



DRILL STEM TEST REPORT

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

PO Box 1019
Hays, KS 67601

ATTN: Al Downing

MWE #1-7

7-13s-18w Ellis,KS

Start Date: 2012.11.23 @ 16:29:15

End Date: 2012.11.23 @ 23:18:15

Job Ticket #: 48622 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.28 @ 09:15:26



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48622

DST#: 1

ATTN: Al Dow ning

Test Start: 2012.11.23 @ 16:29:15

GENERAL INFORMATION:

Formation: **LKC "C-D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:24:15

Time Test Ended: 23:18:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Dustin Rash

Unit No: 66

Interval: 3515.00 ft (KB) To 3560.00 ft (KB) (TVD)

Reference Elevations: 2171.00 ft (KB)

Total Depth: 3560.00 ft (KB) (TVD)

2163.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8354

Inside

Press @ Run Depth: 151.30 psig @ 3552.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.23

End Date:

2012.11.23

Last Calib.:

2012.11.23

Start Time: 16:39:15

End Time:

23:18:15

Time On Btm:

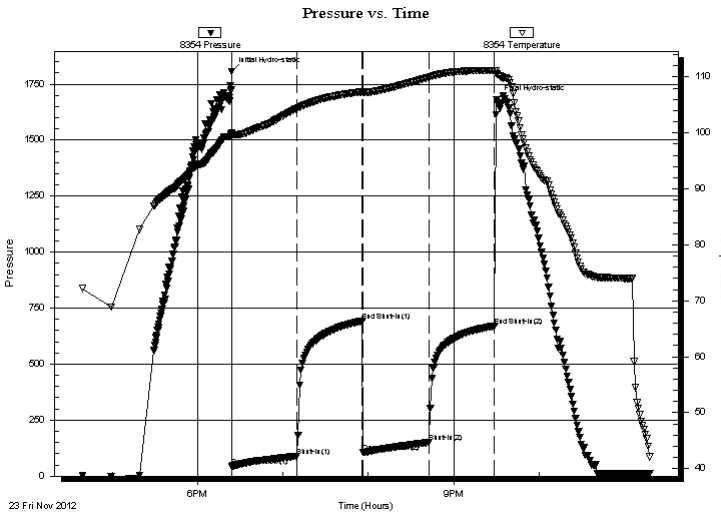
2012.11.23 @ 18:24:05

Time Off Btm:

2012.11.23 @ 21:30:15

TEST COMMENT: IF-Weak building blow . BOB in 36 minutes.
ISI-No Return.
FF-Weak building blow . Built to 11 inches.
FSI-No Return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1807.22	99.94	Initial Hydro-static
1	44.02	99.36	Open To Flow (1)
46	89.63	104.36	Shut-In(1)
92	692.05	107.35	End Shut-In(1)
93	105.52	107.24	Open To Flow (2)
139	151.30	109.95	Shut-In(2)
185	670.61	111.18	End Shut-In(2)
187	1679.72	110.58	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
265.00	80%Water/20%Mud	3.44

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing-Nelson Oil Co., Inc.

7-13s-18w Ellis, KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48622

DST#: 1

ATTN: Al Downing

Test Start: 2012.11.23 @ 16:29:15

Tool Information

Drill Pipe:	Length: 3485.00 ft	Diameter: 3.80 inches	Volume: 48.89 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 5000.00 lb
			<u>Total Volume: 49.04 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 51000.00 lb
Depth to Top Packer:	3515.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	45.00 ft			
Tool Length:	65.00 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			3496.00	
Shut In Tool	5.00			3501.00	
Hydraulic tool	5.00			3506.00	
Packer	5.00			3511.00	20.00 Bottom Of Top Packer
Packer	4.00			3515.00	
Stubb	1.00			3516.00	
Perforations	3.00			3519.00	
Change Over Sub	1.00			3520.00	
Drill Pipe	31.00			3551.00	
Change Over Sub	1.00			3552.00	
Recorder	0.00	8354	Inside	3552.00	
Recorder	0.00	8520	Outside	3552.00	
Perforations	5.00			3557.00	
Bullnose	3.00			3560.00	45.00 Bottom Packers & Anchor

Total Tool Length: 65.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48622

DST#: 1

ATTN: Al Dow ning

Test Start: 2012.11.23 @ 16:29:15

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:

19000 ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.95 in³

Gas Cushion Type:

Resistivity: 0.62 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
265.00	80%Water/20%Mud	3.444

Total Length: 265.00 ft Total Volume: 3.444 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

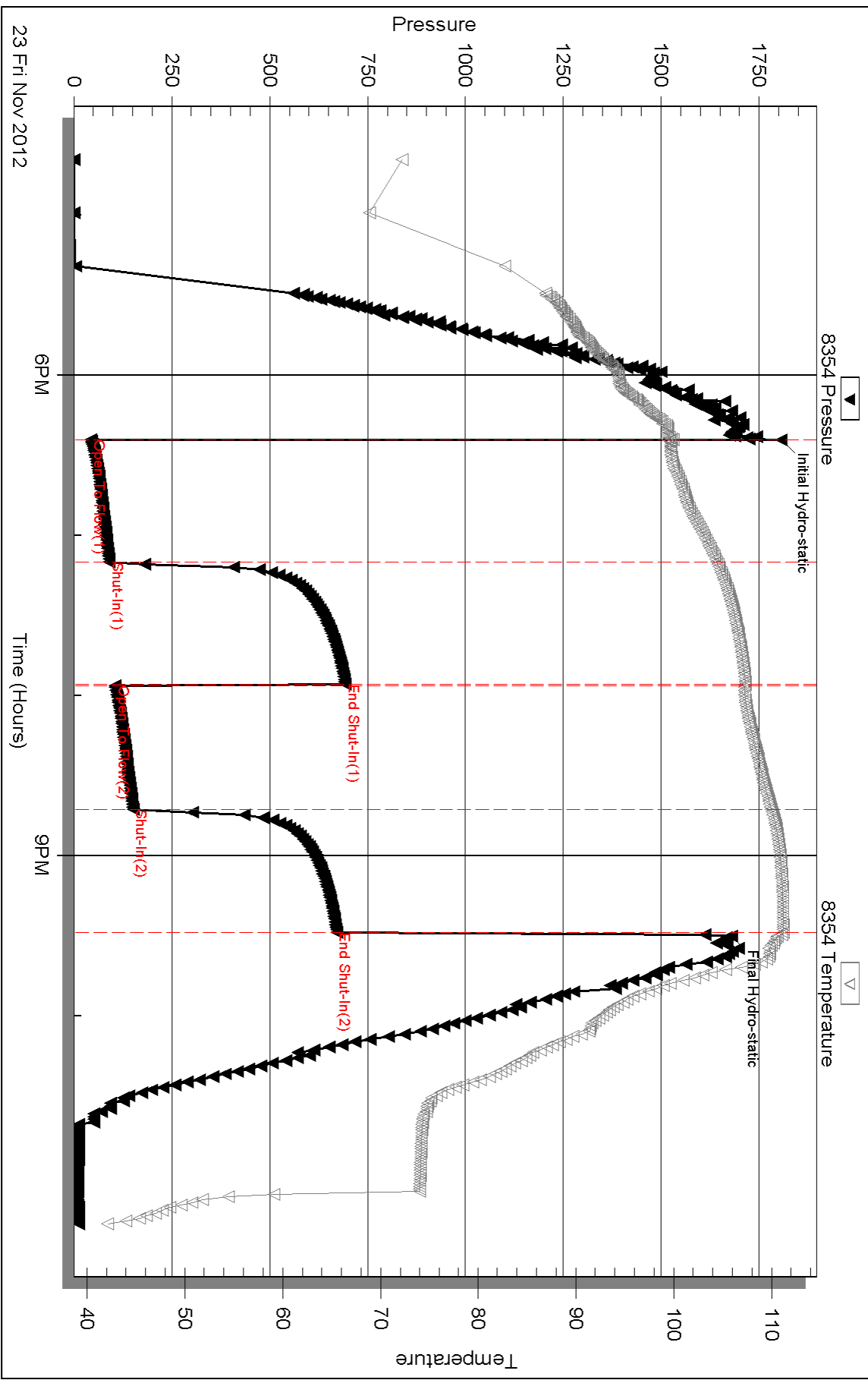
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

