



DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co**

PO Box 1019
Hays, KS 67601

ATTN: Marc Downing

CMKL 1-18

18-9s-23w Graham KS

Start Date: 2014.01.15 @ 04:14:00

End Date: 2014.01.15 @ 10:23:15

Job Ticket #: 56054 DST #: 1

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

Printed: 2014.01.17 @ 14:12:35



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Downing Nelson Oil Co

18-9s-23w Graham KS

PO Box 1019
Hays, KS 67601

CMKL 1-18

Job Ticket: 56054

DST#: 1

ATTN: Marc Downing

Test Start: 2014.01.15 @ 04:14:00

GENERAL INFORMATION:

Formation: **LKC "C+D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:50:15

Time Test Ended: 10:23:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Cody Bloedorn

Unit No: 73

Interval: 3780.00 ft (KB) To 3825.00 ft (KB) (TVD)

Reference Elevations: 2406.00 ft (KB)

Total Depth: 3825.00 ft (KB) (TVD)

2398.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 6799

Inside

Press@RunDepth: 31.51 psig @ 3819.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.15

End Date:

2014.01.15

Last Calib.: 2014.01.15

Start Time: 04:14:05

End Time:

10:23:14

Time On Btm: 2014.01.15 @ 06:50:00

Time Off Btm: 2014.01.15 @ 08:51:00

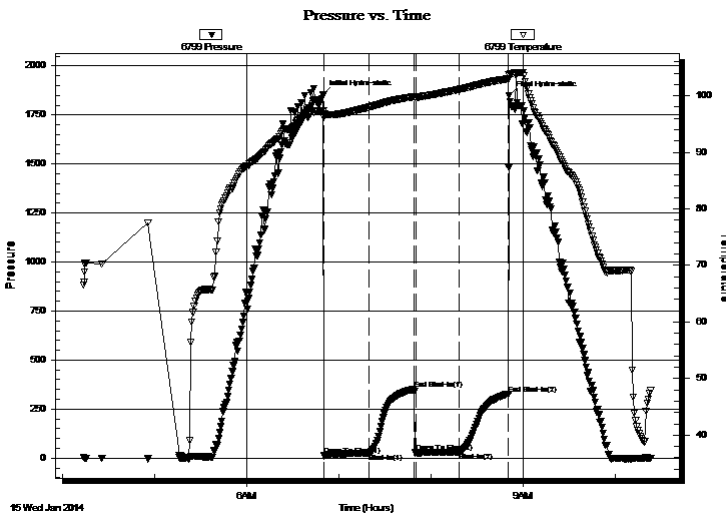
TEST COMMENT: 30 - IF- 1 3/4" blow

30 - IS- No return

30 - FF-1" blow

30 - FS- No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1854.80	97.25	Initial Hydro-static
1	11.73	96.10	Open To Flow (1)
30	25.31	98.00	Shut-In(1)
59	350.66	99.84	End Shut-In(1)
61	27.06	99.73	Open To Flow (2)
89	31.51	101.12	Shut-In(2)
121	327.28	102.97	End Shut-In(2)
121	1850.12	103.54	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	SOCM, 5%O, 95%M	0.36
10.00	OCM, 20%O, 80%M	0.14

Gas Rates

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



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DRILL STEM TEST REPORT

Dow ning Nelson Oil Co

18-9s-23w Graham KS

PO Box 1019
Hays, KS 67601

CMKL 1-18

Job Ticket: 56054

DST#: 1

ATTN: Marc Dow ning

Test Start: 2014.01.15 @ 04:14:00

GENERAL INFORMATION:

Formation: **LKC "C+D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:50:15

Time Test Ended: 10:23:15

Interval: 3780.00 ft (KB) To 3825.00 ft (KB) (TVD)

Total Depth: 3825.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Initial)

Tester: Cody Bloedorn

Unit No: 73

Reference Elevations: 2406.00 ft (KB)

2398.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8648 Outside

Press@RunDepth: psig @ 3819.00 ft (KB)

Start Date: 2014.01.15

End Date:

2014.01.15

Start Time: 04:14:05

End Time:

10:21:44

Capacity: 8000.00 psig

Last Calib.:

2014.01.15

Time On Btm:

Time Off Btm:

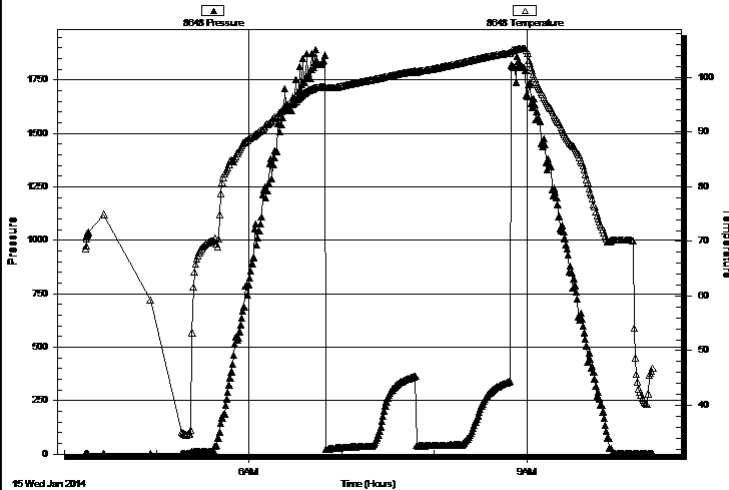
TEST COMMENT: 30 - IF- 1 3/4" blow

30 - IS- No return

30 - FF-1" blow

30 - FS- No return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
45.00	SOCM, 5%O, 95%M	0.36
10.00	OCM, 20%O, 80%M	0.14

