees = 36,000 Chlorides



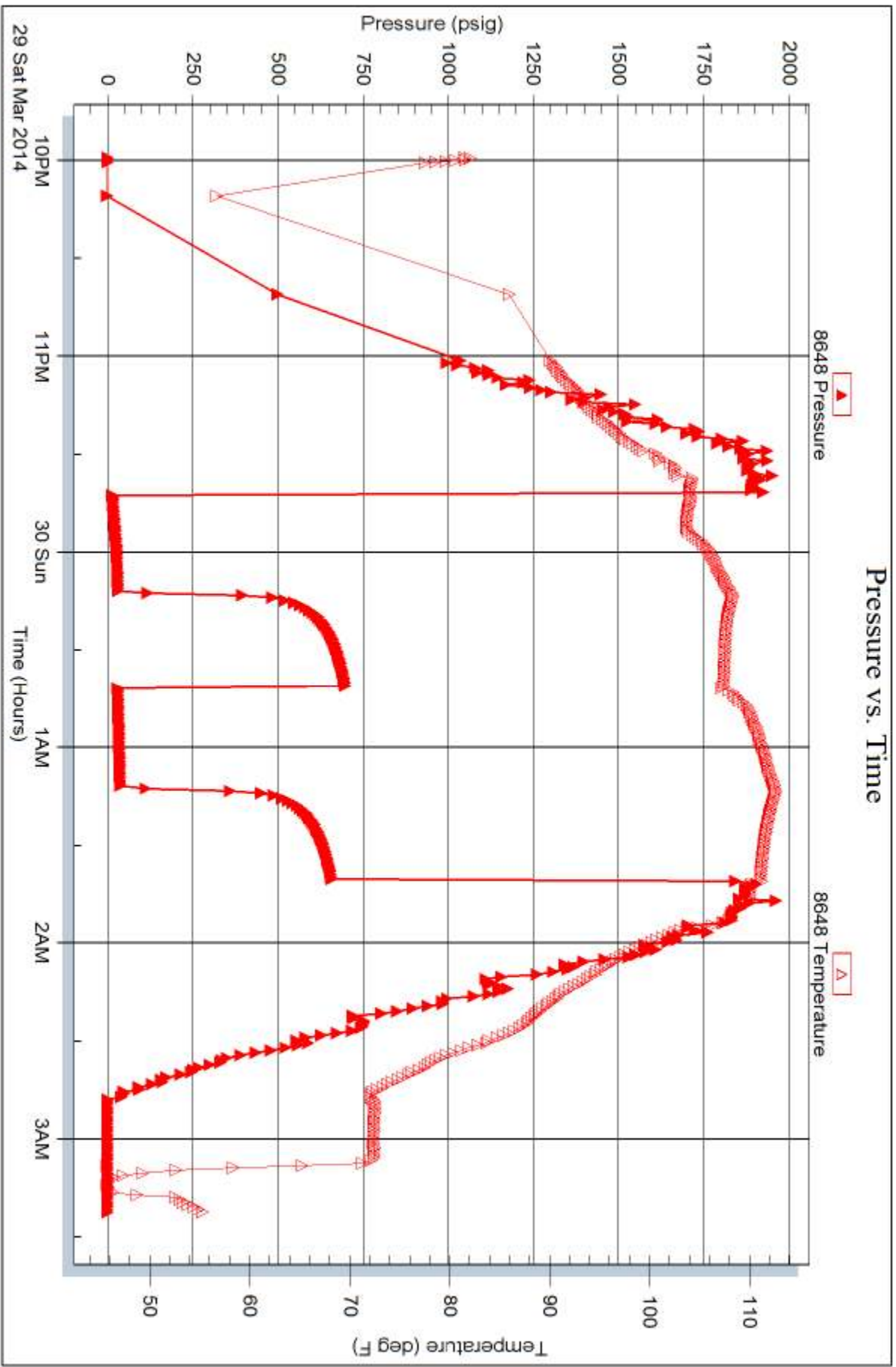
Serial #: 8648

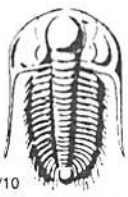
Inside

Dow nrg-Nelson Oil CO Inc

Keith #1-4

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **56095**

4/10

Well Name & No. Keith 1-4 Test No. 1 Date 3-28-14
 Company ~~P. D. D. D. A~~ Downing-Nelson Oil Co Inc Elevation 2424 KB 2416 GL
 Address Po Box 1019, Hays KS, 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #4
 Location: Sec. 4 Twp. 9S Rge. 24W Co. Graham State KS

Interval Tested 3782 - 3825 Zone Tested LKC "C-D"
 Anchor Length 43' Drill Pipe Run 3757 Mud Wt. 8.7
 Top Packer Depth 3777 Drill Collars Run 30 Vis 60
 Bottom Packer Depth 3782 Wt. Pipe Run — WL 8
 Total Depth 3825 Chlorides 500 ppm System LCM 1 1/2

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

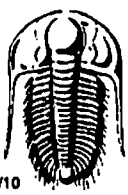
Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud show of oil</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 10' BHT 104° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1886</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>2244</u>
(B) First Initial Flow <u>12</u>	<input type="checkbox"/> Jars	T-Started <u>2310</u>
(C) First Final Flow <u>16</u>	<input type="checkbox"/> Safety Joint	T-Open <u>0453</u>
(D) Initial Shut-In <u>804</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>0653</u>
(E) Second Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Hourly Standby <u>1h 100</u>	T-Out <u>0914</u>
(F) Second Final Flow <u>22</u>	<input checked="" type="checkbox"/> Mileage <u>127RT</u> <u>196.85</u>	Comments
(G) Final Shut-In <u>076</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1817</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1446.85</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1446.85</u>	

