

Confidentiality Requested:

Yes No

**KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION**

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

**WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

Deepening Re-perf. Conv. to EOR Conv. to SWD
 Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite: _____

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Downing-Nelson Oil Co Inc
Well Name	OELKERS-WERTH UNIT 1-5
Doc ID	1315387

All Electric Logs Run

Dual Induction
Compensated Density Neutron
Sonic
Micro

Form	ACO1 - Well Completion
Operator	Downing-Nelson Oil Co Inc
Well Name	OELKERS-WERTH UNIT 1-5
Doc ID	1315387

Tops

Name	Top	Datum
Top Anhydrite	1242'	+797
Base Anhydrite	1281'	+758
Topeka	3016'	-977
Heebner	3284'	-1245
Toronto	3304'	-1265
LKC	3328'	-1289
BKC	3375'	-1336
Marmaton	3622'	-1583
Reagan Sand	3652'	-1613
Granite Wash	NA	-1631

Form	ACO1 - Well Completion
Operator	Downing-Nelson Oil Co Inc
Well Name	OELKERS-WERTH UNIT 1-5
Doc ID	1315387

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
4	3352-3357	250 Gallons 20% Mud Acid	3508-3512
4	3394-3400	250 Gallons 20% Mud Acid	3464-3468
4	3464-3468	2000 Gallons 15% NE	3464-3468
4	3508-3512	250 Gallons 20% Mud Acid	3394-3400
		1000 Gallons 15% NE	3394-3400
		1250 Gallons 15% NE	3352-3357



DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Oelkers-Werth #1-5

5-16s-19w Rush,KS

Start Date: 2016.08.12 @ 17:10:00

End Date: 2016.08.12 @ 22:53:00

Job Ticket #: 65107 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.08.16 @ 15:05:14



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65107

DST#: 1

ATTN: Marc Dow ning

Test Start: 2016.08.12 @ 17:10:00

GENERAL INFORMATION:

Formation: **Plattsmouth**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:33:00

Time Test Ended: 22:53:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: 3189.00 ft (KB) To 3229.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3229.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 6999

Inside

Press@RunDepth: 238.50 psig @ 3225.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.12

End Date:

2016.08.12

Last Calib.:

2016.08.12

Start Time:

17:10:05

End Time:

22:52:59

Time On Btm:

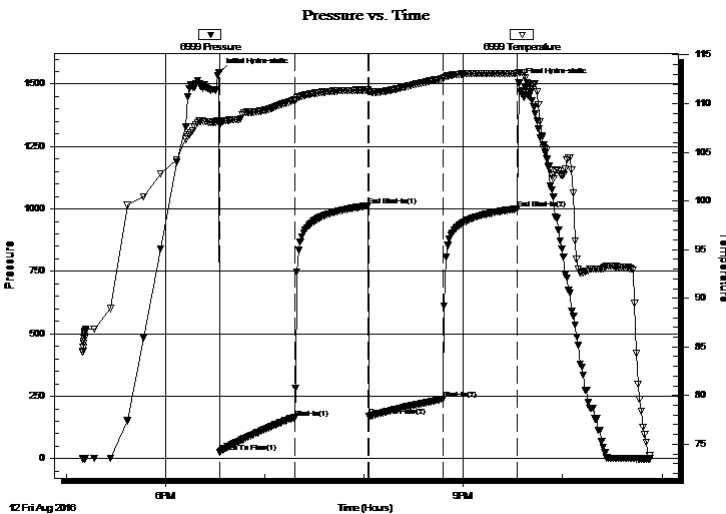
2016.08.12 @ 18:32:30

Time Off Btm:

2016.08.12 @ 21:33:30

TEST COMMENT: I.F. 45 Minutes BOB in 30 minutes
I.S.I. 45 Minutes No blow back
F.F. 45 Mintues BOB in 30 minutes
F.S.I. 45 Minutes No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1546.54	108.25	Initial Hydro-static
1	26.08	108.01	Open To Flow (1)
46	164.03	110.36	Shut-In(1)
90	1012.73	111.40	End Shut-In(1)
91	170.67	111.22	Open To Flow (2)
135	238.50	112.57	Shut-In(2)
180	1000.36	113.06	End Shut-In(2)
181	1503.67	113.20	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
465.00	MW with show of oil Mud10% Water 90%	4.85

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65107

DST#: 1

ATTN: Marc Dow ning

Test Start: 2016.08.12 @ 17:10:00

GENERAL INFORMATION:

Formation: **Plattsmouth**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:33:00

Time Test Ended: 22:53:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: 3189.00 ft (KB) To 3229.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3229.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8960 Outside

Press@RunDepth: 998.21 psig @ 3226.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.12

End Date:

2016.08.12

Last Calib.:

2016.08.12

Start Time:

17:10:05

End Time:

22:52:29

Time On Btm:

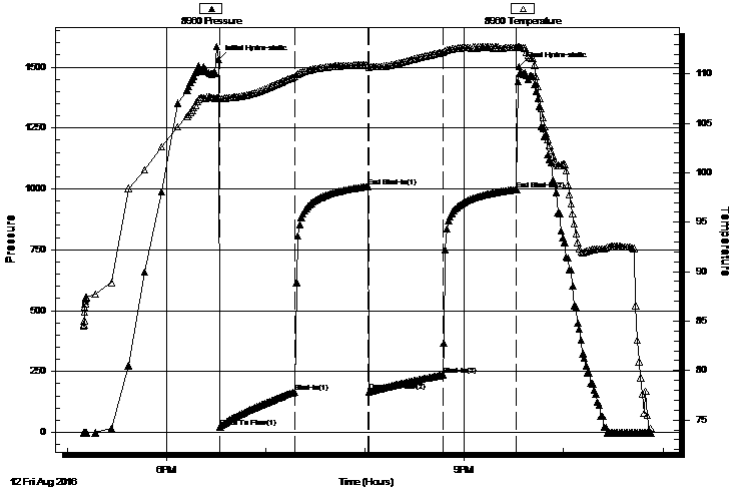
2016.08.12 @ 18:31:30

Time Off Btm:

2016.08.12 @ 21:33:00

TEST COMMENT: I.F. 45 Minutes BOB in 30 minutes
I.S.I. 45 Minutes No blow back
F.F. 45 Mintues BOB in 30 minutes
F.S.I. 45 Minutes No blow back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1532.09	107.71	Initial Hydro-static
1	21.31	107.47	Open To Flow (1)
46	163.98	109.72	Shut-In(1)
90	1010.55	110.91	End Shut-In(1)
91	167.14	110.64	Open To Flow (2)
136	236.60	112.18	Shut-In(2)
180	998.21	112.65	End Shut-In(2)
182	1501.64	112.74	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
465.00	MW with show of oil Mud10% Water 90%4.85	

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65107

DST#: 1

ATTN: Marc Dow ning

Test Start: 2016.08.12 @ 17:10:00

Tool Information

Drill Pipe:	Length: 2873.00 ft	Diameter: 3.80 inches	Volume: 40.30 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 317.00 ft	Diameter: 3.00 inches	Volume: 2.77 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	55000.00 lb
			<u>Total Volume: 43.07 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3189.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval betw een Packers:	40.00 ft				
Tool Length:	60.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3174.00	
Hydraulic tool	5.00			3179.00	
Top Packer	5.00			3184.00	
Packer	5.00			3189.00	20.00 Bottom Of Top Packer
Anchor	35.00			3224.00	
Recorder	1.00	6999	Inside	3225.00	
Recorder	1.00	8960	Outside	3226.00	
Bullnose	3.00			3229.00	40.00 Anchor Tool

Total Tool Length: 60.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65107

DST#: 1

ATTN: Marc Downing

Test Start: 2016.08.12 @ 17:10:00

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:

53000 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.94 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
465.00	MW with show of oil Mud10% Water 90%	4.848