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning Nelson Oil Co

18-9s-23w Graham KS

PO Box 1019
Hays, KS 67601

CMKL 1-18

Job Ticket: 56054

DST#: 1

ATTN: Marc Dow ning

Test Start: 2014.01.15 @ 04:14:00

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: 54000.00 lb
			<u>Total Volume: 52.85 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3780.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval betw een Packers:	45.00 ft			
Tool Length:	66.00 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			3760.00	
Shut In Tool	5.00			3765.00	
Hydraulic tool	5.00			3770.00	
Packer	5.00			3775.00	21.00 Bottom Of Top Packer
Packer	5.00			3780.00	
Stubb	1.00			3781.00	
Perforations	5.00			3786.00	
Change Over Sub	1.00			3787.00	
Drill Pipe	31.00			3818.00	
Change Over Sub	1.00			3819.00	
Recorder	0.00	6799	Inside	3819.00	
Recorder	0.00	8648	Outside	3819.00	
Perforations	3.00			3822.00	
Bullnose	3.00			3825.00	45.00 Bottom Packers & Anchor

Total Tool Length: 66.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Co

18-9s-23w Graham KS

PO Box 1019
Hays, KS 67601

CMKL 1-18

Job Ticket: 56054

DST#: 1

ATTN: Marc Downing

Test Start: 2014.01.15 @ 04:14:00

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: 59.00 sec/qt

Cushion Volume: bbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 1500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	SOCM, 5%O, 95%M	0.358
10.00	OCM, 20%O, 80%M	0.140

Total Length: 55.00 ft Total Volume: 0.498 bbl

Num Fluid Samples: 0

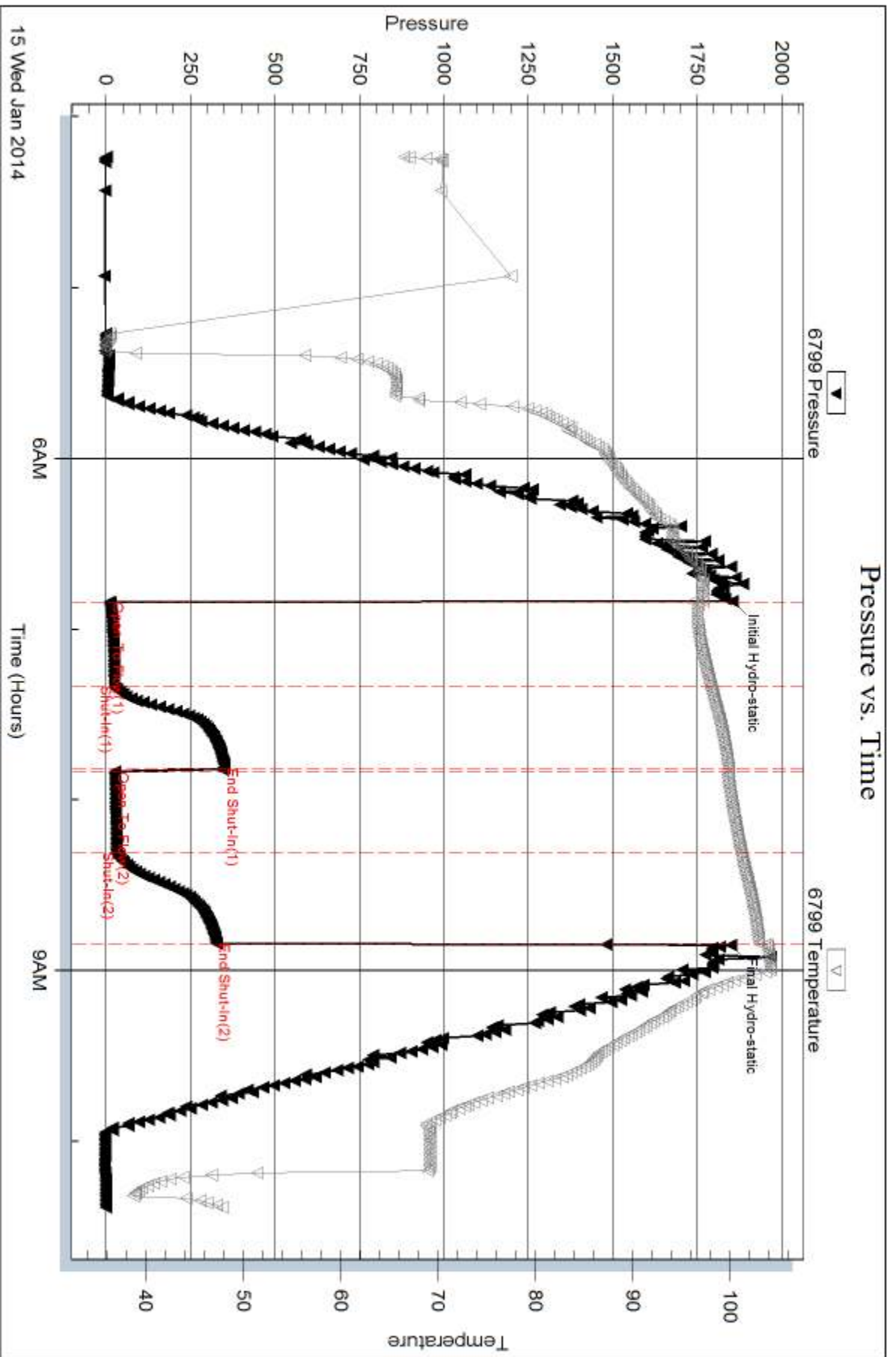
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

