



DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

20-9s-21w Graham,KS

Windy Hill-Darnell Unit #1-21

Start Date: 2016.09.19 @ 18:57:00

End Date: 2016.09.20 @ 02:34:00

Job Ticket #: 63117 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.09.22 @ 09:11:50



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Dow ning Nelson Oil Co Inc

Windy Hill-Darnell Unit #1-21

PO Box 1019
Hays KS 67601

20-9s-21w Graham,KS

ATTN: Marc Dow ning

Job Ticket: 63117

DST#: 1

Test Start: 2016.09.19 @ 18:57:00

GENERAL INFORMATION:

Formation: **LKC " C "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:34:45

Time Test Ended: 02:34:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Jim Svaty

Unit No: 76

Interval: 3577.00 ft (KB) To 3602.00 ft (KB) (TVD)

Reference Elevations: 2340.00 ft (KB)

Total Depth: 3602.00 ft (KB) (TVD)

2332.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8289 Outside

Press@RunDepth: 213.40 psig @ 3579.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.09.19

End Date:

2016.09.20

Last Calib.:

2016.09.20

Start Time: 18:57:02

End Time:

02:34:00

Time On Btm:

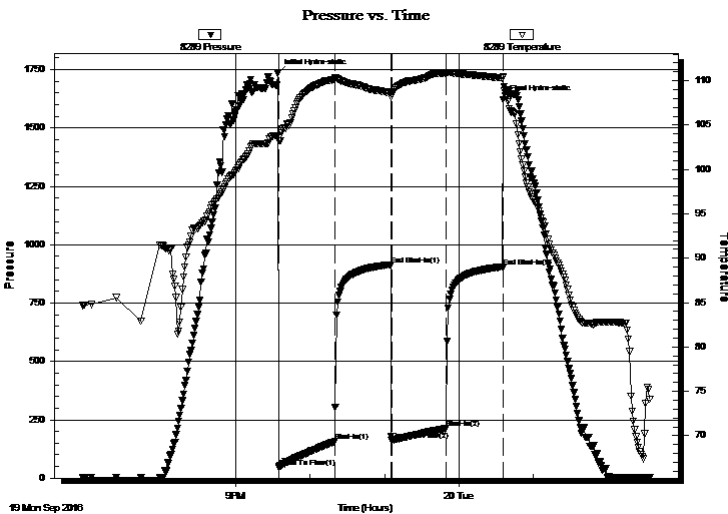
2016.09.19 @ 21:34:15

Time Off Btm:

2016.09.20 @ 00:35:15

TEST COMMENT: 45-IFP- BOB in 35 min.
45-ISIP- No Blow
45-FFP- Surface Blow Building to 10"
45-FSIP- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1734.79	103.82	Initial Hydro-static
1	47.48	103.22	Open To Flow (1)
46	156.54	110.18	Shut-In(1)
91	913.51	108.63	End Shut-In(1)
92	160.35	108.45	Open To Flow (2)
136	213.40	110.77	Shut-In(2)
181	903.49	110.30	End Shut-In(2)
181	1621.54	110.44	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
425.00	MCW 10% m 90% w	3.88

Gas Rates

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



**TRILOBITE
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DRILL STEM TEST REPORT

Downing Nelson Oil Co Inc

Windy Hill-Darnell Unit #1-21

PO Box 1019
Hays KS 67601

20-9s-21w Graham,KS

Job Ticket: 63117

DST#: 1

ATTN: Marc Downing

Test Start: 2016.09.19 @ 18:57:00

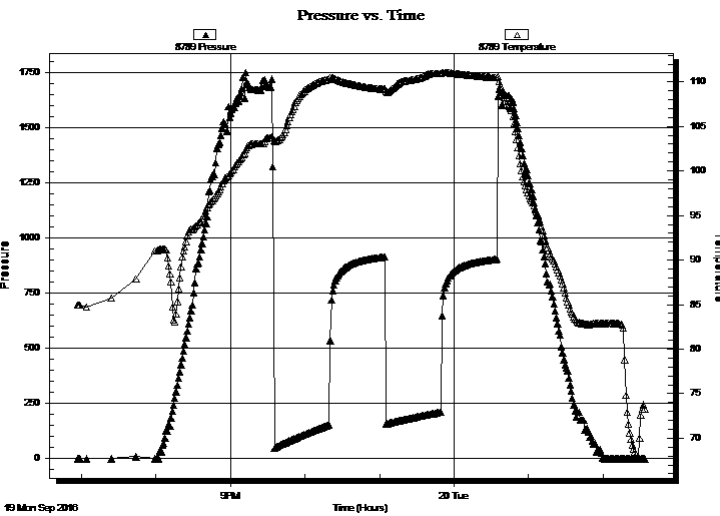
GENERAL INFORMATION:

Formation: **LKC " C "**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 21:34:45
 Time Test Ended: 02:34:00
 Interval: **3577.00 ft (KB) To 3602.00 ft (KB) (TVD)**
 Total Depth: 3602.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Jim Svaty
 Unit No: 76
 Reference Elevations: 2340.00 ft (KB)
 2332.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8789 Inside

Press@RunDepth: psig @ 3579.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2016.09.19 End Date: 2016.09.20 Last Calib.: 2016.09.20
 Start Time: 18:57:02 End Time: 02:34:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: 45-IFP- BOB in 35 min.
 45-ISIP- No Blow
 45-FFP- Surface Blow Building to 10"
 45-FSIP- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
425.00	MCW 10% m 90% w	3.88

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

Windy Hill-Darnell Unit #1-21

PO Box 1019
Hays KS 67601

20-9s-21w Graham,KS

Job Ticket: 63117

DST#: 1

ATTN: Marc Dow ning

Test Start: 2016.09.19 @ 18:57:00

Tool Information

Drill Pipe:	Length: 3278.00 ft	Diameter: 3.80 inches	Volume: 45.98 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 311.00 ft	Diameter: 2.75 inches	Volume: 2.28 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 48.26 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 45000.00 lb
Depth to Top Packer:	3577.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	ft			
Interval betw een Packers:	25.00 ft			
Tool Length:	46.00 ft			
Number of Packers:	2	Diameter: 7.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3557.00	
Shut In Tool	5.00			3562.00	
Hydraulic tool	5.00			3567.00	
Packer	5.00			3572.00	21.00 Bottom Of Top Packer
Packer	5.00			3577.00	
Stubb	1.00			3578.00	
Perforations	1.00			3579.00	
Recorder	0.00	8789	Inside	3579.00	
Recorder	0.00	8289	Outside	3579.00	
Blank Spacing	20.00			3599.00	
Bullnose	3.00			3602.00	25.00 Bottom Packers & Anchor

Total Tool Length: 46.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning Nelson Oil Co Inc

Windy Hill-Darnell Unit #1-21

PO Box 1019
Hays KS 67601

20-9s-21w Graham,KS

Job Ticket: 63117

DST#: 1

ATTN: Marc Dow ning

Test Start: 2016.09.19 @ 18:57:00

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:

95000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.96 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2750.00 ppm

Filter Cake: 1.50 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
425.00	MCW 10%m 90%w	3.884

