

Confidentiality Requested:

Yes  No

**KANSAS CORPORATION COMMISSION 1211980**  
**OIL & GAS CONSERVATION DIVISION**



Form ACO-1

August 2013

**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  SIOW
- Gas  D&A  ENHR  SIGW
- OG  GSW  Temp. Abd.
- 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 ENHR  Conv. to SWD
- Plug Back  Conv. to GSW  Conv. to Producer
- Commingled  Permit #: \_\_\_\_\_
- Dual Completion  Permit #: \_\_\_\_\_
- SWD  Permit #: \_\_\_\_\_
- ENHR  Permit #: \_\_\_\_\_
- GSW  Permit #: \_\_\_\_\_

Spud Date or  
Recompletion Date

Date Reached TD

Completion Date or  
Recompletion Date

API No. 15 - \_\_\_\_\_

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
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1211980

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  List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
--	---

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				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 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)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:	Size:	Set At:	Packer At:	Liner Run: <input type="checkbox"/> Yes <input type="checkbox"/> No
----------------	-------	---------	------------	---

Date of First, Resumed Production, SWD or ENHR.	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

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
--	---	---

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Oelkers 'A' 1-2
Doc ID	1211980

All Electric Logs Run

Dual Induction
Dual Compensated
Microresistivity
Borehole Compensated







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300  
Wichita Ks 67202-1216

ATTN: Tim Pierce

**Oelkers "A"#1-2**

**2-16s-19w Rush,KS**

Start Date: 2014.04.26 @ 20:10:12

End Date: 2014.04.27 @ 04:00:36

Job Ticket #: 55332                      DST #: 1

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

Printed: 2014.05.01 @ 15:15:21



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N. Water STE 300  
 Wichita Ks 67202-1216  
 ATTN: Tim Pierce

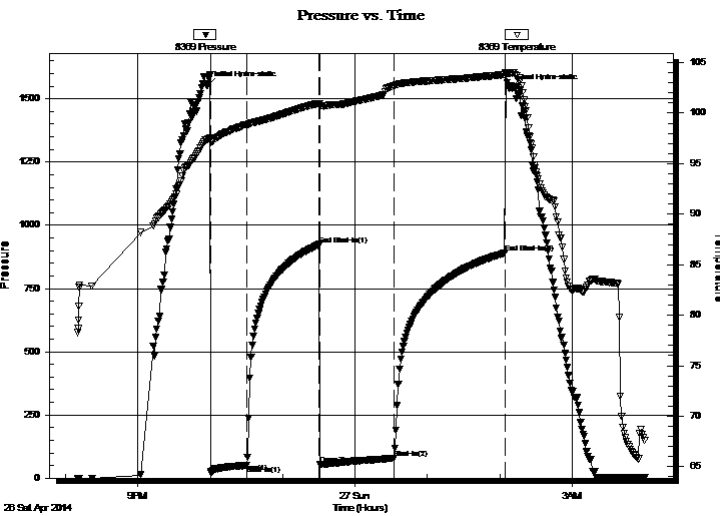
**2-16s-19w Rush,KS**  
**Oelkers "A" #1-2**  
 Job Ticket: 55332 **DST#: 1**  
 Test Start: 2014.04.26 @ 20:10:12

## GENERAL INFORMATION:

Formation: **Toronto -LKC B**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 22:00:37  
 Time Test Ended: 04:00:36  
 Interval: **3272.00 ft (KB) To 3358.00 ft (KB) (TVD)**  
 Total Depth: 3358.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ray Schwager  
 Unit No: 70  
 Reference Elevations: 2022.00 ft (KB)  
 2017.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8369 Inside**  
 Press@RunDepth: 79.19 psig @ 3274.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.26 End Date: 2014.04.27 Last Calib.: 2014.04.27  
 Start Time: 20:10:12 End Time: 04:00:36 Time On Btm: 2014.04.26 @ 21:58:07  
 Time Off Btm: 2014.04.27 @ 02:08:06

TEST COMMENT: 30-IFP-w k to a fr bl 1/4" to 3 1/2" bl  
 60-ISIP-no bl  
 60-FFP-w k bl thru-out surface to 1/2" bl  
 90-FSIP-no bl



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1552.89	97.42	Initial Hydro-static
3	23.41	97.12	Open To Flow (1)
33	50.92	98.84	Shut-In(1)
93	923.94	100.98	End Shut-In(1)
93	54.52	100.74	Open To Flow (2)
154	79.19	102.68	Shut-In(2)
246	890.36	103.82	End Shut-In(2)
250	1541.87	103.96	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
125.00	WM 45%W55%M w /show of oil	1.48

## Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N. Water STE 300  
 Wichita Ks 67202-1216  
 ATTN: Tim Pierce

**2-16s-19w Rush,KS**  
**Oelkers "A" #1-2**  
 Job Ticket: 55332 **DST#: 1**  
 Test Start: 2014.04.26 @ 20:10:12

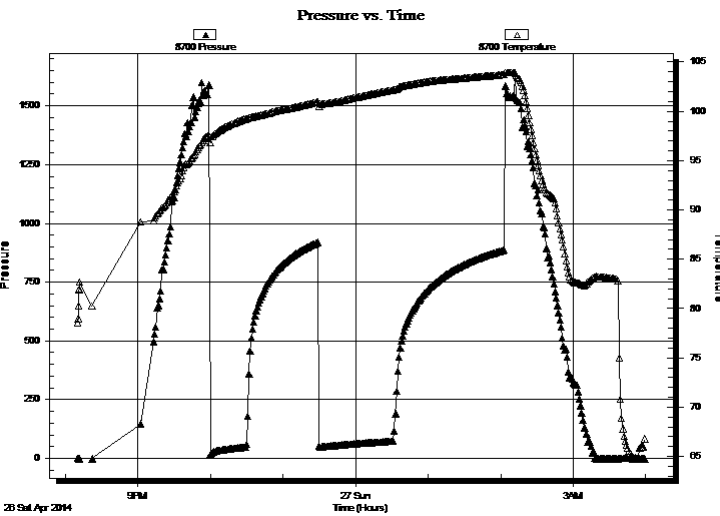
## GENERAL INFORMATION:

Formation: **Toronto -LKC B**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 22:00:37  
 Time Test Ended: 04:00:36  
 Interval: **3272.00 ft (KB) To 3358.00 ft (KB) (TVD)**  
 Total Depth: 3358.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ray Schwager  
 Unit No: 70  
 Reference Elevations: 2022.00 ft (KB)  
 2017.00 ft (CF)  
 KB to GR/CF: 5.00 ft

## Serial #: 8700 Outside

Press@RunDepth: psig @ 3274.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.26 End Date: 2014.04.27 Last Calib.: 2014.04.27  
 Start Time: 20:10:20 End Time: 03:59:14 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 30-IFP-w k to a fr bl 1/4" to 3 1/2" bl  
 60-ISIP-no bl  
 60-FFP-w k bl thru-out surface to 1/2" bl  
 90-FSIP-no bl



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
125.00	WM 45%W55%M w /show of oil	1.48

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 55332

**DST#: 1**

ATTN: Tim Pierce

Test Start: 2014.04.26 @ 20:10:12

## Tool Information

Drill Pipe:	Length: 3235.00 ft	Diameter: 3.80 inches	Volume: 45.38 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 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: 65000.00 lb
			<u>Total Volume: 45.53 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3272.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	86.00 ft			
Tool Length:	115.00 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			3244.00	
Shut In Tool	5.00			3249.00	
Hydraulic tool	5.00			3254.00	
Jars	5.00			3259.00	
Safety Joint	3.00			3262.00	
Packer	5.00			3267.00	29.00 Bottom Of Top Packer
Packer	5.00			3272.00	
Stubb	1.00			3273.00	
Perforations	1.00			3274.00	
Recorder	0.00	8369	Inside	3274.00	
Recorder	0.00	8700	Outside	3274.00	
Blank Spacing	63.00			3337.00	
Perforations	18.00			3355.00	
Bullnose	3.00			3358.00	86.00 Bottom Packers & Anchor

**Total Tool Length: 115.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 55332

**DST#: 1**

ATTN: Tim Pierce

Test Start: 2014.04.26 @ 20:10:12

### 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:

42000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.91 in<sup>3</sup>

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
125.00	WM 45%W55%M w /show of oil	1.480

Total Length: 125.00 ft      Total Volume: 1.480 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .2@60F

