



DRILL STEM TEST REPORT

Prepared For: **Downing-Nelson Oil Co., Inc.**

PO Box 1019
Hays, KS 67601

ATTN: Marc Downing

Vap #1-9

9-1s-33w Rawlins,KS

Start Date: 2015.02.10 @ 06:25:00

End Date: 2015.02.10 @ 12:59:00

Job Ticket #: 61071 DST #: 1

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

Printed: 2015.02.12 @ 11:10:41



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co., Inc.

9-1s-33w Rawlins,KS

PO Box 1019
Hays, KS 67601

Vap #1-9

Job Ticket: 61071

DST#: 1

ATTN: Marc Dow ning

Test Start: 2015.02.10 @ 06:25:00

GENERAL INFORMATION:

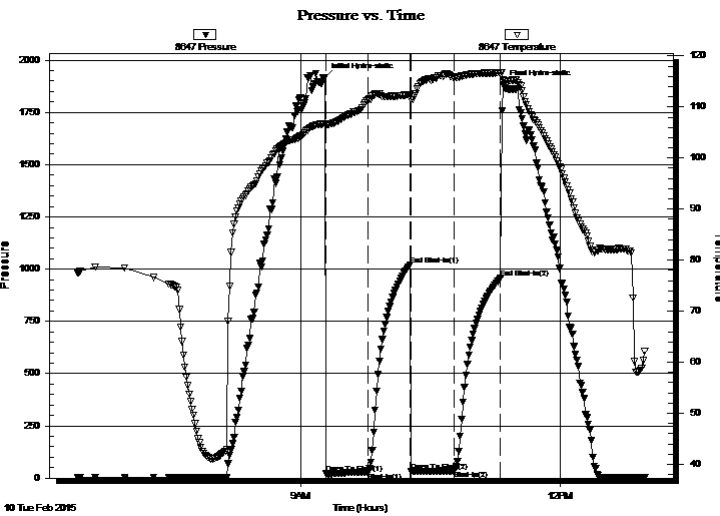
Formation: **LKC "B"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:17:30
 Time Test Ended: 12:59:00
 Interval: **3913.00 ft (KB) To 3966.00 ft (KB) (TVD)**
 Total Depth: 3966.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brandon Quintana
 Unit No: 57
 Reference Elevations: 2949.00 ft (KB)
 2941.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8647

Inside

Press@RunDepth: 37.48 psig @ 3914.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2015.02.10 End Date: 2015.02.10 Last Calib.: 2015.02.10
 Start Time: 06:25:01 End Time: 12:59:00 Time On Btm: 2015.02.10 @ 09:16:30
 Time Off Btm: 2015.02.10 @ 11:20:30

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to 1"
 30 - ISI - No Return
 30 - FF - Blow built to 1"
 30 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1915.58	106.73	Initial Hydro-static
1	20.55	106.45	Open To Flow (1)
30	30.21	111.40	Shut-In(1)
59	1018.99	112.46	End Shut-In(1)
60	32.52	111.45	Open To Flow (2)
90	37.48	115.83	Shut-In(2)
122	956.43	116.71	End Shut-In(2)
124	1881.23	115.24	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
35.00	100% mud	0.22

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.

9-1s-33w Rawlins,KS

PO Box 1019
Hays, KS 67601

Vap #1-9

Job Ticket: 61071

DST#: 1

ATTN: Marc Dow ning

Test Start: 2015.02.10 @ 06:25:00

Tool Information

Drill Pipe:	Length: 3886.00 ft	Diameter: 3.80 inches	Volume: 54.51 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 29.22 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose:	45000.00 lb
			<u>Total Volume:</u> - bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:	30.22 ft			String Weight: Initial	35000.00 lb
Depth to Top Packer:	3913.00 ft			Final	35000.00 lb
Depth to Bottom Packer:	ft				
Interval betw een Packers:	53.00 ft				
Tool Length:	81.00 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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Shut In Tool	5.00			3890.00	
Hydraulic tool	5.00			3895.00	
Jars	5.00			3900.00	
Safety Joint	3.00			3903.00	
Packer	5.00			3908.00	28.00 Bottom Of Top Packer
Packer	5.00			3913.00	
Stubb	1.00			3914.00	
Recorder	0.00	8647	Inside	3914.00	
Recorder	0.00	8372	Outside	3914.00	
Perforations	15.00			3929.00	
Change Over Sub	1.00			3930.00	
Drill Pipe	32.00			3962.00	
Change Over Sub	1.00			3963.00	
Bullnose	3.00			3966.00	53.00 Bottom Packers & Anchor

Total Tool Length: 81.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co., Inc.

