



DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Sarah #1-25

25-14s-19w Ellis,KS

Start Date: 2014.01.06 @ 17:30:00

End Date: 2014.01.07 @ 00:57:30

Job Ticket #: 55494 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.10 @ 09:57:50



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55494

DST#: 1

ATTN: Marc Dow ning

Test Start: 2014.01.06 @ 17:30:00

GENERAL INFORMATION:

Formation: **KC"C-D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:12:45

Time Test Ended: 00:57:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Brett Dickinson

Unit No: 59

Interval: 3400.00 ft (KB) To 3453.00 ft (KB) (TVD)

Reference Elevations: 2085.00 ft (KB)

Total Depth: 3453.00 ft (KB) (TVD)

2077.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8736

Inside

Press@RunDepth: 487.10 psig @ 3406.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.06

End Date:

2014.01.07

Last Calib.:

2014.01.07

Start Time: 17:30:05

End Time:

00:57:29

Time On Btm:

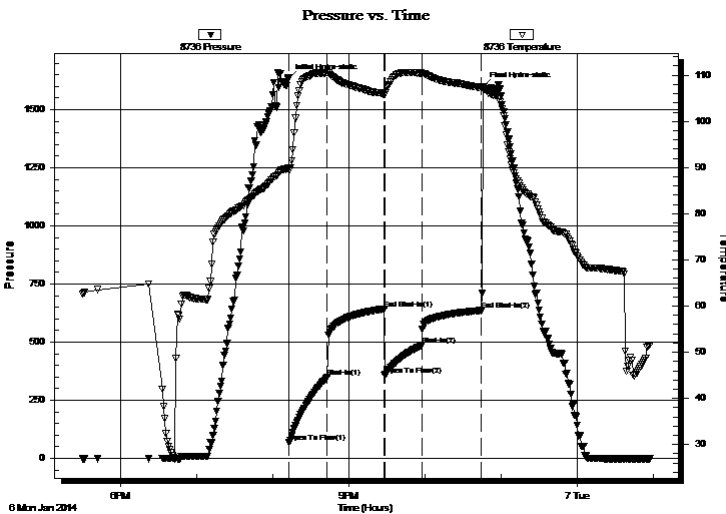
2014.01.06 @ 20:12:15

Time Off Btm:

2014.01.06 @ 22:45:45

TEST COMMENT: IF-BOB in 2 min
ISI-No blow
FF-BOB in 4 min
FSI-No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1635.43	89.85	Initial Hydro-static
1	68.65	89.45	Open To Flow (1)
31	348.31	110.53	Shut-In(1)
76	642.70	105.88	End Shut-In(1)
76	356.84	105.76	Open To Flow (2)
106	487.10	110.44	Shut-In(2)
152	636.32	107.30	End Shut-In(2)
154	1598.14	107.05	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
150.00	MW 35%M 65%W	2.10
860.00	Water	12.06

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.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55494

DST#: 1

ATTN: Marc Dow ning

Test Start: 2014.01.06 @ 17:30:00

Tool Information

Drill Pipe:	Length: 3408.00 ft	Diameter: 3.80 inches	Volume: 47.81 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.70 inches	Volume: - bbl	Weight set on Packer:	2500.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume:</u> - bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial	55000.00 lb
Depth to Top Packer:	3400.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval betw een Packers:	53.00 ft				
Tool Length:	74.00 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			3380.00	
Shut In Tool	5.00			3385.00	
Hydraulic tool	5.00			3390.00	
Packer	5.00			3395.00	21.00 Bottom Of Top Packer
Packer	5.00			3400.00	
Stubb	1.00			3401.00	
Perforations	5.00			3406.00	
Recorder	0.00	8736	Inside	3406.00	
Recorder	0.00	8018	Outside	3406.00	
Change Over Sub	1.00			3407.00	
Drill Pipe	32.00			3439.00	
Change Over Sub	1.00			3440.00	
Perforations	10.00			3450.00	
Bullnose	3.00			3453.00	53.00 Bottom Packers & Anchor

Total Tool Length: 74.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55494

DST#: 1

ATTN: Marc Dow ning

Test Start: 2014.01.06 @ 17:30:00

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:

70000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
150.00	MW 35%M 65%W	2.104
860.00	Water	12.064

Total Length: 1010.00 ft Total Volume: 14.168 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

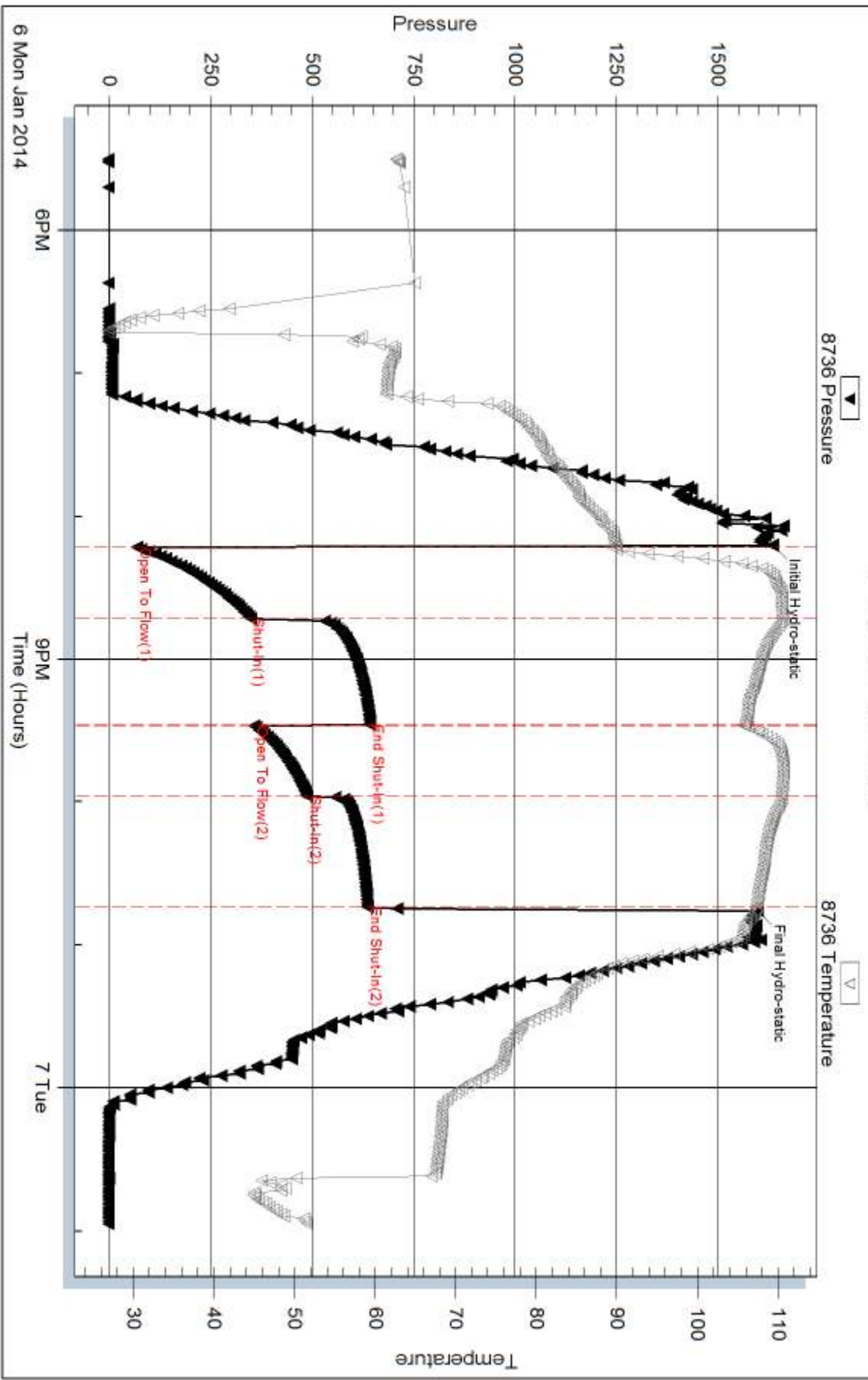
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time





DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Sarah #1-25

25-14s-19w Ellis,KS

Start Date: 2014.01.07 @ 07:29:52

End Date: 2014.01.07 @ 13:44:52

Job Ticket #: 55445 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.10 @ 09:57:26



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55445

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.01.07 @ 07:29:52

GENERAL INFORMATION:

Formation: **LKC "E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:17:37

Time Test Ended: 13:44:52

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan L

Unit No: 59

Interval: 3448.00 ft (KB) To 3471.00 ft (KB) (TVD)

Reference Elevations: 2085.00 ft (KB)

Total Depth: 3471.00 ft (KB) (TVD)

2077.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8018 Outside

Press@RunDepth: 18.05 psig @ 3458.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.07 End Date: 2014.01.07

