



DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co Inc**

PO Box 1019
Hays KS 67601

ATTN: Al Downing

Hogan Family #1-21

21-23s-18w Pawnee,KS

Start Date: 2015.08.31 @ 22:38:00

End Date: 2015.09.01 @ 05:56:00

Job Ticket #: 62436 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.09.07 @ 10:44:12

Downing Nelson Oil Co Inc

21-23s-18w Pawnee,KS

Hogan Family #1-21

DST # 1

Cong. Sand

2015.08.31



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning Nelson Oil Co Inc

21-23s-18w Pawnee,KS

PO Box 1019
Hays KS 67601

Hogan Family #1-21

Job Ticket: 62436

DST#: 1

ATTN: Al Dow ning

Test Start: 2015.08.31 @ 22:38:00

GENERAL INFORMATION:

Formation: **Cong. Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:34:15

Time Test Ended: 05:56:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Cody Bloedorn

Unit No: 73

Interval: 4330.00 ft (KB) To 4353.00 ft (KB) (TVD)

Reference Elevations: 2115.00 ft (KB)

Total Depth: 4353.00 ft (KB) (TVD)

2107.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8940 Outside

Press@RunDepth: 558.11 psig @ 4335.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.08.31

End Date:

2015.09.01

Last Calib.:

2015.09.01

Start Time:

22:38:05

End Time:

05:55:59

Time On Btm:

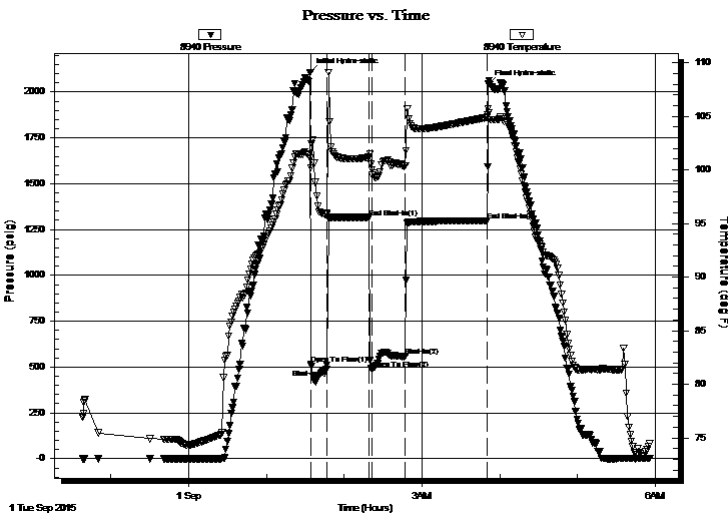
2015.09.01 @ 01:33:45

Time Off Btm:

2015.09.01 @ 03:51:00

TEST COMMENT: 15 - IF- B.O.B. instantly. G.T.S @ 6 minutes -Gauging
30 - IS- Did not bleed off
30 - FF- B.O.B. instantly - Gauging
60 - FS- bled off in 15 minutes, B.O.B. in 30 seconds

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2107.15	101.10	Initial Hydro-static
1	516.20	100.21	Open To Flow (1)
13	488.82	95.86	Shut-In(1)
45	1315.93	101.17	End Shut-In(1)
48	486.71	99.98	Open To Flow (2)
74	558.11	100.40	Shut-In(2)
137	1296.34	104.91	End Shut-In(2)
138	2042.60	105.71	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	GM - Show of oil, 5%G, 95%M	0.88
144.00	GVSOCM, 2%O, 5%G, 93%M	1.79
0.00	GTS	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	1.00	40.00	1563.93
Last Gas Rate	1.00	70.00	2426.40
Max. Gas Rate	1.00	70.00	2426.40



DRILL STEM TEST REPORT

Downing Nelson Oil Co Inc

21-23s-18w Pawnee, KS

PO Box 1019
Hays KS 67601

Hogan Family #1-21

Job Ticket: 62436

DST#: 1

ATTN: Al Downing

Test Start: 2015.08.31 @ 22:38:00

GENERAL INFORMATION:

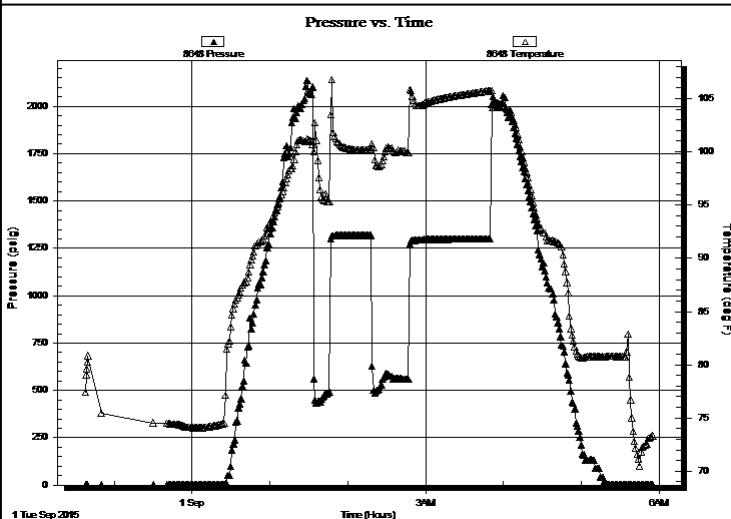
Formation: Cong. Sand
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:34:15
Time Test Ended: 05:56:00
Interval: 4330.00 ft (KB) To 4353.00 ft (KB) (TVD)
Total Depth: 4353.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches **Hole Condition:** Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Cody Bloedorn
Unit No: 73
Reference Elevations: 2115.00 ft (KB)
 2107.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8648

Inside

Press@RunDepth: psig @ 4335.00 ft (KB) **Capacity:** 8000.00 psig
Start Date: 2015.08.31 **End Date:** 2015.09.01 **Last Calib.:** 2015.09.01
Start Time: 22:38:05 **End Time:** 05:55:29 **Time On Btm:**
Time Off Btm:

TEST COMMENT: 15 - IF- B.O.B. instantly. G.T.S @ 6 minutes - Gauging
 30 - IS- Did not bleed off
 30 - FF- B.O.B. instantly - Gauging
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PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
120.00	GM - Show of oil, 5%G, 95%M	0.88
144.00	GVSOCM, 2%O, 5%G, 93%M	1.79
0.00	GTS	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	1.00	40.00	1563.93
Last Gas Rate	1.00	70.00	2426.40
Max. Gas Rate	1.00	70.00	2426.40



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Co Inc

21-23s-18w Pawnee, KS

PO Box 1019
Hays KS 67601

Hogan Family #1-21

Job Ticket: 62436

DST#: 1

ATTN: Al Downing

Test Start: 2015.08.31 @ 22:38:00

Tool Information

Drill Pipe:	Length: 4160.00 ft	Diameter: 3.80 inches	Volume: 58.35 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 155.00 ft	Diameter: 2.75 inches	Volume: 1.14 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 56000.00 lb
			<u>Total Volume: 59.49 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4330.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	23.00 ft			
Tool Length:	51.00 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			4303.00	
Shut In Tool	5.00			4308.00	
Hydraulic tool	5.00			4313.00	
Jars	5.00			4318.00	
Safety Joint	3.00			4321.00	
Packer	5.00			4326.00	28.00 Bottom Of Top Packer
Packer	4.00			4330.00	
Stubb	1.00			4331.00	
Perforations	4.00			4335.00	
Recorder	0.00	8648	Inside	4335.00	
Recorder	0.00	8940	Outside	4335.00	
Perforations	15.00			4350.00	
Bullnose	3.00			4353.00	23.00 Bottom Packers & Anchor

Total Tool Length: 51.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning Nelson Oil Co Inc

21-23s-18w Pawnee,KS

PO Box 1019
Hays KS 67601

Hogan Family #1-21

Job Ticket: 62436 **DST#: 1**

ATTN: Al Dow ning

Test Start: 2015.08.31 @ 22:38:00

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: sec/qt

Cushion Volume: bbl

Water Loss: 19.16 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 20000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	GM - Show of oil, 5%G, 95%M	0.882
144.00	GVSOCM, 2%O, 5%G, 93%M	1.786
0.00	GTS	0.000

Total Length: 264.00 ft Total Volume: 2.668 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