9-1s-33w Rawlins,KS

PO Box 1019
Hays, KS 67601

Vap #1-9

Job Ticket: 61071

DST#: 1

ATTN: Marc Dow ning

Test Start: 2015.02.10 @ 06:25:00

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: 48.00 sec/qt

Cushion Volume:

bbf

Water Loss: 8.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
35.00	100%mud	0.225

Total Length: 35.00 ft Total Volume: 0.225 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

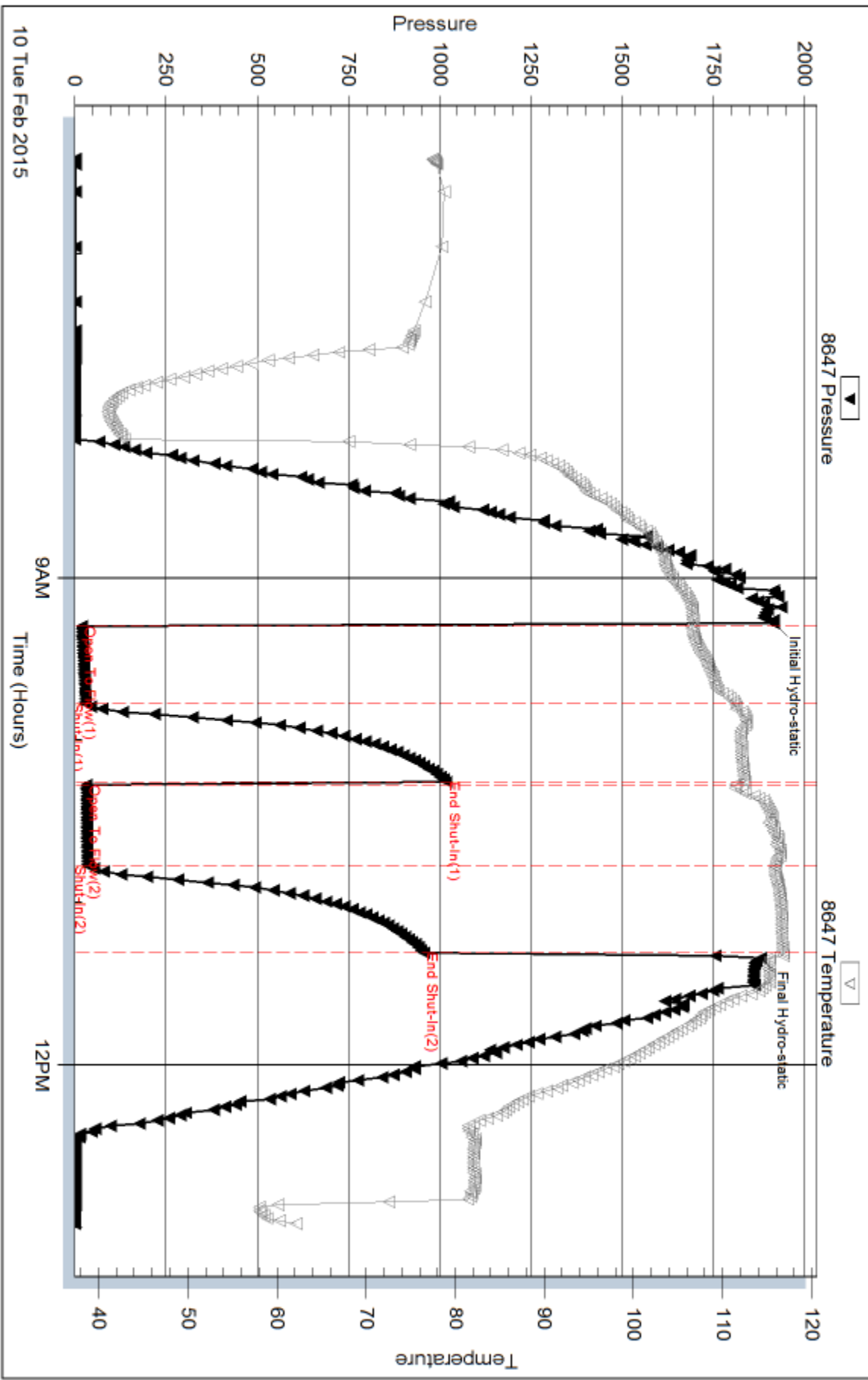
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