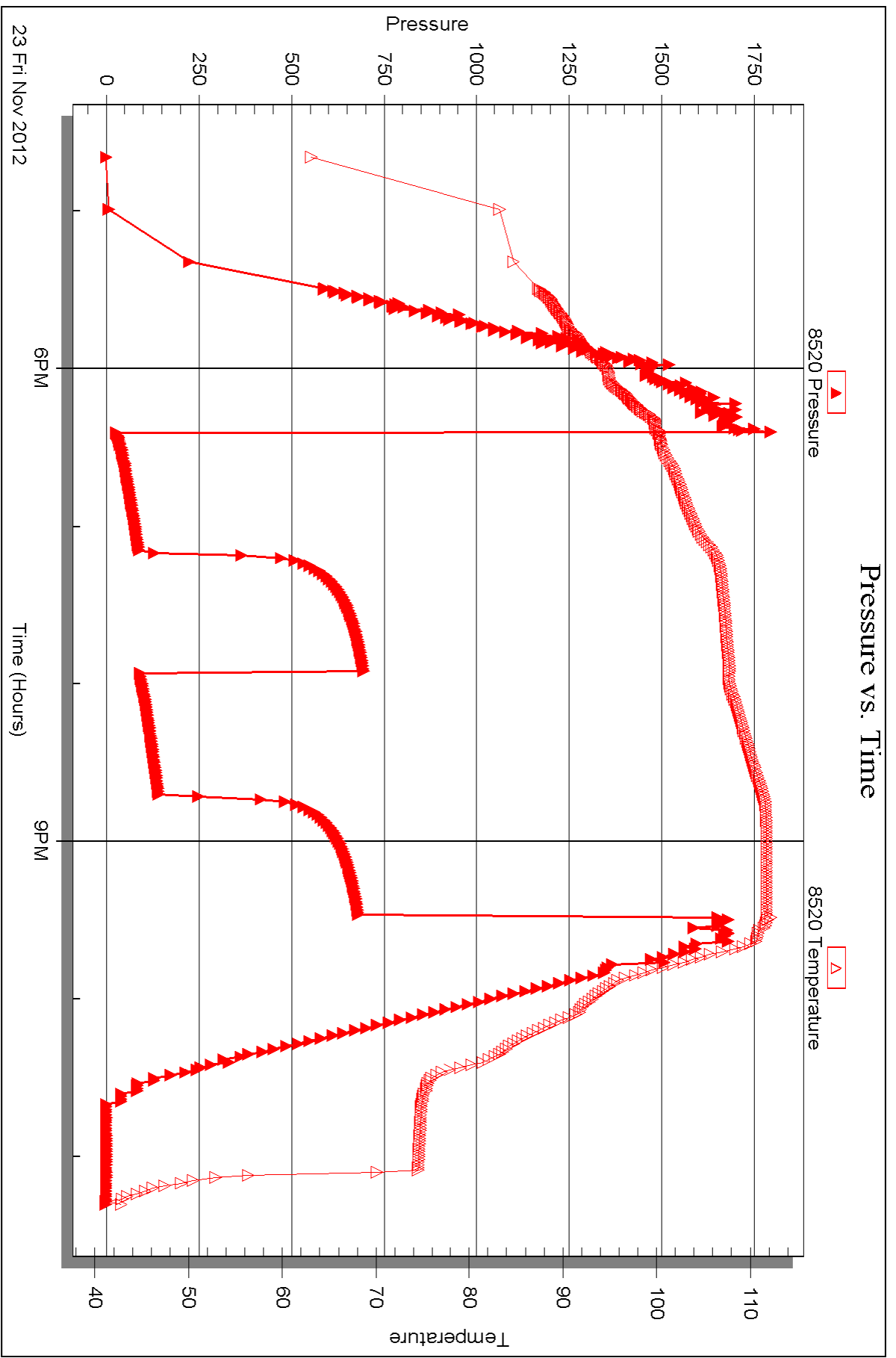


Serial #: 8520

Outside Dow nging-Nelson Oil Co., Inc.

MWE#1-7

DST Test Number: 1





DRILL STEM TEST REPORT

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

PO Box 1019
Hays, KS 67601

ATTN: Al Downing

MWE #1-7

7-13s-18w Ellis,KS

Start Date: 2012.11.24 @ 06:37:30

End Date: 2012.11.24 @ 12:50:00

Job Ticket #: 48263 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.28 @ 09:14:43



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48263

DST#: 2

ATTN: Al Dow ning

Test Start: 2012.11.24 @ 06:37:30

GENERAL INFORMATION:

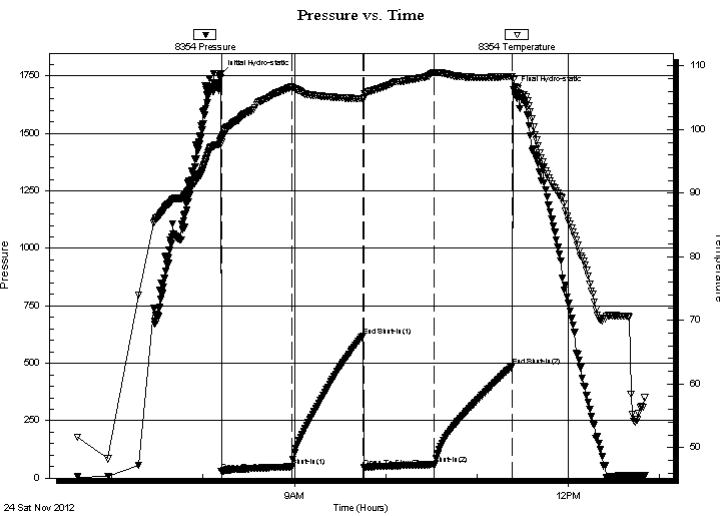
Formation: **LKC "E-F"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:11:50
 Time Test Ended: 12:50:00
 Interval: **3555.00 ft (KB) To 3582.00 ft (KB) (TVD)**
 Total Depth: 3582.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Dustin Rash
 Unit No: 66
 Reference Elevations: 2171.00 ft (KB)
 2163.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8354

Inside

Press @ Run Depth: 59.15 psig @ 3558.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.11.24 End Date: 2012.11.24 Last Calib.: 2012.11.24
 Start Time: 06:37:30 End Time: 12:50:00 Time On Btm: 2012.11.24 @ 08:11:40
 Time Off Btm: 2012.11.24 @ 11:24:00

TEST COMMENT: IF-Weak building blow . Built to 5 & 1/2 inches.
 IS-No Return.
 FF-Weak building blow . Built to 4 inches.
 FS-No Return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1758.17	98.50	Initial Hydro-static
1	30.27	98.00	Open To Flow (1)
47	49.46	106.67	Shut-In(1)
94	618.73	104.87	End Shut-In(1)
94	46.89	104.96	Open To Flow (2)
140	59.15	108.97	Shut-In(2)
192	487.22	108.33	End Shut-In(2)
193	1688.92	107.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
90.00	80%Water/20%Mud	0.99

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.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48263

DST#: 2

ATTN: Al Dow ning

Test Start: 2012.11.24 @ 06:37:30

Tool Information

Drill Pipe:	Length: 3518.00 ft	Diameter: 3.80 inches	Volume: 49.35 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 24000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 5000.00 lb
			<u>Total Volume: 49.50 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3555.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval betw een Packers:	27.00 ft			
Tool Length:	47.00 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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Change Over Sub	1.00			3536.00	
Shut In Tool	5.00			3541.00	
Hydraulic tool	5.00			3546.00	
Packer	5.00			3551.00	20.00 Bottom Of Top Packer
Packer	4.00			3555.00	
Stubb	1.00			3556.00	
Perforations	2.00			3558.00	
Recorder	0.00	8354	Inside	3558.00	
Recorder	0.00	8520	Outside	3558.00	
Perforations	21.00			3579.00	
Bullnose	3.00			3582.00	27.00 Bottom Packers & Anchor

Total Tool Length: 47.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48263

DST#: 2

ATTN: Al Dow ning

Test Start: 2012.11.24 @ 06:37:30

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:

22000 ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.96 in³

Gas Cushion Type:

Resistivity: 0.45 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
90.00	80%Water/20%Mud	0.989

Total Length: 90.00 ft Total Volume: 0.989 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

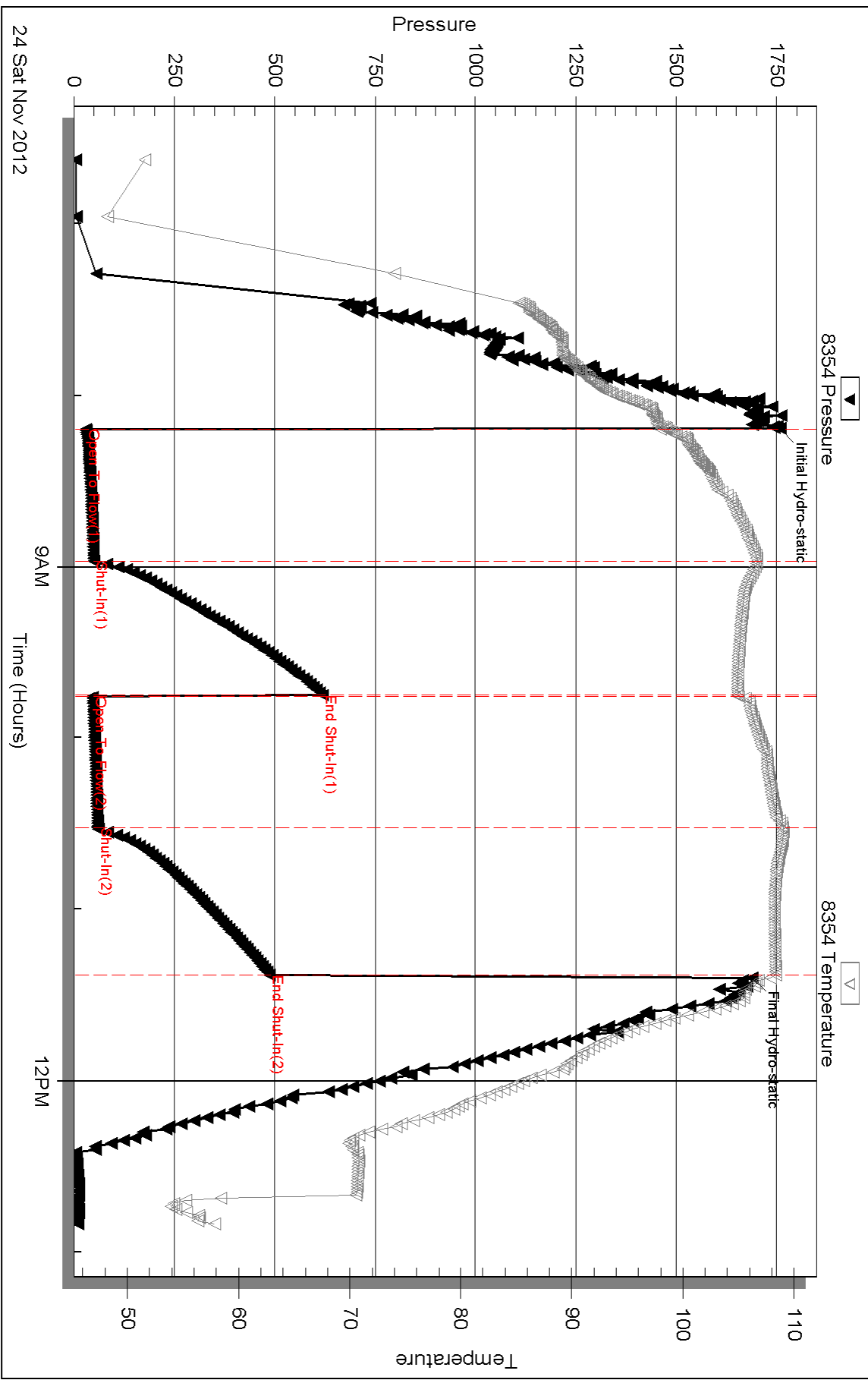
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