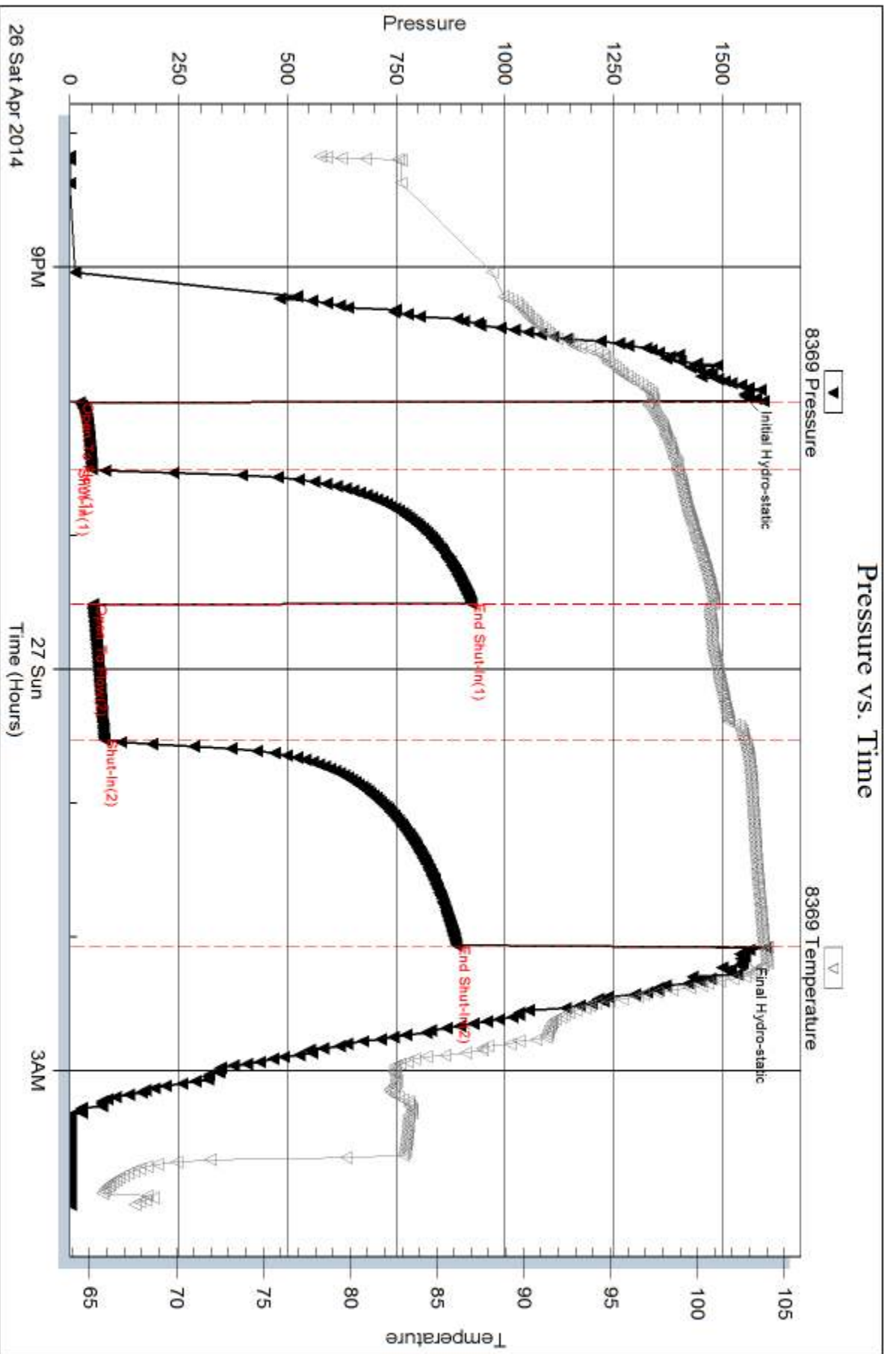
Serial #: 8369

Inside

Murfin Drilling Co Inc

Oelkers "A" #1-2

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 55332

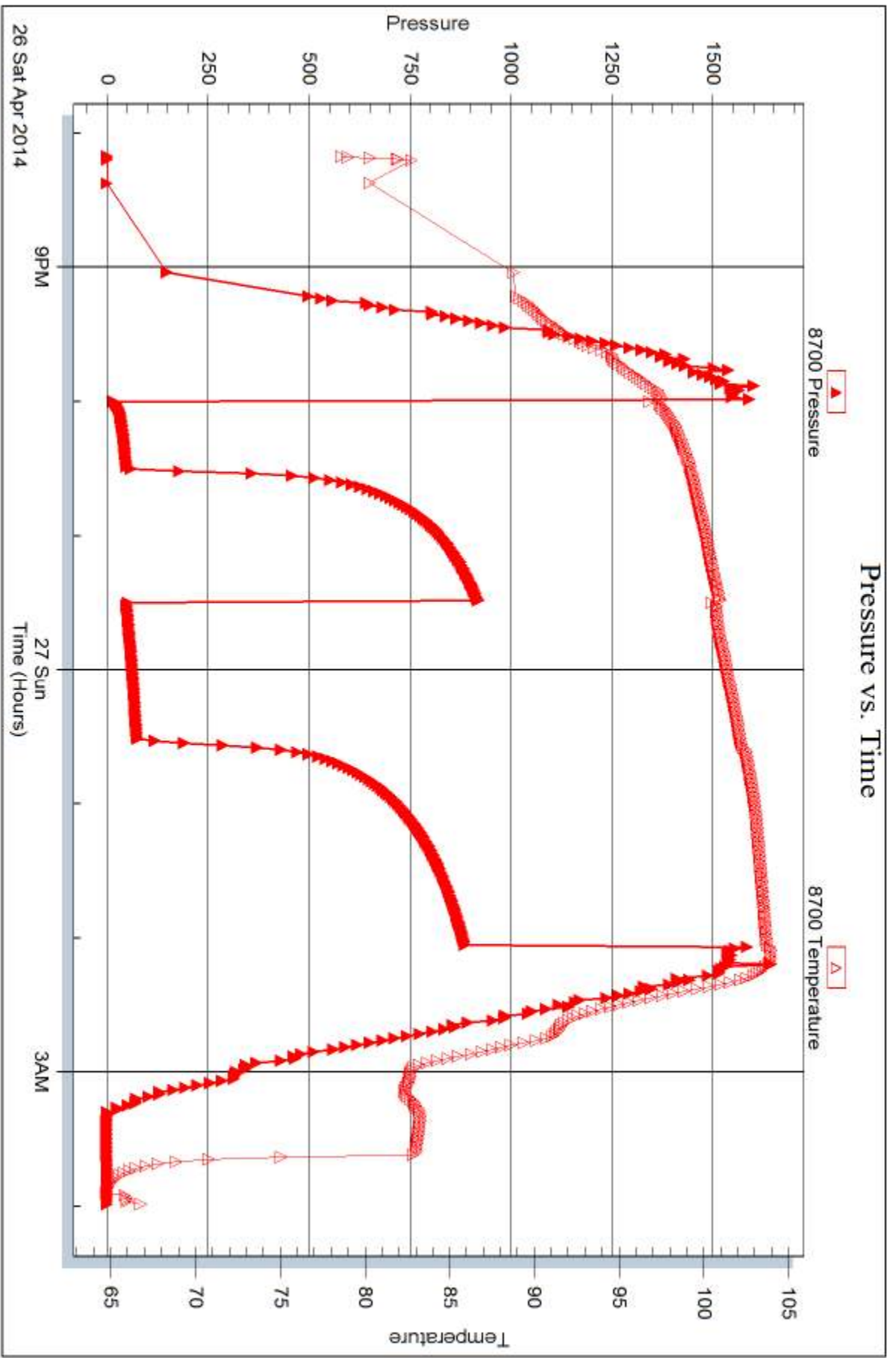
Printed: 2014.05.01 @ 15:15:22

Serial #: 8700

Outside Murfin Drilling Co Inc

Oelkers "A" #1-2

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 55332

Printed: 2014.05.01 @ 15:15:22



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300  
Wichita Ks 67202-1216

ATTN: Tim Pierce

**Oelkers "A"#1-2**

**2-16s-19w Rush,KS**

Start Date: 2014.04.27 @ 13:36:02

End Date: 2014.04.27 @ 19:54:11

Job Ticket #: 55333                      DST #: 2

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

Printed: 2014.05.01 @ 15:14:58





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N. Water STE 300  
 Wichita Ks 67202-1216  
 ATTN: Tim Pierce

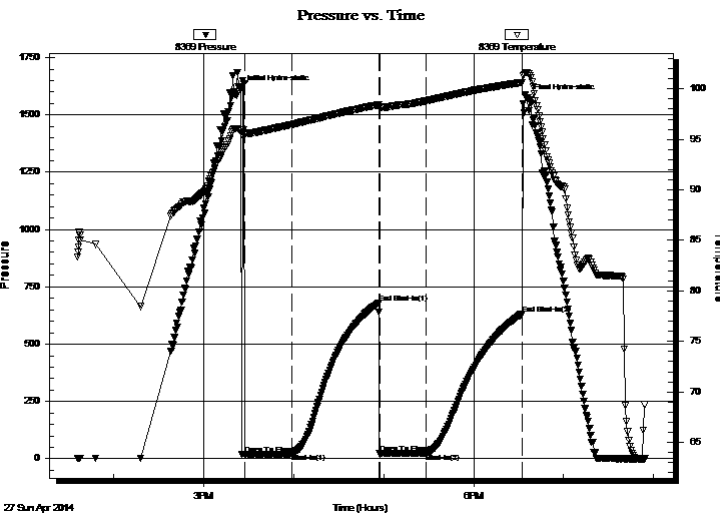
**2-16s-19w Rush,KS**  
**Oelkers "A" #1-2**  
 Job Ticket: 55333 **DST#: 2**  
 Test Start: 2014.04.27 @ 13:36:02

## GENERAL INFORMATION:

Formation: **LKC D-F**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:27:27  
 Time Test Ended: 19:54:11  
 Interval: **3356.00 ft (KB) To 3408.00 ft (KB) (TVD)**  
 Total Depth: 3408.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 70  
 Reference Elevations: 2022.00 ft (KB)  
 2017.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8369 Inside**  
 Press@RunDepth: 25.20 psig @ 3358.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.27 End Date: 2014.04.27 Last Calib.: 2014.04.27  
 Start Time: 13:36:02 End Time: 19:54:11 Time On Btm: 2014.04.27 @ 15:24:42  
 Time Off Btm: 2014.04.27 @ 18:35:41

TEST COMMENT: 30-IFP-surface bl , died in 23 min  
 60-ISIP-no bl  
 30-FFP-no bl  
 60-FSIP-no bl



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1612.27	95.91	Initial Hydro-static
3	18.33	95.56	Open To Flow (1)
34	22.51	96.46	Shut-In(1)
92	680.45	98.43	End Shut-In(1)
93	22.24	98.24	Open To Flow (2)
124	25.20	98.82	Shut-In(2)
188	632.54	100.64	End Shut-In(2)
191	1572.63	101.63	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud	0.02

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A"#1-2**

Job Ticket: 55333

**DST#: 2**

ATTN: Tim Pierce

Test Start: 2014.04.27 @ 13:36:02

## GENERAL INFORMATION:

Formation: **LKC D-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:27:27

Time Test Ended: 19:54:11

**Interval: 3356.00 ft (KB) To 3408.00 ft (KB) (TVD)**

Total Depth: 3408.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 70

Reference Elevations: 2022.00 ft (KB)

2017.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8700 Outside**

Press@RunDepth: psig @ 3358.00 ft (KB)