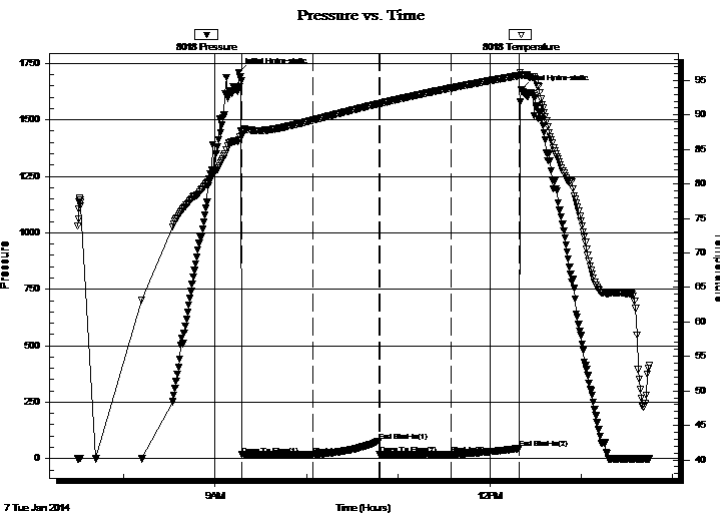
Last Calib.: 2014.01.07

Start Time: 07:29:57 End Time: 13:44:51

Time On Btm: 2014.01.07 @ 09:15:22

Time Off Btm: 2014.01.07 @ 12:20:37

TEST COMMENT: 45- IF- Built very slow ly to 1 1/2"
45- IS- Surface blow
45- FF- Built to 3/4"
45- FS- Surface blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1710.01	86.27	Initial Hydro-static
3	16.89	86.90	Open To Flow (1)
49	17.37	89.24	Shut-In(1)
92	78.45	91.62	End Shut-In(1)
93	17.69	91.66	Open To Flow (2)
140	18.05	93.89	Shut-In(2)
185	45.79	95.71	End Shut-In(2)
186	1635.34	95.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	M	0.07

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55445

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.01.07 @ 07:29:52

GENERAL INFORMATION:

Formation: **LKC "E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:17:37

Time Test Ended: 13:44:52

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan L

Unit No: 59

Interval: 3448.00 ft (KB) To 3471.00 ft (KB) (TVD)

Reference Elevations: 2085.00 ft (KB)

Total Depth: 3471.00 ft (KB) (TVD)

2077.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8736 Inside

Press@RunDepth: psig @ 3458.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.07

End Date:

2014.01.07

Last Calib.:

2014.01.07

Start Time: 07:30:02

End Time:

13:44:56

Time On Btm:

Time Off Btm:

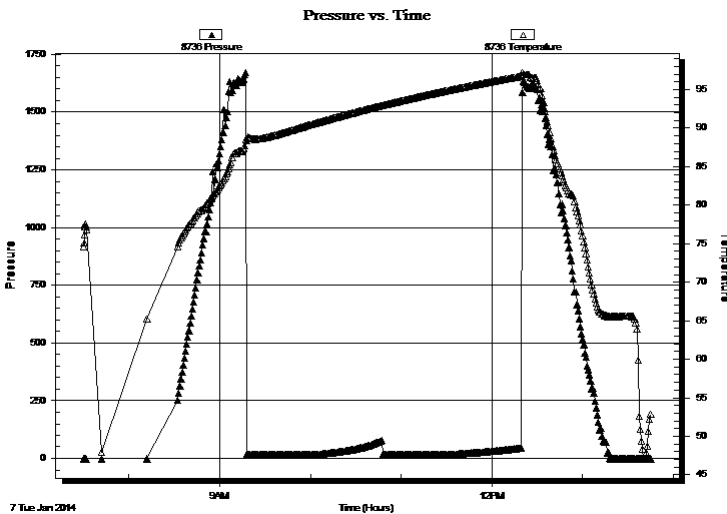
TEST COMMENT: 45- IF- Built very slow ly to 1 1/2"

45- IS- Surface blow

45- FF- Built to 3/4"

45- FS- Surface blow

PRESSURE SUMMARY



Time (Min.)

Pressure (psig)

Temp (deg F)

Annotation

Recovery

Length (ft)	Description	Volume (bbl)
5.00	M	0.07

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55445

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.01.07 @ 07:29:52

Tool Information

Drill Pipe:	Length: 3440.00 ft	Diameter: 3.80 inches	Volume: 48.25 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.70 inches	Volume: - 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:	60000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial	53000.00 lb
Depth to Top Packer:	3448.00 ft			Final	53000.00 lb
Depth to Bottom Packer:	ft				
Interval betw een Packers:	23.00 ft				
Tool Length:	43.00 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			3429.00	
Shut In Tool	5.00			3434.00	
Hydraulic tool	5.00			3439.00	
Packer	5.00			3444.00	20.00 Bottom Of Top Packer
Packer	4.00			3448.00	
Stubb	1.00			3449.00	
Perforations	9.00			3458.00	
Recorder	0.00	8736	Inside	3458.00	
Recorder	0.00	8018	Outside	3458.00	
Perforations	10.00			3468.00	
Bullnose	3.00			3471.00	23.00 Bottom Packers & Anchor

Total Tool Length: 43.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55445

DST#: 2

ATTN: Marc Dow ning

Test Start: 2014.01.07 @ 07:29:52

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 49.00 sec/qt

Water Loss: 8.78 in³

Resistivity: ohm.m

Salinity: 7000.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	M	0.070

Total Length: 5.00 ft Total Volume: 0.070 bbl

Num Fluid Samples: 0

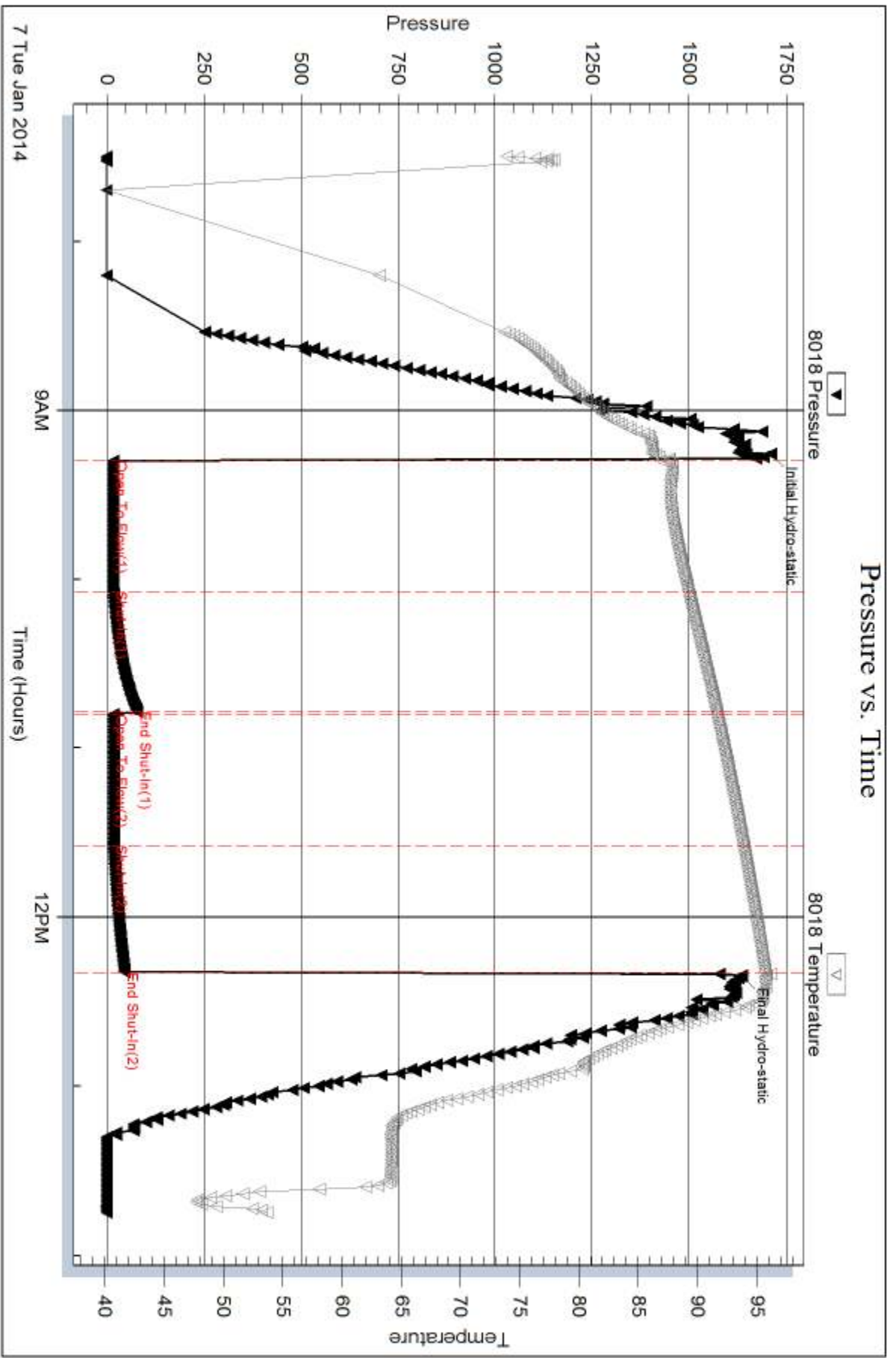
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