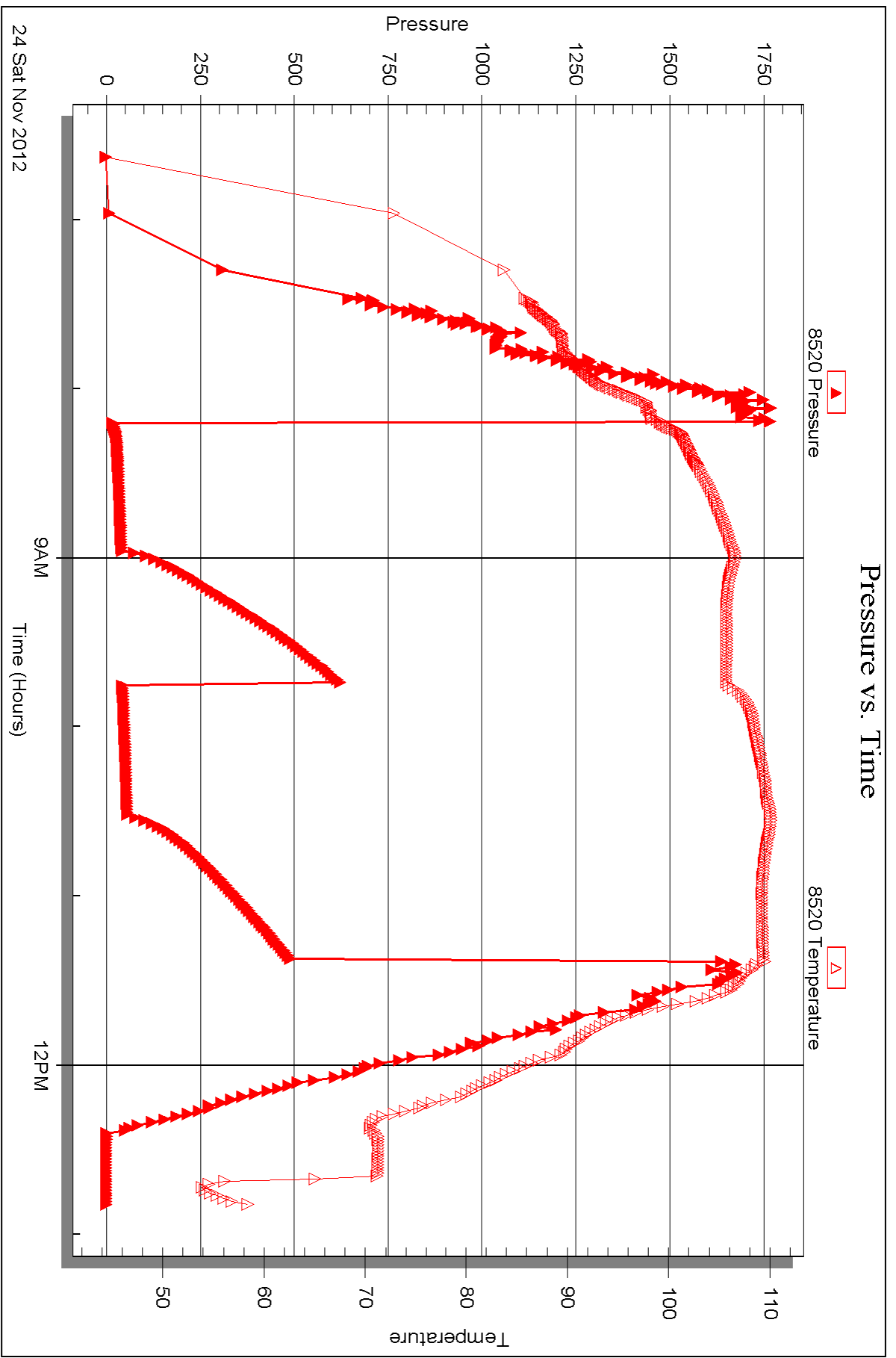


Serial #: 8520

Outside Dow nting-Nelson Oil Co., Inc.

MWE#1-7

DST Test Number: 2





DRILL STEM TEST REPORT

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

PO Box 1019
Hays, KS 67601

ATTN: Al Downing

MWE #1-7

7-13s-18w Ellis,KS

Start Date: 2012.11.25 @ 00:54:30

End Date: 2012.11.25 @ 08:46:00

Job Ticket #: 48624 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.28 @ 09:13:53



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48624

DST#: 3

ATTN: Al Dow ning

Test Start: 2012.11.25 @ 00:54:30

GENERAL INFORMATION:

Formation: **LKC "H,I,J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:44:20

Time Test Ended: 08:46:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Dustin Rash

Unit No: 66

Interval: 3606.00 ft (KB) To 3682.00 ft (KB) (TVD)

Reference Elevations: 2171.00 ft (KB)

Total Depth: 3682.00 ft (KB) (TVD)

2163.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8354

Inside

Press @ Run Depth: 316.23 psig @ 3674.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.25 End Date: 2012.11.25

Last Calib.: 2012.11.25

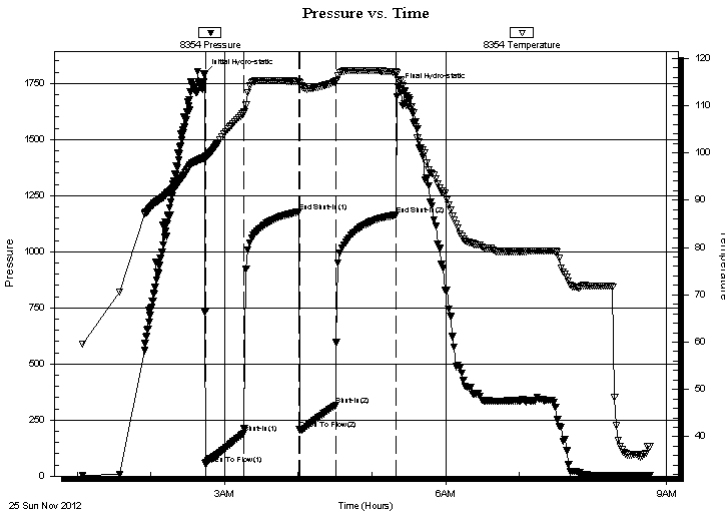
Start Time: 01:04:30 End Time: 08:46:00

Time On Btm: 2012.11.25 @ 02:44:00

Time Off Btm: 2012.11.25 @ 05:21:00

TEST COMMENT: IF-Strong building blow . BOB in 1 minute 45 seconds.
ISI-Return @ 15 seconds. BOB in 3 & 1/2 mintues.
FF-Strong building blow . BOB in 2 minutes. GTS @ 27 minutes.
FSI-Return @ 30 seconds. BOB @ 4 minutes.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1792.25	99.07	Initial Hydro-static
1	54.97	98.60	Open To Flow (1)
32	190.80	108.44	Shut-In(1)
77	1178.84	115.07	End Shut-In(1)
77	206.99	114.75	Open To Flow (2)
107	316.23	115.05	Shut-In(2)
156	1164.91	117.05	End Shut-In(2)
157	1733.45	115.44	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	25%Gas/50%Oil/25%Mud	1.47
850.00	50%Gas/50%Oil	11.92
0.00	2606' G.I.P.	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing-Nelson Oil Co., Inc.