Start Date: 2014.04.27 End Date: 2014.04.27

Start Time: 13:35:19 End Time: 19:52:13

Capacity: 8000.00 psig

Last Calib.: 2014.04.27

Time On Btm:

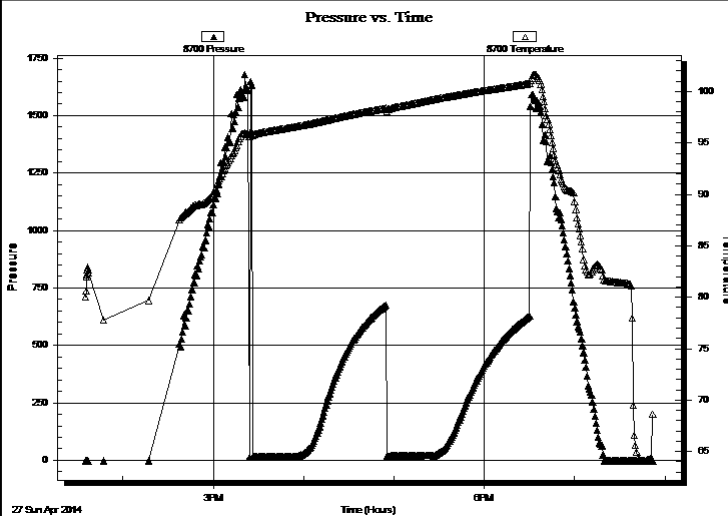
Time Off Btm:

**TEST COMMENT:** 30-IFP-surface bl , died in 23 min

60-ISIP-no bl

30-FFP-no bl

60-FSIP-no bl



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud	0.02

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 55333

**DST#: 2**

ATTN: Tim Pierce

Test Start: 2014.04.27 @ 13:36:02

## Tool Information

Drill Pipe:	Length: 3329.00 ft	Diameter: 3.80 inches	Volume: 46.70 bbl	Tool Weight:	2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 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:	65000.00 lb
			<u>Total Volume: 46.85 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3356.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	52.00 ft				
Tool Length:	73.00 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			3336.00	
Shut In Tool	5.00			3341.00	
Hydraulic tool	5.00			3346.00	
Packer	5.00			3351.00	21.00 Bottom Of Top Packer
Packer	5.00			3356.00	
Stubb	1.00			3357.00	
Perforations	1.00			3358.00	
Recorder	0.00	8369	Inside	3358.00	
Recorder	0.00	8700	Outside	3358.00	
Blank Spacing	32.00			3390.00	
Perforations	15.00			3405.00	
Bullnose	3.00			3408.00	52.00 Bottom Packers & Anchor

**Total Tool Length: 73.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 55333

**DST#: 2**

ATTN: Tim Pierce

Test Start: 2014.04.27 @ 13:36:02

## 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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.73 in<sup>3</sup>

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
5.00	Mud	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

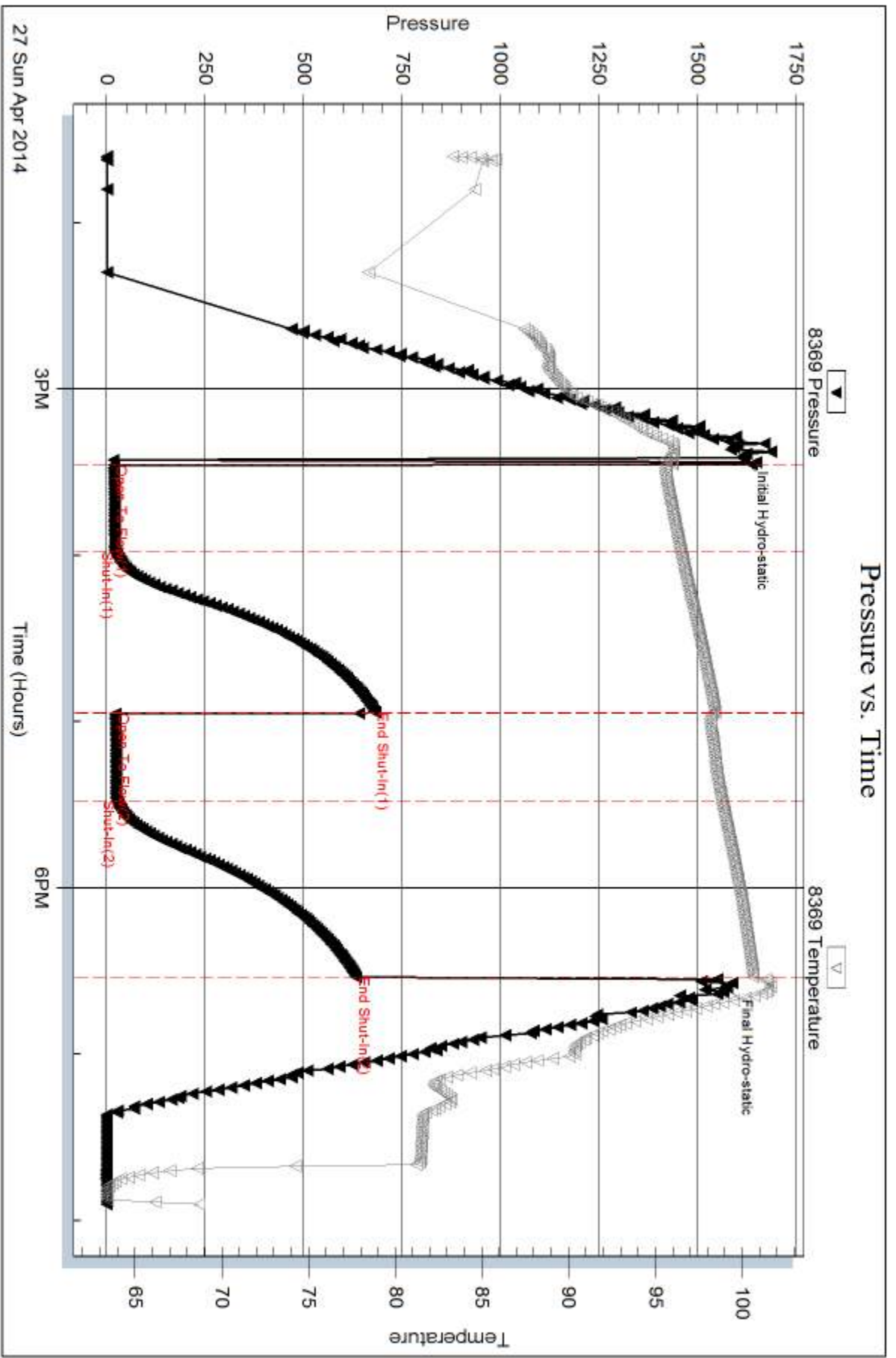
Num Gas Bombs: 0

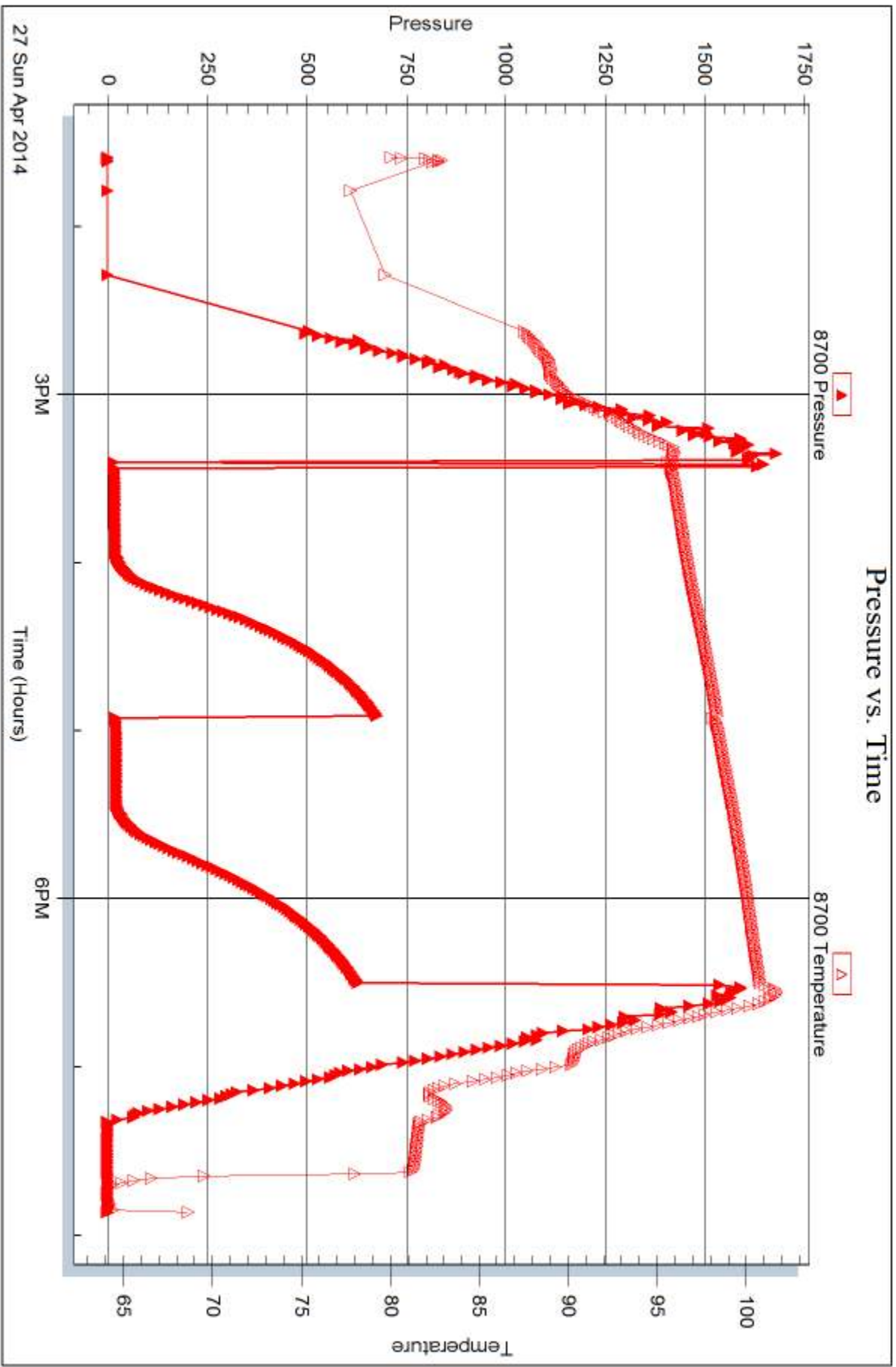
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300  
Wichita Ks 67202-1216