Total Length: 425.00 ft Total Volume: 3.884 bbf

Num Fluid Samples: 0

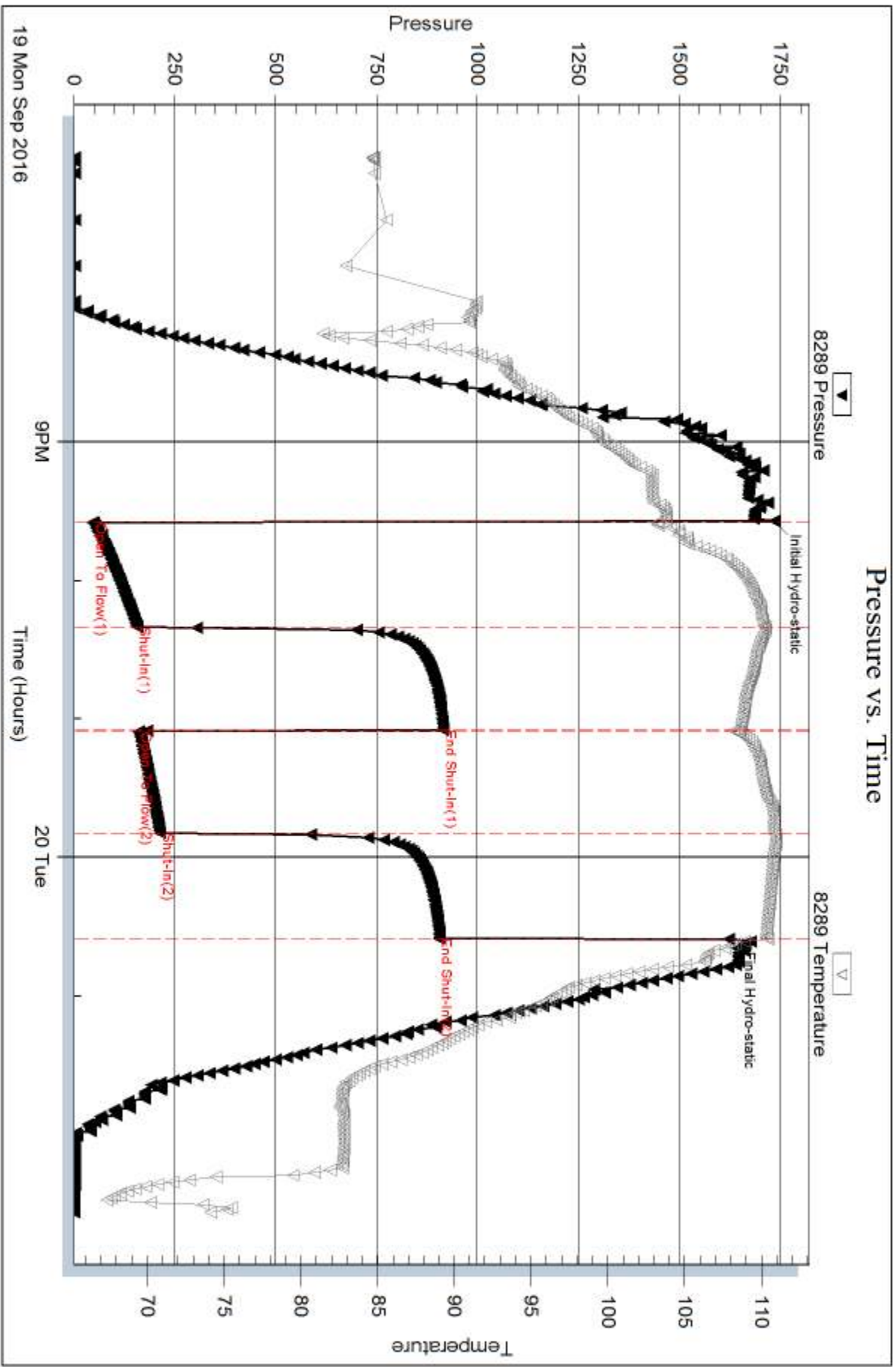
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .085 @ 69