Total Length: 465.00 ft Total Volume: 4.848 bbl

Num Fluid Samples: 0

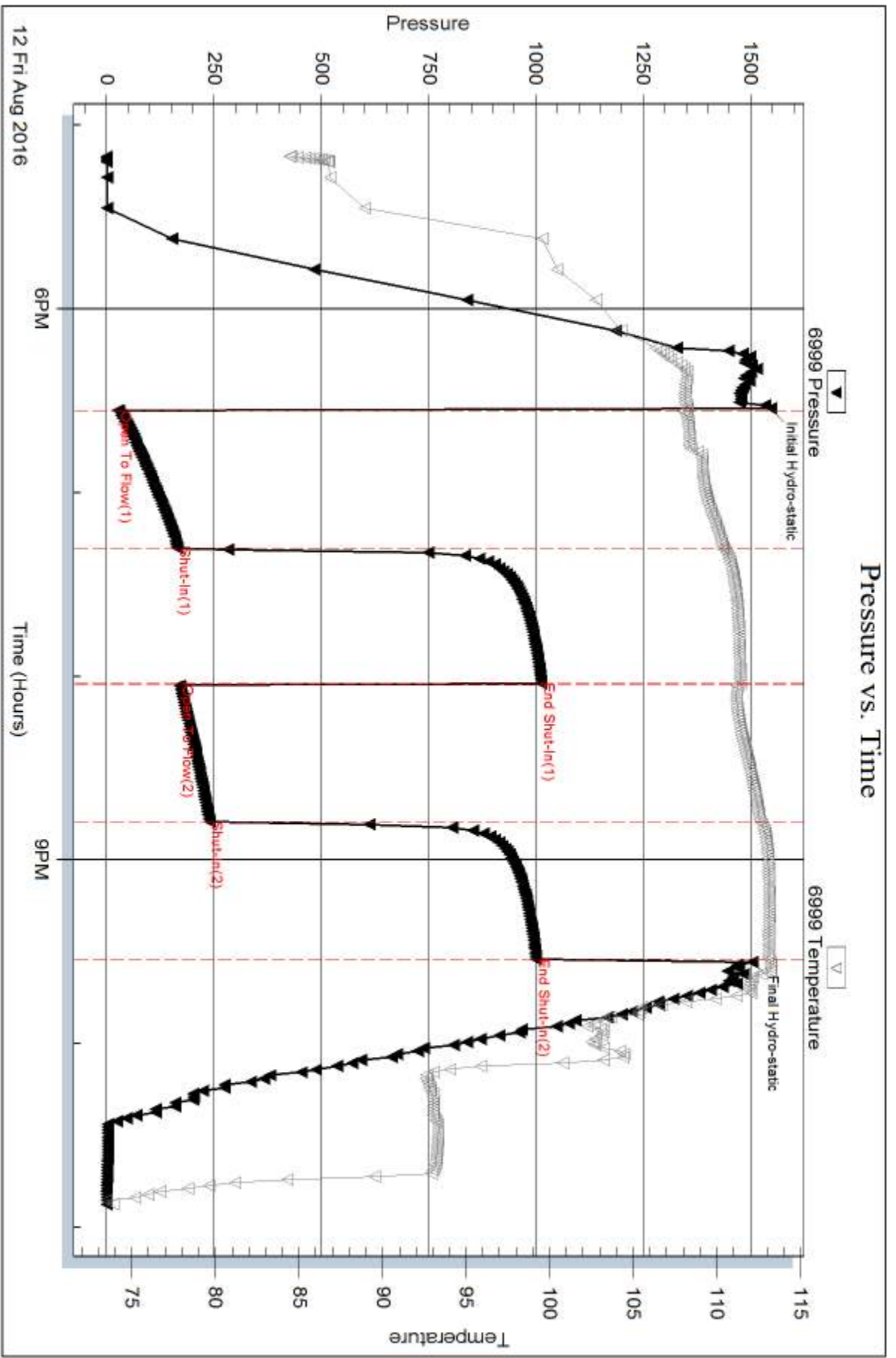
Num Gas Bombs: 0

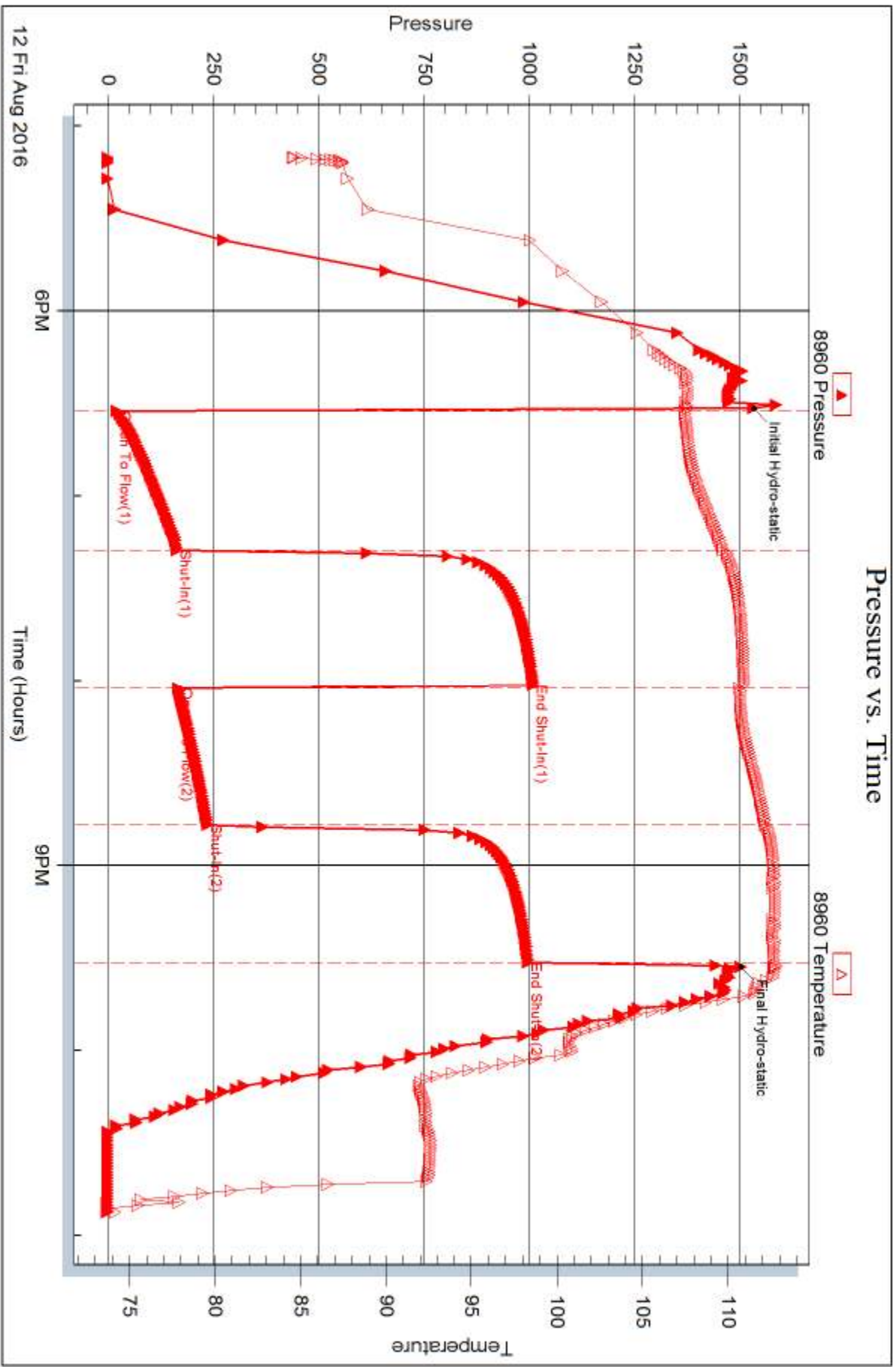
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Recovery resist. .147 @ 74 deg







DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Oelkers-Werth #1-5

5-16s-19w Rush,KS

Start Date: 2016.08.13 @ 09:16:00

End Date: 2016.08.13 @ 15:28:30

Job Ticket #: 65108 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.08.16 @ 15:04:49



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65108

DST#: 2

ATTN: Marc Dow ning

Test Start: 2016.08.13 @ 09:16:00

GENERAL INFORMATION:

Formation: **LKC C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:43:30

Time Test Ended: 15:28:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: 3335.00 ft (KB) To 3360.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3360.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 6999 Inside

Press@RunDepth: 45.75 psig @ 3356.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.13

End Date:

2016.08.13

Last Calib.: 2016.08.13

Start Time: 09:16:05

End Time:

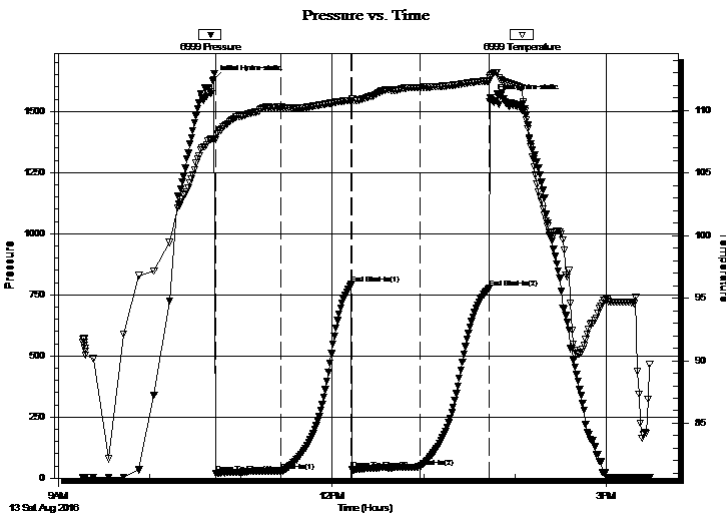
15:28:29

Time On Btm: 2016.08.13 @ 10:42:00

Time Off Btm: 2016.08.13 @ 13:44:00

TEST COMMENT: I.F. 45 Minutes BOB in 29 minutes
I.S.I. 45 Minutes No blow back
F.F. 45 Minutes BOB in 10 minutes
F.S.I. 45 Mintues No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1629.67	107.74	Initial Hydro-static
2	18.41	107.65	Open To Flow (1)
45	30.03	110.25	Shut-In(1)
91	792.93	110.79	End Shut-In(1)
91	37.57	110.92	Open To Flow (2)
136	45.75	111.82	Shut-In(2)
181	776.43	112.34	End Shut-In(2)
182	1554.53	112.77	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
75.00	GCOM Gas 10% Mud 30% Oil 60%	0.66
0.00	390 feet of gas in pipe	0.00

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65108

DST#: 2

ATTN: Marc Dow ning

Test Start: 2016.08.13 @ 09:16:00

GENERAL INFORMATION:

Formation: **LKC C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:43:30

Time Test Ended: 15:28:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: 3335.00 ft (KB) To 3360.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3360.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8960 Outside

Press@RunDepth: 775.51 psig @ 3357.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.13

End Date:

2016.08.13

Last Calib.:

2016.08.13

Start Time:

09:16:05

End Time:

15:27:59

Time On Btm:

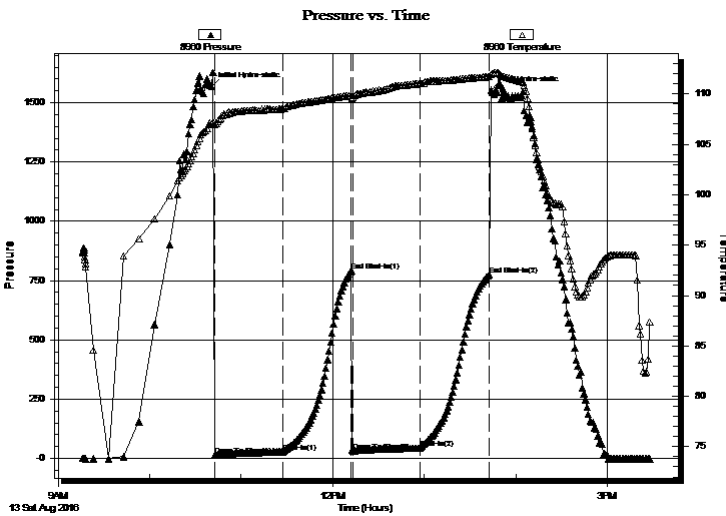
2016.08.13 @ 10:40:30

Time Off Btm:

2016.08.13 @ 13:43:30

TEST COMMENT: I.F. 45 Minutes BOB in 29 minutes
I.S.I. 45 Minutes No blow back
F.F. 45 Minutes BOB in 10 minutes
F.S.I. 45 Mintues No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1566.63	107.02	Initial Hydro-static
2	13.37	106.92	Open To Flow (1)
47	27.48	108.52	Shut-In(1)
92	792.49	109.85	End Shut-In(1)
93	28.51	109.69	Open To Flow (2)
137	43.60	111.02	Shut-In(2)
182	775.51	111.70	End Shut-In(2)
183	1552.81	111.92	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
75.00	GCOM Gas 10% Mud 30% Oil 60%	0.66
0.00	390 feet of gas in pipe	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65108

DST#: 2

ATTN: Marc Dow ning

Test Start: 2016.08.13 @ 09:16:00

Tool Information

Drill Pipe:	Length: 3029.00 ft	Diameter: 3.80 inches	Volume: 42.49 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 317.00 ft	Diameter: 3.00 inches	Volume: 2.77 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	58000.00 lb
			<u>Total Volume: 45.26 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial	51000.00 lb
Depth to Top Packer:	3335.00 ft			Final	51000.00 lb
Depth to Bottom Packer:	ft				
Interval betw een Packers:	25.00 ft				
Tool Length:	45.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3320.00	
Hydraulic tool	5.00			3325.00	
Top Packer	5.00			3330.00	
Packer	5.00			3335.00	20.00 Bottom Of Top Packer
Anchor	20.00			3355.00	
Recorder	1.00	6999	Inside	3356.00	
Recorder	1.00	8960	Outside	3357.00	
Bullnose	3.00			3360.00	25.00 Anchor Tool