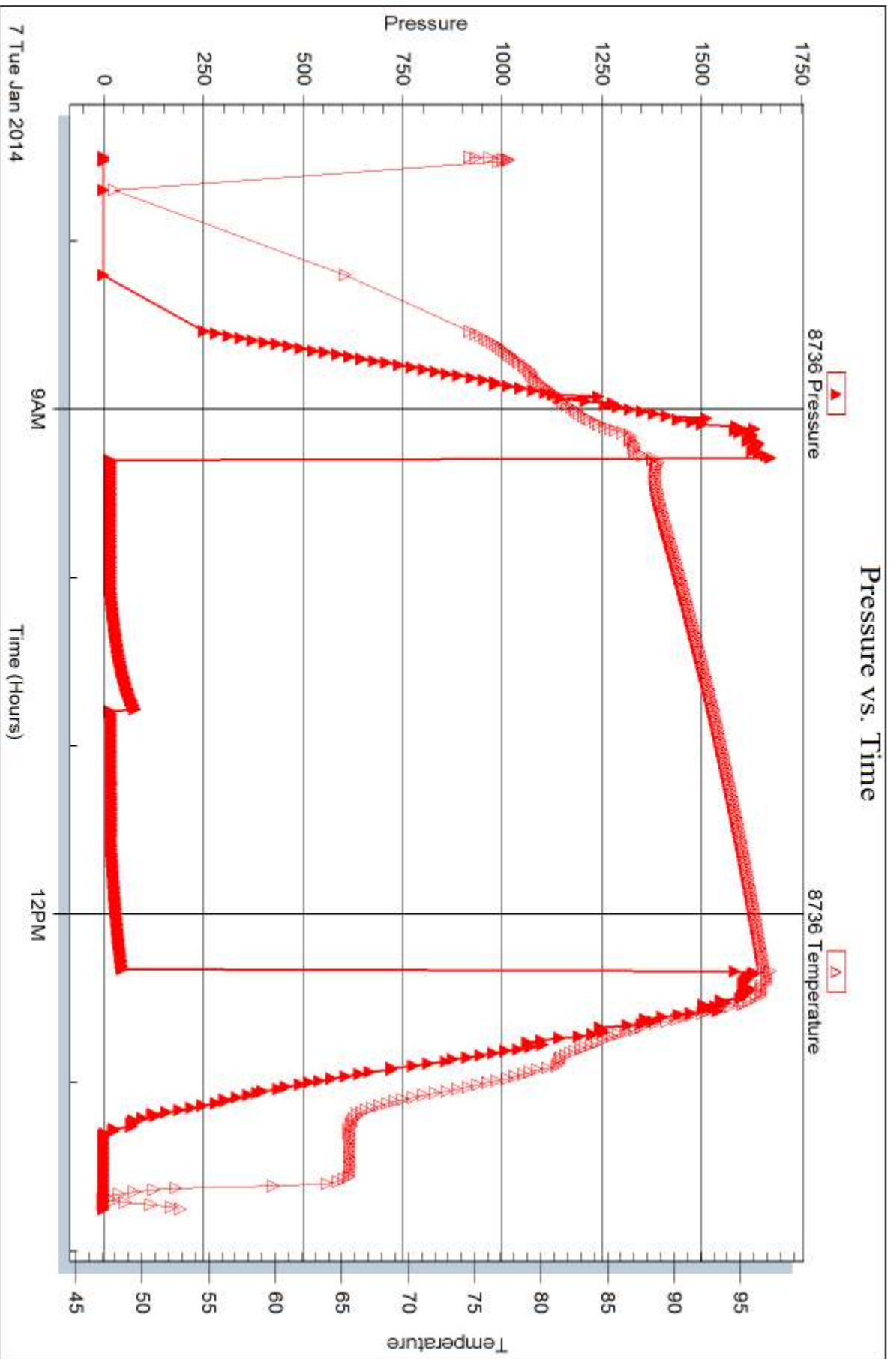
Serial #: 8736

Inside

Dow nng-Nelson Oil Co Inc.

Sarah #1-25

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 55445

Printed: 2014.01.10 @ 09:57:29



DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Sarah #1-25

25-14s-19w Ellis,KS

Start Date: 2014.01.08 @ 01:08:48

End Date: 2014.01.08 @ 08:09:03

Job Ticket #: 55446 DST #: 3

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

Printed: 2014.01.10 @ 09:56:58



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55446

DST#: 3

ATTN: Marc Dow ning

Test Start: 2014.01.08 @ 01:08:48

GENERAL INFORMATION:

Formation: **LKC "H-I"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:09:18

Time Test Ended: 08:09:03

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan L

Unit No: 59

Interval: 3506.00 ft (KB) To 3562.00 ft (KB) (TVD)

Reference Elevations: 2085.00 ft (KB)

Total Depth: 3562.00 ft (KB) (TVD)

2077.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8736

Inside

Press@RunDepth: 35.18 psig @ 3515.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.08

End Date:

2014.01.08

Last Calib.:

2014.01.08

Start Time: 01:08:53

End Time:

08:09:02

Time On Btm:

2014.01.08 @ 03:07:48

Time Off Btm:

2014.01.08 @ 06:10:18

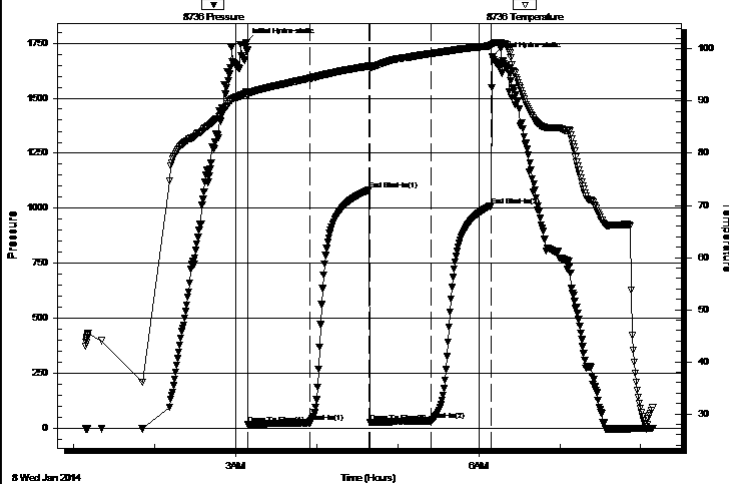
TEST COMMENT: 45- IF- Slow ly built to 2 1/2"

45- IS- No blow

45- FF- Built to 1"

45- FS- No blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1753.58	91.69	Initial Hydro-static
2	16.82	90.98	Open To Flow (1)
47	26.45	94.35	Shut-In(1)
91	1082.81	96.72	End Shut-In(1)
92	27.42	96.44	Open To Flow (2)
137	35.18	99.12	Shut-In(2)
182	1011.25	100.59	End Shut-In(2)
183	1689.53	100.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	M	0.56

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.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55446

DST#: 3

ATTN: Marc Dow ning

Test Start: 2014.01.08 @ 01:08:48

Tool Information

Drill Pipe:	Length: 3504.00 ft	Diameter: 3.80 inches	Volume: 49.15 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.70 inches	Volume: - 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: 60000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 57000.00 lb
Depth to Top Packer:	3506.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval betw een Packers:	56.00 ft			
Tool Length:	76.00 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			3487.00	
Shut In Tool	5.00			3492.00	
Hydraulic tool	5.00			3497.00	
Packer	5.00			3502.00	20.00 Bottom Of Top Packer
Packer	4.00			3506.00	
Stubb	1.00			3507.00	
Perforations	8.00			3515.00	
Recorder	0.00	8736	Inside	3515.00	
Recorder	0.00	8018	Outside	3515.00	
Change Over Sub	1.00			3516.00	
Drill Pipe	32.00			3548.00	
Change Over Sub	1.00			3549.00	
Perforations	10.00			3559.00	
Bullnose	3.00			3562.00	56.00 Bottom Packers & Anchor

Total Tool Length: 76.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55446

DST#: 3

ATTN: Marc Dow ning

Test Start: 2014.01.08 @ 01:08:48

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: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	M	0.561