7-13s-18w Ellis, KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48624

DST#: 3

ATTN: Al Downing

Test Start: 2012.11.25 @ 00:54:30

Tool Information

Drill Pipe:	Length: 3580.00 ft	Diameter: 3.80 inches	Volume: 50.22 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 24000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 5000.00 lb
			<u>Total Volume: 50.37 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	3606.00 ft			Final 59000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	76.00 ft			
Tool Length:	96.00 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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Change Over Sub	1.00			3587.00	
Shut In Tool	5.00			3592.00	
Hydraulic tool	5.00			3597.00	
Packer	5.00			3602.00	20.00 Bottom Of Top Packer
Packer	4.00			3606.00	
Stubb	1.00			3607.00	
Perforations	2.00			3609.00	
Change Over Sub	1.00			3610.00	
Drill Pipe	63.00			3673.00	
Change Over Sub	1.00			3674.00	
Recorder	0.00	8354	Inside	3674.00	
Recorder	0.00	8520	Outside	3674.00	
Perforations	5.00			3679.00	
Bullnose	3.00			3682.00	76.00 Bottom Packers & Anchor

Total Tool Length: 96.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48624

DST#: 3

ATTN: Al Dow ning

Test Start: 2012.11.25 @ 00:54:30

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

34 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
124.00	25%Gas/50%Oil/25%Mud	1.466
850.00	50%Gas/50%Oil	11.923
0.00	2606' G.I.P.	0.000

Total Length: 974.00 ft Total Volume: 13.389 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

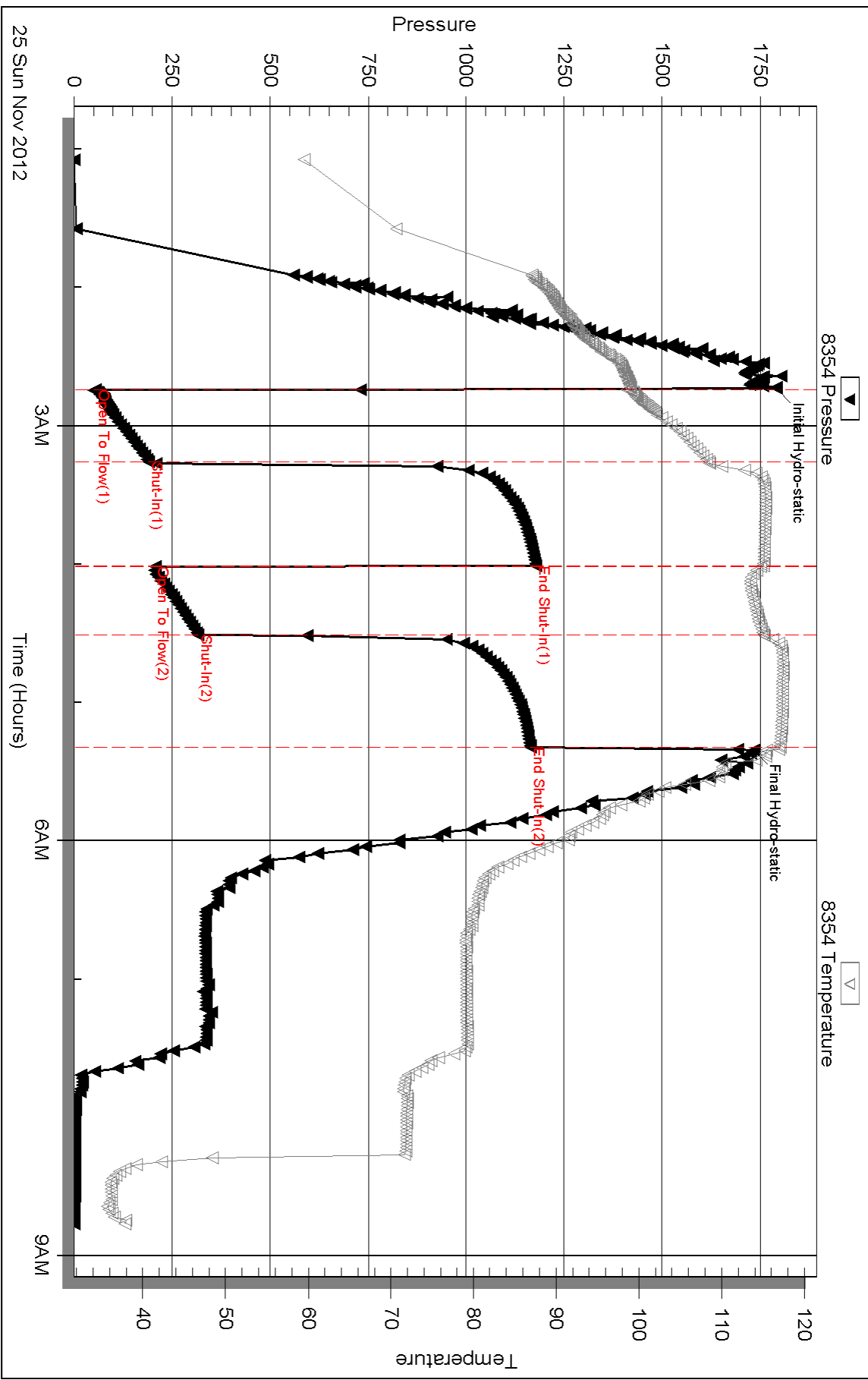
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

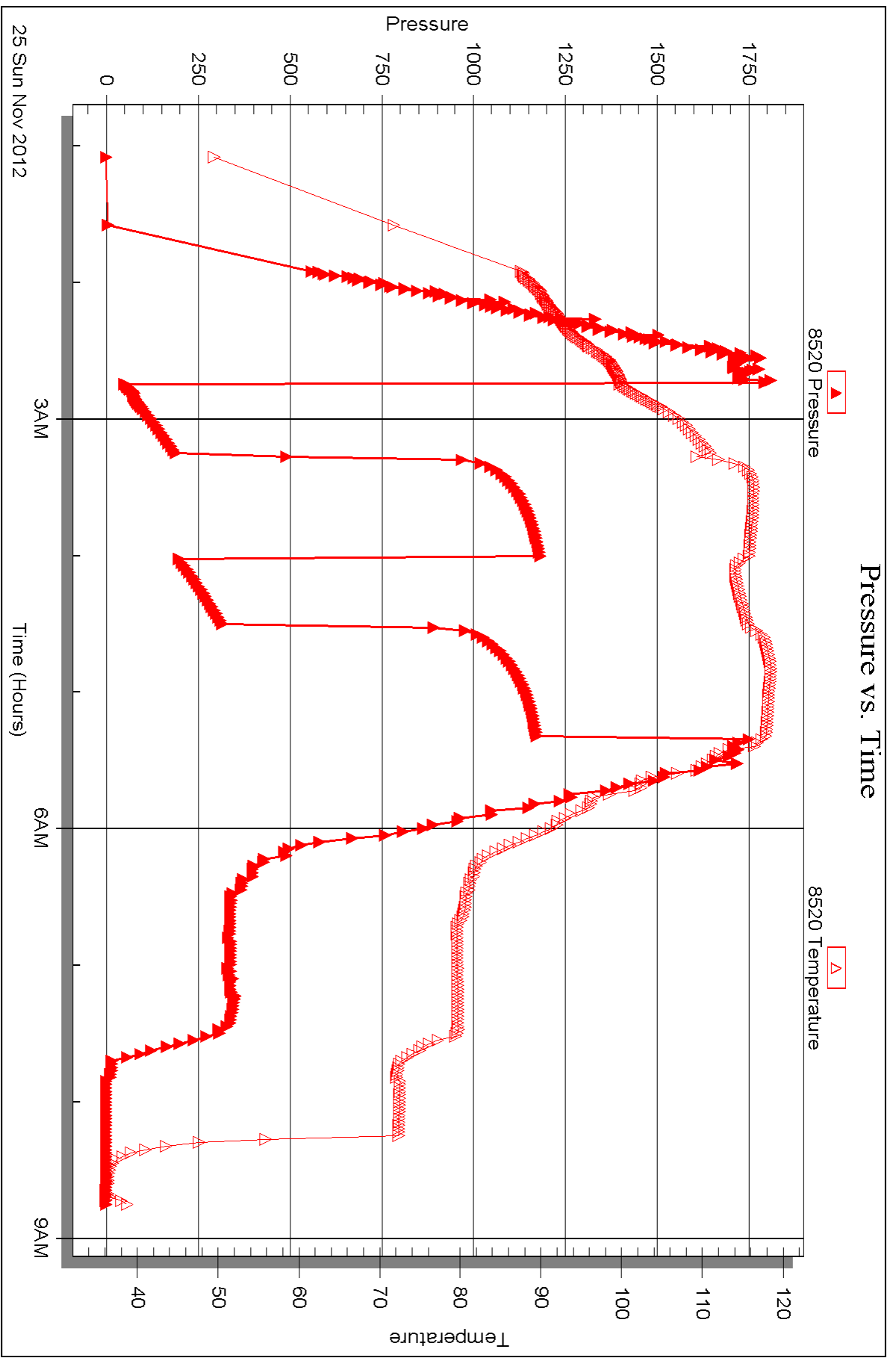


Serial #: 8520

Outside Dow nung-Nelson Oil Co., Inc.