Total Tool Length: 45.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65108

DST#: 2

ATTN: Marc Downing

Test Start: 2016.08.13 @ 09:16:00

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 49.00 sec/qt
Water Loss: 8.74 in³
Resistivity: ohm.m
Salinity: 4000.00 ppm
Filter Cake: 1.00 inches

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

Oil API: deg API
Water Salinity: ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
75.00	GCOM Gas 10% Mud 30% Oil 60%	0.656
0.00	390 feet of gas in pipe	0.000

Total Length: 75.00 ft Total Volume: 0.656 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

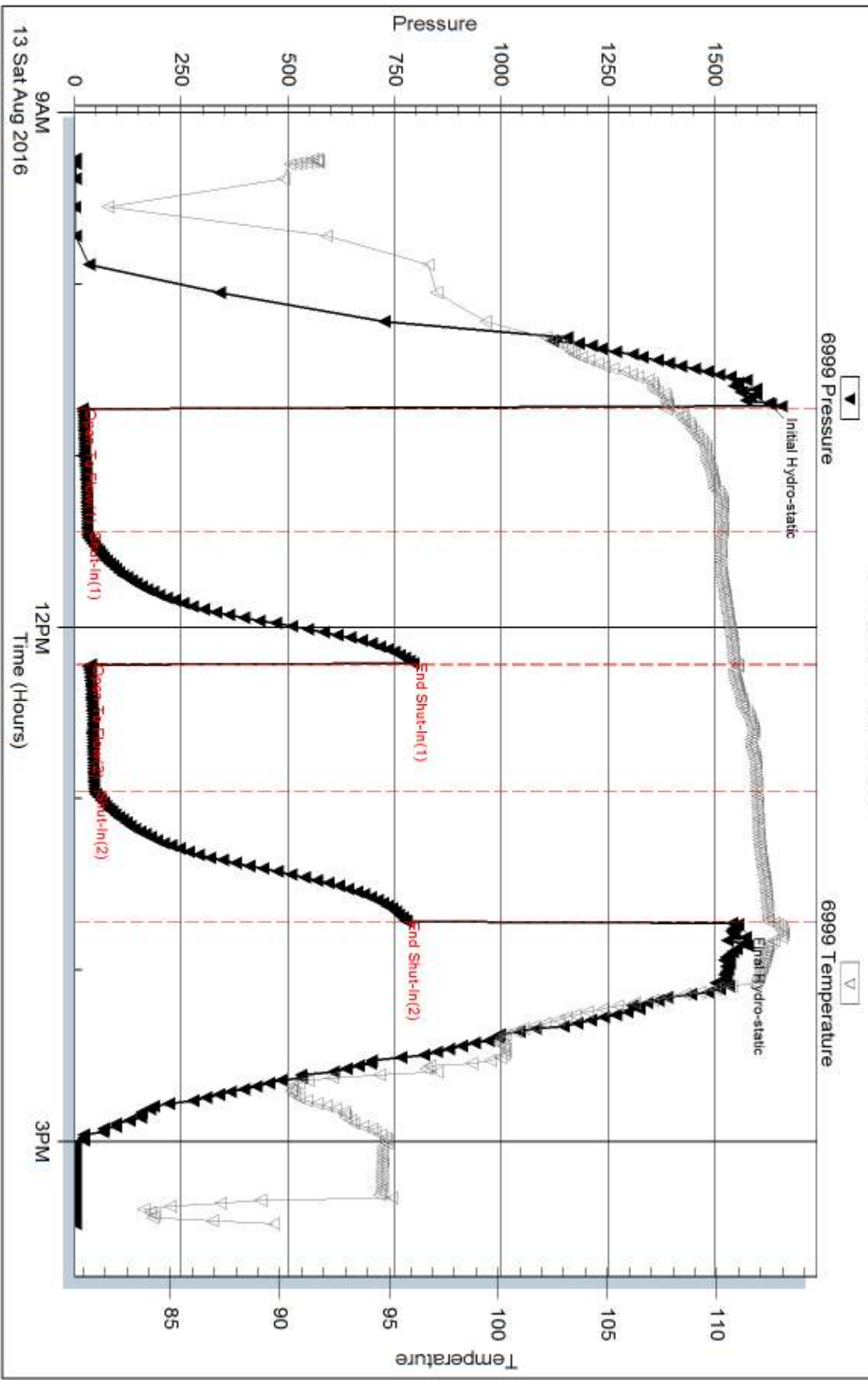
Serial #:

Laboratory Name:

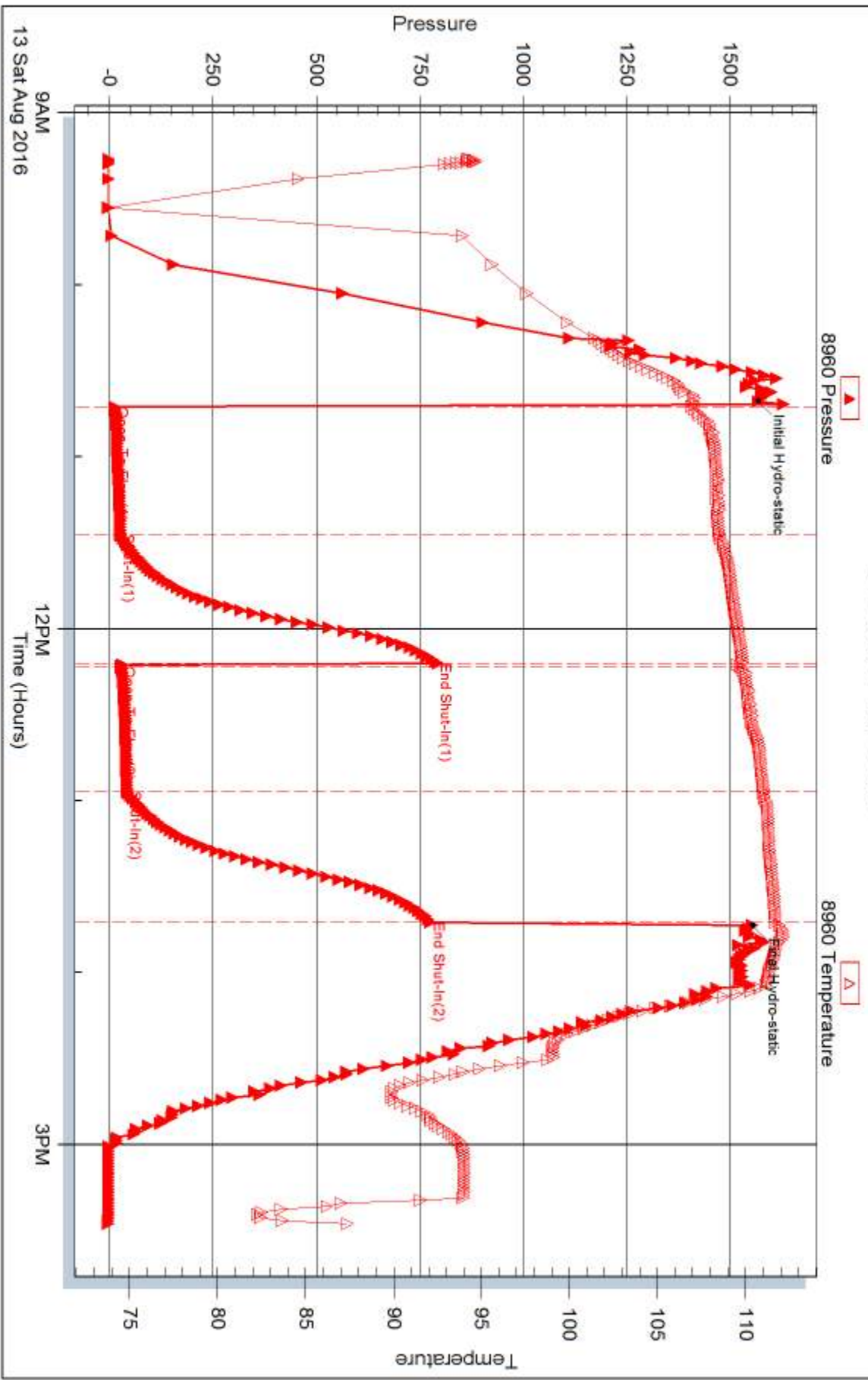
Laboratory Location:

Recovery Comments:

Pressure vs. Time



Pressure vs. Time





DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Oelkers-Werth #1-5

5-16s-19w Rush,KS

Start Date: 2016.08.13 @ 23:11:00

End Date: 2016.08.14 @ 05:07:00

Job Ticket #: 65109 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.08.16 @ 14:58:14



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65109

DST#: 3

ATTN: Marc Dow ning

Test Start: 2016.08.13 @ 23:11:00

GENERAL INFORMATION:

Formation: **LKC D&E**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:29:30

Time Test Ended: 05:07:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: 3361.00 ft (KB) To 3400.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3400.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 6999 Inside

Press@RunDepth: 72.26 psig @ 3396.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.13

End Date:

2016.08.14

Last Calib.: 2016.08.14

Start Time: 23:11:05

End Time:

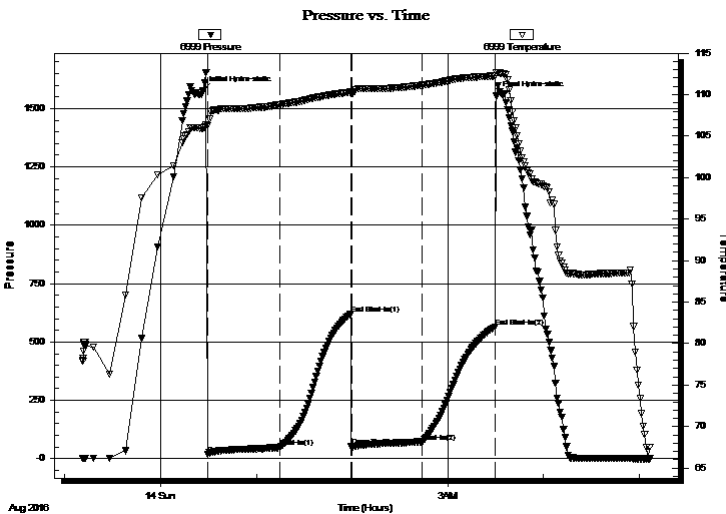
05:06:59

Time On Btm: 2016.08.14 @ 00:26:30

Time Off Btm: 2016.08.14 @ 03:30:30

TEST COMMENT: I.F. 45 Minutes BOB in 14 1/2 minutes
I.S.I. 45 Mintues No blow back
F.F. 45 Minutes BOB in 6 1/2 minutes
F.S.I. 45 Minutes No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1575.31	105.97	Initial Hydro-static
3	19.27	106.24	Open To Flow (1)
48	47.70	108.77	Shut-In(1)
93	620.12	110.29	End Shut-In(1)
94	51.38	110.17	Open To Flow (2)
138	72.26	111.13	Shut-In(2)
183	565.15	112.25	End Shut-In(2)
184	1553.69	112.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	GHMCO Gas 5% Mud 45% Oil 50%	1.08
0.00	620 feet of gas in pipe	0.00