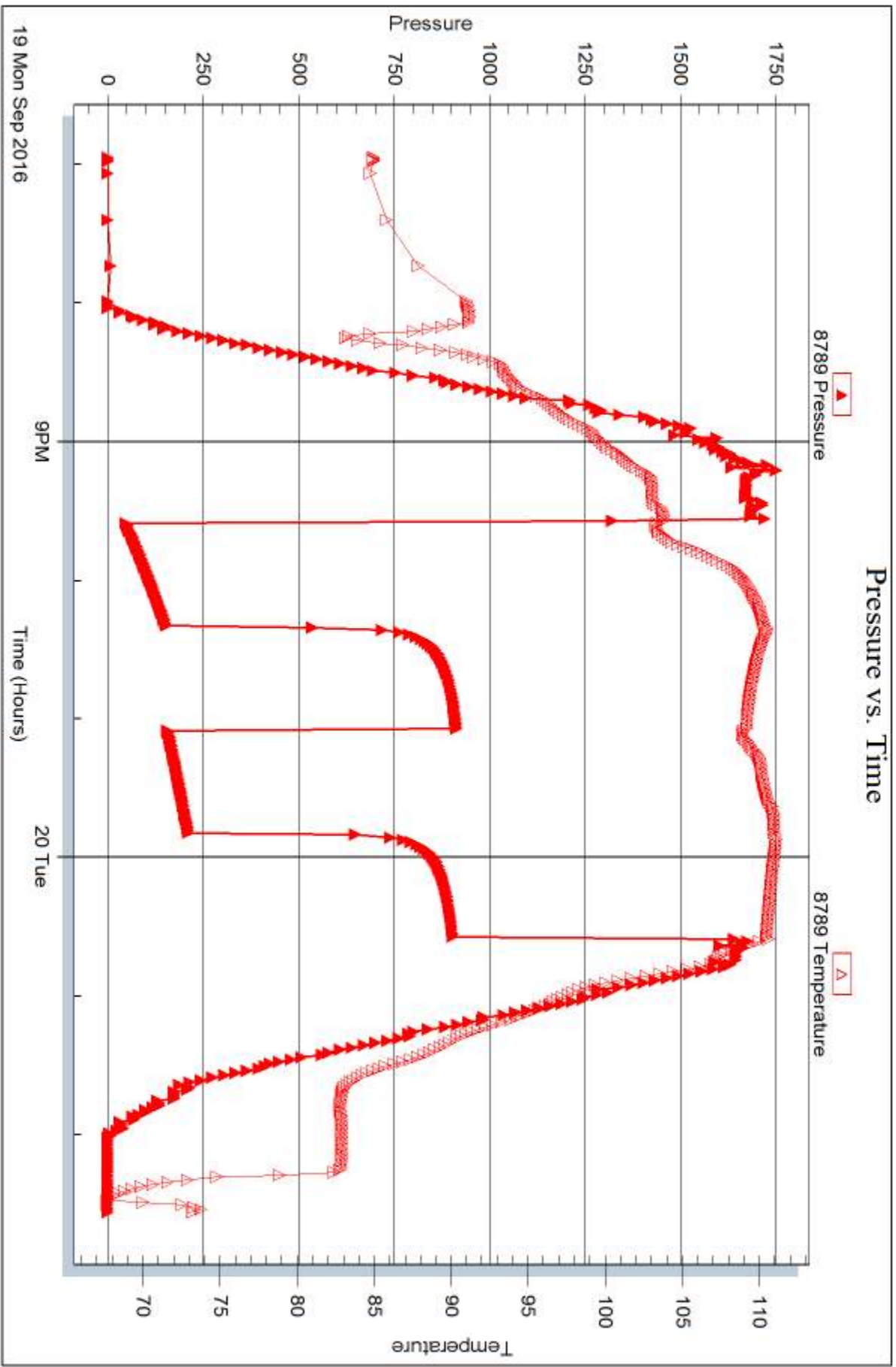
Serial #: 8789

Inside

Downing Nelson Oil Co Inc

20-95-21w Graham,KS

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 63117

Printed: 2016.09.22 @ 09:11:52



DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

20-9s-21w Graham,KS

Windy Hill-Darnell Unit #1-21

Start Date: 2016.09.21 @ 03:40:00

End Date: 2016.09.21 @ 11:15:00

Job Ticket #: 63118 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.09.22 @ 09:11:33

Downing Nelson Oil Co Inc

Windy Hill-Darnell Unit #1-21

20-9s-21w Graham,KS

DST # 2

Arbuckle

2016.09.21



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Dow ning Nelson Oil Co Inc

Windy Hill-Darnell Unit #1-21

PO Box 1019
Hays KS 67601

20-9s-21w Graham,KS

ATTN: Marc Dow ning

Job Ticket: 63118

DST#: 2

Test Start: 2016.09.21 @ 03:40:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:43:15

Time Test Ended: 11:15:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jim Svaty

Unit No: 76

Interval: 3839.00 ft (KB) To 3880.00 ft (KB) (TVD)

Reference Elevations: 2340.00 ft (KB)

Total Depth: 3880.00 ft (KB) (TVD)

2332.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8289 Outside

Press@RunDepth: 1095.65 psig @ 3844.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.09.21

End Date:

2016.09.21

Last Calib.:

2016.09.21

Start Time: 03:40:02

End Time:

11:15:00

Time On Btm:

2016.09.21 @ 05:43:00

Time Off Btm:

2016.09.21 @ 07:43:45

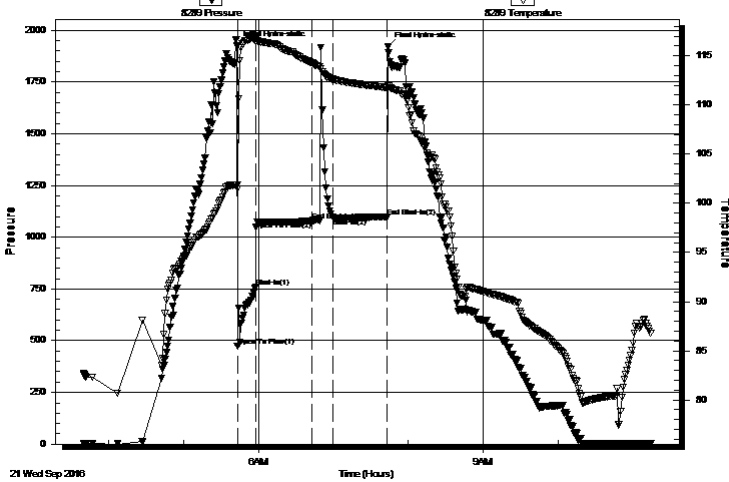
TEST COMMENT: 15-IFP- BOB in 50 sec.