MWE #1-7

DST Test Number: 3





DRILL STEM TEST REPORT

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

PO Box 1019
Hays, KS 67601

ATTN: Al Downing

MWE #1-7

7-13s-18w Ellis,KS

Start Date: 2012.11.25 @ 15:43:15

End Date: 2012.11.25 @ 20:27:15

Job Ticket #: 48625 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.28 @ 09:13:07

Downing-Nelson Oil Co., Inc. 7-13s-18w Ellis,KS MWE #1-7 DST # 4 LKC "K" 2012.11.25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48625

DST#: 4

ATTN: Al Dow ning

Test Start: 2012.11.25 @ 15:43:15

GENERAL INFORMATION:

Formation: **LKC "K"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:29:35

Time Test Ended: 20:27:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Dustin Rash

Unit No: 66

Interval: 3686.00 ft (KB) To 3710.00 ft (KB) (TVD)

Reference Elevations: 2171.00 ft (KB)

Total Depth: 3710.00 ft (KB) (TVD)

2163.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8354

Inside

Press @ Run Depth: 15.81 psig @ 3687.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.25

End Date:

2012.11.25

Last Calib.:

2012.11.25

Start Time: 15:53:15

End Time:

20:27:15

Time On Btm:

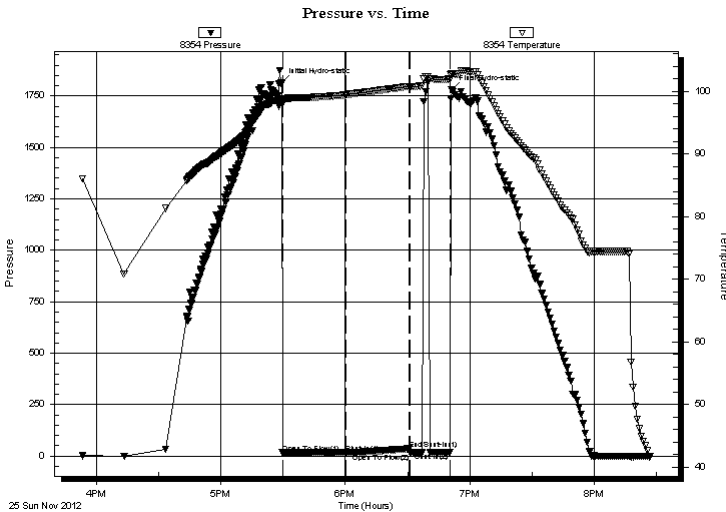
2012.11.25 @ 17:29:25

Time Off Btm:

2012.11.25 @ 18:51:15

TEST COMMENT: IF-Very weak building blow . Built to 1 inch.
IS-No Return.
FF-No Blow . Flushed Tool. No Blow . Pulled Tool.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1815.68	98.76	Initial Hydro-static
1	15.37	98.01	Open To Flow (1)
31	15.81	99.46	Shut-In(1)
62	35.35	100.79	End Shut-In(1)
62	15.42	100.80	Open To Flow (2)
81	18.33	101.93	Shut-In(2)
82	1779.26	102.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	2%Oil/98%Mud	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing-Nelson Oil Co., Inc.

7-13s-18w Ellis, KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48625

DST#: 4

ATTN: Al Downing

Test Start: 2012.11.25 @ 15:43:15

Tool Information

Drill Pipe:	Length: 3645.00 ft	Diameter: 3.80 inches	Volume: 51.13 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: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 10000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	3686.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	24.00 ft			
Tool Length:	44.00 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			3667.00	
Shut In Tool	5.00			3672.00	
Hydraulic tool	5.00			3677.00	
Packer	5.00			3682.00	20.00 Bottom Of Top Packer
Packer	4.00			3686.00	
Stubb	1.00			3687.00	
Recorder	0.00	8354	Inside	3687.00	
Recorder	0.00	8520	Outside	3687.00	
Perforations	20.00			3707.00	
Bullnose	3.00			3710.00	24.00 Bottom Packers & Anchor
Total Tool Length:	44.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 48625

DST#: 4

ATTN: Al Dow ning

Test Start: 2012.11.25 @ 15:43:15

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: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
5.00	2%Oil/98%Mud	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

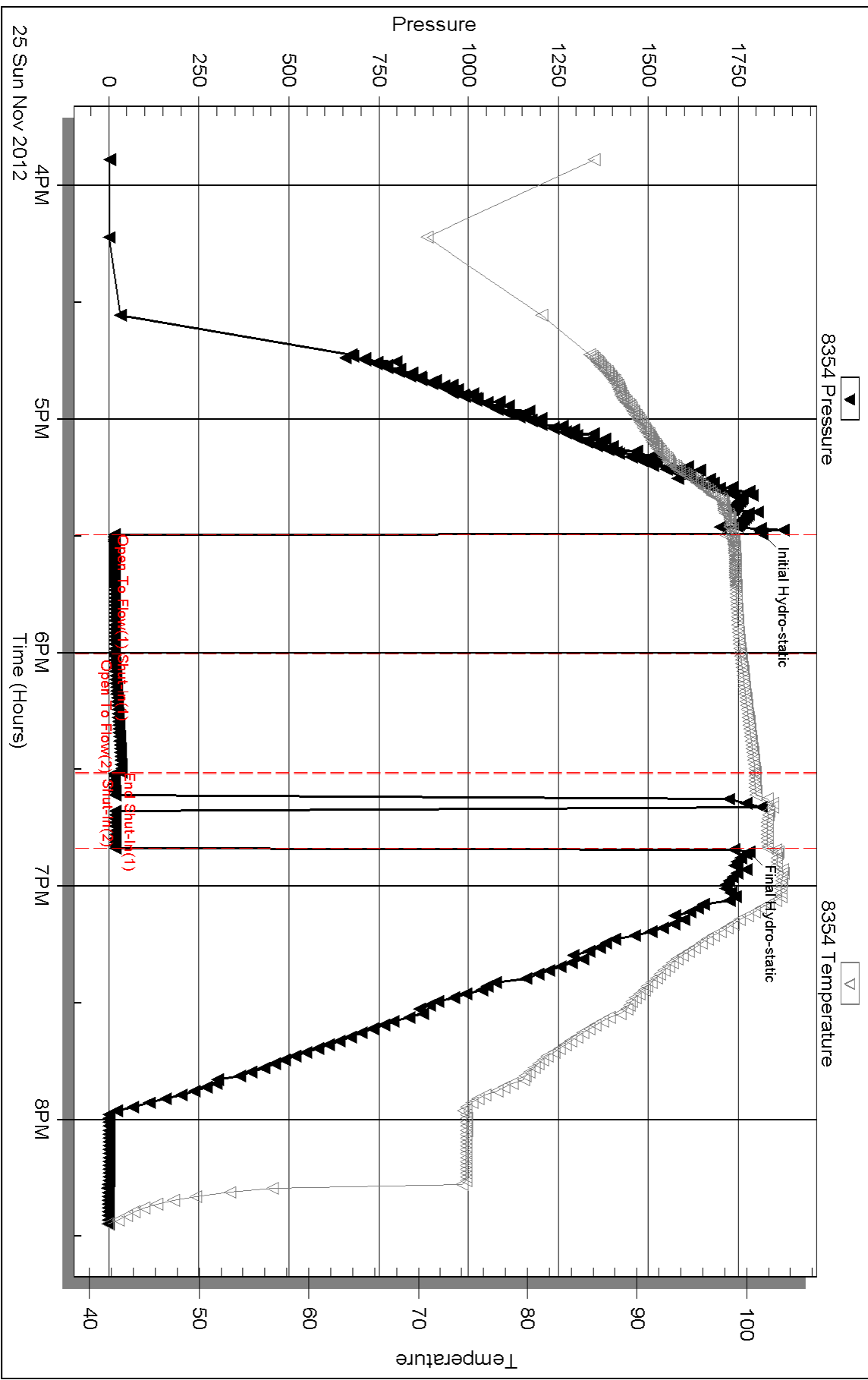
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