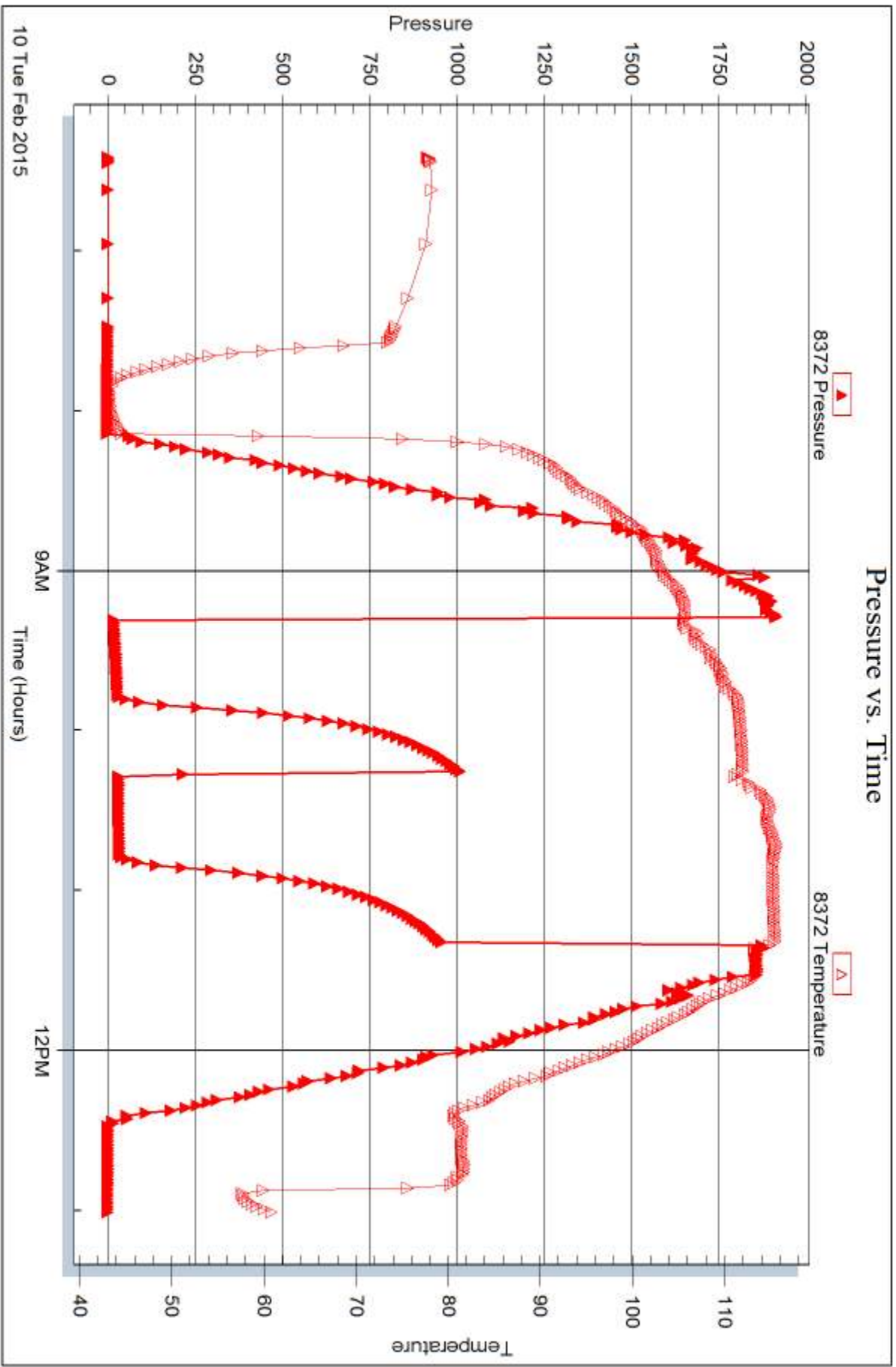


Serial #: 8372

Outside Dow nung-Nelson Oil Co., Inc.

Vap #1-9

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 61071

Printed: 2015.02.12 @ 11:10:42



DRILL STEM TEST REPORT

Prepared For: **Downing-Nelson Oil Co., Inc.**

PO Box 1019
Hays, KS 67601

ATTN: Marc Downing

Vap #1-9

9-1s-33w Rawlins,KS

Start Date: 2015.02.11 @ 19:32:00

End Date: 2015.02.12 @ 01:37:00

Job Ticket #: 61072 DST #: 2

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

Printed: 2015.02.12 @ 10:52:30



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co., Inc.

9-1s-33w Rawlins,KS

PO Box 1019
Hays, KS 67601

Vap #1-9

Job Ticket: 61072

DST#: 2

ATTN: Marc Dow ning

Test Start: 2015.02.11 @ 19:32:00

GENERAL INFORMATION:

Formation: **LKC "D-E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:45:30

Time Test Ended: 01:37:00

Test Type: Conventional Straddle (Initial)

Tester: Brandon Quintana

Unit No: 57

Interval: 4005.00 ft (KB) To 4139.00 ft (KB) (TVD)

Reference Elevations: 2949.00 ft (KB)

Total Depth: 4218.00 ft (KB) (TVD)

2941.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8647

Inside

Press@RunDepth: 38.41 psig @ 4007.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.02.11

End Date:

2015.02.12

Last Calib.:

2015.02.12

Start Time: 19:32:01

End Time:

01:37:00

Time On Btm:

2015.02.11 @ 21:43:30

Time Off Btm:

2015.02.11 @ 23:48:00

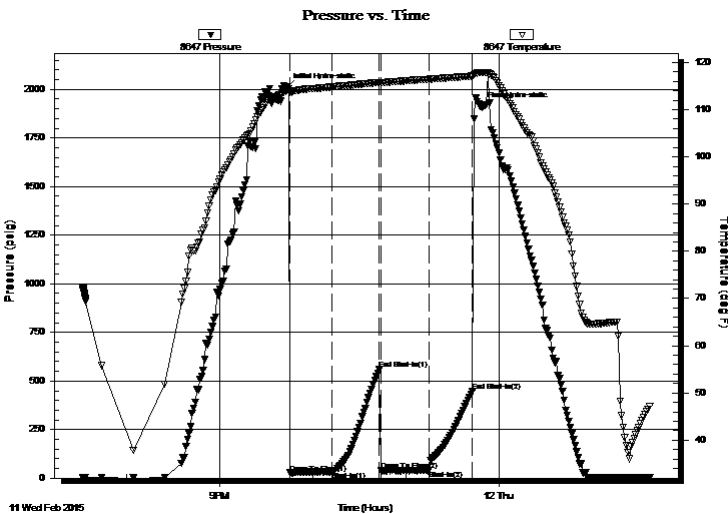
TEST COMMENT: 30 - IF - Opened w/ surface blow , built to 3/4"

30 - ISI - No Return

30 - FF - No Blow

30 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2007.51	113.95	Initial Hydro-static
2	26.75	113.67	Open To Flow (1)
29	33.52	114.81	Shut-In(1)
60	560.42	115.76	End Shut-In(1)
61	40.53	115.70	Open To Flow (2)
92	38.41	116.42	Shut-In(2)
120	448.35	117.09	End Shut-In(2)
125	1913.33	117.79	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	100% mud	0.15

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co., Inc.

9-1s-33w Rawlins,KS

PO Box 1019
Hays, KS 67601

Vap #1-9

Job Ticket: 61072

DST#: 2

ATTN: Marc Dow ning

Test Start: 2015.02.11 @ 19:32:00

GENERAL INFORMATION:

Formation: **LKC "D-E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:45:30

Time Test Ended: 01:37:00

Test Type: Conventional Straddle (Initial)

Tester: Brandon Quintana

Unit No: 57

Interval: 4005.00 ft (KB) To 4139.00 ft (KB) (TVD)

Total Depth: 4218.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2949.00 ft (KB)

2941.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8372 Outside

Press@RunDepth: psig @ 4007.00 ft (KB)

Start Date: 2015.02.11

End Date:

2015.02.12

Start Time: 19:32:01

End Time:

01:38:30

Capacity: 8000.00 psig

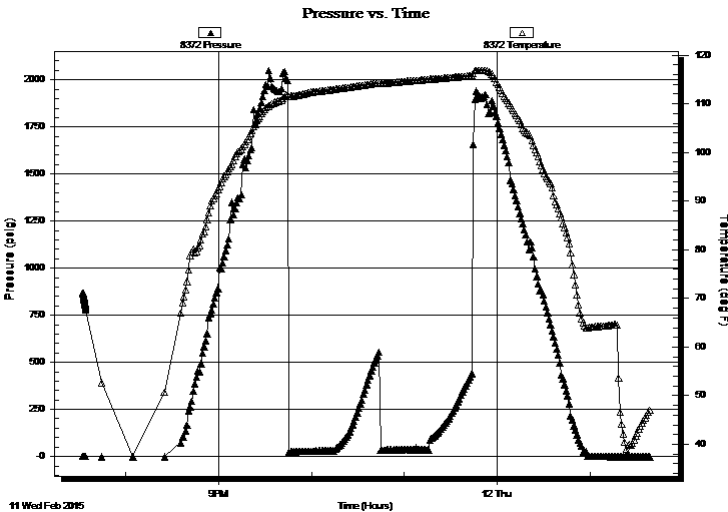
Last Calib.: 2015.02.12

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to 3/4"
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)
30.00	100% mud	0.15

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co., Inc.

9-1s-33w Rawlins,KS

PO Box 1019
Hays, KS 67601

Vap #1-9

Job Ticket: 61072

DST#: 2

ATTN: Marc Dow ning

Test Start: 2015.02.11 @ 19:32:00

GENERAL INFORMATION:

Formation: **LKC "D-E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:45:30

Time Test Ended: 01:37:00

Test Type: Conventional Straddle (Initial)

Tester: Brandon Quintana

Unit No: 57

Interval: 4005.00 ft (KB) To 4139.00 ft (KB) (TVD)

Reference Elevations: 2949.00 ft (KB)

Total Depth: 4218.00 ft (KB) (TVD)

2941.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8321 Below (Straddle)

Press@RunDepth: psig @ 4146.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.02.11

End Date:

2015.02.12

Last Calib.:

2015.02.12

Start Time: 19:32:01

End Time:

01:38:30

Time On Btm:

Time Off Btm:

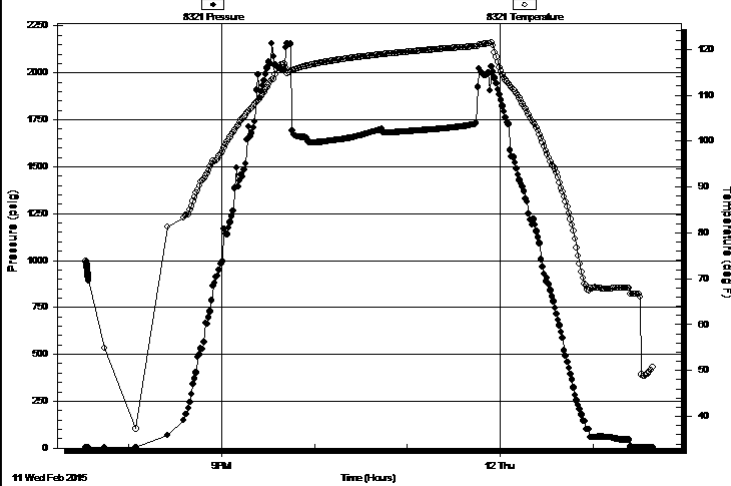
TEST COMMENT: 30 - IF - Opened w/ surface blow , built to 3/4"

30 - ISI - No Return

30 - FF - No Blow

30 - FSI - No Return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	100% mud	0.15

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.

9-1s-33w Rawlins,KS

PO Box 1019
Hays, KS 67601

Vap #1-9

Job Ticket: 61072

DST#: 2

ATTN: Marc Dow ning

Test Start: 2015.02.11 @ 19:32:00

Tool Information

Drill Pipe:	Length: 3953.00 ft	Diameter: 3.80 inches	Volume: 55.45 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.22 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.22 ft			String Weight: Initial 45000.00 lb
Depth to Top Packer:	4005.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	4220.00 ft			
Interval betw een Packers:	215.00 ft			
Tool Length:	243.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		
Tool Comments:				

Tool Description

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

Shut In Tool	5.00			3982.00	
Hydraulic tool	5.00			3987.00	
Jars	5.00			3992.00	
Safety Joint	3.00			3995.00	
Packer	5.00			4000.00	28.00 Bottom Of Top Packer
Packer	5.00			4005.00	
Stubb	1.00			4006.00	
Change Over Sub	1.00			4007.00	
Recorder	0.00	8647	Inside	4007.00	
Recorder	0.00	8372	Outside	4007.00	
Drill Pipe	126.00			4133.00	
Change Over Sub	1.00			4134.00	
Perforations	5.00			4139.00	
Blank Off Sub	1.00			4140.00	
Packer - Shale	0.00			4140.00	
Stubb	1.00			4141.00	
Perforations	5.00			4146.00	
Recorder	0.00	8321	Below	4146.00	
Perforations	5.00			4151.00	
Change Over Sub	1.00			4152.00	
Drill Pipe	64.00			4216.00	
Change Over Sub	1.00			4217.00	
Bullnose	3.00			4220.00	215.00 Bottom Packers & Anchor
Total Tool Length:	243.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co., Inc.

9-1s-33w Rawlins,KS

PO Box 1019
Hays, KS 67601

Vap #1-9

Job Ticket: 61072

DST#: 2

ATTN: Marc Dow ning

Test Start: 2015.02.11 @ 19:32:00

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: 50.00 sec/qt

Cushion Volume:

bbf

Water Loss: 8.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
30.00	100% mud	0.155