45-ISIP- No Blow

15-FFP- No Blow Flushed No Blow Tool Plugged.....

45-FSIP- No Blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1925.72	101.85	Initial Hydro-static
1	473.12	101.48	Open To Flow (1)
15	759.01	116.45	Shut-In(1)
60	1080.59	114.30	End Shut-In(1)
60	1077.89	114.28	Open To Flow (2)
77	1095.65	112.61	Shut-In(2)
120	1098.23	111.78	End Shut-In(2)
121	1919.24	111.96	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
375.00	Oil Speck MCW 2%o 3% m 95%w	3.18
508.00	OMCW 5%o 5% m 90%w	7.13
191.00	OMCW 15%o 15% m 70%w	2.68
294.00	OMCW 20%o 25% m 55%w	4.12

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
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DRILL STEM TEST REPORT

Downing Nelson Oil Co Inc

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Windy Hill-Darnell Unit #1-21

20-9s-21w Graham,KS

Job Ticket: 63118

DST#: 2

Test Start: 2016.09.21 @ 03:40:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:43:15

Time Test Ended: 11:15:00

Interval: 3839.00 ft (KB) To 3880.00 ft (KB) (TVD)

Total Depth: 3880.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)

Tester: Jim Svaty

Unit No: 76

Reference Elevations: 2340.00 ft (KB)

2332.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8789

Inside

Press@RunDepth: psig @ 3844.00 ft (KB)

Start Date: 2016.09.21

End Date:

2016.09.21

Start Time: 03:40:02

End Time:

11:14:45

Capacity: 8000.00 psig

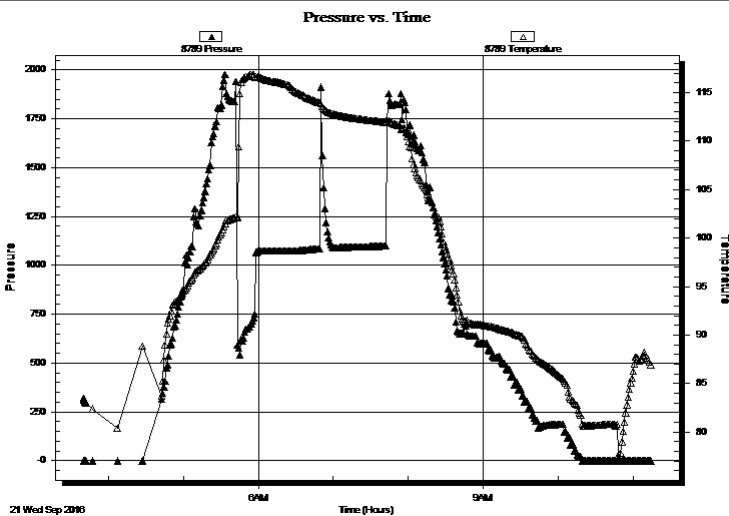
Last Calib.:

2016.09.21

Time On Btm:

Time Off Btm:

TEST COMMENT: 15-IFP- BOB in 50 sec.
45-ISIP- No Blow
15-FFP- No Blow Flushed No Blow Tool Plugged.....
45-FSIP- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
375.00	Oil Speck MCW 2%o 3% m 95%w	3.18
508.00	OMCW 5%o 5% m 90%w	7.13
191.00	OMCW 15%o 15% m 70%w	2.68
294.00	OMCW 20%o 25% m 55%w	4.12

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 Inc

Windy Hill-Darnell Unit #1-21

PO Box 1019
Hays KS 67601

20-9s-21w Graham,KS

Job Ticket: 63118

DST#: 2

ATTN: Marc Dow ning

Test Start: 2016.09.21 @ 03:40:00

Tool Information

Drill Pipe:	Length: 3534.00 ft	Diameter: 3.80 inches	Volume: 49.57 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 311.00 ft	Diameter: 2.75 inches	Volume: 2.28 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 51.85 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	3839.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval betw een Packers:	41.00 ft			
Tool Length:	62.00 ft			
Number of Packers:	2	Diameter: 7.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3819.00	
Shut In Tool	5.00			3824.00	
Hydraulic tool	5.00			3829.00	
Packer	5.00			3834.00	21.00 Bottom Of Top Packer
Packer	5.00			3839.00	
Stubb	1.00			3840.00	
Perforations	3.00			3843.00	
Change Over Sub	1.00			3844.00	
Recorder	0.00	8789	Inside	3844.00	
Recorder	0.00	8289	Outside	3844.00	
Blank Spacing	32.00			3876.00	
Change Over Sub	1.00			3877.00	
Bullnose	3.00			3880.00	41.00 Bottom Packers & Anchor