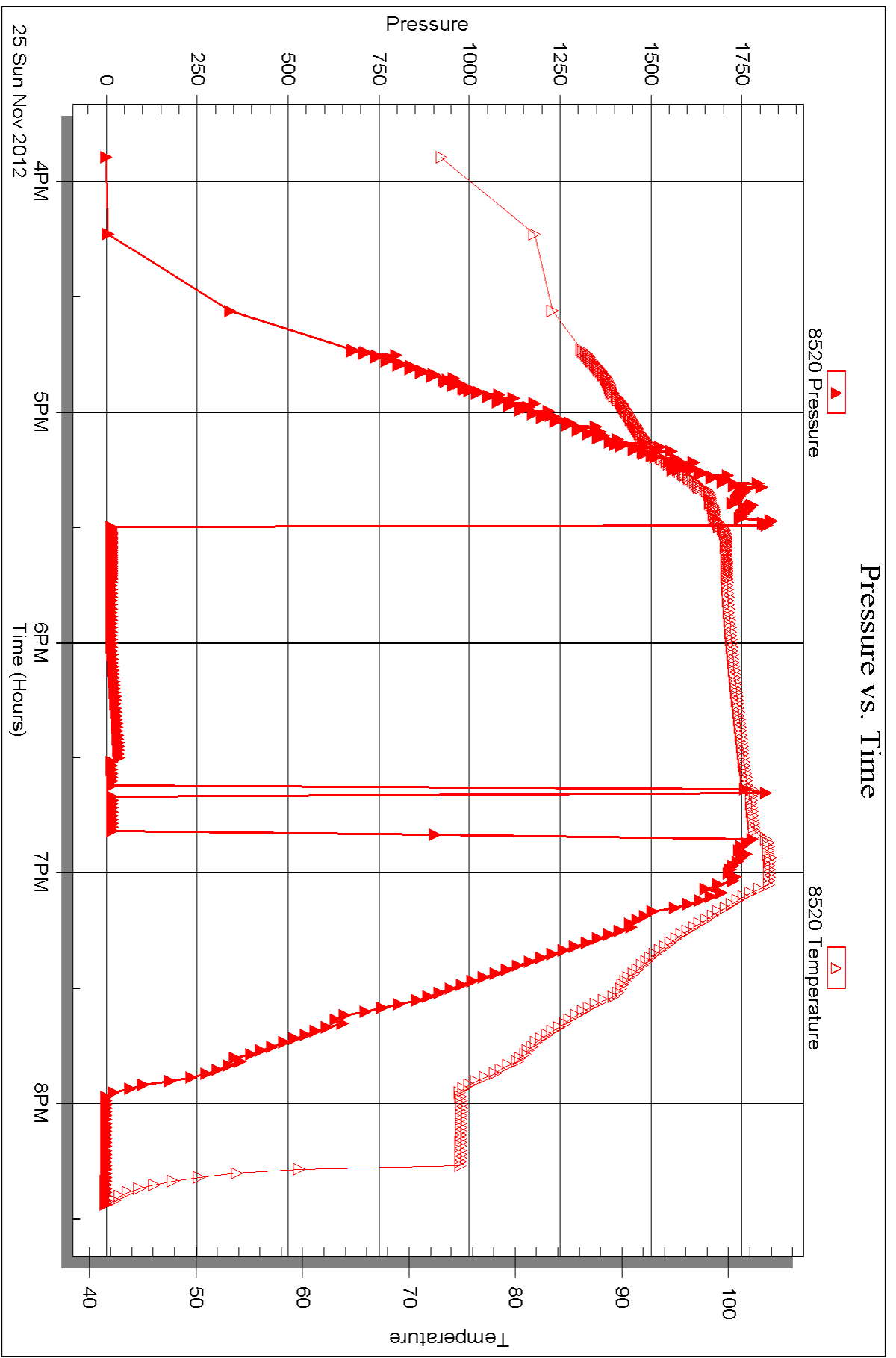


Serial #: 8520

Outside Dow nting-Nelson Oil Co., Inc.

MWE#1-7

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 48625

Printed: 2012.11.28 @ 09:13:11



DRILL STEM TEST REPORT

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

PO Box 1019
Hays, KS 67601

ATTN: Al Downing

MWE #1-7

7-13s-18w Ellis,KS

Start Date: 2012.11.26 @ 16:11:15

End Date: 2012.11.26 @ 21:57:15

Job Ticket #: 51651 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.28 @ 09:12:15



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 51651

DST#: 5

ATTN: Al Dow ning

Test Start: 2012.11.26 @ 16:11:15

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:42:45

Time Test Ended: 21:57:15

Test Type: Conventional Straddle (Initial)

Tester: Dustin Rash

Unit No: 66

Interval: 3768.00 ft (KB) To 3810.00 ft (KB) (TVD)

Reference Elevations: 2171.00 ft (KB)

Total Depth: 3889.00 ft (KB) (TVD)

2163.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8354 Inside

Press @ Run Depth: 30.09 psig @ 3770.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.26

End Date:

2012.11.26

Last Calib.:

2012.11.26

Start Time: 16:21:15

End Time:

21:57:15

Time On Btm:

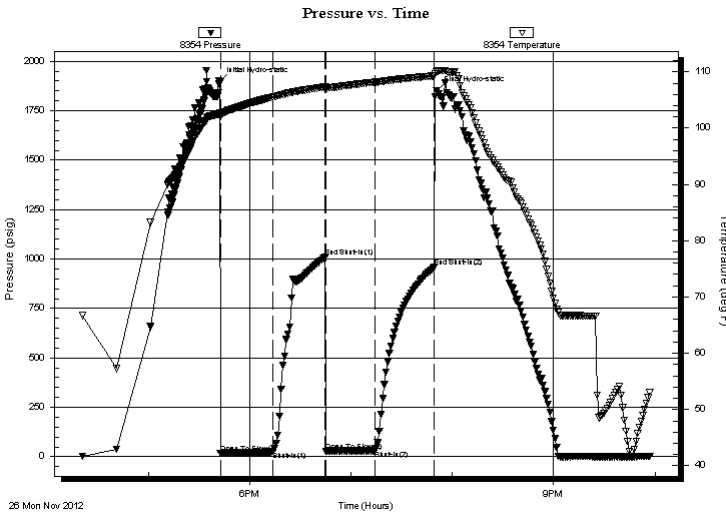
2012.11.26 @ 17:42:35

Time Off Btm:

2012.11.26 @ 19:50:45

TEST COMMENT: IF-Very weak building blow . Built to 1 inch.
ISI-No Return.
FF-Very weak building blow . Built to 3/4 inch.
FSI-No Return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1896.05	102.69	Initial Hydro-static
1	17.19	102.03	Open To Flow (1)
32	25.96	105.53	Shut-In(1)
63	1010.62	107.33	End Shut-In(1)
63	28.86	107.10	Open To Flow (2)
92	30.09	108.16	Shut-In(2)
127	957.40	109.29	End Shut-In(2)
129	1853.18	110.01	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	100%Mud	0.07

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.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 51651

DST#: 5

ATTN: Al Dow ning

Test Start: 2012.11.26 @ 16:11:15

Tool Information

Drill Pipe:	Length: 3740.00 ft	Diameter: 3.80 inches	Volume: 52.46 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	10000.00 lb
			<u>Total Volume: 52.61 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial	57000.00 lb
Depth to Top Packer:	3768.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	3807.00 ft				
Interval betw een Packers:	39.00 ft				
Tool Length:	141.00 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			3749.00	
Shut In Tool	5.00			3754.00	
Hydraulic tool	5.00			3759.00	
Packer	5.00			3764.00	20.00 Bottom Of Top Packer
Packer	4.00			3768.00	
Stubb	1.00			3769.00	
Perforations	1.00			3770.00	
Recorder	0.00	8354	Inside	3770.00	
Recorder	0.00	8520	Outside	3770.00	
Change Over Sub	1.00			3771.00	
Drill Pipe	31.00			3802.00	
Change Over Sub	1.00			3803.00	
Perforations	3.00			3806.00	
Blank Off Sub	1.00			3807.00	39.00 Tool Interval
Packer	4.00			3811.00	
Stubb	1.00			3812.00	
Perforations	10.00			3822.00	
Change Over Sub	1.00			3823.00	
Recorder	0.00	8653	Below	3823.00	
Drill Pipe	62.00			3885.00	
Change Over Sub	1.00			3886.00	
Bullnose	3.00			3889.00	82.00 Bottom Packers & Anchor

Total Tool Length: 141.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co., Inc.

7-13s-18w Ellis,KS

PO Box 1019
Hays, KS 67601

MWE #1-7

Job Ticket: 51651

DST#: 5

ATTN: Al Dow ning

Test Start: 2012.11.26 @ 16:11:15

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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	100%Mud	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8354

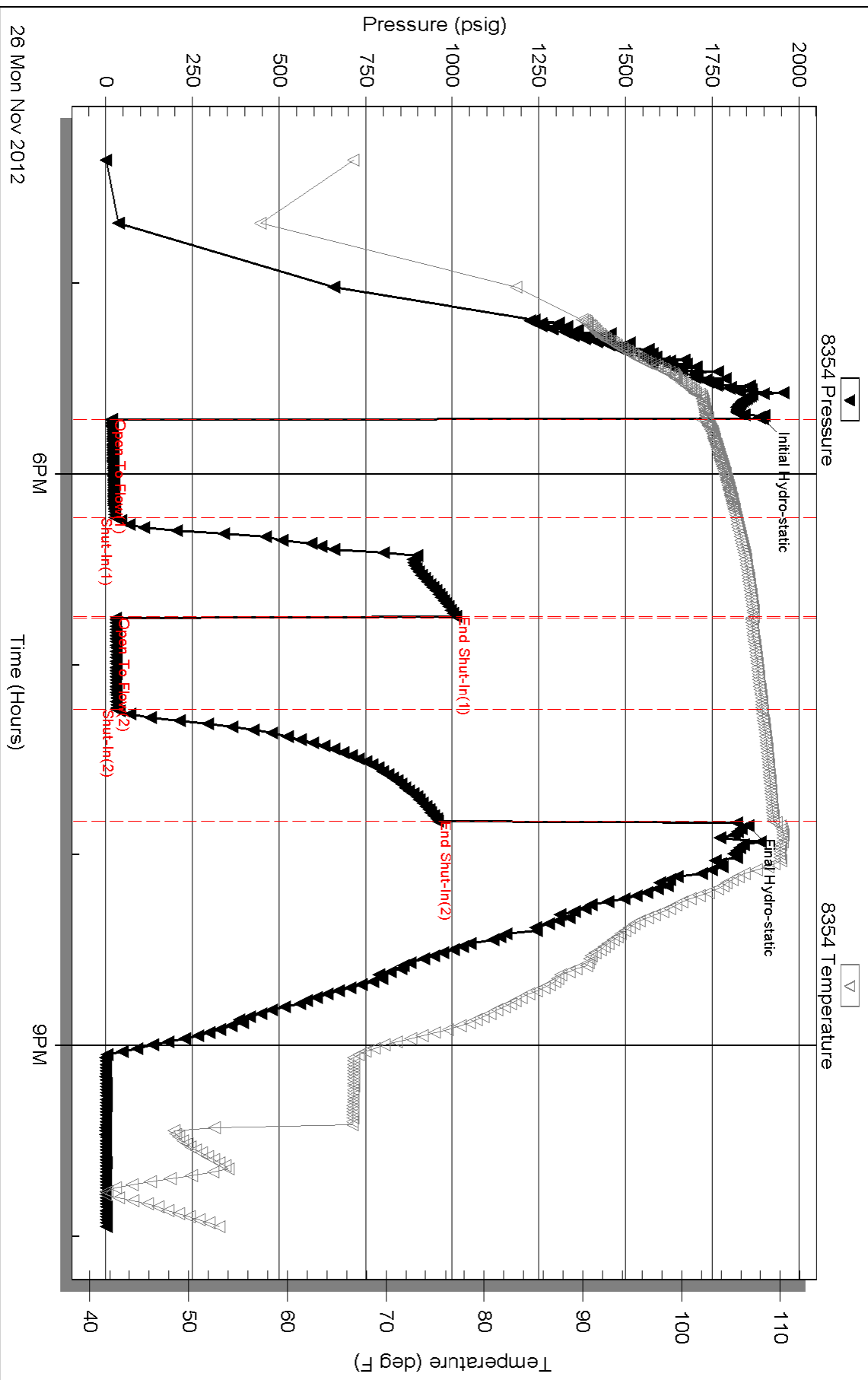
Inside

Dow nting-Nelson Oil Co., Inc.