Total Length: 30.00 ft Total Volume: 0.155 bbf

Num Fluid Samples: 0

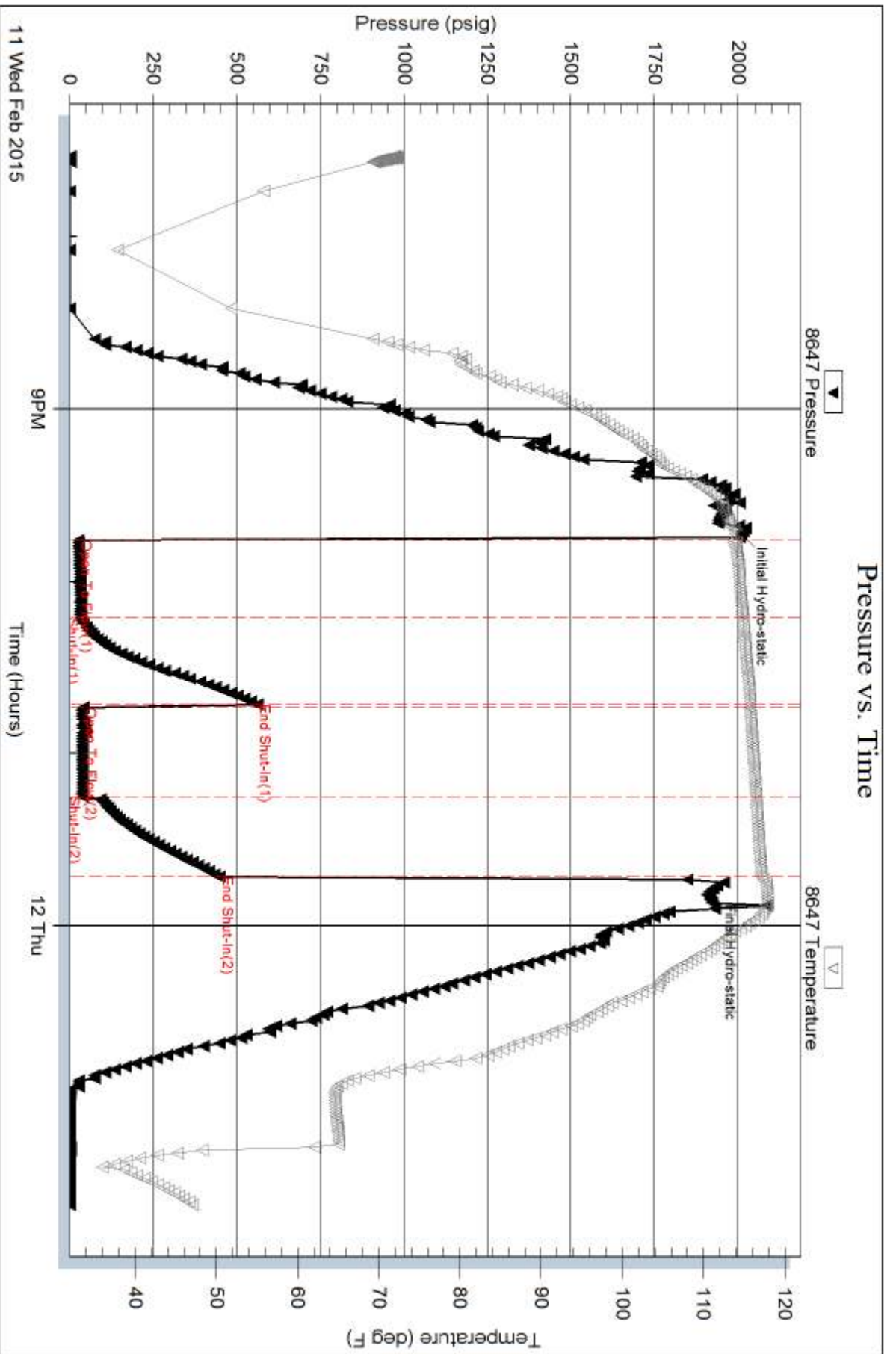
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