Total Tool Length: 62.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning Nelson Oil Co Inc

Windy Hill-Darnell Unit #1-21

PO Box 1019
Hays KS 67601

20-9s-21w Graham,KS

Job Ticket: 63118 **DST#: 2**

ATTN: Marc Dow ning

Test Start: 2016.09.21 @ 03:40:00

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 45.00 sec/qt
Water Loss: 8.78 in³
Resistivity: ohm.m
Salinity: 4000.00 ppm
Filter Cake: 1.50 inches

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

Oil API: deg API
Water Salinity: 28000 ppm

Recovery Information

Recovery Table

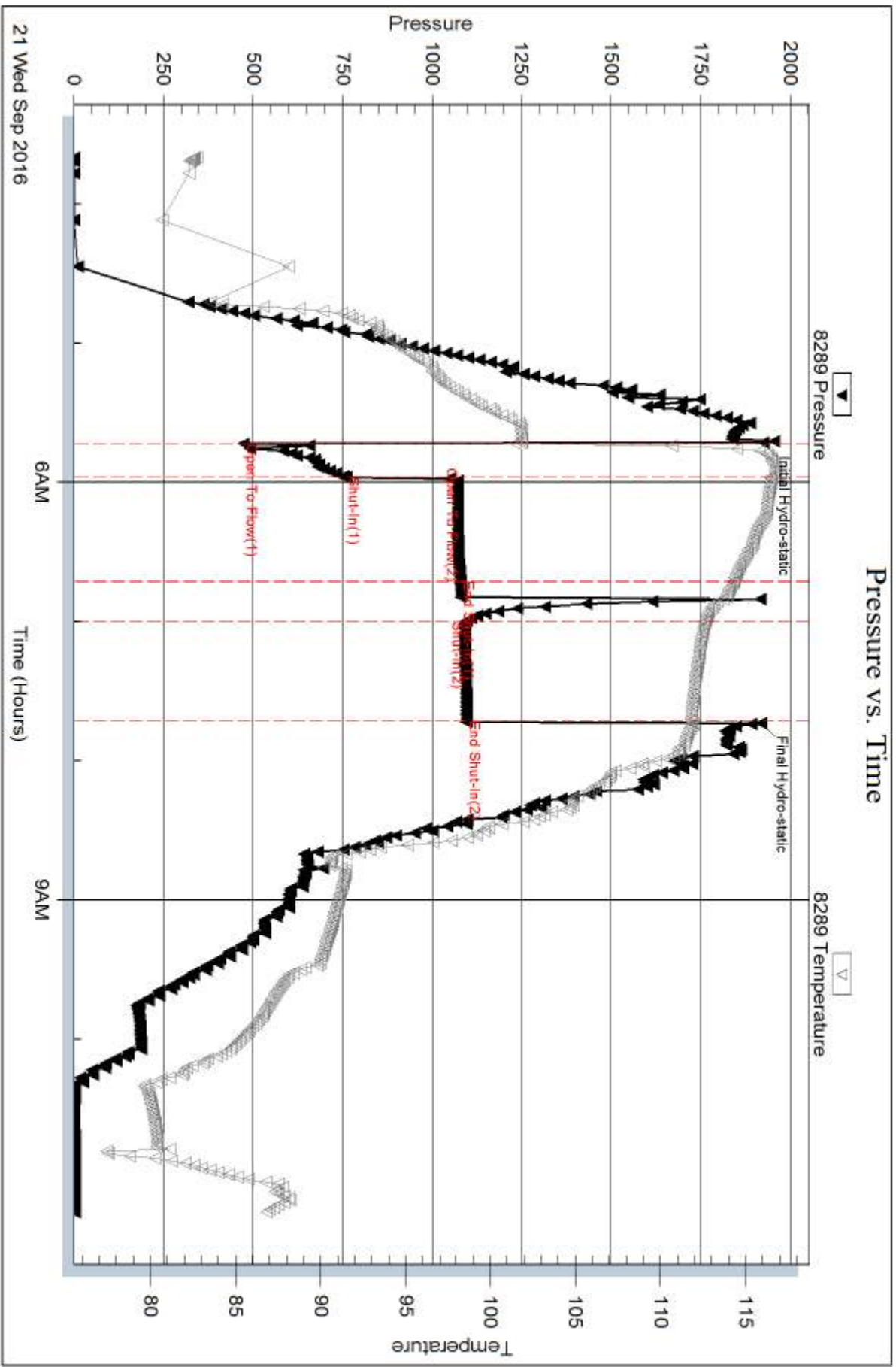
Length ft	Description	Volume bbl
375.00	Oil Speck MCW 2%o 3%m 95%w	3.182
508.00	OMCW 5%o 5%m 90%w	7.126
191.00	OMCW 15%o 15%m 70%w	2.679
294.00	OMCW 20%o 25%m 55%w	4.124