MWE#1-7

DST Test Number: 5

Pressure vs. Time



Triobite Testing, Inc

Ref. No: 51651

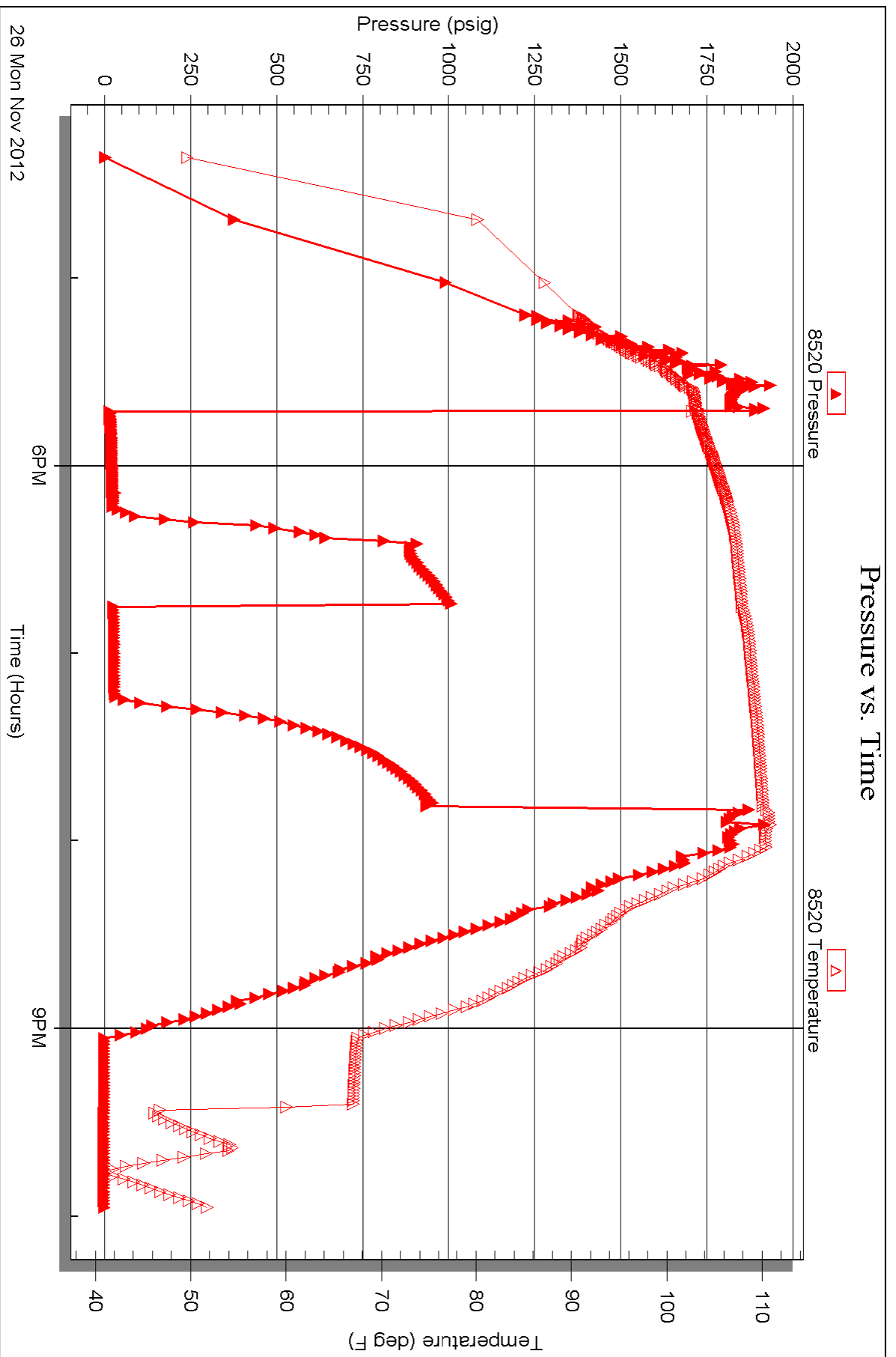
Printed: 2012.11.28 @ 09:12:20

Serial #: 8520

Outside Dow nging-Nelson Oil Co., Inc.

MWE#1-7

DST Test Number: 5



Triobite Testing, Inc

Ref. No: 51651

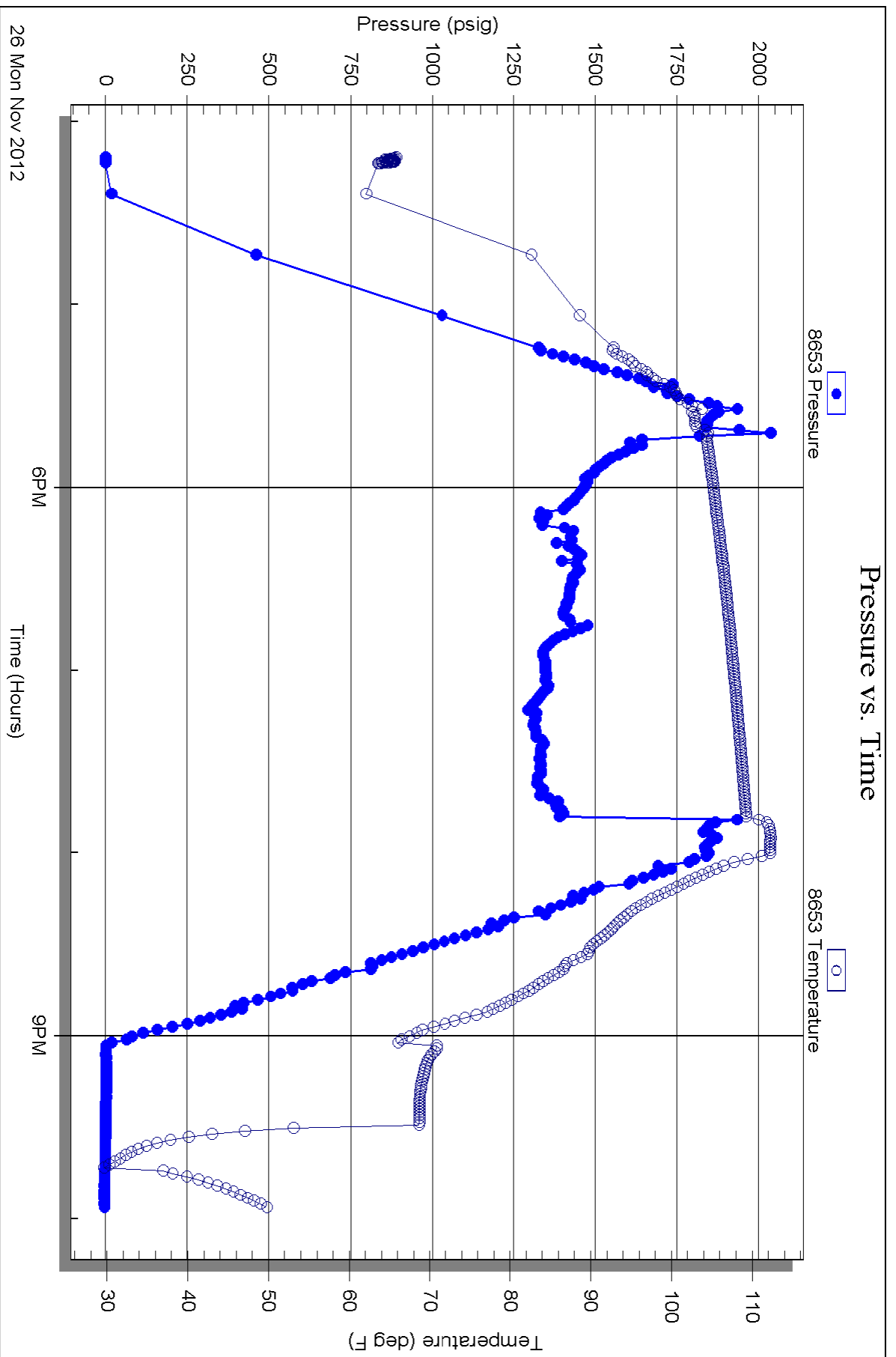
Printed: 2012.11.28 @ 09:12:20

Serial #: 8653

Below (Stratton)ng-Nelson Oil Co., Inc.