Total Length: 40.00 ft Total Volume: 0.561 bbl

Num Fluid Samples: 0

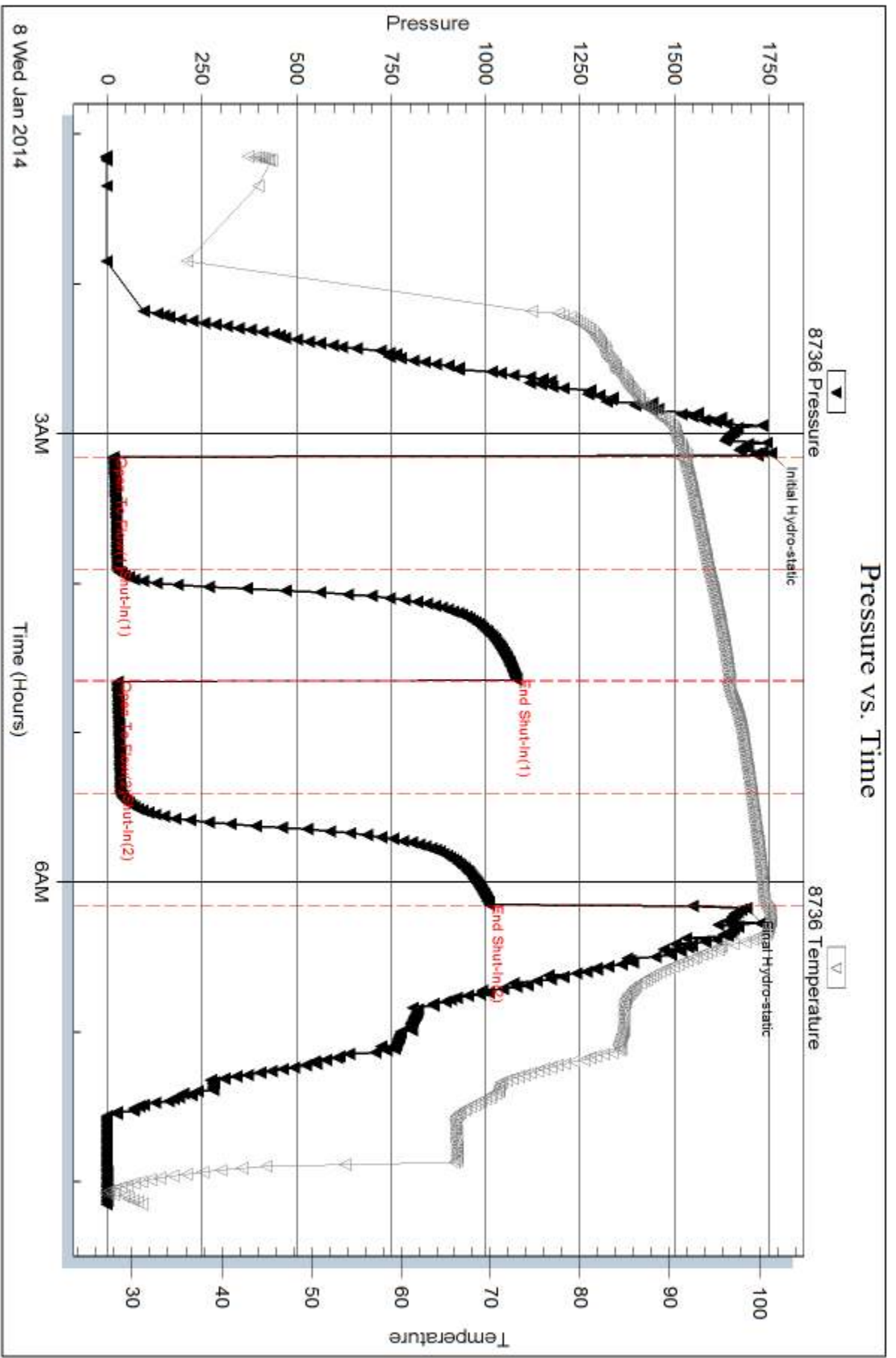
Num Gas Bombs: 0

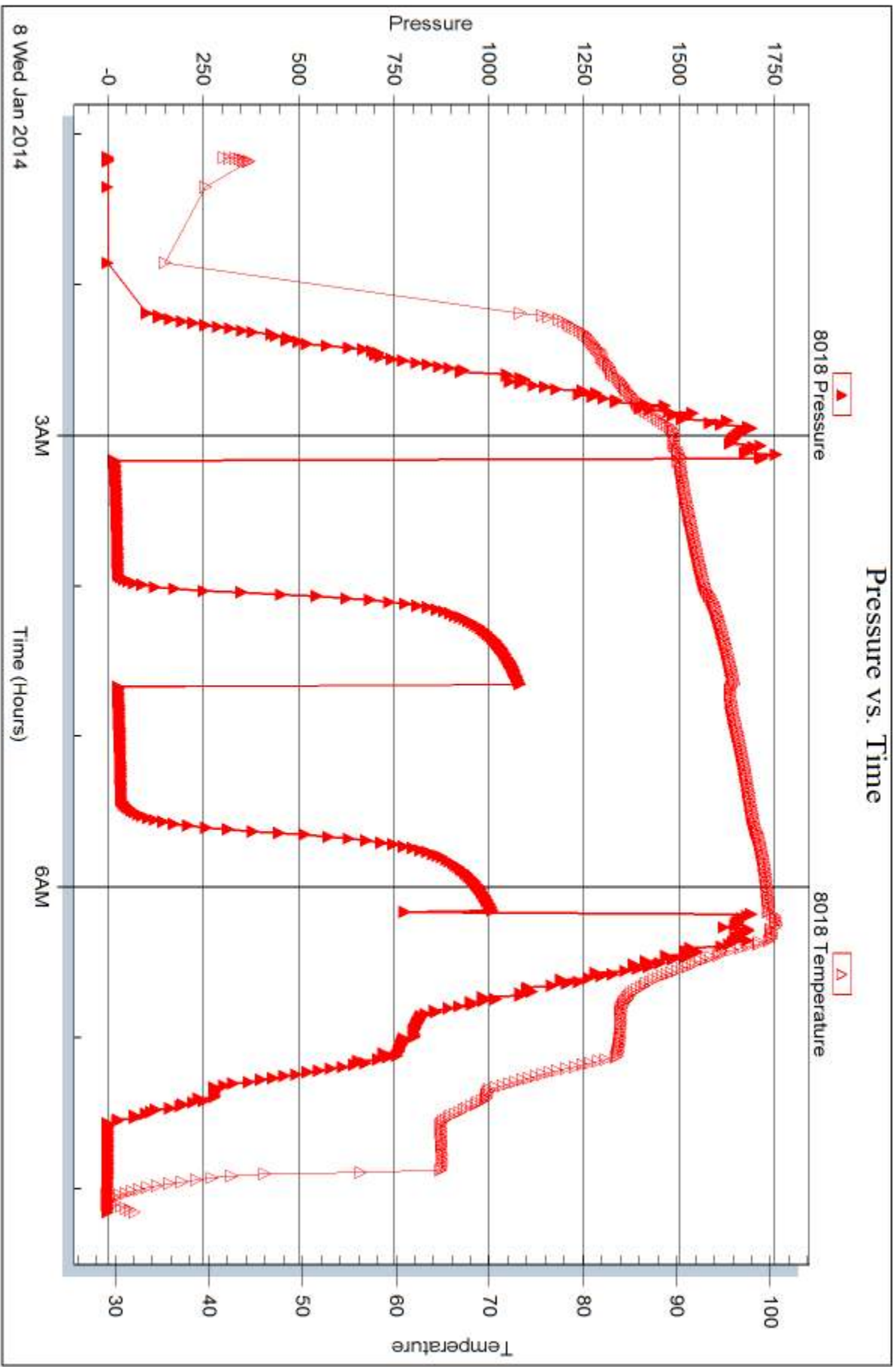
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Sarah #1-25

25-14s-19w Ellis,KS

Start Date: 2014.01.08 @ 22:15:45

End Date: 2014.01.09 @ 05:15:45

Job Ticket #: 55447 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.10 @ 09:56:32



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55447

DST#: 4

ATTN: Marc Dow ning

Test Start: 2014.01.08 @ 22:15:45

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:20:30

Time Test Ended: 05:15:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan L

Unit No: 59

Interval: 3683.00 ft (KB) To 3729.00 ft (KB) (TVD)

Reference Elevations: 2085.00 ft (KB)

Total Depth: 3729.00 ft (KB) (TVD)

2077.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8736

Inside

Press@RunDepth: 44.00 psig @ 3692.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.08

End Date:

2014.01.09

Last Calib.:

2014.01.09

Start Time: 22:15:50

End Time:

05:15:44

Time On Btm:

2014.01.09 @ 00:19:00

Time Off Btm:

2014.01.09 @ 03:28:15

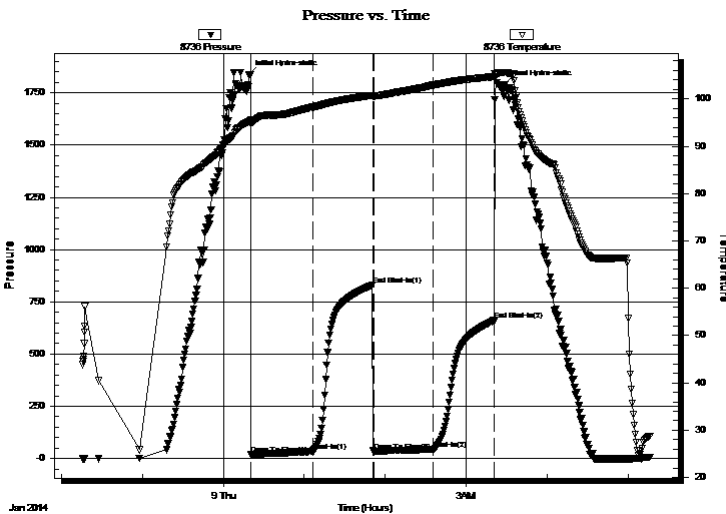
TEST COMMENT: 45- IF- Built to 1" in 3 mins and maintained blow throughout

45- IS- No blow

45- FF- Built to 1" in 6 mins and maintained

45- FS- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1839.32	95.24	Initial Hydro-static
2	19.25	94.81	Open To Flow (1)
47	33.21	98.22	Shut-In(1)
92	829.81	100.75	End Shut-In(1)
93	34.56	100.57	Open To Flow (2)
136	44.00	102.88	Shut-In(2)
182	660.92	104.69	End Shut-In(2)
190	1789.04	105.56	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	MCO, 50%O	0.42
40.00	O	0.56

* 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.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55447