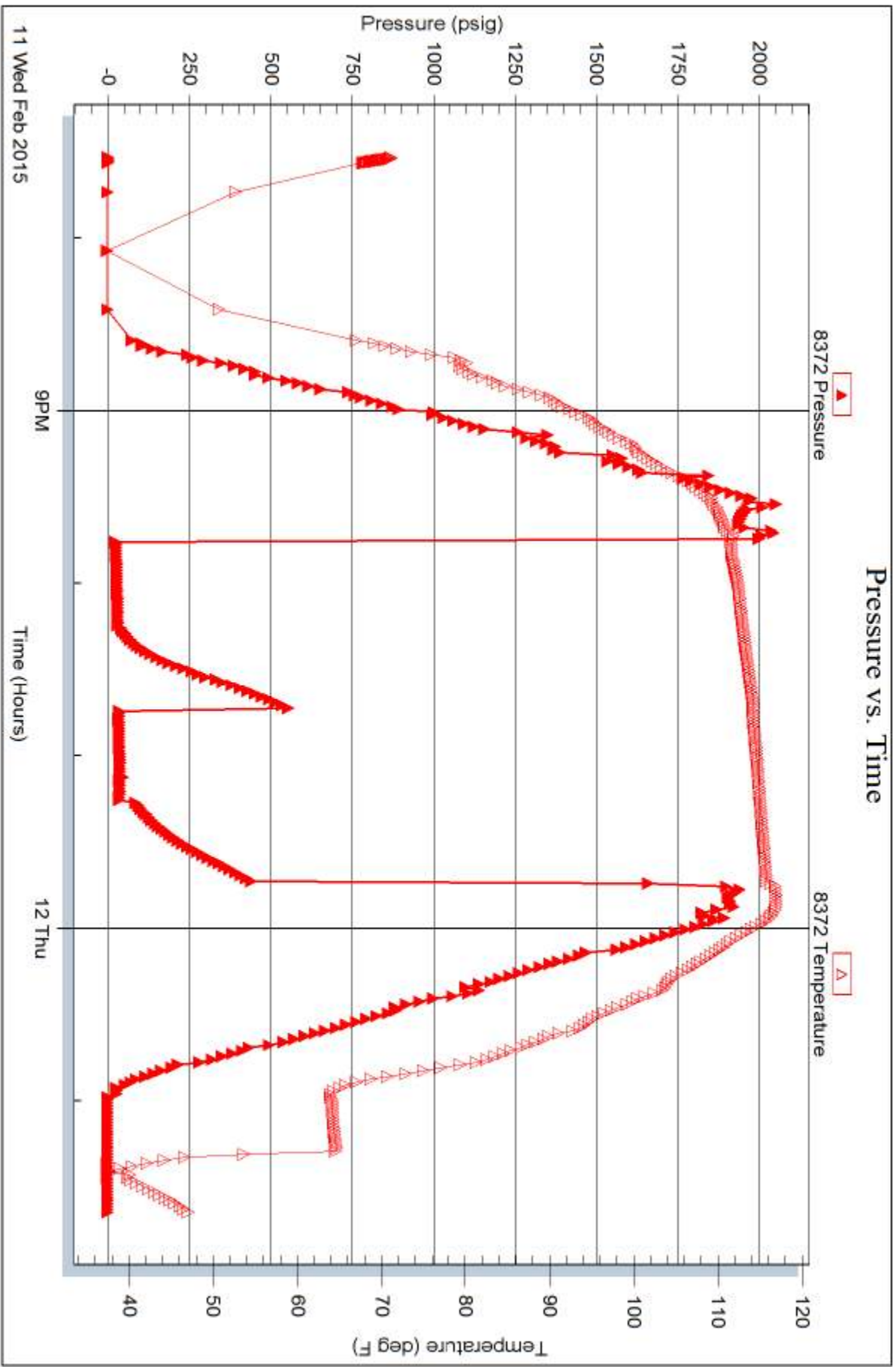


Serial #: 8372

Outside Dow n/g-Nelson Oil Co., Inc.