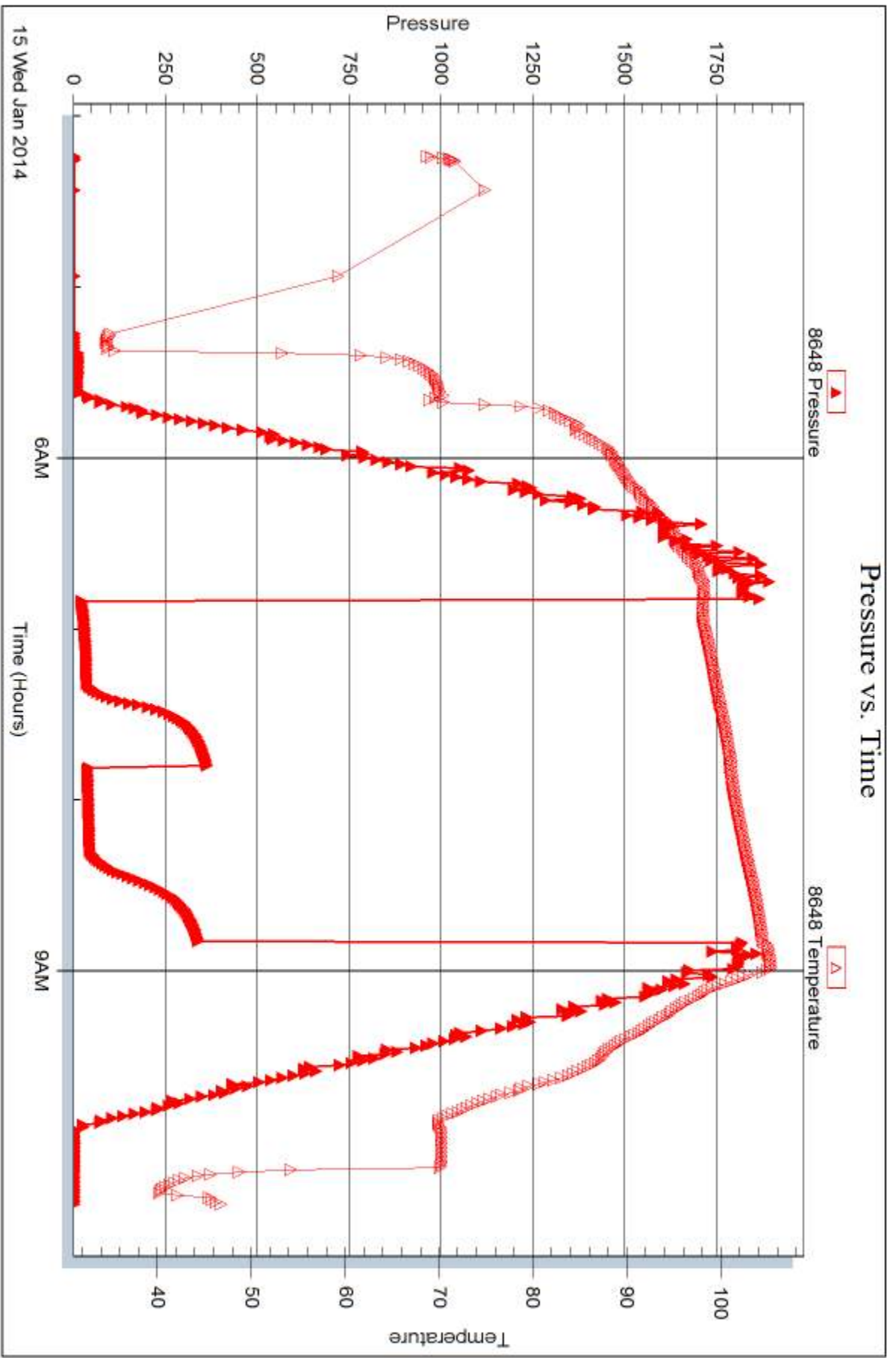


Serial #: 8648

Outside Dow ning Nelson Oil Co

CMKL 1-18

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 56054

Printed: 2014.01.17 @ 14:12:38



DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co**

PO Box 1019
Hays, KS 67601

ATTN: Marc Downing

CMKL 1-18

18-9s-23w Graham KS

Start Date: 2014.01.16 @ 09:00:00

End Date: 2014.01.16 @ 16:28:30

Job Ticket #: 56055 DST #: 2

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

Printed: 2014.01.17 @ 14:11:56



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning Nelson Oil Co

18-9s-23w Graham KS

PO Box 1019
Hays, KS 67601

CMKL 1-18

Job Ticket: 56055

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.01.16 @ 09:00:00

GENERAL INFORMATION:

Formation:

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:49:30

Time Test Ended: 16:28:30

Test Type: Conventional Straddle (Reset)

Tester: Cody Bloedorn

Unit No: 73

Interval: 3870.00 ft (KB) To 3976.00 ft (KB) (TVD)

Reference Elevations: 2406.00 ft (KB)

Total Depth: 4024.00 ft (KB) (TVD)

2398.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8648

Outside

Press@RunDepth: 33.51 psig @ 3875.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.16

End Date:

2014.01.16

Last Calib.:

2014.01.16

Start Time: 09:00:05

End Time:

16:28:29

Time On Btm:

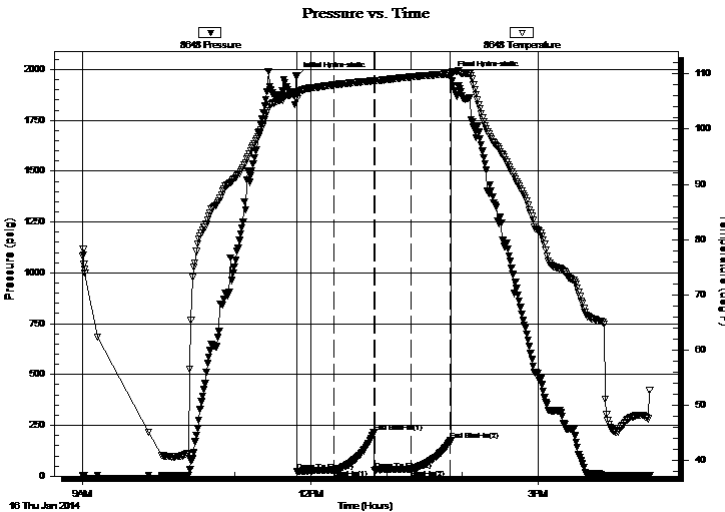
2014.01.16 @ 11:49:15

Time Off Btm:

2014.01.16 @ 13:51:15

TEST COMMENT: 30 - IF- 1" blow
30 - IS- No return
30 - FF- 1 1/4" blow
30 - FS- No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1967.12	106.51	Initial Hydro-static
1	21.96	105.54	Open To Flow (1)
30	31.37	108.03	Shut-In(1)
61	214.36	108.77	End Shut-In(1)
62	27.74	108.68	Open To Flow (2)
90	33.51	109.45	Shut-In(2)
122	174.77	110.02	End Shut-In(2)
122	1969.20	110.30	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	SOCM, 5%O, 95%M	0.29

* Recovery from multiple tests

Gas Rates

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



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

Downing Nelson Oil Co

18-9s-23w Graham KS

PO Box 1019
Hays, KS 67601

CMKL 1-18

Job Ticket: 56055

DST#: 2

ATTN: Marc Downing

Test Start: 2014.01.16 @ 09:00:00

GENERAL INFORMATION:

Formation:

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:49:30

Time Test Ended: 16:28:30

Interval: 3870.00 ft (KB) To 3976.00 ft (KB) (TVD)

Total Depth: 4024.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Straddle (Reset)

Tester: Cody Bloedorn

Unit No: 73

Reference Elevations: 2406.00 ft (KB)

2398.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 6799

Inside

Press@RunDepth: psig @ 3875.00 ft (KB)

Start Date: 2014.01.16

End Date:

2014.01.16

Capacity: 8000.00 psig

Last Calib.:

2014.01.16

Start Time: 09:00:05

End Time:

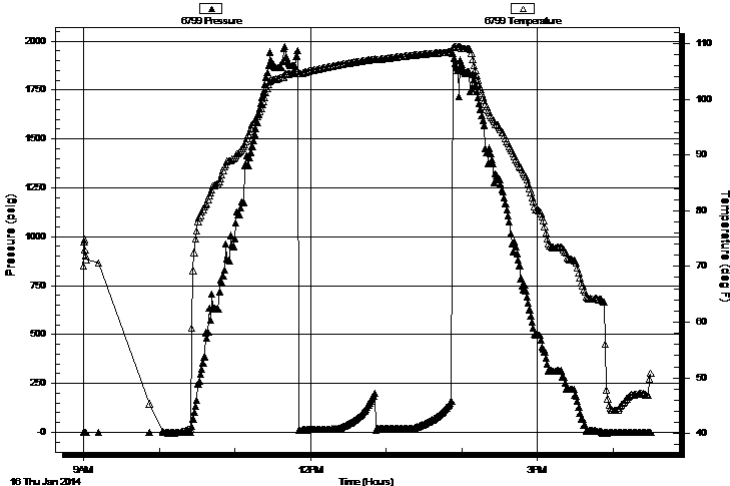
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Time On Btm:

Time Off Btm:

TEST COMMENT: 30 - IF- 1" blow
30 - IS- No return
30 - FF- 1 1/4" blow
30 - FS- No return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
40.00	SOCM, 5%O, 95%M	0.29

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

18-9s-23w Graham KS

PO Box 1019
Hays, KS 67601

CMKL 1-18

Job Ticket: 56055

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.01.16 @ 09:00:00

GENERAL INFORMATION:

Formation:

Deviated: No Whipstock: ft (KB)

Test Type: Conventional Straddle (Reset)

Time Tool Opened: 11:49:30

Tester: Cody Bloedorn

Time Test Ended: 16:28:30

Unit No: 73

Interval: 3870.00 ft (KB) To 3976.00 ft (KB) (TVD)

Reference Elevations: 2406.00 ft (KB)

Total Depth: 4024.00 ft (KB) (TVD)

2398.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8655 Below (Straddle)

Press@RunDepth: psig @ 4013.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.16

End Date: 2014.01.16

Last Calib.: 2014.01.16

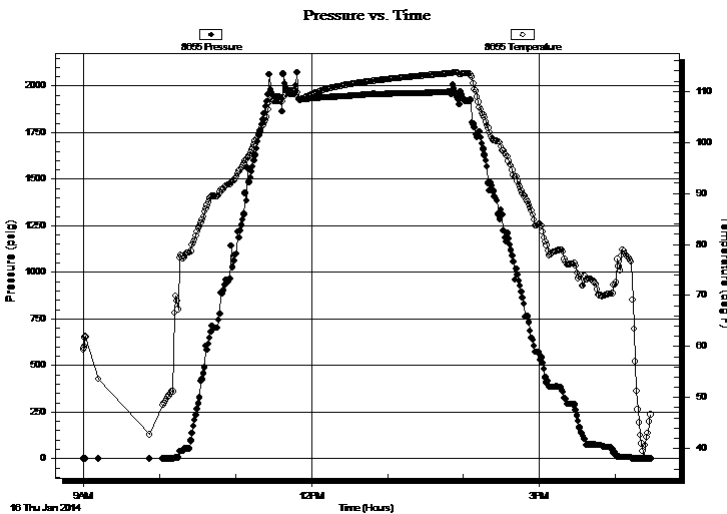
Start Time: 09:00:05

End Time: 16:28:29

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 - IF- 1" blow
30 - IS- No return
30 - FF- 1 1/4" blow
30 - FS- No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
40.00	SOCM, 5%O, 95%M	0.29

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning Nelson Oil Co

18-9s-23w Graham KS

PO Box 1019
Hays, KS 67601

CMKL 1-18

Job Ticket: 56055

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.01.16 @ 09:00:00

Tool Information

Drill Pipe:	Length: 3824.00 ft	Diameter: 3.80 inches	Volume: 53.64 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: 64000.00 lb
			<u>Total Volume: 53.79 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3870.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	3976.00 ft			
Interval betw een Packers:	106.00 ft			
Tool Length:	178.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Change Over Sub	1.00			3850.00	
Shut In Tool	5.00			3855.00	
Hydraulic tool	5.00			3860.00	
Packer	5.00			3865.00	21.00 Bottom Of Top Packer
Packer	5.00			3870.00	
Stubb	1.00			3871.00	
Perforations	3.00			3874.00	
Change Over Sub	1.00			3875.00	
Recorder	0.00	6799	Inside	3875.00	
Recorder	0.00	8648	Outside	3875.00	
Drill Pipe	93.00			3968.00	
Change Over Sub	1.00			3969.00	
Perforations	6.00			3975.00	
Blank Off Sub	1.00			3976.00	106.00 Tool Interval
Packer	4.00			3980.00	
Change Over Sub	1.00			3981.00	
Drill Pipe	31.00			4012.00	
Change Over Sub	1.00			4013.00	
Recorder	0.00	8655	Below	4013.00	
Perforations	11.00			4024.00	
Bullnose	3.00			4027.00	51.00 Bottom Packers & Anchor

Total Tool Length: 178.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Co

18-9s-23w Graham KS

PO Box 1019
Hays, KS 67601

CMKL 1-18

Job Ticket: 56055

DST#: 2

ATTN: Marc Downing

Test Start: 2014.01.16 @ 09:00:00

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: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
40.00	SOCM, 5%O, 95%M	0.288