DST#: 4

ATTN: Marc Dow ning

Test Start: 2014.01.08 @ 22:15:45

Tool Information

Drill Pipe:	Length: 3695.00 ft	Diameter: 3.80 inches	Volume: 51.83 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.70 inches	Volume: - 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: 60000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 57000.00 lb
Depth to Top Packer:	3683.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval betw een Packers:	46.00 ft			
Tool Length:	66.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			3664.00	
Shut In Tool	5.00			3669.00	
Hydraulic tool	5.00			3674.00	
Packer	5.00			3679.00	20.00 Bottom Of Top Packer
Packer	4.00			3683.00	
Stubb	1.00			3684.00	
Perforations	8.00			3692.00	
Recorder	0.00	8736	Inside	3692.00	
Recorder	0.00	8018	Outside	3692.00	
Change Over Sub	1.00			3693.00	
Drill Pipe	32.00			3725.00	
Change Over Sub	1.00			3726.00	
Bullnose	3.00			3729.00	46.00 Bottom Packers & Anchor

Total Tool Length: 66.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55447

DST#: 4

ATTN: Marc Dow ning

Test Start: 2014.01.08 @ 22:15:45

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

29 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
30.00	MCO, 50%O	0.421
40.00	O	0.561

Total Length: 70.00 ft

Total Volume: 0.982 bbl

Num Fluid Samples: 0

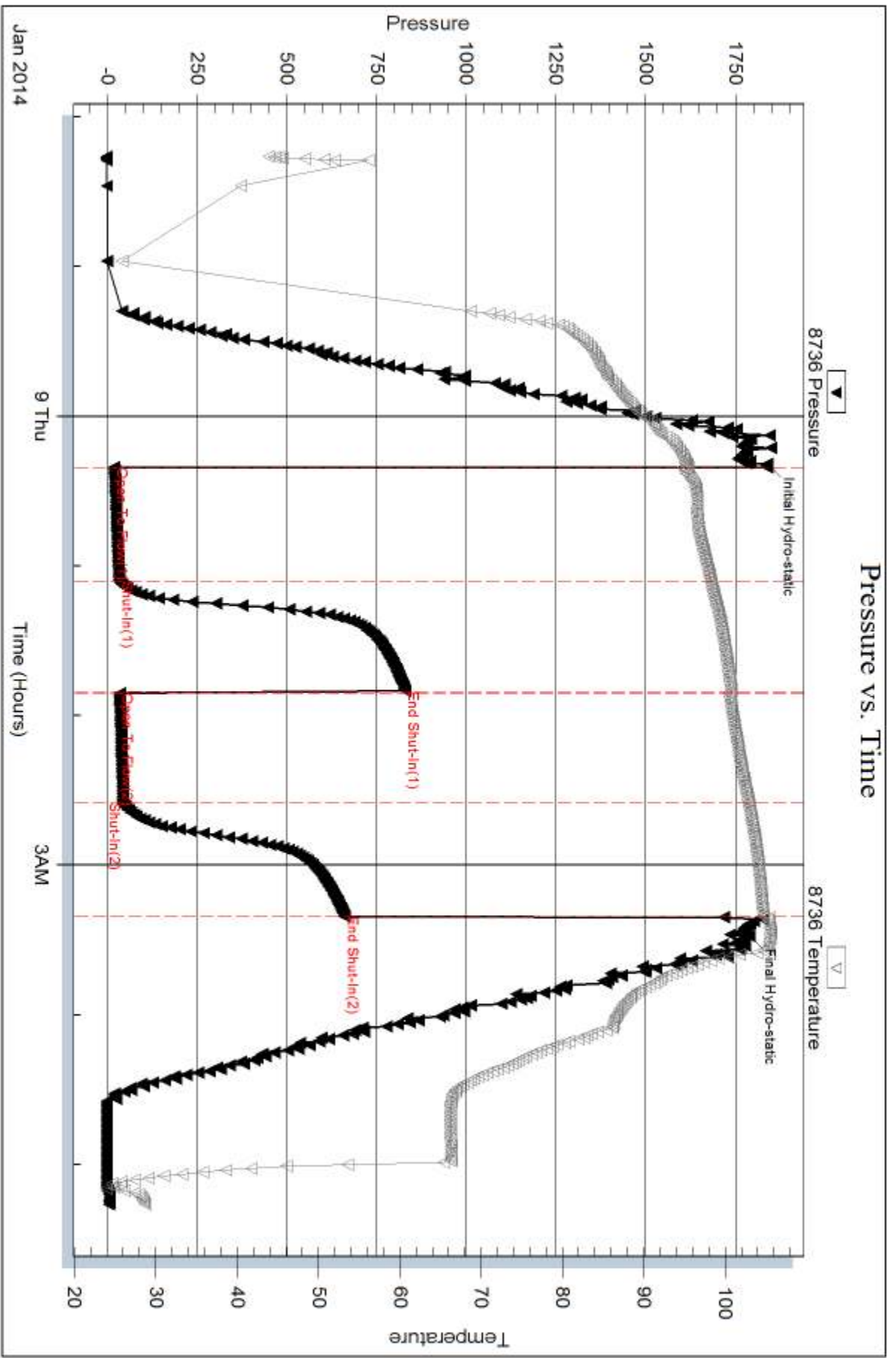
Num Gas Bombs: 0

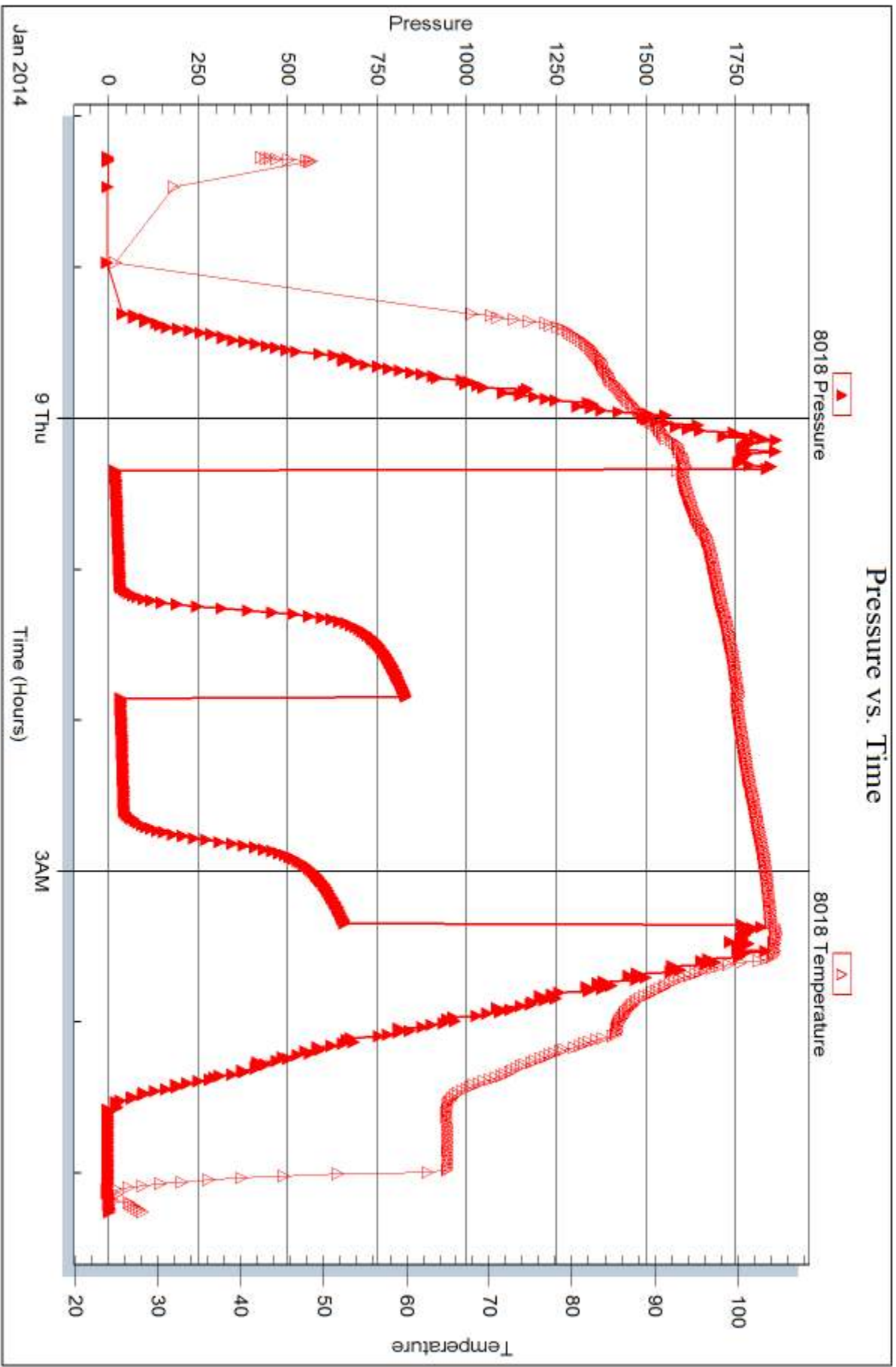
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Sarah #1-25

25-14s-19w Ellis,KS

Start Date: 2014.01.09 @ 19:15:16

End Date: 2014.01.10 @ 03:55:31

Job Ticket #: 55448 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.10 @ 09:56:02



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55448

DST#: 5

ATTN: Marc Dow ning

Test Start: 2014.01.09 @ 19:15:16

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:45:16

Time Test Ended: 03:55:31

Test Type: Conventional Straddle (Reset)

Tester: Brannan L

Unit No: 59

Interval: 3728.00 ft (KB) To 3747.00 ft (KB) (TVD)