ATTN: Tim Pierce

**Oelkers "A"#1-2**

**2-16s-19w Rush,KS**

Start Date: 2014.04.28 @ 10:40:17

End Date: 2014.04.29 @ 00:35:57

Job Ticket #: 55334                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.05.01 @ 15:14:29



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N. Water STE 300  
 Wichita Ks 67202-1216  
 ATTN: Tim Pierce

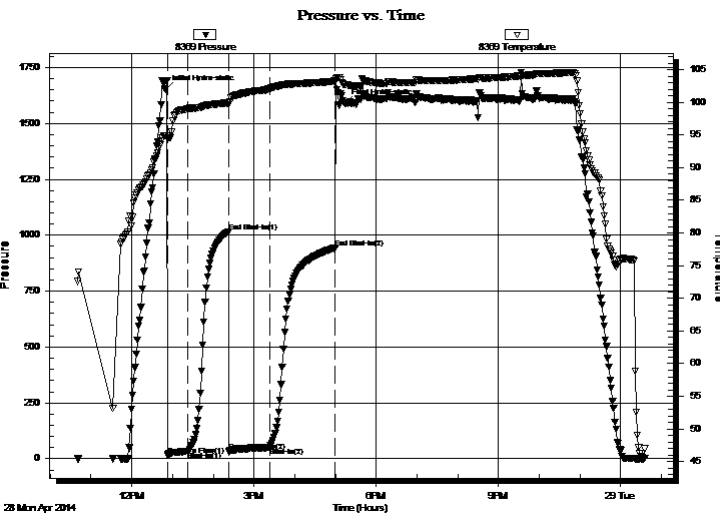
**2-16s-19w Rush,KS**  
**Oelkers "A" #1-2**  
 Job Ticket: 55334 **DST#: 3**  
 Test Start: 2014.04.28 @ 10:40:17

## GENERAL INFORMATION:

Formation: **LKC H-K**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:52:42  
 Time Test Ended: 00:35:57  
 Interval: **3447.00 ft (KB) To 3544.00 ft (KB) (TVD)**  
 Total Depth: 3544.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 70  
 Reference Elevations: 2022.00 ft (KB)  
 2017.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8369 Inside**  
 Press@RunDepth: 51.43 psig @ 3451.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.28 End Date: 2014.04.29 Last Calib.: 1899.12.30  
 Start Time: 10:40:17 End Time: 00:35:57 Time On Btm: 2014.04.28 @ 12:50:12  
 Time Off Btm: 2014.04.28 @ 17:14:11

TEST COMMENT: 30-IFP-w k bl thru-out 1/4" to 2 1/2" bl  
 60-ISIP-no bl  
 60-FFP-w k to a fr bl 1 1/2" to 4 1/2" bl  
 90-FSIP-no bl



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1651.64	94.89	Initial Hydro-static
3	16.92	94.47	Open To Flow (1)
33	33.79	99.02	Shut-In(1)
93	1016.42	99.94	End Shut-In(1)
93	33.35	99.67	Open To Flow (2)
153	51.43	102.11	Shut-In(2)
250	943.99	103.24	End Shut-In(2)
264	1587.63	102.73	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	230'GIP	0.00
63.00	O&GCM 10%G10%O80%M	0.61
20.00	SOCM5%O95%M	0.28

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N. Water STE 300  
 Wichita Ks 67202-1216  
 ATTN: Tim Pierce

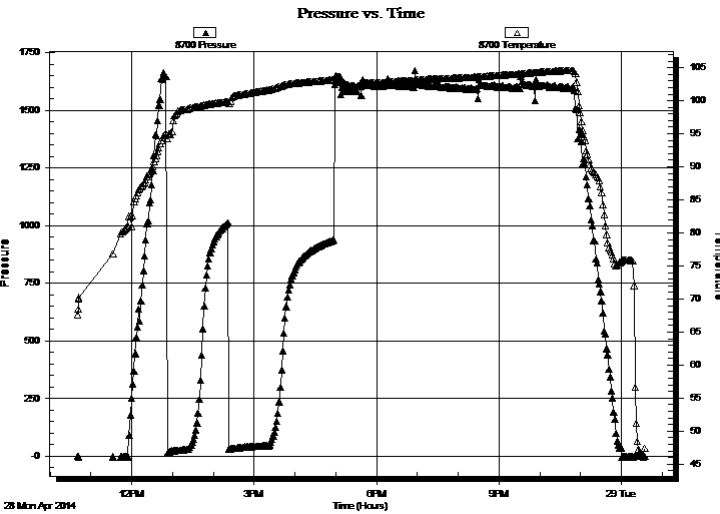
**2-16s-19w Rush,KS**  
**Oelkers "A" #1-2**  
 Job Ticket: 55334 **DST#: 3**  
 Test Start: 2014.04.28 @ 10:40:17

## GENERAL INFORMATION:

Formation: **LKC H-K**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:52:42  
 Time Test Ended: 00:35:57  
**Interval: 3447.00 ft (KB) To 3544.00 ft (KB) (TVD)**  
 Total Depth: 3544.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 70  
 Reference Elevations: 2022.00 ft (KB)  
 2017.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8700 Outside**  
 Press@RunDepth: psig @ 3451.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.28 End Date: 2014.04.29 Last Calib.: 2014.04.29  
 Start Time: 10:40:28 End Time: 00:33:53 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 30-IFP-w k bl thru-out 1/4" to 2 1/2" bl  
 60-ISIP-no bl  
 60-FFP-w k to a fr bl 1 1/2" to 4 1/2" bl  
 90-FSIP-no bl



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	230°GIP	0.00
63.00	O&GCM 10%G10%O80%M	0.61
20.00	SOCM5%O95%M	0.28

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 55334

**DST#: 3**

ATTN: Tim Pierce

Test Start: 2014.04.28 @ 10:40:17

## Tool Information

Drill Pipe:	Length: 3421.00 ft	Diameter: 3.80 inches	Volume: 47.99 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 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: 60000.00 lb
			<u>Total Volume: 48.14 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3447.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	97.00 ft			
Tool Length:	118.00 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			3427.00	
Shut In Tool	5.00			3432.00	
Hydraulic tool	5.00			3437.00	
Packer	5.00			3442.00	21.00 Bottom Of Top Packer
Packer	5.00			3447.00	
Stubb	1.00			3448.00	
Perforations	3.00			3451.00	
Recorder	0.00	8369	Inside	3451.00	
Recorder	0.00	8700	Outside	3451.00	
Blank Spacing	65.00			3516.00	
Perforations	25.00			3541.00	
Bullnose	3.00			3544.00	97.00 Bottom Packers & Anchor

**Total Tool Length: 118.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 55334

**DST#: 3**

ATTN: Tim Pierce

Test Start: 2014.04.28 @ 10:40:17

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 55.00 sec/qt  
Water Loss: 8.74 in<sup>3</sup>  
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
0.00	230'GIP	0.000
63.00	O&GCM 10%G10%O80%M	0.610
20.00	SOCM5%O95%M	0.281

Total Length: 83.00 ft      Total Volume: 0.891 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