Approved By _____ Our Representative Cody Blaw

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. 56096

Well Name & No. Keith 1-4 Test No. 2 Date 3-29-14
 Company Downing - Nelson Oil Co Inc Elevation 2424 KB 2416 GL
 Address Po Box 7019, Hays KS, 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #4
 Location: Sec. 4 Twp. 9S Rge. 24W Co. Graham State KS

Interval Tested 3902-3922 Zone Tested LKC "I"
 Anchor Length 20' Drill Pipe Run 3881' Mud Wt. 9.4
 Top Packer Depth 3897 Drill Collars Run 30' Vis 55
 Bottom Packer Depth 3902 Wt. Pipe Run - WL 8
 Total Depth 3922 Chlorides 4,000 ppm System LCM 1 1/2 -

Blow Description IF - 1" blow
ISI - No return
FF - 1" blow
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>VSONMW</u>	<u>2</u>	<u>58</u>	<u>40</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 15 BHT 111° Gravity - API RW 26 @ 51 °F Chlorides 36000 ppm

(A) Initial Hydrostatic 1926 Test 1150 T-On Location 2151
 (B) First Initial Flow 12 Jars - T-Started 2159
 (C) First Final Flow 28 Safety Joint - T-Open 2343
 (D) Initial Shut-In 696 Circ Sub - T-Pulled 0143
 (E) Second Initial Flow 29 Hourly Standby - T-Out 0324
 (F) Second Final Flow 36 Mileage 127RT x2 393.70
 (G) Final Shut-In 656 Sampler -
 (H) Final Hydrostatic 1915 Straddle -

Initial Open 30 Shale Packer -
 Initial Shut-In 30 Extra Packer -
 Final Flow 30 Extra Recorder -
 Final Shut-In 30 Day Standby -
 Accessibility -
 Sub Total 1543.70

Comments
Loaded tools 03-30-14
8:50pm
 Ruined Shale Packer -
 Ruined Packer -
 Extra Copies -
 Sub Total 0
 Total 1543.70
 MP/DST Disc't -

Approved By _____ Our Representative Cody Black

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.