GAS RATES

Dow ning Nelson Oil Co Inc

21-23s-18w Pawnee,KS

PO Box 1019
Hays KS 67601

Hogan Family #1-21

Job Ticket: 62436

DST#: 1

ATTN: Al Dow ning

Test Start: 2015.08.31 @ 22:38:00

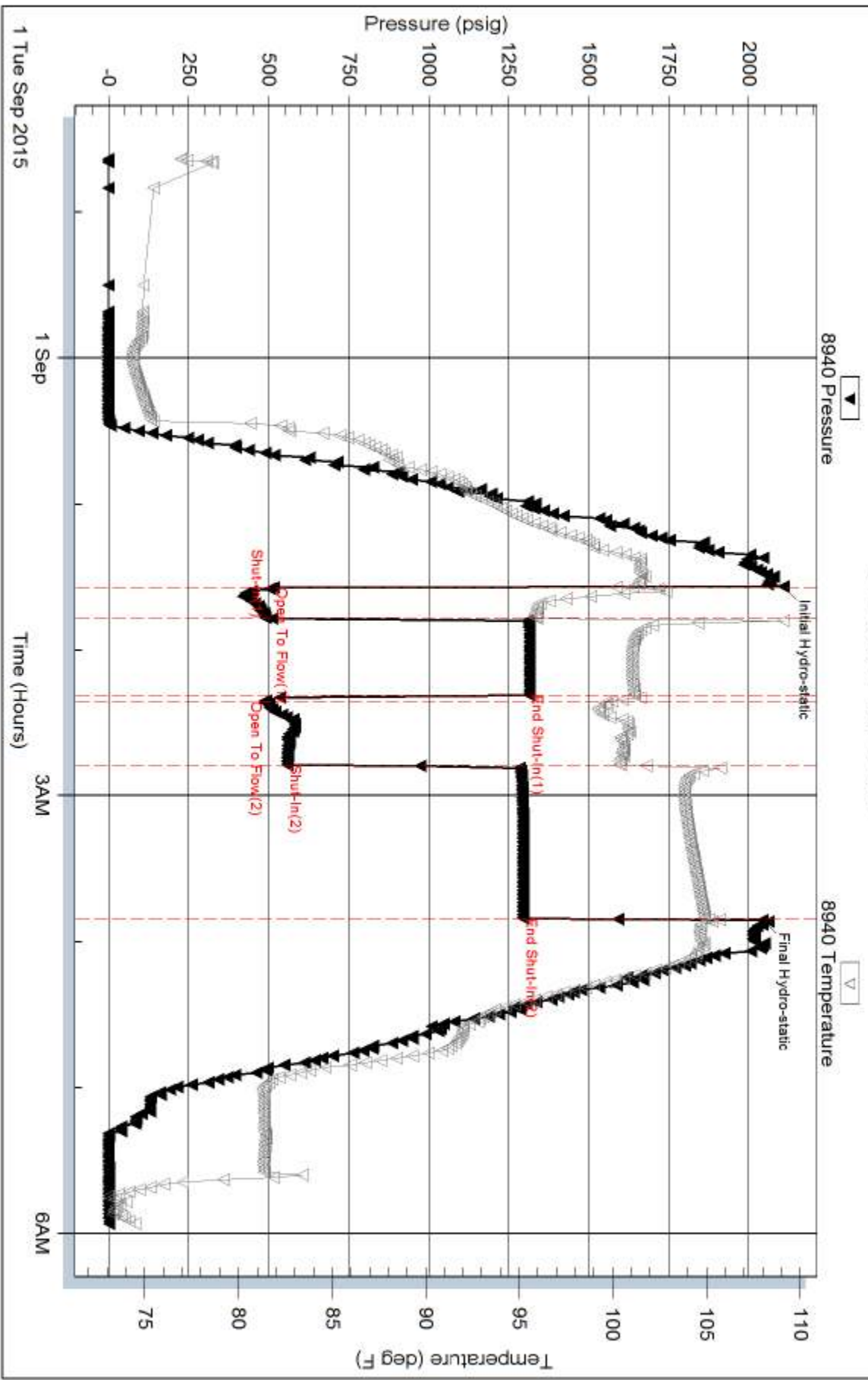
Gas Rates Information

Temperature: 59 (deg F)
Relative Density: 0.65
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
1	6	1.00	40.00	1563.93
1	6	1.00	40.00	1563.93
1	10	1.00	50.00	1851.42
1	15	1.00	60.00	2138.91
2	5	1.00	40.00	1563.93
2	10	1.00	60.00	2138.91
2	15	1.00	65.00	2282.66
2	20	1.00	69.00	2397.65
2	30	1.00	70.00	2426.40