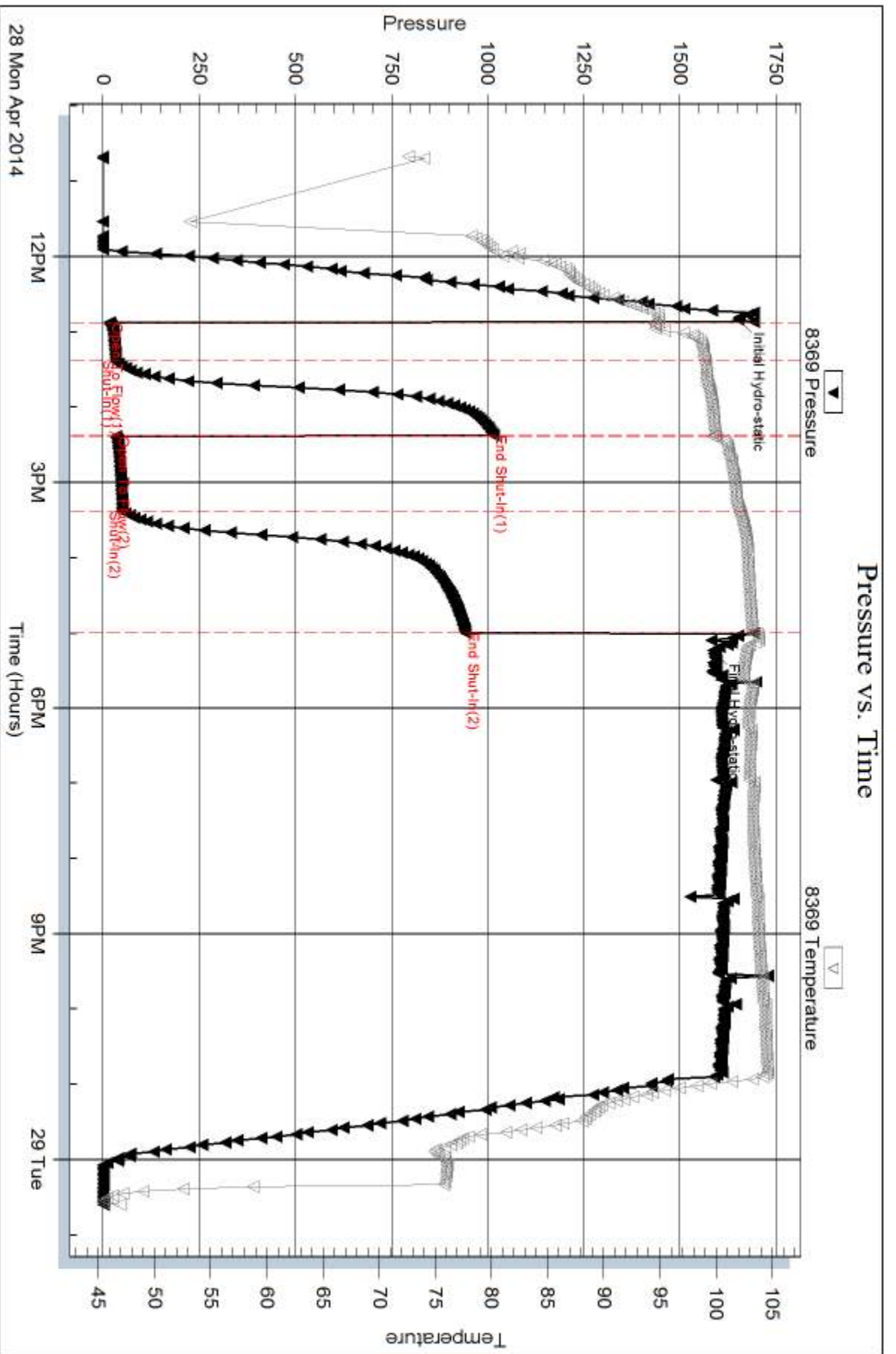
Serial #: 8369

Inside

Murfin Drilling Co Inc

Oelkers "A" #1-2

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 55334

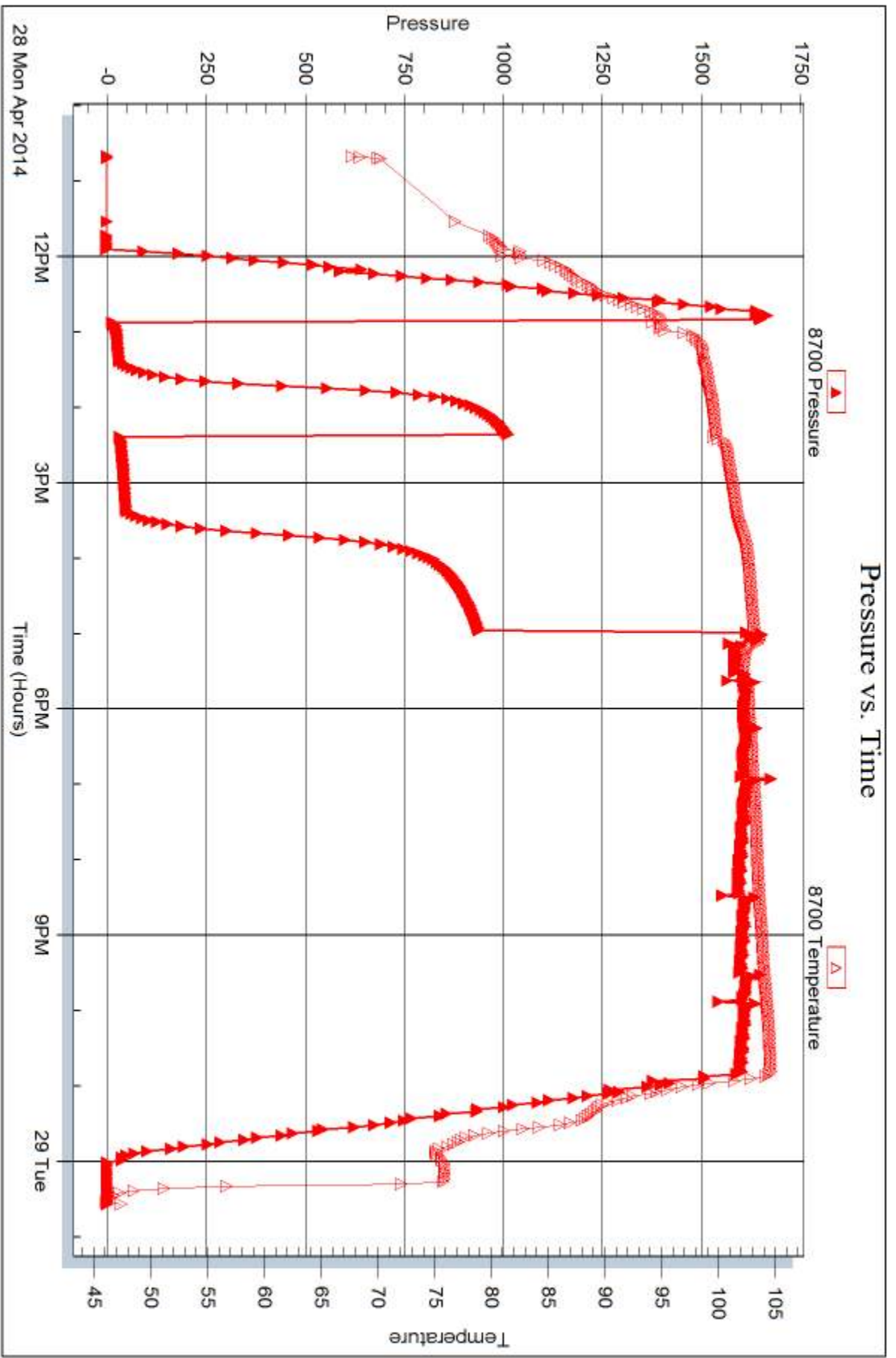
Printed: 2014.05.01 @ 15:14:30

Serial #: 8700

Outside Murfin Drilling Co Inc

Oelkers "A" #1-2

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 55334

Printed: 2014.05.01 @ 15:14:30



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300  
Wichita Ks 67202-1216

ATTN: Tim Pierce

**Oelkers "A"#1-2**

**2-16s-19w Rush,KS**

Start Date: 2014.04.29 @ 11:30:20

End Date: 2014.04.29 @ 17:36:14

Job Ticket #: 55335                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.05.01 @ 15:10:34



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N. Water STE 300  
 Wichita Ks 67202-1216  
 ATTN: Tim Pierce

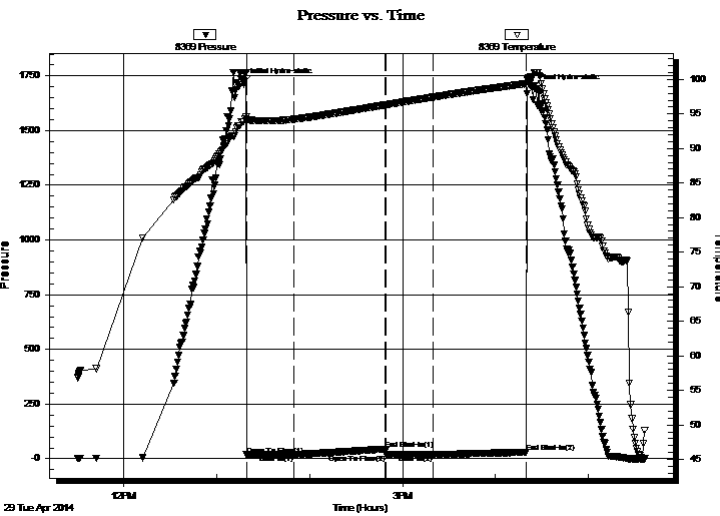
**2-16s-19w Rush,KS**  
**Oelkers "A" #1-2**  
 Job Ticket: 55335 **DST#: 4**  
 Test Start: 2014.04.29 @ 11:30:20

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 13:19:15 Tester: Ray Schwager  
 Time Test Ended: 17:36:14 Unit No: 70  
 Interval: **3557.00 ft (KB) To 3596.00 ft (KB) (TVD)** Reference Elevations: 2022.00 ft (KB)  
 Total Depth: 3596.00 ft (KB) (TVD) 2017.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

**Serial #: 8369 Inside**  
 Press@RunDepth: 19.38 psig @ 3564.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.29 End Date: 2014.04.29 Last Calib.: 2014.04.29  
 Start Time: 11:30:20 End Time: 17:36:14 Time On Btm: 2014.04.29 @ 13:17:15  
 Time Off Btm: 2014.04.29 @ 16:23:44

TEST COMMENT: 30-IFP-w k bl thru-out 1/8" to 1/4" bl  
 60-ISIP-no bl  
 30-FFP-no bl  
 60-FSIP-no bl



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1718.01	93.90	Initial Hydro-static
2	18.10	93.91	Open To Flow (1)
33	18.10	94.24	Shut-In(1)
92	44.64	96.31	End Shut-In(1)
92	18.70	96.32	Open To Flow (2)
123	19.38	97.44	Shut-In(2)
183	30.02	99.39	End Shut-In(2)
187	1694.11	100.38	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	SOCM 5% O95%M	0.02

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
250 N. Water STE 300  
Wichita Ks 67202-1216  
ATTN: Tim Pierce

**2-16s-19w Rush,KS**  
**Oelkers "A"#1-2**  
Job Ticket: 55335 **DST#: 4**  
Test Start: 2014.04.29 @ 11:30:20

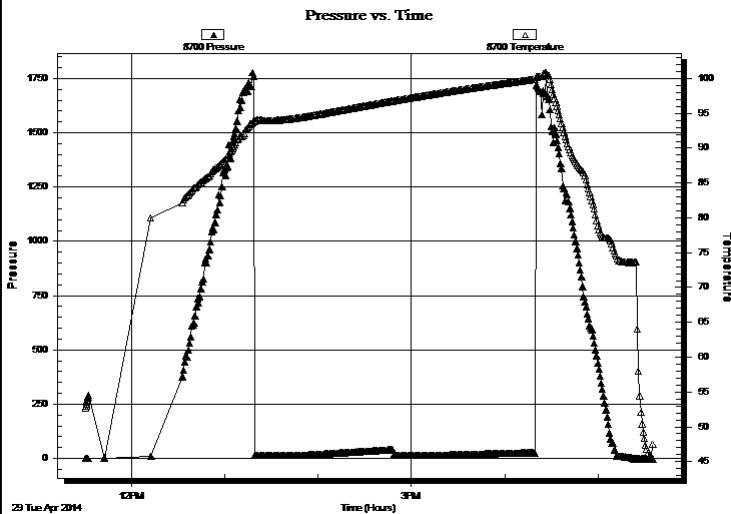
## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 13:19:15  
Time Test Ended: 17:36:14  
Interval: **3557.00 ft (KB) To 3596.00 ft (KB) (TVD)**  
Total Depth: 3596.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Ray Schwager  
Unit No: 70  
Reference Elevations: 2022.00 ft (KB)  
2017.00 ft (CF)  
KB to GR/CF: 5.00 ft