Total Length: 40.00 ft Total Volume: 0.288 bbl

Num Fluid Samples: 0

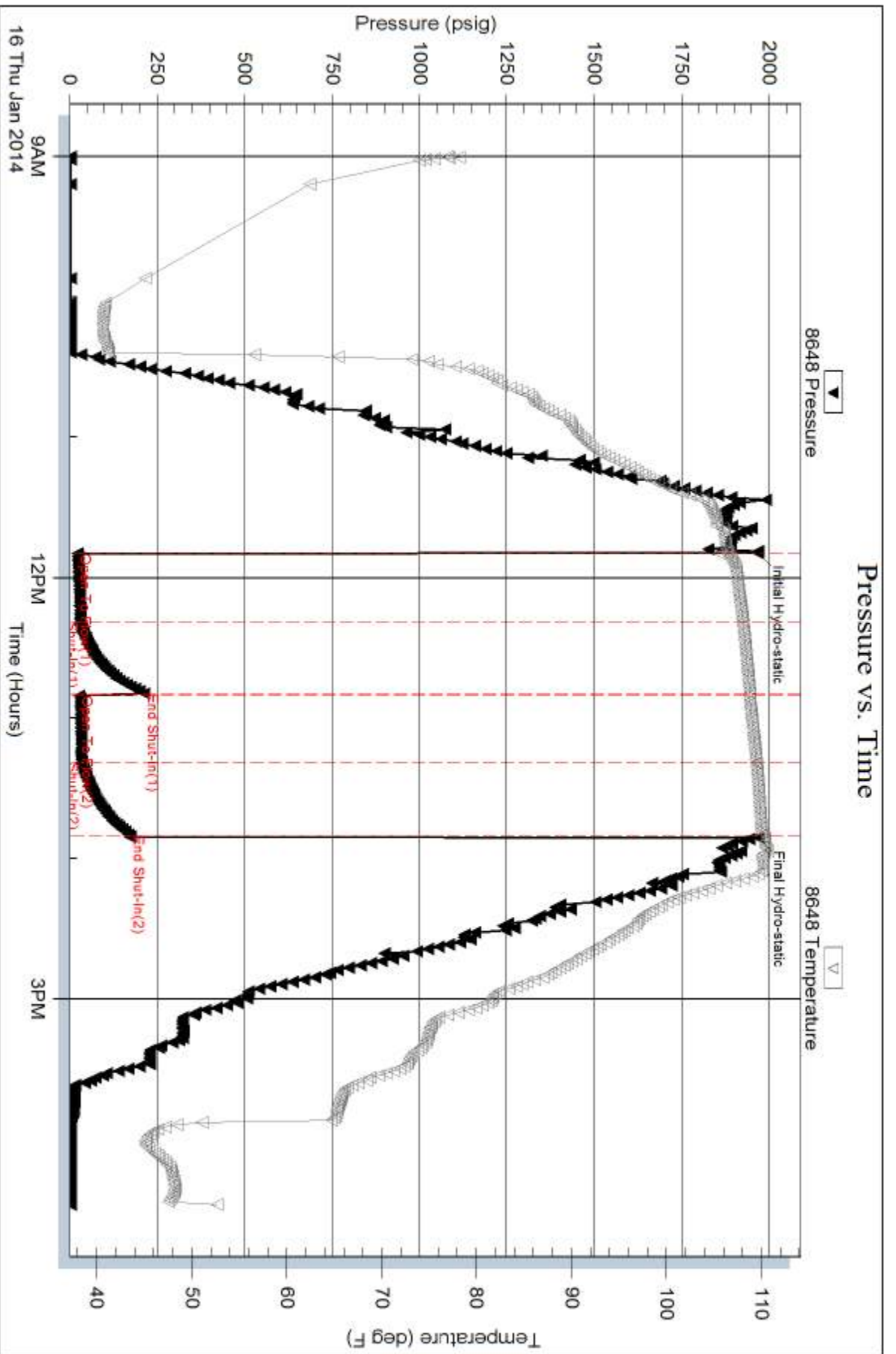
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