Pressure vs. Time



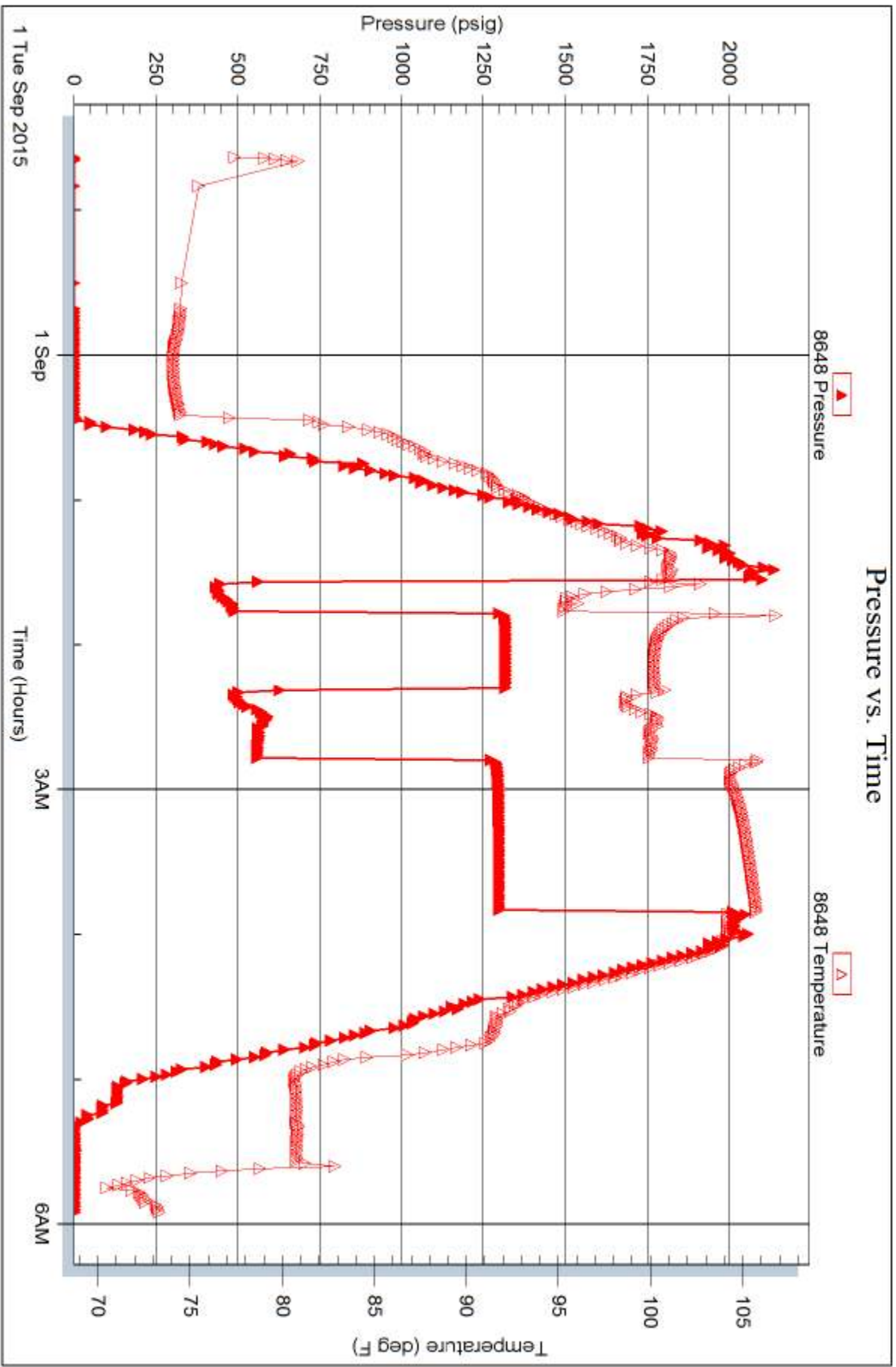
Serial #: 8648

Inside

Downing Nelson Oil Co Inc

Hogan Family #1-21

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 62436

Printed: 2015.09.07 @ 10:44:14



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62436


Well Name & No. Hogan Family Trust 1-21 Test No. 1 Date 8-31-15
 Company Downing Nelson Oil Company Inc Elevation 2113 KB 2107 GL
 Address Po Box 1019, Hays KS, 67601
 Co. Rep / Geo. Al Downing Rig Discovery #2
 Location: Sec. 21 Twp. 23S Rge. 18W Co. Pawnee State KS

Interval Tested 4330-4353 Zone Tested Cong. Sand
 Anchor Length 23' Drill Pipe Run 4160' Mud Wt. 8.9
 Top Packer Depth 4325 Drill Collars Run — Vis NA
 Bottom Packer Depth 4330 Wt. Pipe Run 155' WL 19.2
 Total Depth 4353 Chlorides 20,000 ppm System LCM 2#
 Blow Description IF-B.O.B. instantly. G.T.S. @ 6 minutes gauging
ISI - Did not bleed off
FF-B.O.B. instantly - Gauging
FSI - bled off in 15 minutes. B.O.B. in 30 seconds.

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>6M - show of oil</u>	<u>5</u>			<u>95</u>
<u>144'</u>	<u>6USOCM</u>	<u>5</u>	<u>2</u>		<u>93</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 164' BHT 104° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2107</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>2218</u>
(B) First Initial Flow <u>516</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>2238</u>
(C) First Final Flow <u>488</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0134</u>
(D) Initial Shut-In <u>1315</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>0349</u>
(E) Second Initial Flow <u>486</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0556</u>
(F) Second Final Flow <u>558</u>	<input checked="" type="checkbox"/> Mileage <u>121RT</u>	Comments <u>loaded tools 9/5 12:00</u>
(G) Final Shut-In <u>1296</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2042</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>15</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 <u>?</u>	Total <u>1596</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1596</u>	

Approved By _____ Our Representative Cody Blocker 

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.