## Serial #: 8700 Outside

Press@RunDepth: psig @ 3564.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2014.04.29 End Date: 2014.04.29 Last Calib.: 2014.04.29  
Start Time: 11:30:35 End Time: 17:35:14 Time On Btm:  
Time Off Btm:

TEST COMMENT: 30-IFP-w k bl thru-out 1/8" to 1/4" bl  
60-ISIP-no bl  
30-FFP-no bl  
60-FSIP-no bl



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	SOCM 5% O95% M	0.02

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 55335

**DST#: 4**

ATTN: Tim Pierce

Test Start: 2014.04.29 @ 11:30:20

## Tool Information

Drill Pipe:	Length: 3521.00 ft	Diameter: 3.80 inches	Volume: 49.39 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 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: 60000.00 lb
			<u>Total Volume: 49.54 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 51000.00 lb
Depth to Top Packer:	3557.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	39.00 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
Change Over Sub	1.00			3537.00	
Shut In Tool	5.00			3542.00	
Hydraulic tool	5.00			3547.00	
Packer	5.00			3552.00	21.00 Bottom Of Top Packer
Packer	5.00			3557.00	
Stubb	1.00			3558.00	
Perforations	6.00			3564.00	
Recorder	0.00	8369	Inside	3564.00	
Recorder	0.00	8700	Outside	3564.00	
Perforations	29.00			3593.00	
Bullnose	3.00			3596.00	39.00 Bottom Packers & Anchor

**Total Tool Length: 60.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A"#1-2**

Job Ticket: 55335

**DST#: 4**

ATTN: Tim Pierce

Test Start: 2014.04.29 @ 11:30:20

### 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: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.96 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	SOCM 5%O95%M	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

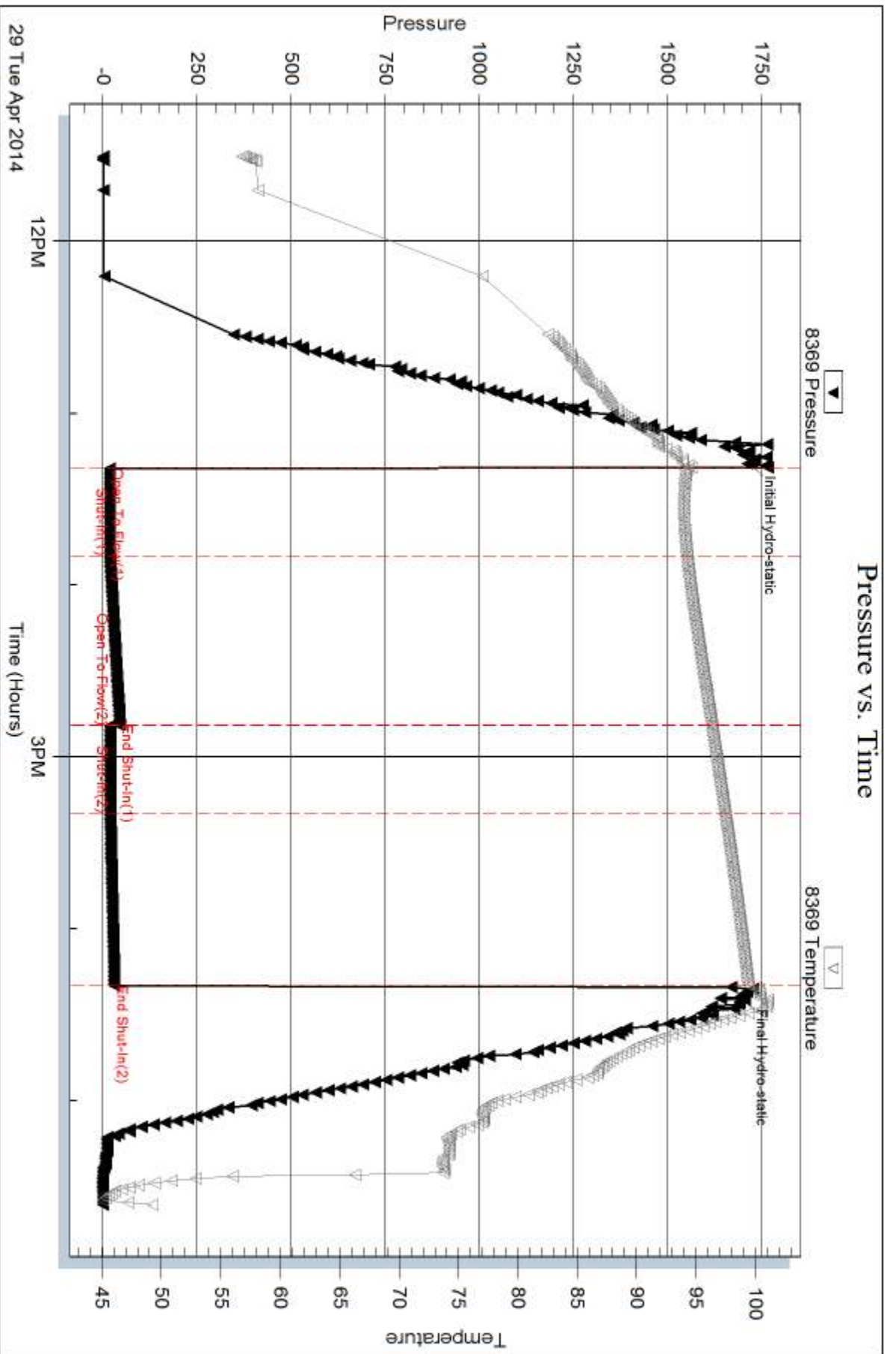
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

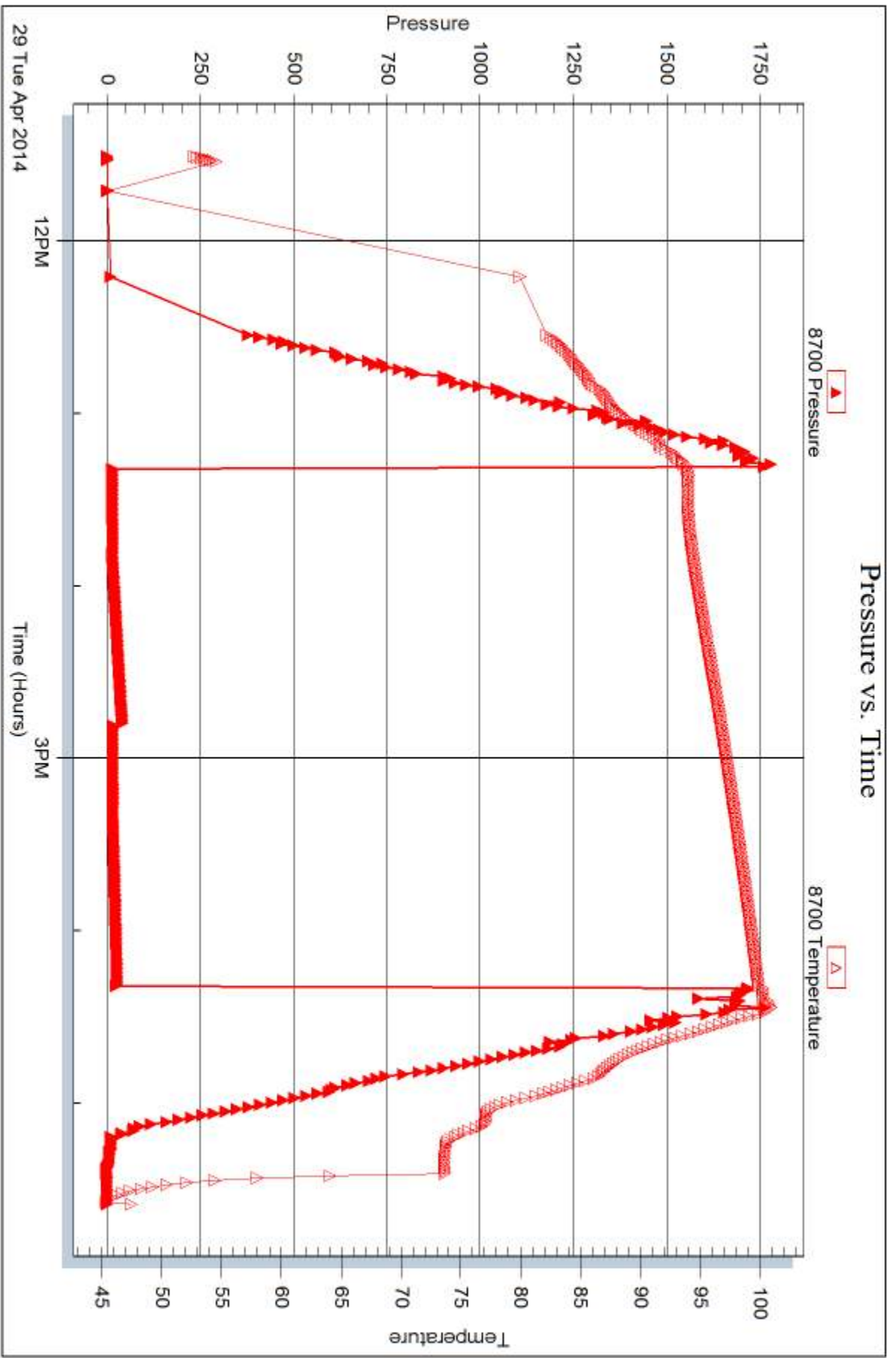


Serial #: 8700

Outside Murfin Drilling Co Inc

Oelkers "A" #1-2

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 55335

Printed: 2014.05.01 @ 15:10:35



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300  
Wichita Ks 67202-1216

ATTN: Tim Pierce

**Oelkers "A"#1-2**

**2-16s-19w Rush,KS**

Start Date: 2014.04.29 @ 00:29:00

End Date: 2014.04.29 @ 08:35:30

Job Ticket #: 58882                      DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.05.01 @ 15:10:08