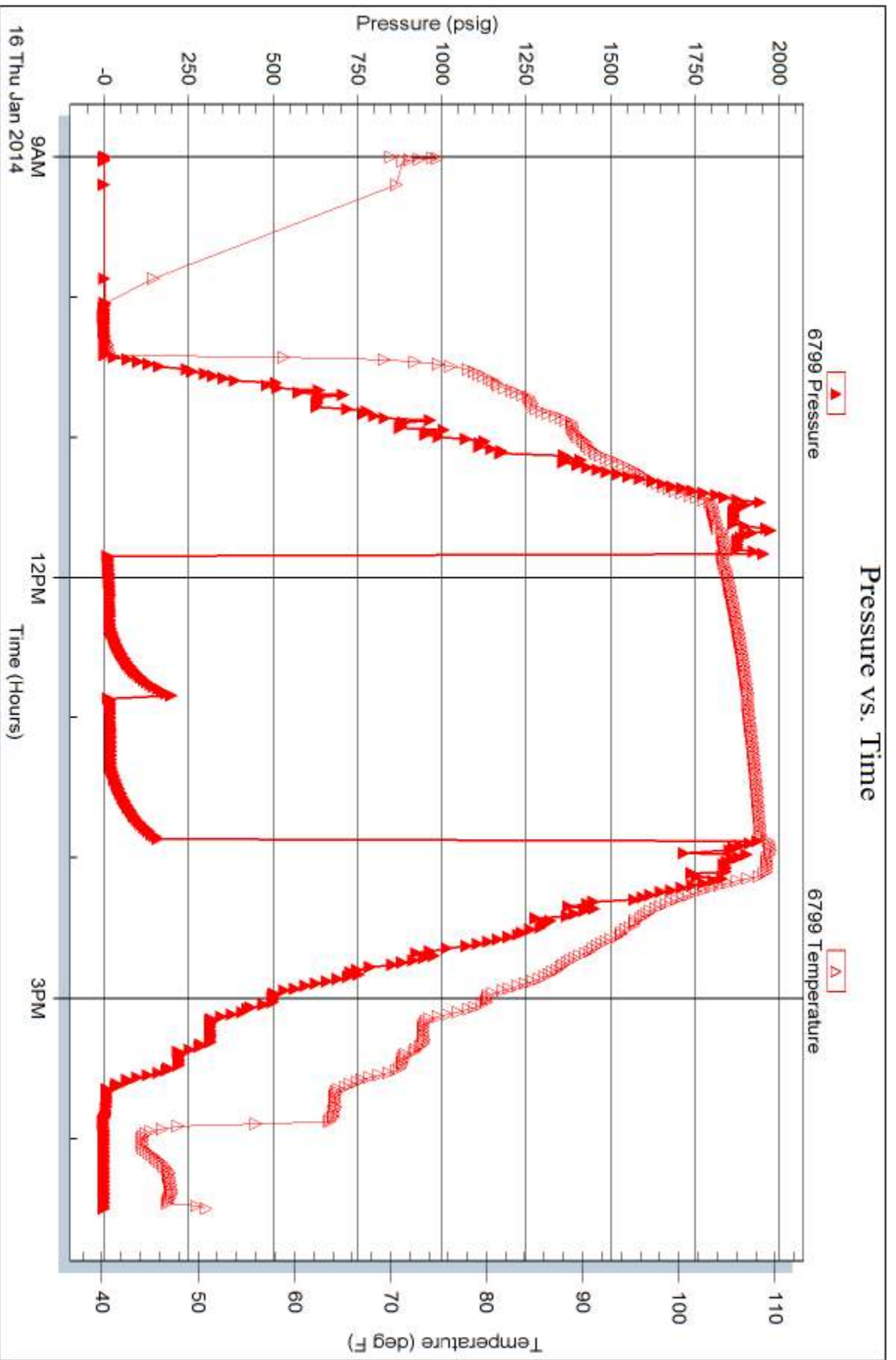
Serial #: 6799

Inside

Dow nng Nelson Oil Co

CMKL 1-18

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 56055

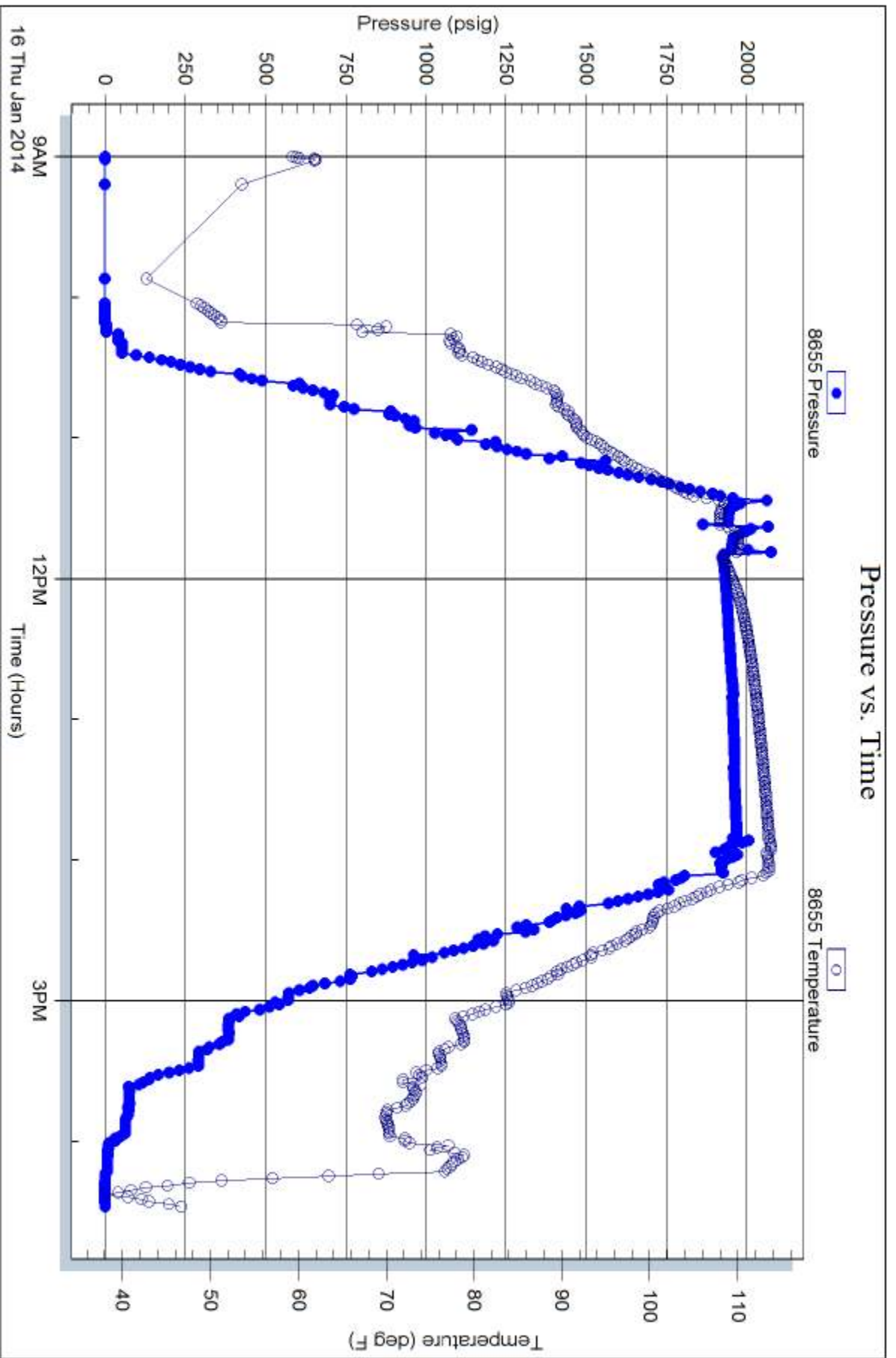
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Serial #: 8655