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65109

DST#: 3

ATTN: Marc Dow ning

Test Start: 2016.08.13 @ 23:11:00

GENERAL INFORMATION:

Formation: **LKC D&E**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:29:30

Time Test Ended: 05:07:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: 3361.00 ft (KB) To 3400.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3400.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8960 Outside

Press@RunDepth: 563.86 psig @ 3397.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.13

End Date:

2016.08.14

Last Calib.:

2016.08.14

Start Time:

23:11:05

End Time:

05:06:29

Time On Btm:

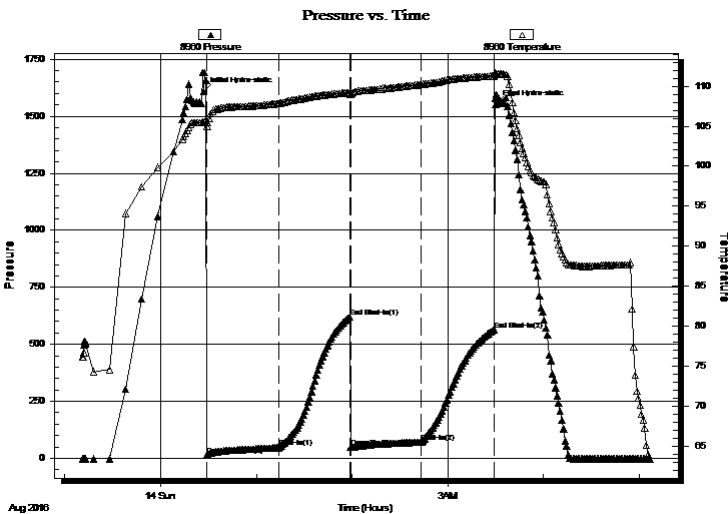
2016.08.14 @ 00:27:00

Time Off Btm:

2016.08.14 @ 03:30:00

TEST COMMENT: I.F. 45 Minutes BOB in 14 1/2 minutes
I.S.I. 45 Mintues No blow back
F.F. 45 Minutes BOB in 6 1/2 minutes
F.S.I. 45 Minutes No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1608.38	105.47	Initial Hydro-static
2	14.31	104.99	Open To Flow (1)
47	46.96	107.86	Shut-In(1)
92	619.23	109.24	End Shut-In(1)
92	48.17	109.00	Open To Flow (2)
137	71.58	110.22	Shut-In(2)
182	563.86	111.28	End Shut-In(2)
183	1553.09	111.52	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	GHMCO Gas 5% Mud 45% Oil 50%	1.08
0.00	620 feet of gas in pipe	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65109

DST#: 3

ATTN: Marc Downing

Test Start: 2016.08.13 @ 23:11:00

Tool Information

Drill Pipe:	Length: 3029.00 ft	Diameter: 3.80 inches	Volume: 42.49 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 317.00 ft	Diameter: 3.00 inches	Volume: 2.77 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	66000.00 lb
			<u>Total Volume: 45.26 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	51000.00 lb
Depth to Top Packer:	3361.00 ft			Final	51000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	39.00 ft				
Tool Length:	59.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3346.00	
Hydraulic tool	5.00			3351.00	
Top Packer	5.00			3356.00	
Packer	5.00			3361.00	20.00 Bottom Of Top Packer
Anchor	34.00			3395.00	
Recorder	1.00	6999	Inside	3396.00	
Recorder	1.00	8960	Outside	3397.00	
Bullnose	3.00			3400.00	39.00 Anchor Tool

Total Tool Length: 59.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65109

DST#: 3

ATTN: Marc Downing

Test Start: 2016.08.13 @ 23:11:00

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: 49.00 sec/qt

Cushion Volume: bbl

Water Loss: 8.76 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	GHMCO Gas 5% Mud 45% Oil 50%	1.084
0.00	620 feet of gas in pipe	0.000

Total Length: 124.00 ft Total Volume: 1.084 bbl

Num Fluid Samples: 0

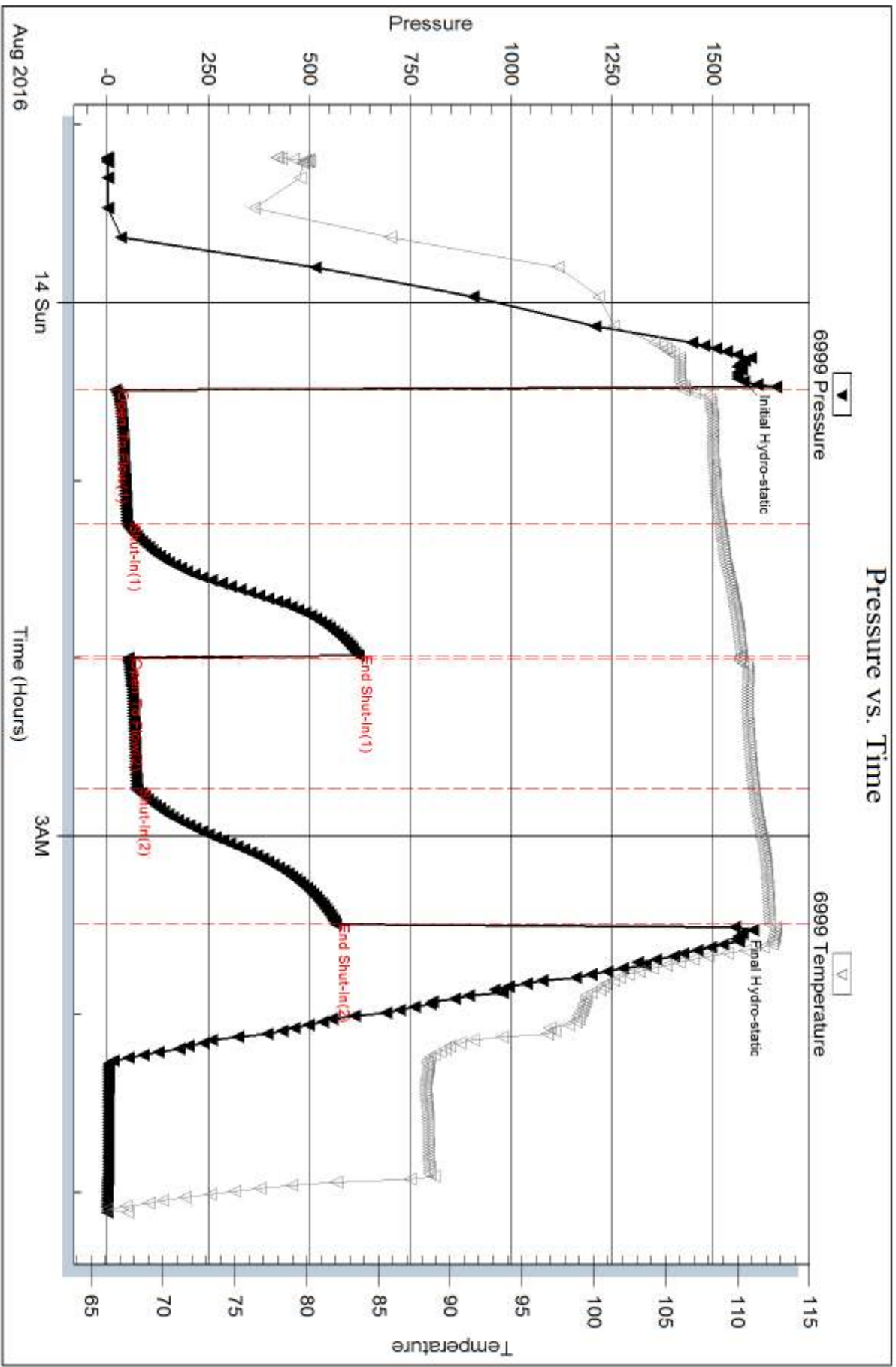
Num Gas Bombs: 0

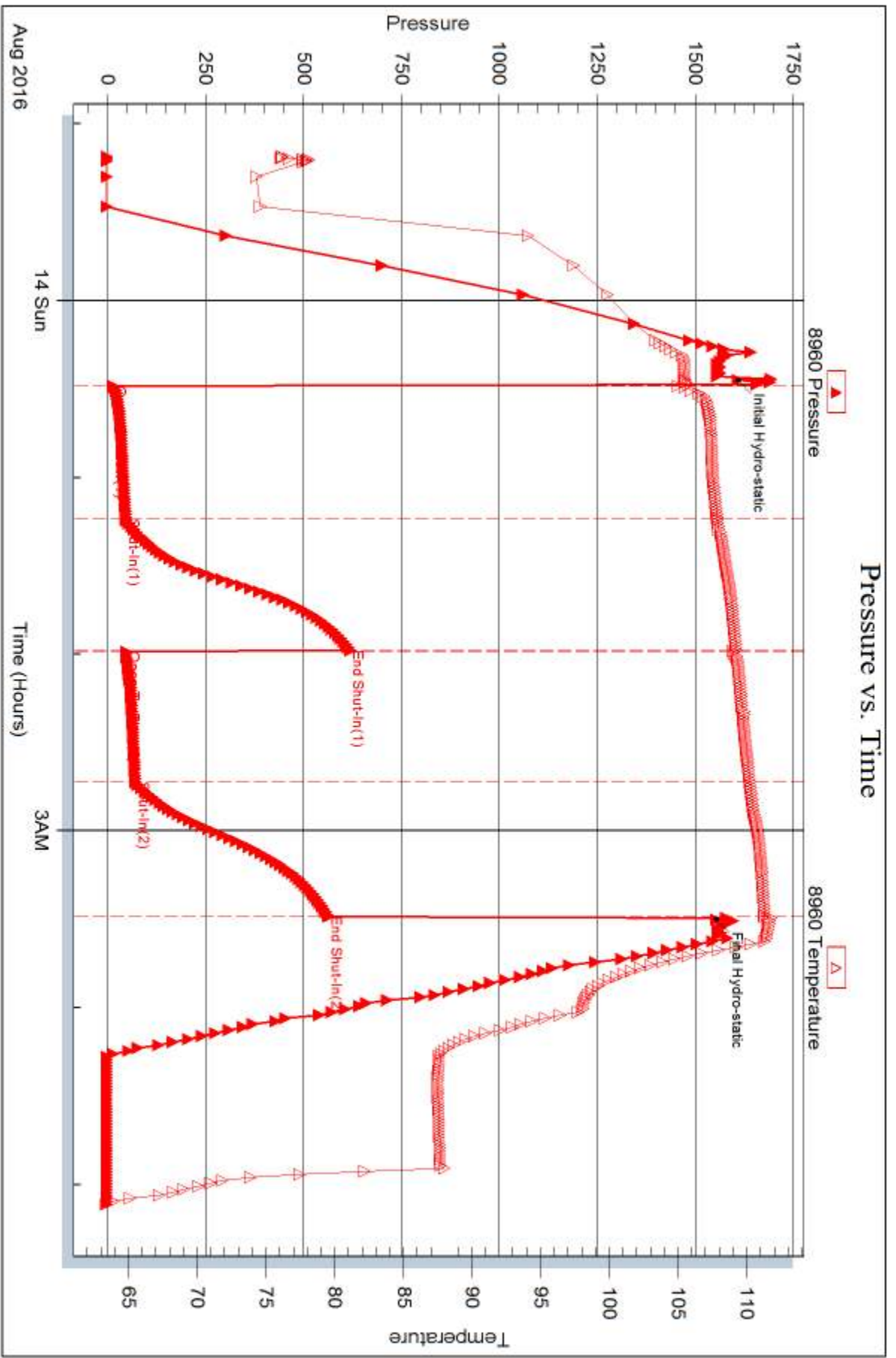
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Oelkers-Werth #1-5