Total Length: 1368.00 ft Total Volume: 17.111 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: .200 @ 85



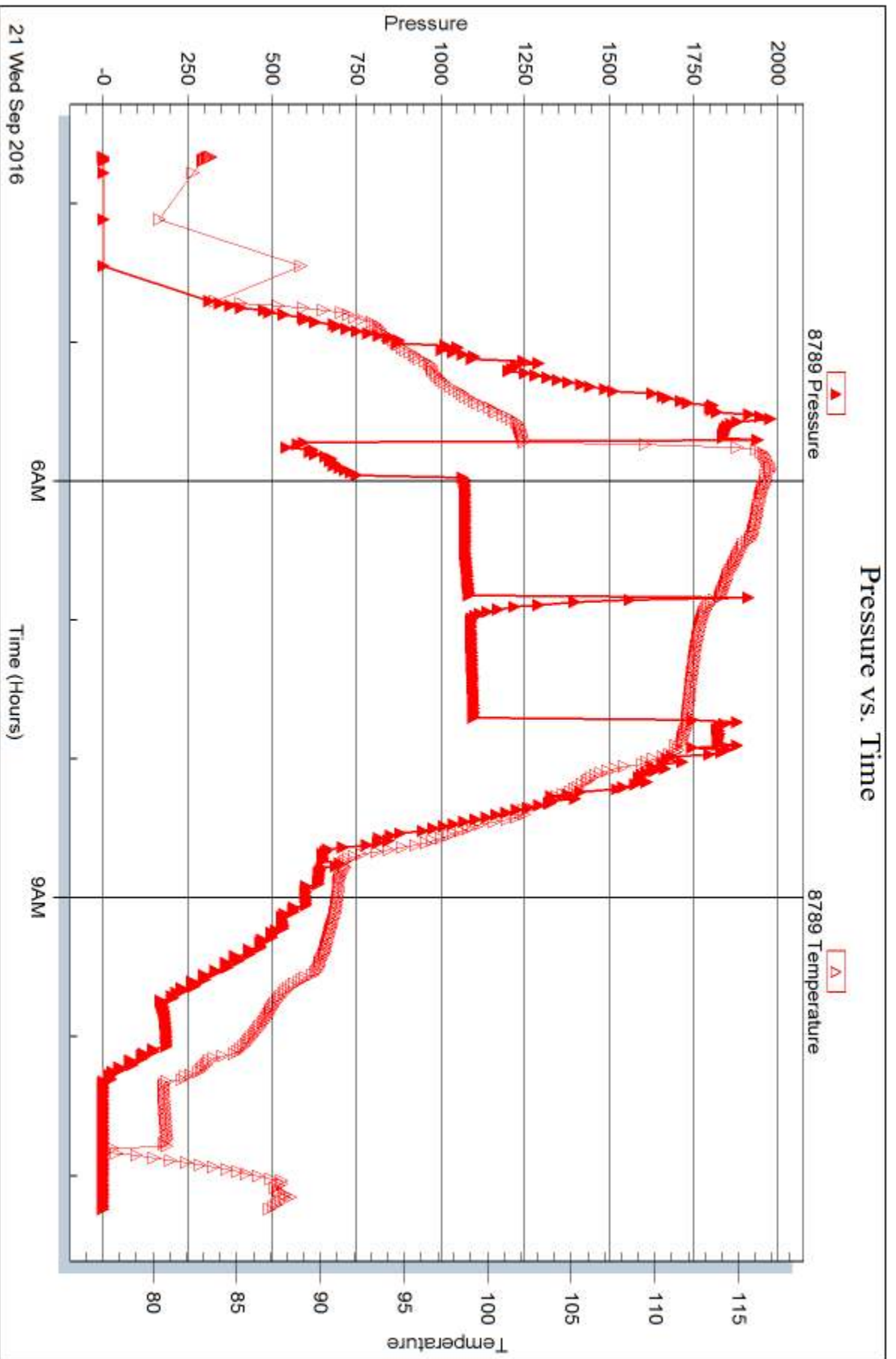
Serial #: 8789

Inside

Dow n ing Nelson Oil Co Inc

20-95-21w Graham,KS

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63118

Printed: 2016.09.22 @ 09:11:35



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63117

Well Name & No. Windy Hill - Darnell Unit 1-21 Test No. 1 Date 9-19-16
 Company Downing Nelson Oil Co. Inc. Elevation 2340 KB 2332 GL
 Address P.O. Box 1019 Hays KS, 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #1
 Location: Sec. 20 Twp. 9S Rge. 21W Co. Graham State KS