Vap #1-9

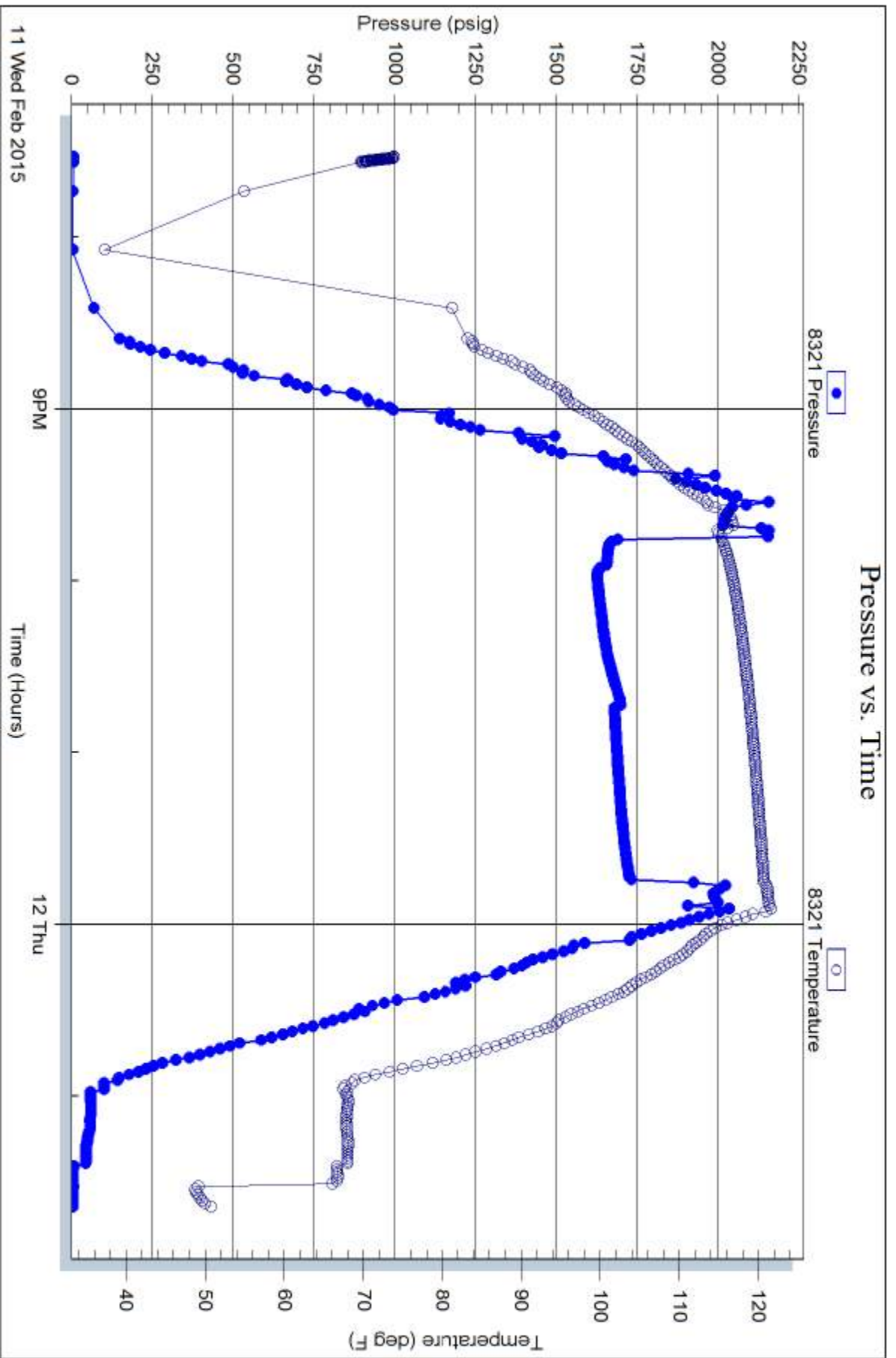
DST Test Number: 2

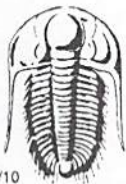


Trilobite Testing, Inc

Ref. No: 61072

Printed: 2015.02.12 @ 10:52:31





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **61071**

4/10

Well Name & No. Vap # 1-9 Test No. 1 Date 2-10-15
 Company Downing-Nelson Oil Co., Inc. Elevation 2949 KB 2941 GL
 Address P.O. Box 1019 Hays, KS 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #1
 Location: Sec. 9 Twp. 1st Rge. 33W Co. Rawlins State KS

Interval Tested 3913 - 3966 Zone Tested LKC "B"
 Anchor Length 53' Drill Pipe Run 3886 Mud Wt. 8.8
 Top Packer Depth 3908 Drill Collars Run 29.22 Vis 48
 Bottom Packer Depth 3913 Wt. Pipe Run — WL 8.8
 Total Depth 3966 Chlorides 500 ppm System LCM 2
 Blow Description IF - Opened w/ surface blow, built to 1"
ISI - No Return
FF - Blow built to 1"
FSI - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>35</u>	<u>Mud</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 35 BHT 116 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1915 Test 1050 T-On Location 5:14 AM
 (B) First Initial Flow 20 Jars 250 T-Started 6:25 AM
 (C) First Final Flow 30 Safety Joint 75 T-Open 9:20 AM
 (D) Initial Shut-In 1018 Circ Sub _____ T-Pulled 11:20 AM
 (E) Second Initial Flow 32 Hourly Standby _____ T-Out 1:01 PM
 (F) Second Final Flow 37 Mileage 82 R.T. 82 Comments _____
 (G) Final Shut-In 956 Sampler _____
 (H) Final Hydrostatic 1881 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1457

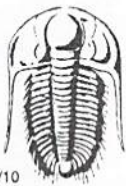
Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1457
 MP/DST Disc't _____

Approved By _____

Our Representative Bud Oitz

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. **61072**

4/10

Well Name & No. <u>Vap #1-9</u>	Test No. <u>2</u>	Date <u>2-11-15</u>
Company <u>Downing-Nelson Oil Co., Inc.</u>	Elevation <u>2949</u>	KB <u>2941</u> GL
Address <u>P.O. Box 1019 Hays, KS 67601</u>		
Co. Rep / Geo. <u>Marc Downing</u>	Rig <u>Discovery #1</u>	
Location: Sec. <u>9</u> Twp. <u>1N</u> Rge. <u>33W</u>	Co. <u>Rawlins</u>	State <u>KS</u>

Interval Tested <u>4005-4139</u>	Zone Tested <u>LKC "D-E"</u>
Anchor Length <u>134' Anchor</u>	Drill Pipe Run <u>3953</u> Mud Wt. <u>9.2</u>
Top Packer Depth <u>4000</u>	Drill Collars Run <u>29.22</u> Vis <u>50</u>
Bottom Packer Depth <u>4605</u>	Wt. Pipe Run <u>—</u> WL <u>8.8</u>
Total Depth <u>4218</u>	Chlorides <u>500</u> ppm System LCM <u>1/2</u>
Blow Description <u>IF- Opened w/ surface blow, built to 3/4"</u>	
<u>ISI- No Return</u>	
<u>FF- No Blow</u>	
<u>FSI- No Return</u>	

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>Mud</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 <u>30</u>	BHT <u>117</u>	Gravity	API RW	@	F	Chlorides	ppm
(A) Initial Hydrostatic <u>2007</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>6:59 PM</u>					
(B) First Initial Flow <u>26</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>7:32 PM</u>					
(C) First Final Flow <u>33</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>9:47 PM</u>					
(D) Initial Shut-In <u>560</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>11:47 PM</u>					
(E) Second Initial Flow <u>40</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1:41 AM</u>					
(F) Second Final Flow <u>38</u>	<input checked="" type="checkbox"/> Mileage <u>82 R.T. 82</u>	Comments					
(G) Final Shut-In <u>448</u>	<input type="checkbox"/> Sampler						
(H) Final Hydrostatic <u>1913</u>	<input checked="" type="checkbox"/> Straddle <u>x1 600</u>	<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>200</u>					
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby <u>1d 6h</u>	Total <u>2357</u>					
Final Shut-In <u>30</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't					
	Sub Total <u>2157</u>						

Approved By _____

Our Representative Bnd BT

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.