5-16s-19w Rush,KS

Start Date: 2016.08.14 @ 16:57:00

End Date: 2016.08.14 @ 22:40:00

Job Ticket #: 65110 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.08.16 @ 14:54:59



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Downing Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65110

DST#: 4

ATTN: Marc Downing

Test Start: 2016.08.14 @ 16:57:00

GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:15:30

Time Test Ended: 22:40:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3443.00 ft (KB) To 3475.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3475.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 6999 Inside

Press@RunDepth: 73.32 psig @ 3471.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.14

End Date:

2016.08.14

Last Calib.:

2016.08.14

Start Time: 16:57:05

End Time:

22:39:59

Time On Btm:

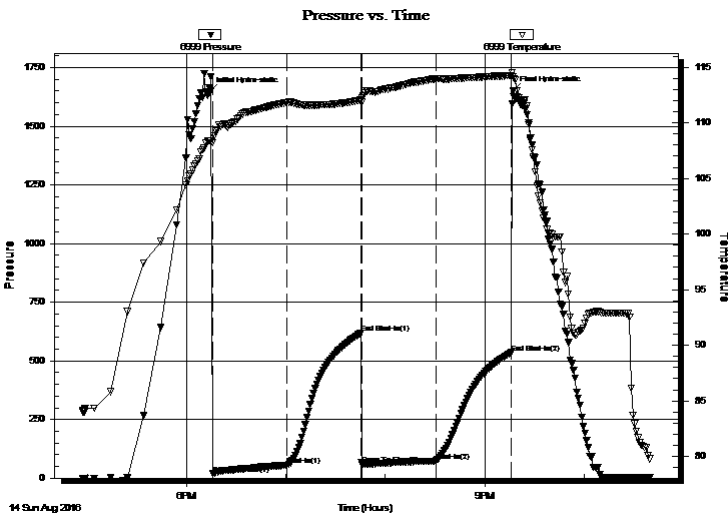
2016.08.14 @ 18:14:00

Time Off Btm:

2016.08.14 @ 21:17:00

TEST COMMENT: I.F. 45 Minutes Blow built to 5"
I.S.I. 45 Minutes No blow back
F.F. 45 Minutes Blow built to 4"
F.S.I. 45 Minutes No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1645.17	108.42	Initial Hydro-static
2	17.76	108.19	Open To Flow (1)
47	53.97	111.83	Shut-In(1)
91	618.10	112.03	End Shut-In(1)
92	57.81	112.29	Open To Flow (2)
137	73.32	113.96	Shut-In(2)
182	534.67	114.25	End Shut-In(2)
183	1649.50	114.14	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	OCM Oil 15% Mud 85%	1.08

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65110

DST#: 4

ATTN: Marc Dow ning

Test Start: 2016.08.14 @ 16:57:00

GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:15:30

Time Test Ended: 22:40:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: 3443.00 ft (KB) To 3475.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3475.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8960 Outside

Press@RunDepth: 533.51 psig @ 3472.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.14

End Date:

2016.08.14

Last Calib.:

2016.08.14

Start Time:

16:57:05

End Time:

22:39:29

Time On Btm:

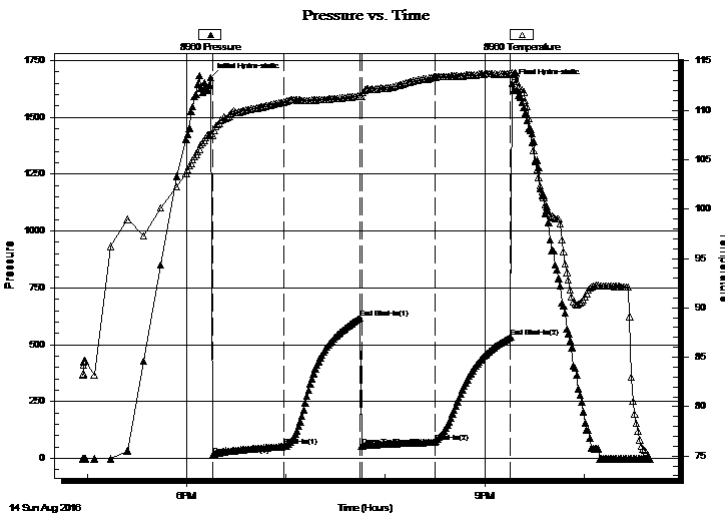
2016.08.14 @ 18:14:30

Time Off Btm:

2016.08.14 @ 21:16:30

TEST COMMENT: I.F. 45 Minutes Blow built to 5"
I.S.I. 45 Minutes No blow back
F.F. 45 Minutes Blow built to 4"
F.S.I. 45 Minutes No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1676.56	107.61	Initial Hydro-static
1	15.02	107.48	Open To Flow (1)
44	51.62	110.83	Shut-In(1)
90	616.86	111.43	End Shut-In(1)
91	54.45	111.36	Open To Flow (2)
136	71.32	113.35	Shut-In(2)
181	533.51	113.74	End Shut-In(2)
182	1649.42	113.82	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	OCM Oil 15% Mud 85%	1.08

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65110

DST#: 4

ATTN: Marc Dow ning

Test Start: 2016.08.14 @ 16:57:00

Tool Information

Drill Pipe:	Length: 3123.00 ft	Diameter: 3.80 inches	Volume: 43.81 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 317.00 ft	Diameter: 3.00 inches	Volume: 2.77 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 46.58 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial	51000.00 lb
Depth to Top Packer:	3443.00 ft			Final	51000.00 lb
Depth to Bottom Packer:	ft				
Interval betw een Packers:	32.00 ft				
Tool Length:	52.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

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

Shut-In Tool	5.00			3428.00	
Hydraulic tool	5.00			3433.00	
Top Packer	5.00			3438.00	
Packer	5.00			3443.00	20.00 Bottom Of Top Packer
Anchor	27.00			3470.00	
Recorder	1.00	6999	Inside	3471.00	
Recorder	1.00	8960	Outside	3472.00	
Bullnose	3.00			3475.00	32.00 Anchor Tool

Total Tool Length: 52.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65110

DST#: 4

ATTN: Marc Downing

Test Start: 2016.08.14 @ 16:57:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	OCM Oil 15% Mud 85%	1.084

Total Length: 124.00 ft Total Volume: 1.084 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

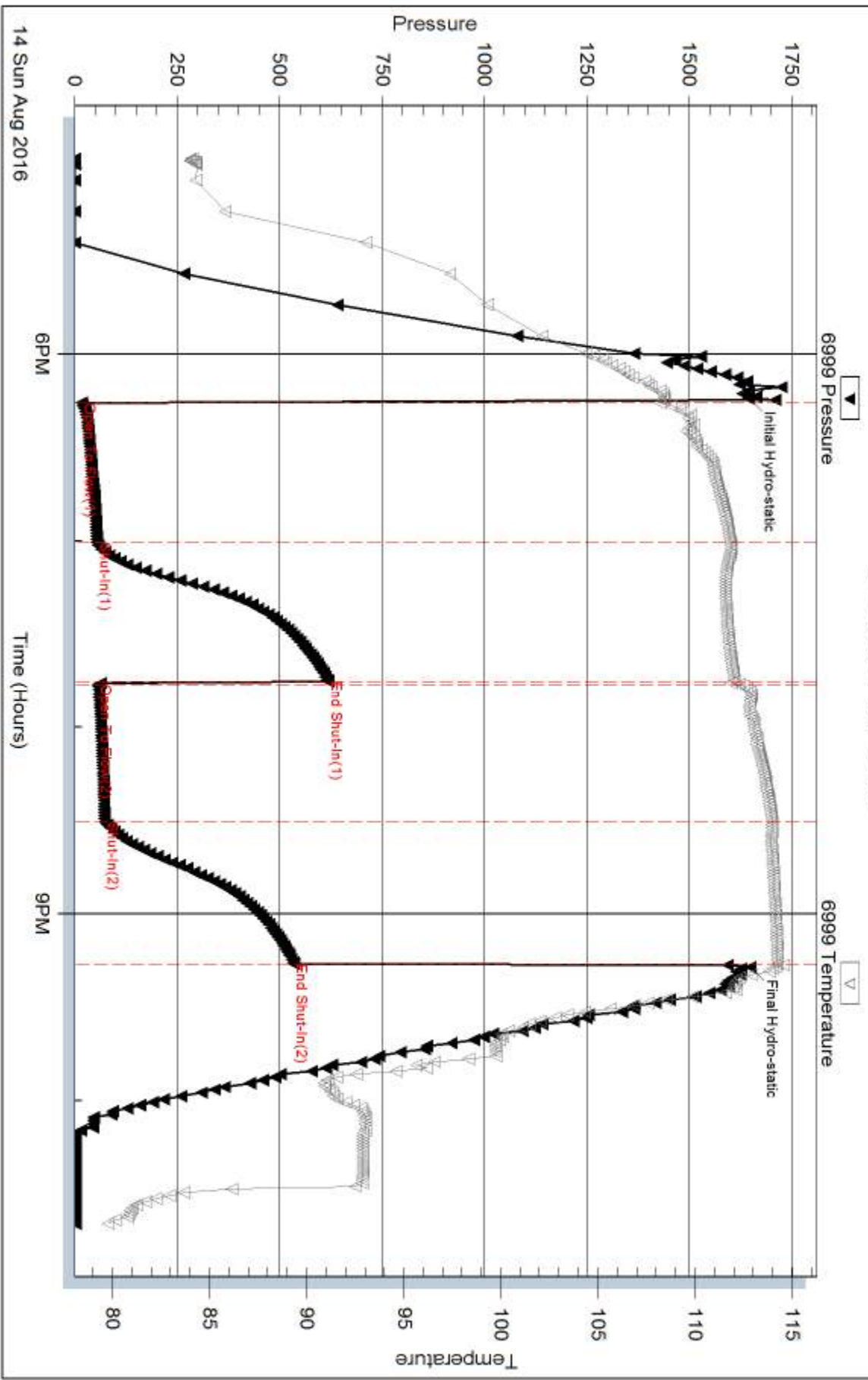
Serial #:

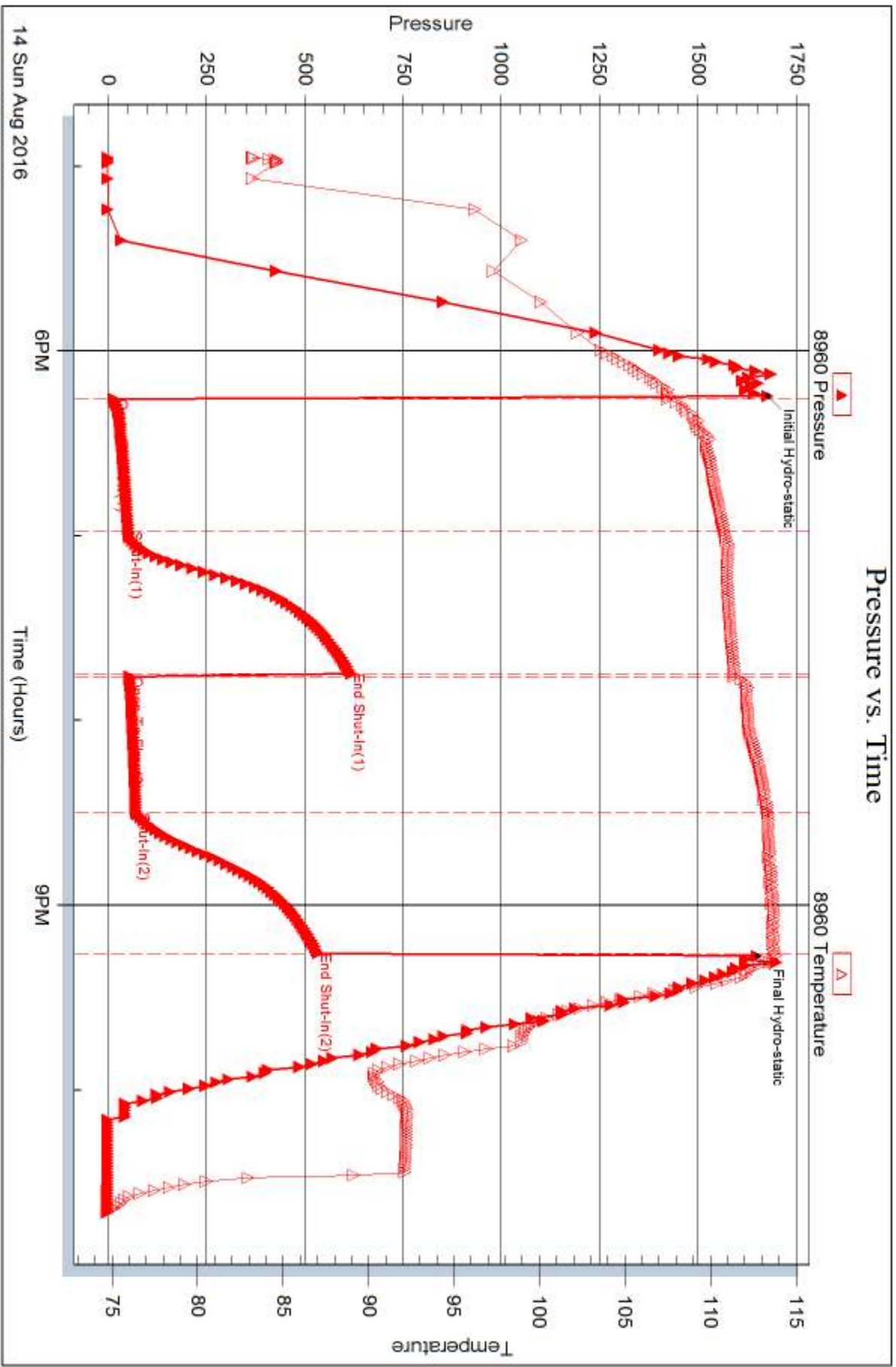
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Oelkers-Werth #1-5

5-16s-19w Rush,KS

Start Date: 2016.08.15 @ 16:47:00

End Date: 2016.08.15 @ 22:29:30

Job Ticket #: 65111 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.08.16 @ 14:24:31



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65111

DST#: 5

ATTN: Marc Dow ning

Test Start: 2016.08.15 @ 16:47:00

GENERAL INFORMATION:

Formation: **Reagan Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:19:30

Time Test Ended: 22:29:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: 3632.00 ft (KB) To 3654.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3654.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 6999

Inside

Press@RunDepth: 249.01 psig @ 3650.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.15

End Date:

2016.08.15

Last Calib.:

2016.08.15

Start Time:

16:47:05

End Time:

22:29:29

Time On Btm:

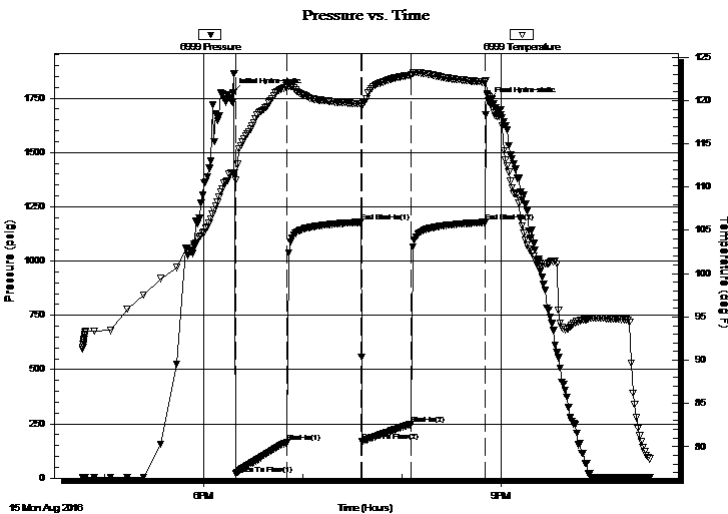
2016.08.15 @ 18:18:00

Time Off Btm:

2016.08.15 @ 20:52:00

TEST COMMENT: I.F. 30 Minutes BOB in 17 minutes
I.S.I 45 Minutes No blow back
F.F. 30 Minutes BOB in 17 minutes
F.S.I. 45 Minutes No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1773.61	111.59	Initial Hydro-static
2	19.72	110.78	Open To Flow (1)
33	163.19	121.56	Shut-In(1)
77	1179.06	119.60	End Shut-In(1)
78	169.76	119.59	Open To Flow (2)
108	249.01	122.94	Shut-In(2)
152	1178.49	122.12	End Shut-In(2)
154	1736.38	120.53	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
527.00	MW Mud 10% Water 90%	5.72

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65111

DST#: 5

ATTN: Marc Dow ning

Test Start: 2016.08.15 @ 16:47:00

GENERAL INFORMATION:

Formation: **Reagan Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:19:30

Time Test Ended: 22:29:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: 3632.00 ft (KB) To 3654.00 ft (KB) (TVD)

Reference Elevations: 2040.00 ft (KB)

Total Depth: 3654.00 ft (KB) (TVD)

2032.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8960 Outside

Press@RunDepth: 1176.44 psig @ 3651.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.15

End Date:

2016.08.15

Last Calib.:

2016.08.15

Start Time: 16:47:05

End Time:

22:28:59

Time On Btm:

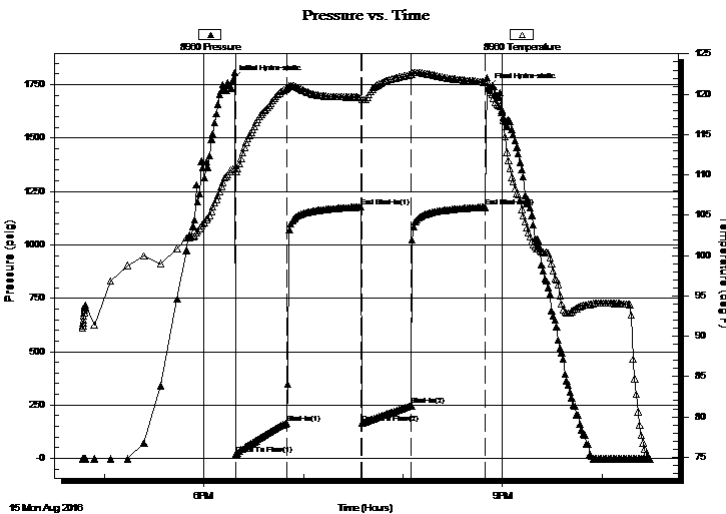
2016.08.15 @ 18:17:30

Time Off Btm:

2016.08.15 @ 20:51:30

TEST COMMENT: I.F. 30 Minutes BOB in 17 minutes
I.S.I. 45 Minutes No blow back
F.F. 30 Minutes BOB in 17 minutes
F.S.I. 45 Minutes No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1771.21	110.70	Initial Hydro-static
2	19.70	110.44	Open To Flow (1)
33	163.64	120.69	Shut-In(1)
77	1177.28	119.61	End Shut-In(1)
78	166.12	119.31	Open To Flow (2)
108	247.30	122.41	Shut-In(2)
152	1176.44	121.52	End Shut-In(2)
154	1735.48	120.70	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
527.00	MW Mud 10% Water 90%	5.72

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65111

DST#: 5

ATTN: Marc Dow ning

Test Start: 2016.08.15 @ 16:47:00

Tool Information

Drill Pipe:	Length: 3310.00 ft	Diameter: 3.80 inches	Volume: 46.43 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 317.00 ft	Diameter: 3.00 inches	Volume: 2.77 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	66000.00 lb
			<u>Total Volume: 49.20 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial	52000.00 lb
Depth to Top Packer:	3632.00 ft			Final	54000.00 lb
Depth to Bottom Packer:	ft				
Interval betw een Packers:	22.00 ft				
Tool Length:	42.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3617.00	
Hydraulic tool	5.00			3622.00	
Top Packer	5.00			3627.00	
Packer	5.00			3632.00	20.00 Bottom Of Top Packer
Anchor	17.00			3649.00	
Recorder	1.00	6999	Inside	3650.00	
Recorder	1.00	8960	Outside	3651.00	
Bullnose	3.00			3654.00	22.00 Anchor Tool

Total Tool Length: 42.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Company Inc

5-16s-19w Rush,KS

PO Box 1019
Hays KS 67601

Oelkers-Werth #1-5

Job Ticket: 65111

DST#: 5

ATTN: Marc Downing

Test Start: 2016.08.15 @ 16:47:00

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:

25000 ppm

Viscosity: 45.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
527.00	MW Mud 10% Water 90%	5.717

Total Length: 527.00 ft Total Volume: 5.717 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