Reference Elevations: 2085.00 ft (KB)

Total Depth: 3810.00 ft (KB) (TVD)

2077.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8018 Outside

Press@RunDepth: 335.23 psig @ 3743.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.09

End Date: 2014.01.10

Last Calib.: 2014.01.10

Start Time: 19:15:21

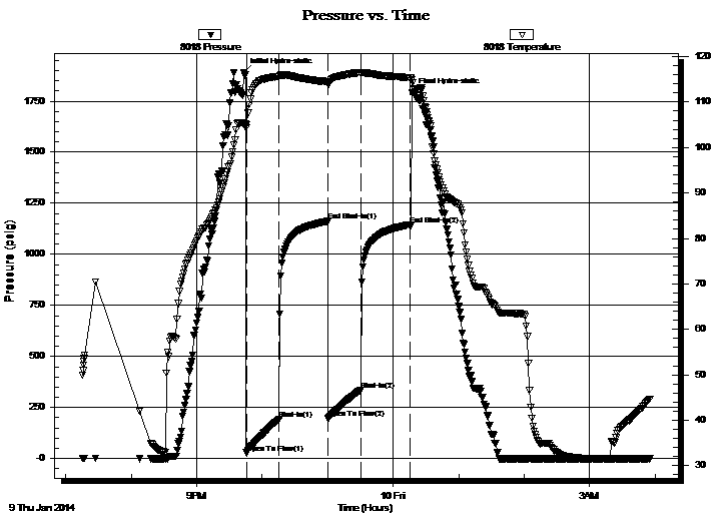
End Time: 03:55:31

Time On Btm: 2014.01.09 @ 21:43:01

Time Off Btm: 2014.01.10 @ 00:17:01

TEST COMMENT: 30- IF- BOB 5 mins
45- IS- Surface blow
30- FF- BOB 6 mins
45- FS- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1890.75	105.22	Initial Hydro-static
3	27.59	104.33	Open To Flow (1)
33	193.12	115.65	Shut-In(1)
77	1161.88	114.46	End Shut-In(1)
78	197.41	113.91	Open To Flow (2)
107	335.23	116.39	Shut-In(2)
153	1145.21	115.28	End Shut-In(2)
154	1793.19	114.97	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
715.00	MW, 80%W	10.03

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55448

DST#: 5

ATTN: Marc Dow ning

Test Start: 2014.01.09 @ 19:15:16

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:45:16

Time Test Ended: 03:55:31

Test Type: Conventional Straddle (Reset)

Tester: Brannan L

Unit No: 59

Interval: 3728.00 ft (KB) To 3747.00 ft (KB) (TVD)

Total Depth: 3810.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2085.00 ft (KB)

2077.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8736 Inside

Press@RunDepth: psig @ 3743.00 ft (KB)

Start Date: 2014.01.09

End Date: 2014.01.10

Capacity: 8000.00 psig

Last Calib.: 2014.01.10

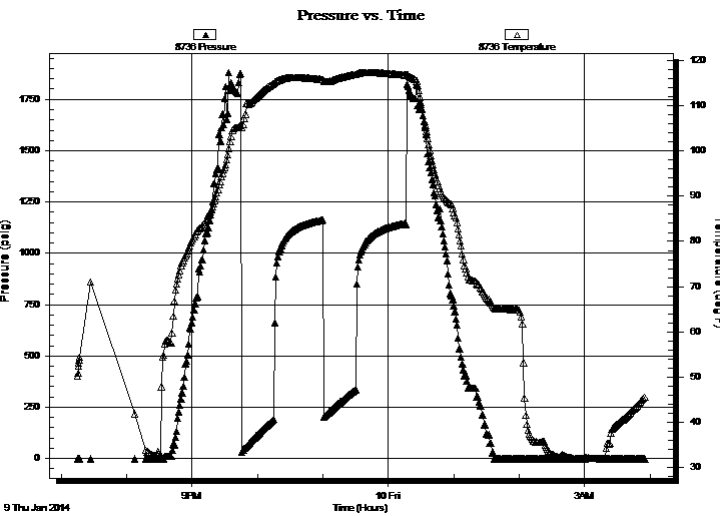
Start Time: 19:15:14

End Time: 03:55:39

Time On Btm:

Time Off Btm:

TEST COMMENT: 30- IF- BOB 5 mins
45- IS- Surface blow
30- FF- BOB 6 mins
45- FS- No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
715.00	MW, 80%W	10.03

* 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.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55448

DST#: 5

ATTN: Marc Dow ning

Test Start: 2014.01.09 @ 19:15:16

Tool Information

Drill Pipe:	Length: 3727.00 ft	Diameter: 3.80 inches	Volume: 52.28 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.70 inches	Volume: - 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:	65000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	3728.00 ft			Final	62000.00 lb
Depth to Bottom Packer:	3747.00 ft				
Interval betw een Packers:	19.00 ft				
Tool Length:	102.00 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			3709.00	
Shut In Tool	5.00			3714.00	
Hydraulic tool	5.00			3719.00	
Packer	5.00			3724.00	20.00 Bottom Of Top Packer
Packer	4.00			3728.00	
Stubb	1.00			3729.00	
Perforations	14.00			3743.00	
Recorder	0.00	8736	Inside	3743.00	
Recorder	0.00	8018	Outside	3743.00	
Blank Off Sub	1.00			3744.00	
Blank Spacing	3.00			3747.00	19.00 Tool Interval
Packer	1.00			3748.00	
Blank Spacing	1.00			3749.00	
Perforations	24.00			3773.00	
Change Over Sub	1.00			3774.00	
Drill Pipe	32.00			3806.00	
Recorder	0.00	8319	Below	3806.00	
Change Over Sub	1.00			3807.00	
Bullnose	3.00			3810.00	63.00 Bottom Packers & Anchor

Total Tool Length: 102.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co Inc.

25-14s-19w Ellis,KS

PO Box 1019
Hays KS 67601

Sarah #1-25

Job Ticket: 55448

DST#: 5

ATTN: Marc Dow ning

Test Start: 2014.01.09 @ 19:15:16

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:

52000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.96 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
715.00	MW, 80%W	10.030

Total Length: 715.00 ft Total Volume: 10.030 bbl

Num Fluid Samples: 0

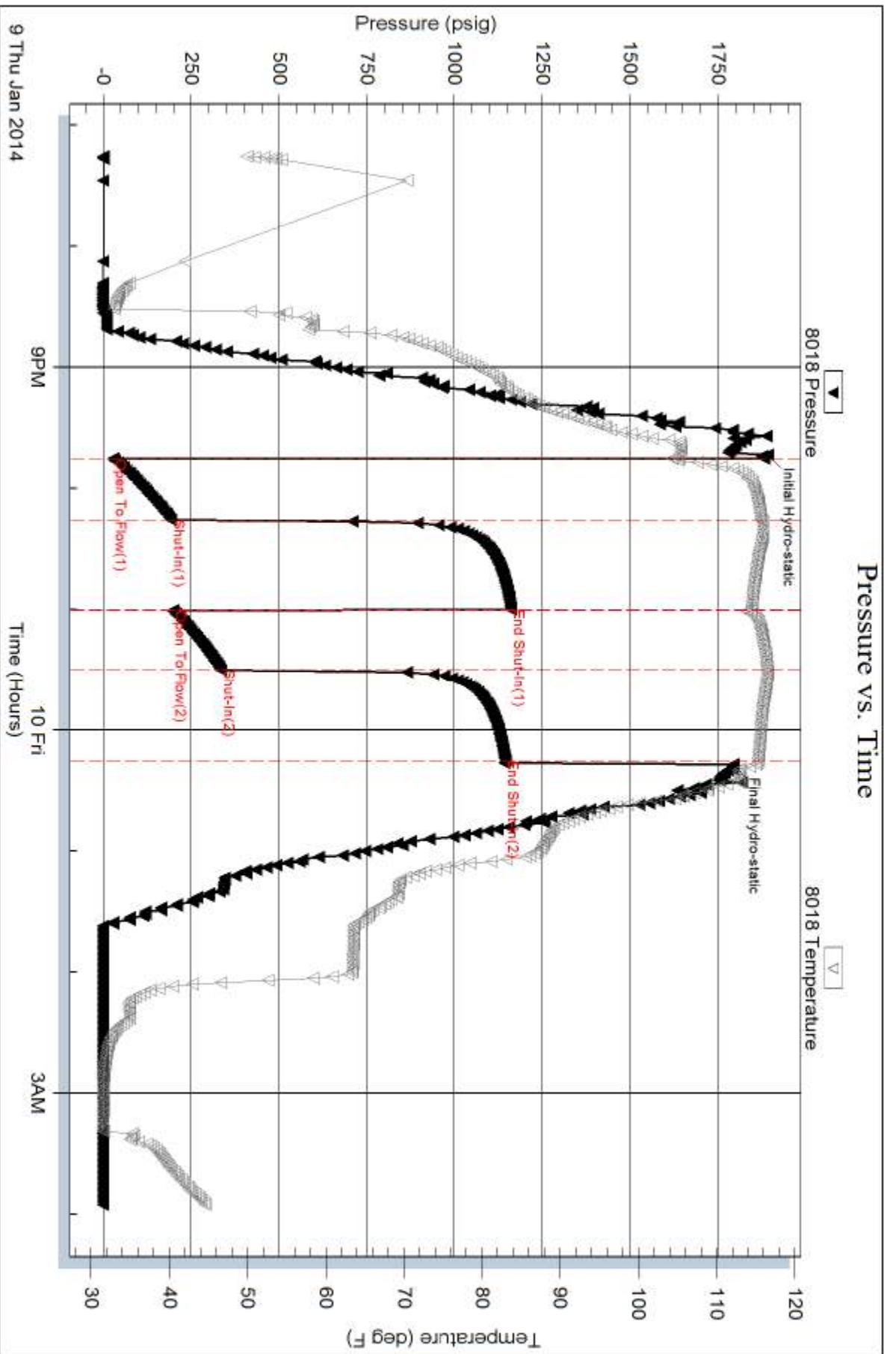
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