Below (Stratton) Nelson Oil Co

CMKL 1-18

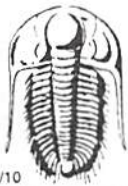
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 56055

Printed: 2014.01.17 @ 14:12:00



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **56054**

Well Name & No. CMKL 1-18 Test No. 1 Date 1-15-14
 Company Downing-Nelson oil Co Elevation 2406 KB 2401 GL
 Address Po Box 1019, Hays KS. 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #1
 Location: Sec. 18 Twp. 9S Rge. 23W Co. Graham State Ks

Interval Tested 3780 - 3825 Zone Tested LKC "C&D"
 Anchor Length 45' Drill Pipe Run 3757 Mud Wt. 8.7
 Top Packer Depth 3775 Drill Collars Run 30' Vis 59
 Bottom Packer Depth 3780 Wt. Pipe Run - WL 7.6
 Total Depth 3825 Chlorides 1500 ppm System LCM -
 Blow Description IF-1.75" blow
ISI- No return
FF-1" blow
FSI- No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>50CM</u>	<u>5</u>		<u>95</u>	
<u>10</u>	<u>0CM</u>	<u>20</u>		<u>80</u>	

Rec Total 55 BHT 102° Gravity - API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 1854 Test 1150 T-On Location 0335
 (B) First Initial Flow 11 Jars - T-Started 0414
 (C) First Final Flow 25 Safety Joint - T-Open 0650
 (D) Initial Shut-In 350 Circ Sub - T-Pulled 0850
 (E) Second Initial Flow 27 Hourly Standby - T-Out 10:25
 (F) Second Final Flow 31 Mileage 119RT 184.45 Comments -
 (G) Final Shut-In 327 Sampler -
 (H) Final Hydrostatic 1850 Straddle - Ruined Shale Packer -
 Shale Packer - Ruined Packer -
 Extra Packer - Extra Copies -
 Initial Open 30 Extra Recorder - Sub Total 0
 Initial Shut-In 30 Day Standby - Total 1334.45
 Final Flow 30 Accessibility - MP/DST Disc't -
 Final Shut-In 30 Sub Total 1334.45

Approved By _____ Our Representative Cody Reisk
 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. **56055**

4/10

Well Name & No. CMKL 1-18 Test No. 2 Date 1-16-14
 Company Downing-Nelson oil Co Elevation 2406 KB 2398 GL
 Address Po Box 1019, Hays KS, 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #1
 Location: Sec. 18 Twp. 9s Rge. 23w Co. Graham State KS

Interval Tested 3870 - 3976 TD=4024 Zone Tested _____
 Anchor Length 106' 48' tail Drill Pipe Run 3824' Mud Wt. 8.7
 Top Packer Depth 3865' Drill Collars Run 30' Vis 59
 Bottom Packer Depth 3870 Wt. Pipe Run _____ WL 7.6
 Total Depth 3976 Chlorides 1500 ppm System LCM _____

Blow Description IF-1" blow
ISI- No return
FF-1.25" blow
FSI- No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>50CM</u>	<u>5</u>		<u>95</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 40' BHT 110° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1967 Test 1250 T-On Location 0819
 (B) First Initial Flow 21 Jars _____ T-Started 0900
 (C) First Final Flow 31 Safety Joint _____ T-Open 1150
 (D) Initial Shut-In 214 Circ Sub _____ T-Pulled 1350
 (E) Second Initial Flow 27 Hourly Standby _____ T-Out 1630
 (F) Second Final Flow 33 Mileage 119RT 184.45 Comments _____
 (G) Final Shut-In 174 Sampler _____
 (H) Final Hydrostatic 1969 Straddle 600 Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____

Initial Open 30 Extra Packer _____ Extra Copies _____
 Initial Shut-In 30 Extra Recorder _____ Sub Total 0
 Final Flow 30 Day Standby _____ Total 2034.45
 Final Shut-In 30 Accessibility _____ MP/DST Disc't _____
 Sub Total 2034.45

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.