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
250 N. Water STE 300  
Wichita Ks 67202-1216  
ATTN: Tim Pierce

**2-16s-19w Rush,KS**

**Oelkers "A" #1-2**

Job Ticket: 58882

**DST#: 5**

Test Start: 2014.04.29 @ 00:29:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:46:45

Time Test Ended: 08:35:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Phillip Gage

Unit No: 70

**Interval: 3559.00 ft (KB) To 3616.00 ft (KB) (TVD)**

Reference Elevations: 2022.00 ft (KB)

Total Depth: 3616.00 ft (KB) (TVD)

2017.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8700 Outside**

Press@RunDepth: 45.67 psig @ 3581.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.29

End Date:

2014.04.29

Last Calib.: 2014.04.30

Start Time: 00:29:05

End Time:

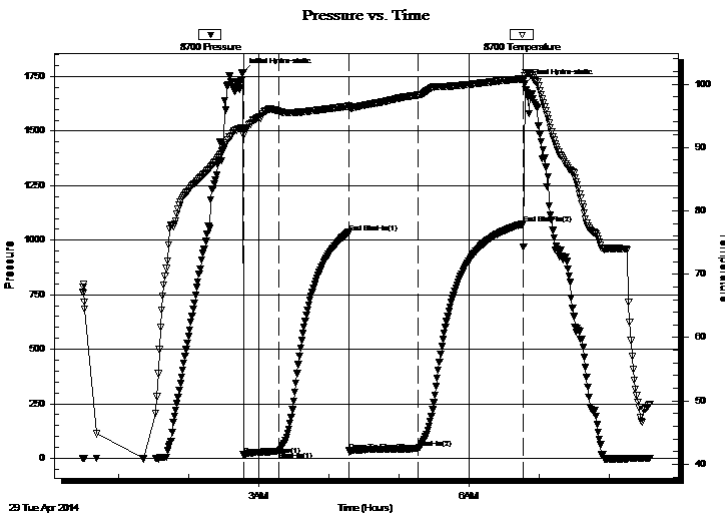
08:35:29

Time On Btm: 2014.04.29 @ 02:46:30

Time Off Btm: 2014.04.29 @ 06:47:45

**TEST COMMENT:** 30-IF-Built to 3 1/4"  
60-ISI-No Return  
60-FF-Built to 4 1/2"  
90-FSI-No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1768.94	92.94	Initial Hydro-static
1	16.38	91.96	Open To Flow (1)
31	32.05	95.68	Shut-In(1)
91	1034.95	96.50	End Shut-In(1)
91	34.48	96.19	Open To Flow (2)
151	45.67	98.28	Shut-In(2)
240	1074.42	100.83	End Shut-In(2)
242	1718.75	101.33	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
63.00	VSOCM, 5%o, 95%m	0.61
15.00	OCM, 20%o, 80%m	0.21
15.00	O, 100%	0.21

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 58882

**DST#: 5**

ATTN: Tim Pierce

Test Start: 2014.04.29 @ 00:29:00

## Tool Information

Drill Pipe:	Length: 3511.00 ft	Diameter: 3.80 inches	Volume: 49.25 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 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: 53000.00 lb
			<u>Total Volume: 49.40 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	3.00 ft			String Weight: Initial 51000.00 lb
Depth to Top Packer:	3559.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	57.00 ft			
Tool Length:	78.00 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			3539.00	
Shut In Tool	5.00			3544.00	
Hydraulic tool	5.00			3549.00	
Packer	5.00			3554.00	21.00 Bottom Of Top Packer
Packer	5.00			3559.00	
Stubb	1.00			3560.00	
Perforations	20.00			3580.00	
Change Over Sub	1.00			3581.00	
Recorder	0.00	8369	Inside	3581.00	
Recorder	0.00	8700	Outside	3581.00	
Drill Pipe	31.00			3612.00	
Change Over Sub	1.00			3613.00	
Bullnose	3.00			3616.00	57.00 Bottom Packers & Anchor

**Total Tool Length: 78.00**





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 58882

**DST#: 5**

ATTN: Tim Pierce

Test Start: 2014.04.29 @ 00:29:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 51.00 sec/qt  
Water Loss: 8.78 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 5000.00 ppm  
Filter Cake: 2.00 inches

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

Oil API: 39 deg API  
Water Salinity: ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
63.00	VSOCM, 5%o, 95%m	0.610
15.00	OCM, 20%o, 80%m	0.210
15.00	O, 100%	0.210

Total Length: 93.00 ft      Total Volume: 1.030 bbl

Num Fluid Samples: 0

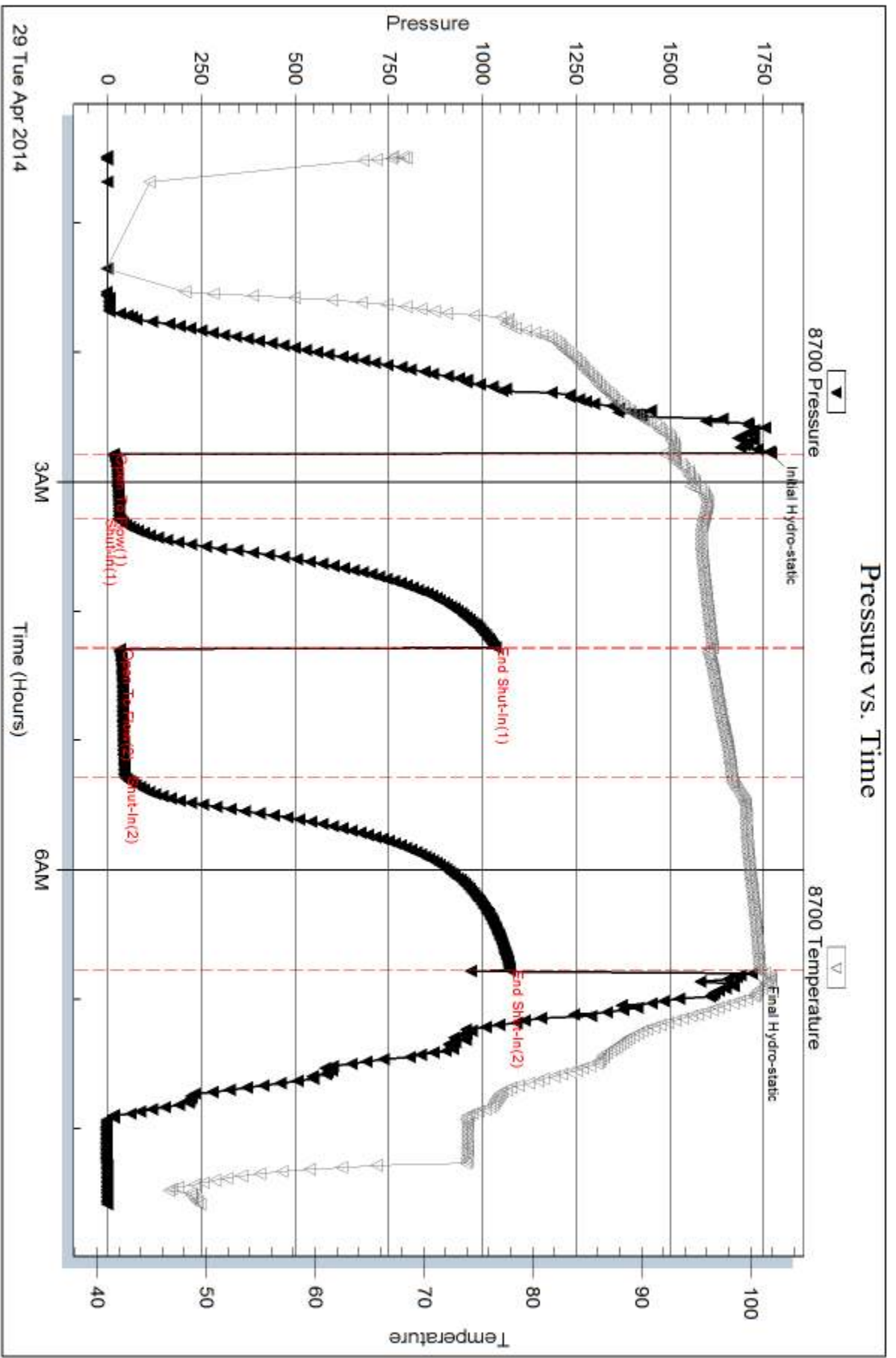
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