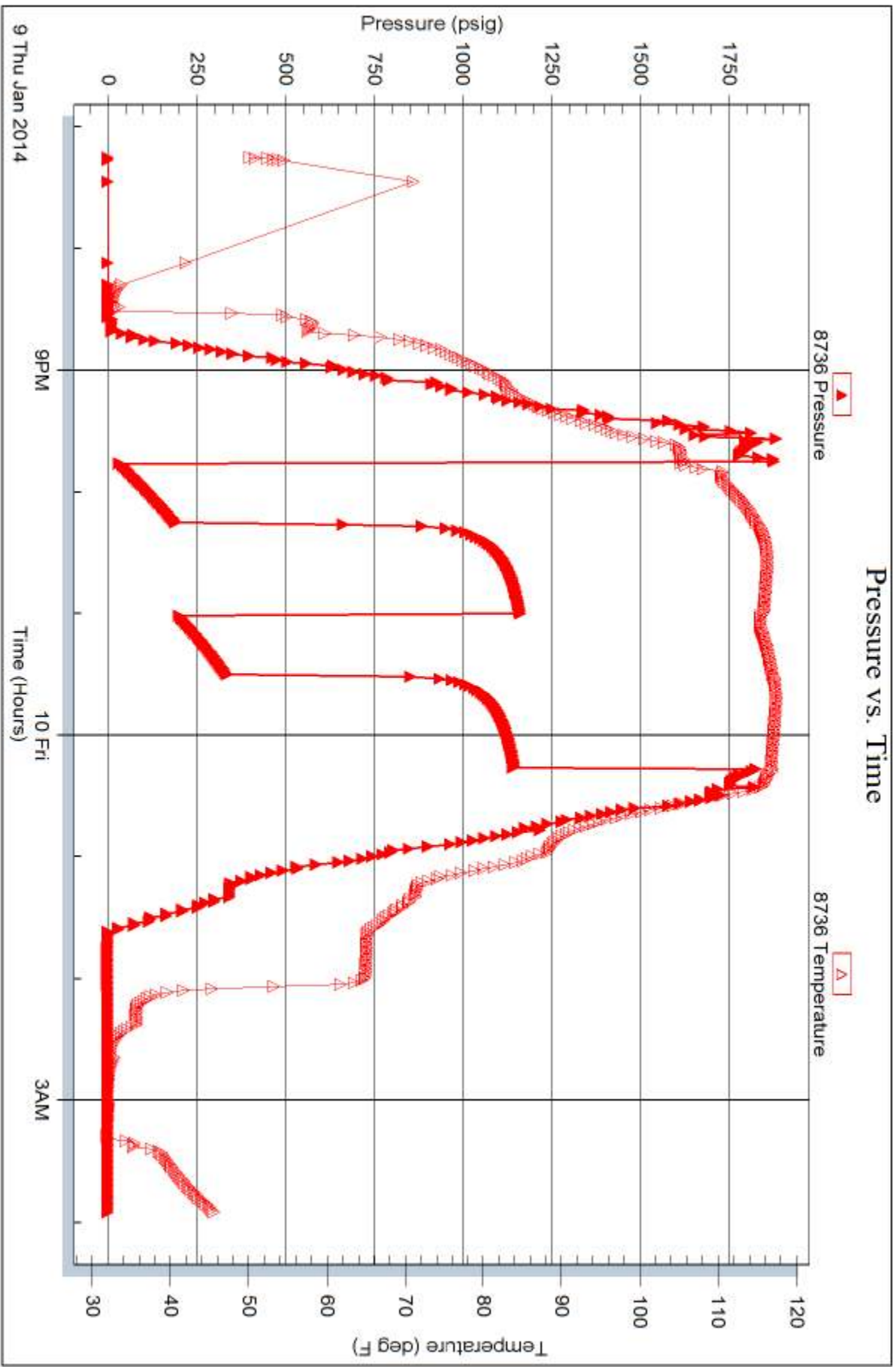
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Inside

Dow nting-Nelson Oil Co Inc.

Sarah #1-25

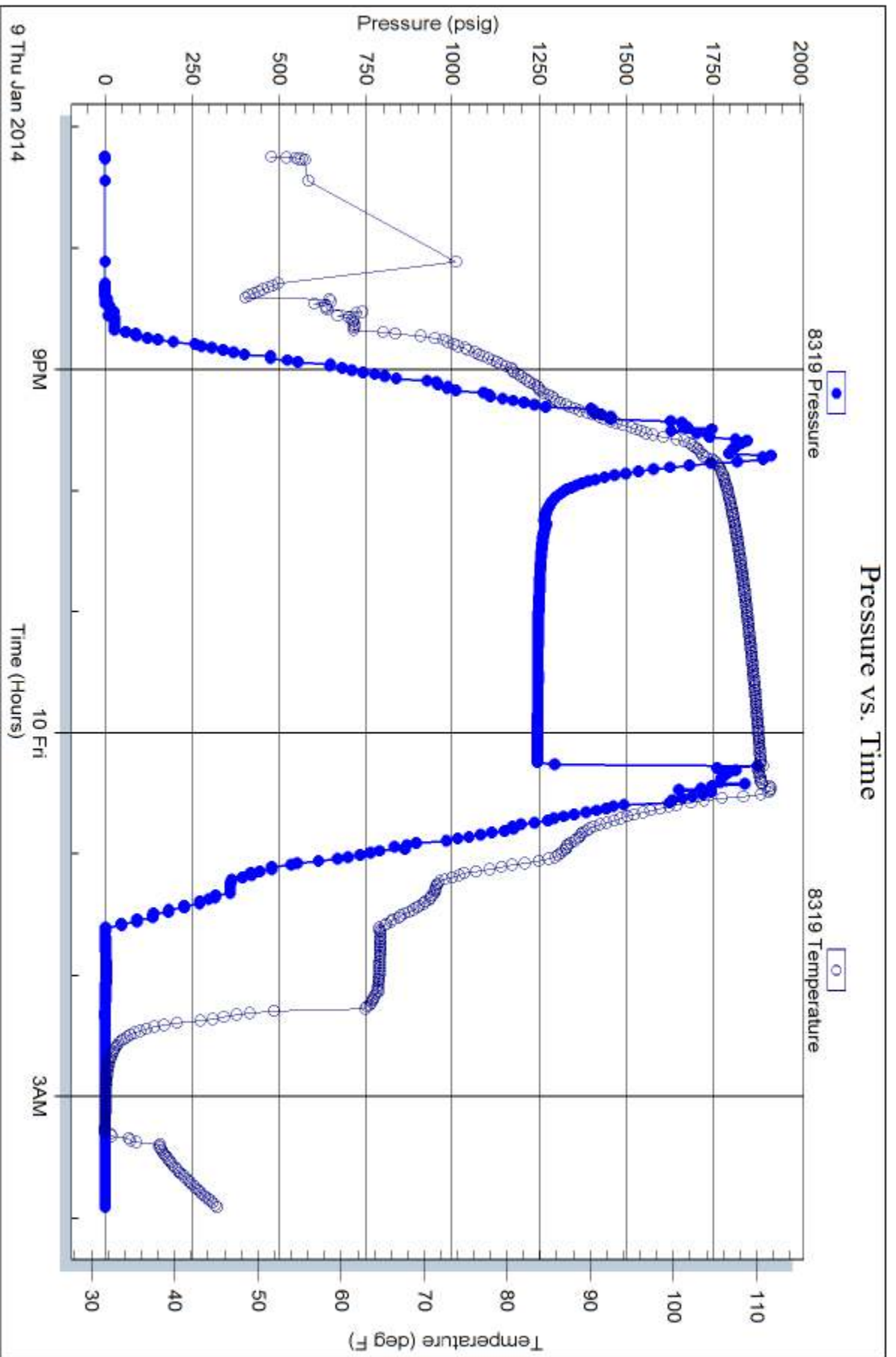
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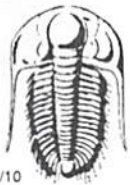


Trilobite Testing, Inc

Ref. No: 55448

Printed: 2014.01.10 @ 09:56:05





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 55494

Well Name & No. Sarah # 1-25 Test No. 1 Date 1/6/14
 Company Downing-Nelson Oil Co Inc. Elevation 2085 KB 2077 GL
 Address PO Box 1019 Hays KS 67601
 Co. Rep / Geo. Marc D Rig Discovery #1
 Location: Sec. 25 Twp. 14 Rge. 19 Co. Ellis State KS