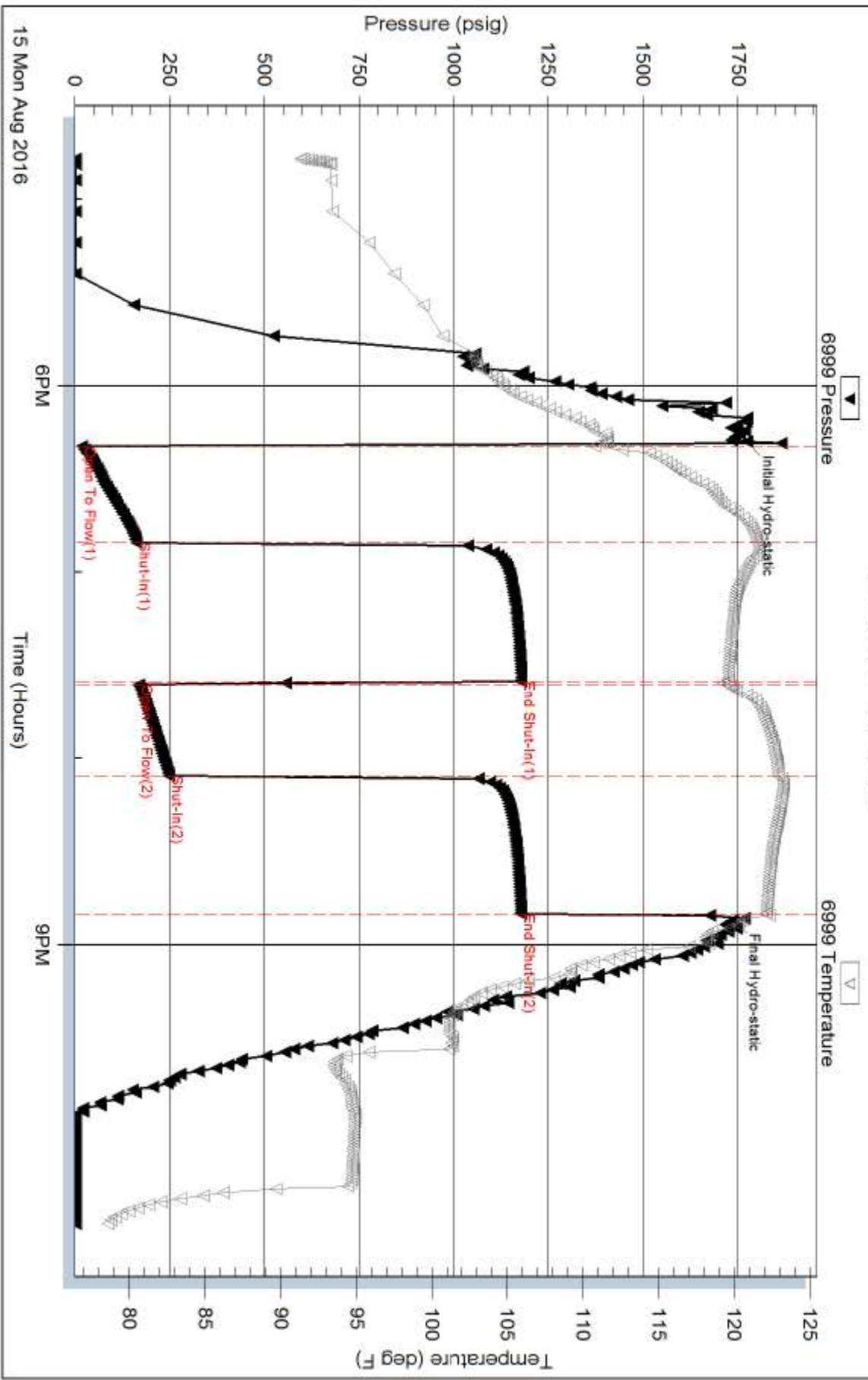
Serial #:

Laboratory Name:

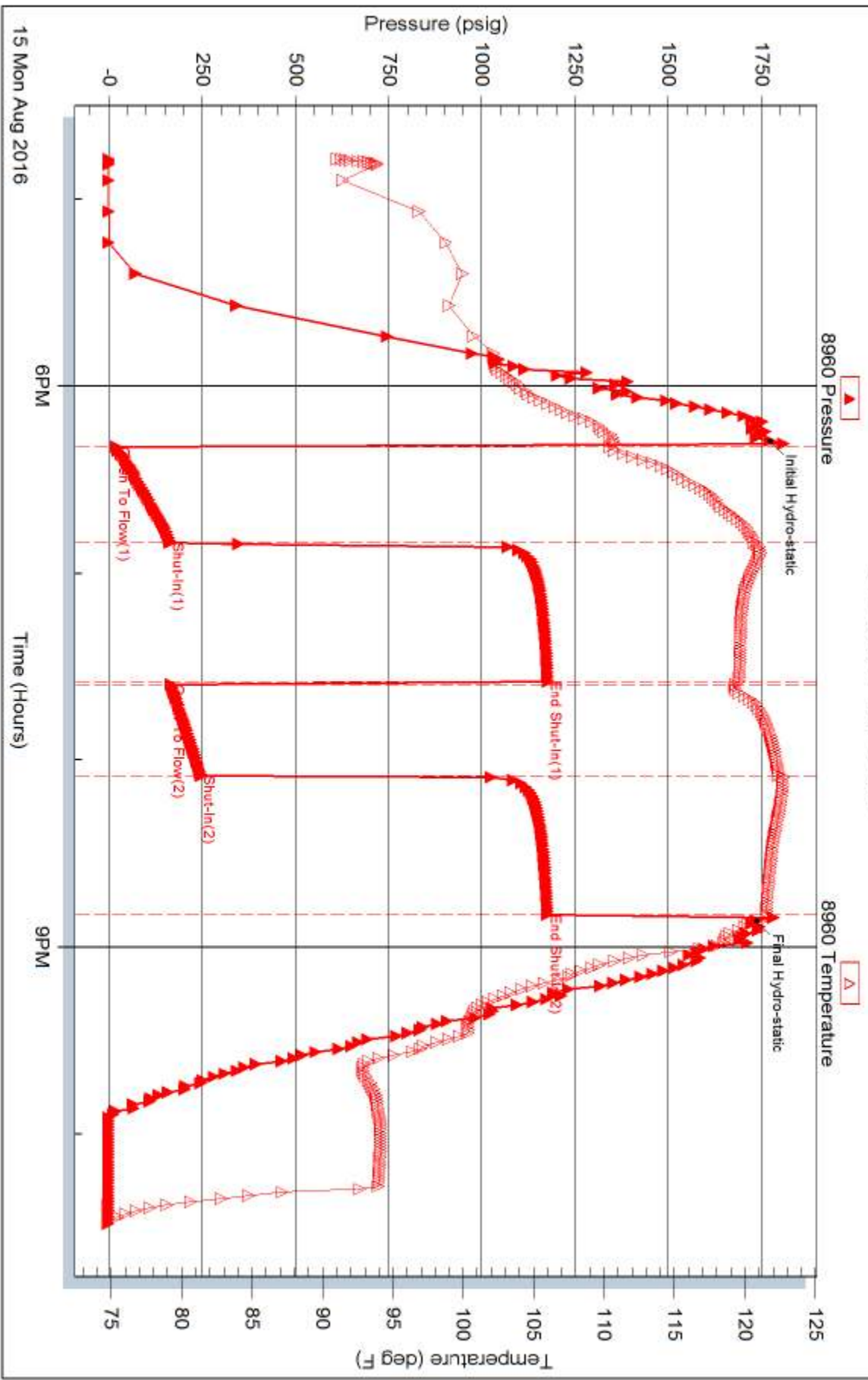
Laboratory Location:

Recovery Comments: Recovery Resistivity .24 ohms @ 77 degrees

Pressure vs. Time



Pressure vs. Time





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65107**

Well Name & No. Oelkers-Worth Unit 1-5 Test No. 1 Date 12 Aug 16
 Company Downing Nelson Oil Company Incorporated Elevation 2040 KB 2032 GL
 Address PO Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 2
 Location: Sec. 5 Twp. 16S Rge. 19W Co. Rush State KS

Interval Tested 3189-3229 Zone Tested Plattsmouth
 Anchor Length 40 Drill Pipe Run 28182873 Mud Wt. 8.7
 Top Packer Depth 3184 Drill Collars Run — Vis 49
 Bottom Packer Depth 3189 Wt. Pipe Run 317 WL 8.0
 Total Depth 3229 Chlorides 3000 ppm System LCM 2#

Blow Description I.F. Blow built to bottom of bucket in 30 minutes
I.S.I No blow back

F.F. Blow built to bottom of bucket in 30 minutes

F.S.I No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>465</u>	<u>Muddy Water w/ show of oil</u>			<u>90%</u>	<u>10%</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 465 BHT 113 Gravity _____ API RW .147 @ 74 ° F Chlorides 53000 ppm

(A) Initial Hydrostatic <u>1546</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>4:44 pm</u>
(B) First Initial Flow <u>26</u>	<input type="checkbox"/> Jars _____	T-Started <u>5:10 pm</u>
(C) First Final Flow <u>164</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>6:32 pm</u>
(D) Initial Shut-In <u>1012</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>9:32 pm</u>
(E) Second Initial Flow <u>170</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>10:52 pm</u>
(F) Second Final Flow <u>238</u>	<input checked="" type="checkbox"/> Mileage <u>40</u> 30	Comments _____
(G) Final Shut-In <u>1000</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1503</u>	<input type="checkbox"/> Straddle _____	

Initial Open <u>45</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby _____	Total <u>1080</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1080</u>	

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. **65108**

Well Name & No. Oelkers-Weith Unit 1-5 Test No. 2 Date 13 Aug 16
 Company Downing Nelson Oil Company Inc. Elevation 2040 KB 2032 GL
 Address PO Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 2
 Location: Sec. 5 Twp. 16S Rge. 19W Co. Rush State KS

Interval Tested 3335-3360 Zone Tested Lansing Kansas City 201 C
 Anchor Length 25 Drill Pipe Run 3029 Mud Wt. 9.1
 Top Packer Depth 3330 Drill Collars Run — Vis 49
 Bottom Packer Depth 3335 Wt. Pipe Run 317 WL 8.8
 Total Depth 3360 Chlorides 4000 ppm System LCM 2#

Blow Description I.F. Blow built to bottom of bucket in 29 minutes
I.S.I no blow back

FF. Blow built to bottom of bucket in 10 minutes

F.S.I no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>75</u>	<u>Gas cut Muddy Oil</u>	<u>10</u>	<u>60</u>	<u>—</u>	<u>30</u>
<u>390</u>	<u>Gas in pipe</u>	<u>100</u>	<u>—</u>	<u>—</u>	<u>—</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 465 BHT 113 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	<u>1629</u>	<input checked="" type="checkbox"/> Test	<u>1050</u>	T-On Location	<u>8:37 am</u>
(B) First Initial Flow	<u>18</u>	<input type="checkbox"/> Jars	<u>—</u>	T-Started	<u>9:16 am</u>
(C) First Final Flow	<u>30</u>	<input type="checkbox"/> Safety Joint	<u>—</u>	T-Open	<u>10:42 am</u>
(D) Initial Shut-In	<u>792</u>	<input type="checkbox"/> Circ Sub	<u>—</u>	T-Pulled	<u>1:42 pm</u>
(E) Second Initial Flow	<u>37</u>	<input type="checkbox"/> Hourly Standby	<u>—</u>	T-Out	<u>3:28 pm</u>
(F) Second Final Flow	<u>45</u>	<input checked="" type="checkbox"/> Mileage	<u>40</u> <u>30</u>	Comments	<u>—</u>
(G) Final Shut-In	<u>776</u>	<input type="checkbox"/> Sampler	<u>—</u>		
(H) Final Hydrostatic	<u>1554</u>	<input type="checkbox"/> Straddle	<u>—</u>		