MWE#1-7

DST Test Number: 5





TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 48622

Well Name & No. MWE #1-7 Test No. 7 Date 11-23-12
 Company Downing-Nelson Oil Co., Inc. Elevation 2171 KB 2163 GL
 Address P.O. Box 1019 Hays, KS 67601
 Co. Rep / Geo. Al Downing Rig Discovery 3
 Location: Sec. 7 Twp. 13S Rge. 18W Co. Ellis State KS

Interval Tested 3515-3560 Zone Tested LKC "C-D"
 Anchor Length 45' Drill Pipe Run 3485 Mud Wt. 8.9
 Top Packer Depth 3510 Drill Collars Run 30 Vis 57
 Bottom Packer Depth 3515 Wt. Pipe Run 0 WL 8.0
 Total Depth 3560 Chlorides 1500 ppm System LCM 2#

Blow Description IF- Weak building blow, BOB in 36 minutes, ISI- No Return.
FF- Weak building blow. Built to 11 inches, ISI- No Return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>265</u>	<u>Muddy Water</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 Total 265 BHT _____ Gravity _____ API RW 1618 @ 38 °F Chlorides 19,000 ppm
 (A) Initial Hydrostatic 1807 Test 1150 T-On Location 1530
 (B) First Initial Flow 44 Jars _____ T-Started 1645
 (C) First Final Flow 90 Safety Joint _____ T-Open 1824
 (D) Initial Shut-In 692 Circ Sub _____ T-Pulled 2125
 (E) Second Initial Flow 106 Hourly Standby _____ T-Out 2315
 (F) Second Final Flow 151 Mileage 5X2 15.50 Comments Batt-1629
 (G) Final Shut-In 671 Sampler _____
 (H) Final Hydrostatic 1680 Straddle _____

Initial Open 45 Ruined Shale Packer _____
 Initial Shut-In 45 Ruined Packer _____
 Final Flow 45 Extra Packer _____
 Final Shut-In 45 Extra Recorder _____
 Sub Total 0
 Total 1165.50
 Sub Total 1165.50 Accessibility _____
 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 48623

4/10

Well Name & No. MWE#1-7 Test No. 2 Date 11-24-12
 Company Downing-Nelson Oil Co., Inc. Elevation 2171 KB 2163 GL
 Address P.O. Box 1019 Hays, KS 67601
 Co. Rep / Geo. Al Downing Rig Discovery 3
 Location: Sec. 7 Twp. 13 S Rge. 18 W Co. Ellis State KS

Interval Tested 3555-3582 Zone Tested LKC "E-F"
 Anchor Length 27' Drill Pipe Run _____ Mud Wt. 8.9
 Top Packer Depth 3550 Drill Collars Run 30 Vis 57
 Bottom Packer Depth 3555 Wt. Pipe Run 0 WL 8.0
 Total Depth 3582 Chlorides 1500 ppm System LCM 2#

Blow Description IF - Weak building blow, Built to 5 1/2 inches.
~~IF - No Return.~~
FF - Weak building blow, Built to 4 inches.
~~FF - No Return.~~

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>Muddy Water</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 90 BHT _____ Gravity _____ API RW .448 @ 52 °F Chlorides 22000 ppm
 (A) Initial Hydrostatic 1758 Test 1150 T-On Location 0545
 (B) First Initial Flow 30 Jars _____ T-Started 0645
 (C) First Final Flow 49 Safety Joint _____ T-Open 0814
 (D) Initial Shut-In 619 Circ Sub _____ T-Pulled 1120
 (E) Second Initial Flow 47 Hourly Standby _____ T-Out 1245
 (F) Second Final Flow 59 Mileage 5X2 15.50 Comments Batt-0627
 (G) Final Shut-In 487 Sampler _____
 (H) Final Hydrostatic 1689 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1165.50
 Accessibility _____ MP/DST Disc't _____

Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 45
 Sub Total 1165.50

Approved By _____ Our Representative D. Rad

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 48624

4/10

Well Name & No. MWE #1-7 Test No. 3 Date 11-25-12
 Company Downing-Nelson Oil Co., Inc. Elevation 2171 KB 2163 GL
 Address P.O. Box 1019 Hays, KS 67601
 Co. Rep / Geo. AL Downing Rig Discovery 3
 Location: Sec. 7 Twp. 13S Rge. 18W Co. Ellis State KS

Interval Tested 3606-3682 Zone Tested LKC "H, I, J"
 Anchor Length 76' Drill Pipe Run 3580 Mud Wt. 9.0
 Top Packer Depth 3601 Drill Collars Run 30 Vis 53
 Bottom Packer Depth 3606 Wt. Pipe Run 0 WL 8.0
 Total Depth 3682 Chlorides 2000 ppm System LCM 1.5#

Blow Description IF - Strong building blow, BOB in 1 minute 45 seconds,
IF - Return @ 15 seconds, BOB in 3 1/2 minutes,
FF - Strong building blow, BOB in 2 minutes, GTS @ 27 minutes,
FF - Return @ 30 seconds, BOB @ 4 minutes,

Rec	Feet of	%gas	%oil	%water	%mud
850	Gassy Oil	50	50		
124	MCGO	25	50		25
	2606' G.I.P.				

Rec Total 974 BHT 117 Gravity 34 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 1792 Test 1150 T-On Location 0015
 (B) First Initial Flow 55 Jars T-Started 0100
 (C) First Final Flow 191 Safety Joint T-Open 0244
 (D) Initial Shut-In 1179 Circ Sub T-Pulled 0520
 (E) Second Initial Flow 207 Hourly Standby T-Out 0845
 (F) Second Final Flow 316 Mileage 5X2 15.50 Comments BATT-0054
 (G) Final Shut-In 1165 Sampler
 (H) Final Hydrostatic 1733 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies
 Extra Recorder Sub Total 0
 Day Standby Total 1165.50
 Accessibility MP/DST Disc't
 Sub Total 1165.50

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 48625

4/10

Well Name & No. MWE #1-7 Test No. 4 Date 11-25-12
 Company Downing-Nelson Oil Co., Inc. Elevation 2171 KB 2163 GL
 Address P.O. Box 1019 Hays, KS 67601
 Co. Rep / Geo. Al Downing Rig Discovery 3
 Location: Sec. 7 Twp. 13S Rge. 18W Co. Ellis State KS

Interval Tested 3686-3710 Zone Tested LKC "K"
 Anchor Length 24' Drill Pipe Run 3645 Mud Wt. 8.9
 Top Packer Depth 3681 Drill Collars Run 30 Vis 50
 Bottom Packer Depth 3686 Wt. Pipe Run 0 WL 8.0
 Total Depth 3710 Chlorides 5000 ppm System LCM 1.5#
 Blow Description IF - Very weak building blow, burst to 1 inch, IST - No Return, FF - No Blow, Flushed Tool, No Blow, Pulled Tool,

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud w/oil spots</u>		<u>2</u>		<u>8</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 5 BHT 103 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1816 Test 1150 T-On Location 1515
 (B) First Initial Flow 15 Jars _____ T-Started 1600
 (C) First Final Flow 16 Safety Joint _____ T-Open 1729
 (D) Initial Shut-In 35 Circ Sub _____ T-Pulled 1850
 (E) Second Initial Flow 15 Hourly Standby _____ T-Out 2030
 (F) Second Final Flow _____ Mileage 5X2 15.50 Comments Base 1543
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic 1779 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1165.50
 Accessibility _____ MP/DST Disc _____
 Sub Total 1165.50

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 51651

4/10

Well Name & No. MWE #1-7 Test No. 5 Date 11-26-12
 Company Downing-Nelson Oil Co., Inc. Elevation 2171 KB 2163 GL
 Address P.O. Box 1019 Hays, KS 67601
 Co. Rep / Geo. AI Downing Rig Discovery 3
 Location: Sec. 7 Twp. 13S Rge. 18W Co. Ellis State KS

Interval Tested 3768-3810 Zone Tested Arbuckle
 Anchor Length 42' 79' TP Drill Pipe Run 3740 Mud Wt. 8.9
 Top Packer Depth 3763 Drill Collars Run 30 Vis 55
 Bottom Packer Depth 3768 Wt. Pipe Run 0 WL 8.0
 Total Depth 3889 Chlorides 6000 ppm System LCM 1.5#

Blow Description IF - Very weak building blow. Built to 1 inch.
ISI - No Return.
FF - Very weak building blow. Built to 3/4 inch.
FBI - No Return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</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 15 BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1896 Test 1150 T-On Location 1515
 (B) First Initial Flow 17 Jars _____ T-Started 1600
 (C) First Final Flow 26 Safety Joint _____ T-Open 1744
 (D) Initial Shut-In 1011 Circ Sub _____ T-Pulled 1950
 (E) Second Initial Flow 29 Hourly Standby _____ T-Out 2200
 (F) Second Final Flow 30 Mileage 5X2 15.50 Comments BUTT-1611
 (G) Final Shut-In 957 Sampler _____
 (H) Final Hydrostatic 1853 Straddle 600 Ruined Shale Packer _____

Initial Open 30 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 30 Extra Packer _____ Extra Copies _____
 Final Flow 30 Extra Recorder _____ Sub Total 0
 Final Shut-In 30 Day Standby _____ Total 1765.50
 Accessibility _____ MP/DST Disc' _____
 Sub Total 1765.50

Approved By _____ Our Representative [Signature]

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