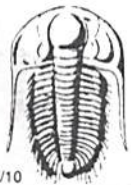
Interval Tested 3400-3453 Zone Tested KC "C+D"
 Anchor Length 53 Drill Pipe Run _____ Mud Wt. 9.0
 Top Packer Depth ~~3395~~ 3395 Drill Collars Run 30 Vis 50
 Bottom Packer Depth 3400 Wt. Pipe Run _____ WL 8.0
 Total Depth 3453 Chlorides 4,000 ppm System LCM 1 1/2 #
 Blow Description IF - BOB in 2 min
ISF - No blow
FF - BOB in 4 min
FSF - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>150</u>	<u>MW</u>			<u>65</u>	<u>35</u>
<u>860</u>	<u>Water</u>				
____	____				
____	____				
____	____				

Rec Total 1010 BHT 90 Gravity _____ API RW 2 @ 70 °F Chlorides 70,000 ppm
 (A) Initial Hydrostatic 1635 1,254 Test 1150 T-On Location 16:05
 (B) First Initial Flow 69 15 Jars _____ T-Started 17:30
 (C) First Final Flow 348 14 Safety Joint _____ T-Open 20:10
 (D) Initial Shut-In 642 570 Circ Sub _____ T-Pulled 22:40
 (E) Second Initial Flow 357 15 Hourly Standby _____ T-Out 00:55
 (F) Second Final Flow 487 15 Mileage 22 RT 34.10 Comments _____
 (G) Final Shut-In 636 467 Sampler _____
 (H) Final Hydrostatic 1598 1656 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1184.10
 Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 45
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1184.10
 MP/DST Disc't _____

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. 55445

Well Name & No. Sarah #1-25 Test No. 2 Date 1/7/14
 Company Downing-Nelson Oil Co. Inc. Elevation 2085 KB 2077 GL
 Address PO Box 1019 Hays, KS 67601
 Co. Rep / Geo. Marc Downing Rig Discovery 1
 Location: Sec. 25 Twp. 14s Rge. 19w Co. Ellis State KS

Interval Tested 3448-3471 Zone Tested LKC "E"
 Anchor Length 23' Drill Pipe Run 3440 Mud Wt. 9.0
 Top Packer Depth 3443 Drill Collars Run --- Vis 49
 Bottom Packer Depth 3448 Wt. Pipe Run --- WL 8.8
 Total Depth 3471 Chlorides 3,000 ppm System LCM 2#

Blow Description IF - Built very slowly to 1 1/2"
ISI - Surface Blow
FF - Built to 3/4"
FSI - Surface Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>M</u>				

Rec Total 5' BHT 96° Gravity --- API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic 1710 Test 1150 T-On Location 0720
 (B) First Initial Flow 17 Jars --- T-Started 0730
 (C) First Final Flow 17 Safety Joint --- T-Open 0917
 (D) Initial Shut-In 78 Circ Sub --- T-Pulled 1217
 (E) Second Initial Flow 18 Hourly Standby --- T-Out 1345
 (F) Second Final Flow 18 Mileage 22 RT 34.10
 (G) Final Shut-In 46 Sampler ---
 (H) Final Hydrostatic 1635 Straddle ---
 Shale Packer ---
 Extra Packer ---
 Extra Recorder ---
 Day Standby ---
 Accessibility ---

Initial Open 45 Ruined Shale Packer ---
 Initial Shut-In 45 Ruined Packer ---
 Final Flow 45 Extra Copies ---
 Final Shut-In 45 Sub Total 0
 Total 1184.10
 MP/DST Disc't ---
 Sub Total 1184.10

Approved By --- Our Representative Brannan L

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. 55446

Well Name & No. Sarah #1-25 Test No. 3 Date 1/7/14
 Company Downing-Nelson Oil Co Inc Elevation 2085 KB 2077 GL
 Address PO Box 1019 Hays, KS 67601
 Co. Rep / Geo. Marc Downing Rig Discovery 1
 Location: Sec. 25 Twp. 14S Rge. 19w Co. Ellis State KS

Interval Tested 3506-3562 Zone Tested LKC "H+I"
 Anchor Length 56' Drill Pipe Run 3504 Mud Wt. 9.0
 Top Packer Depth 3501 Drill Collars Run — Vis 49
 Bottom Packer Depth 3506 Wt. Pipe Run — WL 8.8
 Total Depth 3562 Chlorides 3000 ppm System LCM 2#

Blow Description IF - Built slowly to 2 1/2"
ISI - No Blow
FF - Built to 1"
FSI - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>M</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 101° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 1754 Test 1150 T-On Location 0103
 (B) First Initial Flow 17 Jars — T-Started 0109
 (C) First Final Flow 26 Safety Joint — T-Open 0309
 (D) Initial Shut-In 1083 Circ Sub — T-Pulled 0609
 (E) Second Initial Flow 27 Hourly Standby — T-Out 0809
 (F) Second Final Flow 35 Mileage 22 RT 34.10
 (G) Final Shut-In 1011 Sampler —
 (H) Final Hydrostatic 1690 Straddle — Ruined Shale Packer —
 Shale Packer — Ruined Packer —
 Extra Packer — Extra Copies —
 Extra Recorder — Sub Total 0
 Day Standby — Total 1184.10
 Accessibility — MP/DST Disc't —

Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 45
 Sub Total 1184.10

Approved By _____ Our Representative Braman L

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. **55447**

Well Name & No. Sarah #1-25 Test No. 4 Date 1/8/14
 Company Downing-Nelson Oil Co. Inc. Elevation 2085 KB 2077 GL
 Address PO Box 1019 Hays, KS 67601
 Co. Rep / Geo. Marc Downing Rig Discovery 1
 Location: Sec. 25 Twp. 14S Rge. 19W Co. Ellis State KS

Interval Tested 3683-3729 Zone Tested Arbuckle
 Anchor Length 46' Drill Pipe Run 3695 Mud Wt. 8.9
 Top Packer Depth 3678 Drill Collars Run --- Vis 55
 Bottom Packer Depth 3683 Wt. Pipe Run --- WL 8.0
 Total Depth 3729 Chlorides 2000 ppm System LCM 1#

Blow Description IF - Built to 1" in 3 mins & maintained flow
ISI - No flow
FF - Built to 1" in 6 mins & maintained
FSI - No flow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>MCO</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>
<u>40</u>	<u>0</u>	<u>100</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>
<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>
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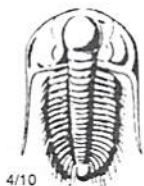
Rec Total 70' BHT 1050 Gravity 29 API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic 1839 Test 1150 T-On Location 2209
 (B) First Initial Flow 19 Jars --- T-Started 2216
 (C) First Final Flow 33 Safety Joint --- T-Open 0021
 (D) Initial Shut-In 830 Circ Sub --- T-Pulled 0321
 (E) Second Initial Flow 35 Hourly Standby --- T-Out 0516
 (F) Second Final Flow 44 Mileage 22 RT 34.10
 (G) Final Shut-In 661 Sampler ---
 (H) Final Hydrostatic 1789 Straddle ---
 Shale Packer ---
 Extra Packer ---
 Extra Recorder ---
 Day Standby ---
 Accessibility ---

Initial Open 45 Ruined Shale Packer ---
 Initial Shut-In 45 Ruined Packer ---
 Final Flow 45 Extra Copies ---
 Final Shut-In 45 Sub Total 0
 Sub Total 1184.10 Total 1184.10
 MP/DST Disc't ---

Approved By --- Our Representative Bannan L

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. **55448**

Well Name & No. Sarah #1-25 Test No. 5 Date 1/9/14
 Company Downing - Nelson Oil Co Inc. Elevation 2085 KB 2077 GL
 Address PO Box 1019 Hays, KS 67601
 Co. Rep / Geo. Al Downing Rig Discovery 1
 Location: Sec. 25 Twp. 14s Rge. 19w Co. Ellis State KS

Interval Tested 3728-3747 Zone Tested Arbuckle
 Anchor Length 63' tail 19' anchor Drill Pipe Run 3727 Mud Wt. 9.0
 Top Packer Depth 3723-3728 Drill Collars Run --- Vis 55
 Bottom Packer Depth 3747 Wt. Pipe Run --- WL 8.0
 Total Depth 3810 Chlorides 3,000 ppm System LCM 2#

Blow Description IF-BOB 5 mins
ISI-Surface blow
FF-BOB 6 mins
FSI-No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>715</u>	<u>MW</u>			<u>80%</u>	<u>20%</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 715 BHT 115° Gravity --- API RW 31 @ 33 °F Chlorides 52,000 ppm

(A) Initial Hydrostatic 1891 Test 1150 T-On Location 1900
 (B) First Initial Flow 28 Jars _____ T-Started 1915
 (C) First Final Flow 193 Safety Joint _____ T-Open 2145
 (D) Initial Shut-In 1162 Circ Sub _____ T-Pulled 0015
 (E) Second Initial Flow 197 Hourly Standby _____ T-Out 0355
 (F) Second Final Flow 335 Mileage 22 RT 34.10 Comments _____
 (G) Final Shut-In 1145 Sampler _____
 (H) Final Hydrostatic 1793 Straddle 600 Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____

Initial Open 30 Extra Packer _____ Extra Copies _____
 Initial Shut-In 45 Extra Recorder _____ Sub Total 0
 Final Flow 30 Day Standby _____ Total 1784.10
 Final Shut-In 45 Accessibility _____ MP/DST Disc't _____
 Sub Total 1784.10

Approved By _____ Our Representative Brannon L

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.