Initial Open	<u>45</u>	<input type="checkbox"/> Shale Packer	<u>—</u>	<input type="checkbox"/> Ruined Shale Packer	<u>—</u>
Initial Shut-In	<u>45</u>	<input type="checkbox"/> Extra Packer	<u>—</u>	<input type="checkbox"/> Ruined Packer	<u>—</u>
Final Flow	<u>45</u>	<input type="checkbox"/> Extra Recorder	<u>—</u>	Sub Total	<u>0</u>
Final Shut-In	<u>45</u>	<input type="checkbox"/> Day Standby	<u>—</u>	Total	<u>1080</u>
		<input type="checkbox"/> Accessibility	<u>—</u>	MP/DST Disc't	<u>—</u>
		Sub Total	<u>1080</u>		

Approved By _____

Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65109**

Well Name & No. Delkers-Werth Unit 1-5 Test No. 3 Date 13 Aug 16
 Company Downing Nelson Oil Company Inc. Elevation 2040 KB 2032 GL
 Address PO Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 2
 Location: Sec. 5 Twp. 16S Rge. 19W Co. Rush State KS

Interval Tested 3361-3400 Zone Tested Lansing/Kansas City zones D+E
 Anchor Length 39 Drill Pipe Run 3029 Mud Wt. 9.1
 Top Packer Depth 3356 Drill Collars Run — Vis 49
 Bottom Packer Depth 3361 Wt. Pipe Run 317 WL 8.8
 Total Depth 3400 Chlorides 4000 ppm System LCM 2#

Blow Description I.F. Blow to bottom of bucket in 14 1/2 minutes
I.S.I. no blow back

F.F. Blow to bottom of bucket in 6 1/2 minutes

F.S.I. no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>124</u>	<u>Gas cut Muddy Oil</u>	<u>5</u>	<u>50</u>	<u>45</u>	<u>—</u>
<u>620</u>	<u>Gas in pipe</u>	<u>100</u>	<u>—</u>	<u>—</u>	<u>—</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 744 BHT 112 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1575 Test 1050 T-On Location 11:05 pm
 (B) First Initial Flow 19 Jars _____ T-Started 11:11 pm
 (C) First Final Flow 47 Safety Joint _____ T-Open 12:29 am
 (D) Initial Shut-In 620 Circ Sub _____ T-Pulled 3:29 am
 (E) Second Initial Flow 51 Hourly Standby _____ T-Out 5:07 am
 (F) Second Final Flow 72 Mileage 40 30 Comments _____
 (G) Final Shut-In 565 Sampler _____
 (H) Final Hydrostatic 1553 Straddle _____
 Shale Packer _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 45 Extra Packer _____
 Initial Shut-In 45 Extra Recorder _____
 Final Flow 45 Day Standby _____
 Final Shut-In 45 Accessibility _____
 Sub Total 1080 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65110**

Well Name & No. Oelkers-Weirh Unit 1-5 Test No. 41 Date 14 Aug 16
 Company Downing Nelson Oil Company Inc. Elevation 2040 KB 2032 GL
 Address PO Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 2
 Location: Sec. 5 Twp. 16S Rge. 19W Co. Rush State KS

Interval Tested 3443-3475 Zone Tested Lansing/Kansas City zone H
 Anchor Length 32 Drill Pipe Run 3123 Mud Wt. 9.0
 Top Packer Depth 3438 Drill Collars Run — Vis 38
 Bottom Packer Depth 3443 Wt. Pipe Run 317 WL 10.8
 Total Depth 3475 Chlorides 8000 ppm System LCM 2#

Blow Description I.F. Blow built to 5 inches

I.S.I. no blow back

F.F. Blow built to 4 inches

F.S.I. no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>124</u>	<u>Oil cut mud</u>	<u>15</u>			<u>85</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 124 BHT 114 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1645
 (B) First Initial Flow 17
 (C) First Final Flow 53
 (D) Initial Shut-In 618
 (E) Second Initial Flow 57
 (F) Second Final Flow 13
 (G) Final Shut-In 534
 (H) Final Hydrostatic 1649

Test 1050
 Jars _____
 Safety Joint _____
 Circ Sub _____
 Hourly Standby _____
 Mileage 40 30
 Sampler _____
 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1080

T-On Location 4:22 pm
 T-Started 4:57 pm
 T-Open 6:16 pm
 T-Pulled 8:16 pm
 T-Out 10:40 pm

Comments _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1080
 MP/DST Disc't _____

Approved By _____

Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65111**

Well Name & No. Oelkers-Werth Unit 1-5 Test No. 5 Date 15 Aug 16
 Company Downing Nelson Oil Company Inc Elevation 2040 KB 2032 GL
 Address PO Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 2
 Location: Sec. 5 Twp. 16S Rge. 19W Co. Rush State KS

Interval Tested 3632-3654 Zone Tested Reagan Sand
 Anchor Length 22 Drill Pipe Run 3310 Mud Wt. 9.4
 Top Packer Depth 3628 Drill Collars Run — Vis 45
 Bottom Packer Depth 3632 Wt. Pipe Run 317 WL 10.4
 Total Depth 3654 Chlorides 6000 ppm System LCM 1.5 #

Blow Description I.F. Blow built to bottom of bucket in 17 minutes
I.S.I. No blow back
F.F. Blow built to bottom of bucket in 17 minutes
F.S.I. No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>527</u>	<u>Muddy Water</u>			<u>90</u>	<u>10</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 527 BHT 122 Gravity 1050 API RW .24 @ 77 °F Chlorides 25000 ppm

- (A) Initial Hydrostatic 1773 Test 1050 T-On Location 3:35 pm
- (B) First Initial Flow 19 Jars _____ T-Started 4:47 pm
- (C) First Final Flow 163 Safety Joint _____ T-Open 6:20 pm
- (D) Initial Shut-In 1179 Circ Sub _____ T-Pulled 8:50 pm
- (E) Second Initial Flow 169 Hourly Standby _____ T-Out 10:29 pm
- (F) Second Final Flow 249 Mileage 40 30 Comments _____
- (G) Final Shut-In 1178 Sampler _____
- (H) Final Hydrostatic 1736 Straddle _____ Ruined Shale Packer _____
- Initial Open 30 Extra Packer _____ Ruined Packer _____
- Initial Shut-In 45 Extra Recorder _____ Sub Total 0
- Final Flow 30 Day Standby _____ Total 1080
- Final Shut-In 45 Accessibility _____ MP/DST Disc't _____
- Sub Total 1080

Approved By _____ Our Representative [Signature]

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SWIFT Services, Inc.

DATE 8-9-16 PAGE NO.

OWNER
Downing & Nelson

WELL NO.
1-5

LEASE
Ockers With Unit

JOB TYPE
Deep Surface

TICKET NO.
29435

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	4:15							On location
								8 5/8 24" Csg
								Rtd - 1255
								Shoe - Joint - 22'
								Baffle - 1233'
	4:50							Break Circulation
	5:10	6	0			200		START CMT @ 11.2 ppg
		6	57			200		Raise Weight to 12.5 ppg
		6	107			100		Raise Weight to 13.5 ppg
		6	131			100		Raise Weight to 14.5 ppg
	5:45	6	152			100		End CMT
								Release plug
	5:47	8	0			100		START Disp
		8	33			300		Circ CMT
	5:55	6	79			500		land plug land psi - 700
								1.1 ft psi - 400
	6:00					700		Shut in
								Wash tree
								* 80 sks cmt core to pit *
								Thanks
								David, Jon, Preston

SWIFT Services, Inc.

DATE 16 AUG 16 PAGE NO. 1

DRUMMING & NELSON

WELL NO. 1-5

LEASE Oelkers-Werth

JOB TYPE cement long string

TICKET NO. 29593

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
								175 sk SA-2 cement w/ $\frac{1}{8}$ " floccle
								5 1/2" x 17" casing 90 jts TD = 3677
								total pipe = 3676' sbjt 20.48'
								Centralizer 1, 3, 5, 7, 9, 11 Bskt #2
	1700							on TRK 114
	1845							start 5 1/2" x 17" casing in well
	2030							Drop ball - circulate - ROTATE
	2053	3 1/2	12				200	Pump 500 gal mix flush
		3 1/2	20				200	Pump 20 bbl KCL flush
			7					Plug RH - MH 30 sk - 30 sk
	2108	4 1/2	35				200	mix SA-2 cement 125 sk @ 15.3 ppg
								Drop latch down plug
								wash out Pump & Line
	2127	6					200	Displace plug
		6	65				400	
		6	78				650	
	2145	6	84				1530	Land plug
								Release pressure to truck - closed up
	2150							wash truck
								Rock up
	2215							job complete
								Thanks
								Blaine Shore & F&N



TICKET 29435

CHARGE TO: Downing & Nelson
 ADDRESS
 CITY, STATE, ZIP CODE

PAGE 1 OF 1

SERVICE LOCATIONS
 1. Hays, KS WELL/PROJECT NO. 1-5 LEASE Bekers Wash Unit COUNTY/PARISH Rush STATE KS CITY Location DATE 8-9-16 OWNER
 2. Ness City, KS CONTRACTOR Discovery Drilling Co RIG NAME/NO. Rig #2 SHIPPED VIA location ORDER NO.
 3. WELL TYPE Oil WELL CATEGORY development JOB PURPOSE Cement deep surface DELIVERED TO location WELL PERMIT NO.
 4. REFERRAL LOCATION INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING		DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
		LOC	ACCT							
575		1			20	hr			5.00	100.00
576 D		1		MILEAGE TRK # 113	1	EA			1250.00	1250.00
290		1		Ramp Charge - Deep Surface	3	Grd			42.00	126.00
412		1		D-Air	1	EA			110.00	110.00
410		1		Baffle Plate	1	EA			120.00	120.00
194		1		Top Plug 8 5/8	1	EA			200.00	200.00
				Plug Container Rental						
330		2		Swift Multi Density	375	SKS			15.75	5906.25
276		2		Floatek	88	lbs			2.25	198.00
581		2		Service Charge Cement	375	SKS			1.50	562.50
583		2		Drayage	707	TM			75.00	530.25

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

SIGNED _____ TIME SIGNED _____ A.M. P.M.

REMIT PAYMENT TO:
 SWIFT SERVICES, INC.
 P.O. BOX 466
 NESS CITY, KS 67560
 785-798-2300

SURVEY
 OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN? YES NO
 WE UNDERSTOOD AND MET YOUR NEEDS? YES NO
 OUR SERVICE WAS PERFORMED WITHOUT DELAY? YES NO
 WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY? YES NO
 ARE YOU SATISFIED WITH OUR SERVICE? YES NO
 CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL 7737.55
 Bid Price 9103.00
 -1365.45
 7737.55
 Rush'd
 6.510
 8105.53

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

APPROVAL Mike Joseph
 OR Wild Edgerton

Thank You!