Interval Tested 3577-3602 Zone Tested LKC "C"
 Anchor Length 25 Drill Pipe Run 3278 Mud Wt. 8.6
 Top Packer Depth 3572 Drill Collars Run 0 Vis 53
 Bottom Packer Depth 3577 Wt. Pipe Run 311 WL 8
 Total Depth 3602 Chlorides 2750 ppm System LCM 1.5

Blow Description IFP - BOB in 35 min.
ISIP - No Blow
FFP - Surface Blow Building to 10 in.
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>425</u>	<u>MCW</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 Total 425 BHT 110 Gravity _____ API RW 0.85 @ 69 ° F Chlorides 95000 ppm

(A) Initial Hydrostatic 1734 Test 1050 T-On Location 17:27
 (B) First Initial Flow 47 Jars _____ T-Started 18:57
 (C) First Final Flow 156 Safety Joint _____ T-Open 21:35
 (D) Initial Shut-In 913 Circ Sub _____ T-Pulled 00:35
 (E) Second Initial Flow 160 Hourly Standby _____ T-Out 02:34
 (F) Second Final Flow 213 Mileage RT 181 92rt 69 Comments _____
 (G) Final Shut-In 903 Sampler _____
 (H) Final Hydrostatic 1621 Straddle _____ Ruined Shale Packer _____

Initial Open 45 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 45 Extra Packer _____ Extra Copies _____
 Final Flow 45 Extra Recorder _____ Sub Total 0
 Final Shut-In 45 Day Standby _____ Total 1119
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1119

Approved By _____ Our Representative [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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63118

Well Name & No. Windy Hill - Darnell Unit 1-21 Test No. 2 Date 9-21-16
 Company Downing Nelson Oil Co. Inc. Elevation 2340 KB 2332 GL
 Address P.O. BOX 1019 HAYS KS 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #1
 Location: Sec. 20 Twp. 9S Rge. 21W Co. Graham State KS

Interval Tested 3839-3880 Zone Tested Arbuckle
 Anchor Length 41 Drill Pipe Run 3534 Mud Wt. 9
 Top Packer Depth 3834 Drill Collars Run 0 Vis 45
 Bottom Packer Depth 3839 Wt. Pipe Run 311 WL 8.8
 Total Depth 3880 Chlorides 4000 ppm System LCM 1.5

Blow Description IFP - BOB in 50 sec.
ISIP - No Blow
FFP - No Blow Flushed No Blow Tool Plugged.
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>375</u>	<u>Oil Speck mcw</u>	<u>2</u>	<u>95</u>	<u>3</u>	
<u>508</u>	<u>0mcw</u>	<u>5</u>	<u>90</u>	<u>5</u>	
<u>191</u>	<u>0mcw</u>	<u>15</u>	<u>70</u>	<u>15</u>	
<u>294</u>	<u>0mcw</u>	<u>20</u>	<u>55</u>	<u>25</u>	

Rec Total 1368 BHT 112 Gravity _____ API RW 200 @ 85 °F Chlorides 28000 ppm

(A) Initial Hydrostatic 1925 Test 1050 T-On Location 00:56
 (B) First Initial Flow 473 Jars _____ T-Started 03:40
 (C) First Final Flow 759 Safety Joint _____ T-Open 05:43
 (D) Initial Shut-In 1080 Circ Sub _____ T-Pulled 07:43
 (E) Second Initial Flow 1077 Hourly Standby _____ T-Out 11:15

(F) Second Final Flow 1095 Mileage X 2 138
 (G) Final Shut-In 1098 Sampler _____
 (H) Final Hydrostatic 1919 Straddle _____

Initial Open 15 Shale Packer _____
 Initial Shut-In 45 Extra Packer _____
 Final Flow 15 Extra Recorder _____
 Final Shut-In 45 Day Standby _____
 Accessibility _____
 Sub Total 1188

Approved By _____ Our Representative [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.