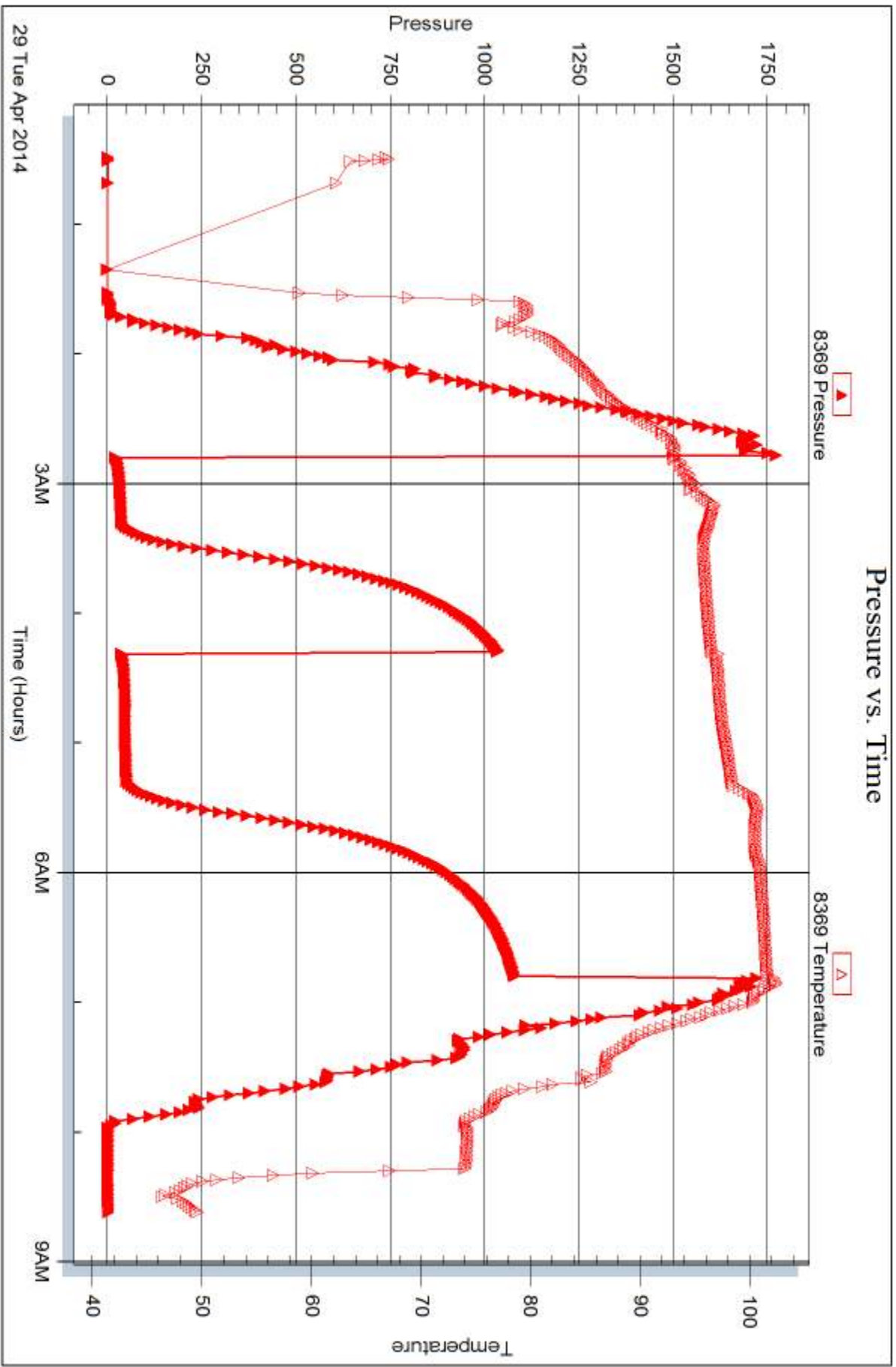
Serial #: 8369

Inside

Murfin Drilling Co Inc

Oelkers "A" #1-2

DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 58882

Printed: 2014.05.01 @ 15:10:09



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300  
Wichita Ks 67202-1216

ATTN: Tim Pierce

**Oelkers "A"#1-2**

**2-16s-19w Rush,KS**

Start Date: 2014.04.30 @ 13:39:00

End Date: 2014.04.30 @ 20:23:15

Job Ticket #: 58883                      DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.05.01 @ 15:09:20



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N. Water STE 300  
 Wichita Ks 67202-1216  
 ATTN: Tim Pierce

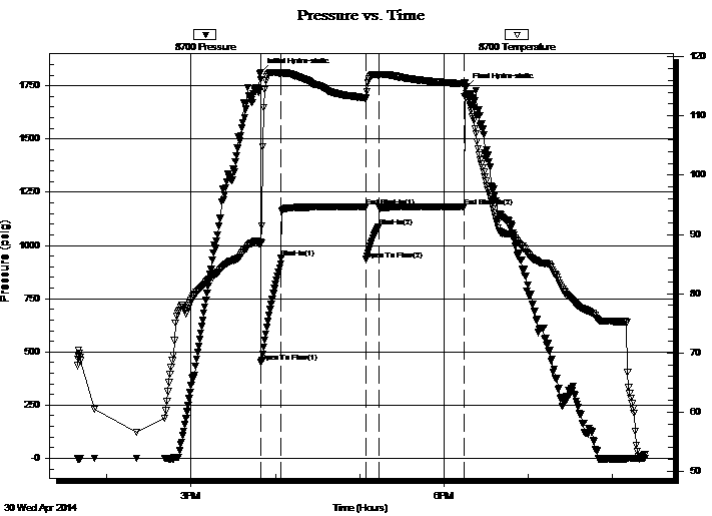
**2-16s-19w Rush,KS**  
**Oelkers "A" #1-2**  
 Job Ticket: 58883 **DST#: 6**  
 Test Start: 2014.04.30 @ 13:39:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 15:50:00  
 Tester: Phillip Gage  
 Time Test Ended: 20:23:15  
 Unit No: 70  
 Interval: **3616.00 ft (KB) To 3626.00 ft (KB) (TVD)**  
 Reference Elevations: 2022.00 ft (KB)  
 Total Depth: 3626.00 ft (KB) (TVD)  
 2017.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Fair  
 KB to GR/CF: 5.00 ft

**Serial #: 8700 Outside**  
 Press@RunDepth: 1088.70 psig @ 3617.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.30 End Date: 2014.04.30 Last Calib.: 2014.04.30  
 Start Time: 13:39:05 End Time: 20:23:14 Time On Btm: 2014.04.30 @ 15:49:45  
 Time Off Btm: 2014.04.30 @ 18:15:45

**TEST COMMENT:** 15-IF-BOB in 30 Secs.  
 60-ISI-Weak surface blow at 7 mins, died at 13 mins.  
 10-FF-BOB in 30 Secs.  
 60-FSI-NO Return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1813.02	88.72	Initial Hydro-static
1	453.24	88.58	Open To Flow (1)
15	942.56	117.19	Shut-In(1)
75	1182.16	113.01	End Shut-In(1)
75	934.01	112.87	Open To Flow (2)
84	1088.70	116.90	Shut-In(2)
145	1182.26	115.40	End Shut-In(2)
146	1741.63	114.97	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1953.00	W, 100%w	27.12
504.00	MW, 30%w, 70%w	7.07

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N. Water STE 300  
 Wichita Ks 67202-1216  
 ATTN: Tim Pierce

**2-16s-19w Rush, KS**

**Oelkers "A" #1-2**

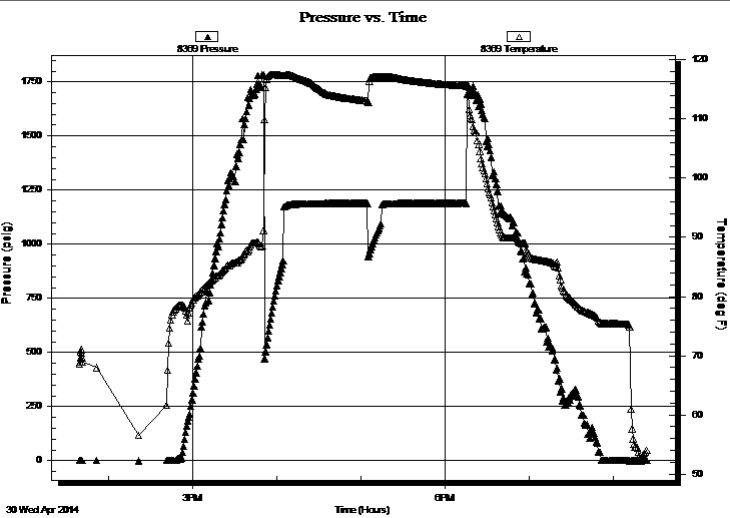
Job Ticket: 58883      **DST#: 6**  
 Test Start: 2014.04.30 @ 13:39:00

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No    Whipstock:                      ft (KB)  
 Time Tool Opened: 15:50:00  
 Time Test Ended: 20:23:15  
 Interval: **3616.00 ft (KB) To 3626.00 ft (KB) (TVD)**  
 Total Depth: 3626.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Phillip Gage  
 Unit No: 70  
 Reference Elevations: 2022.00 ft (KB)  
 2017.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8369 Inside**  
 Press@RunDepth:                      psig @ 3617.00 ft (KB)  
 Start Date: 2014.04.30      End Date: 2014.04.30  
 Start Time: 13:39:05      End Time: 20:24:29  
 Capacity: 8000.00 psig  
 Last Calib.: 2014.04.30  
 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 15-IF-BOB in 30 Secs.  
 60-ISI-Weak surface blow at 7 mins, died at 13 mins.  
 10-FF-BOB in 30 Secs.  
 60-FSI-NO Return



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
1953.00	W, 100%w	27.12
504.00	MW, 30%w, 70%w	7.07

**Gas Rates**

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A" #1-2**

Job Ticket: 58883

**DST#: 6**

ATTN: Tim Pierce

Test Start: 2014.04.30 @ 13:39:00

## Tool Information

Drill Pipe:	Length: 3573.00 ft	Diameter: 3.80 inches	Volume: 50.12 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 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: 62000.00 lb
			<u>Total Volume: 50.27 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3616.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	31.00 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			3596.00	
Shut In Tool	5.00			3601.00	
Hydraulic tool	5.00			3606.00	
Packer	5.00			3611.00	21.00 Bottom Of Top Packer
Packer	5.00			3616.00	
Stubb	1.00			3617.00	
Recorder	0.00	8369	Inside	3617.00	
Recorder	0.00	8700	Outside	3617.00	
Perforations	6.00			3623.00	
Bullnose	3.00			3626.00	10.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>31.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co Inc

**2-16s-19w Rush,KS**

250 N. Water STE 300  
Wichita Ks 67202-1216

**Oelkers "A"#1-2**

Job Ticket: 58883

**DST#: 6**

ATTN: Tim Pierce

Test Start: 2014.04.30 @ 13:39:00

### 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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
1953.00	W, 100%w	27.122
504.00	MW, 30%m, 70%w	7.070

Total Length: 2457.00 ft      Total Volume: 34.192 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

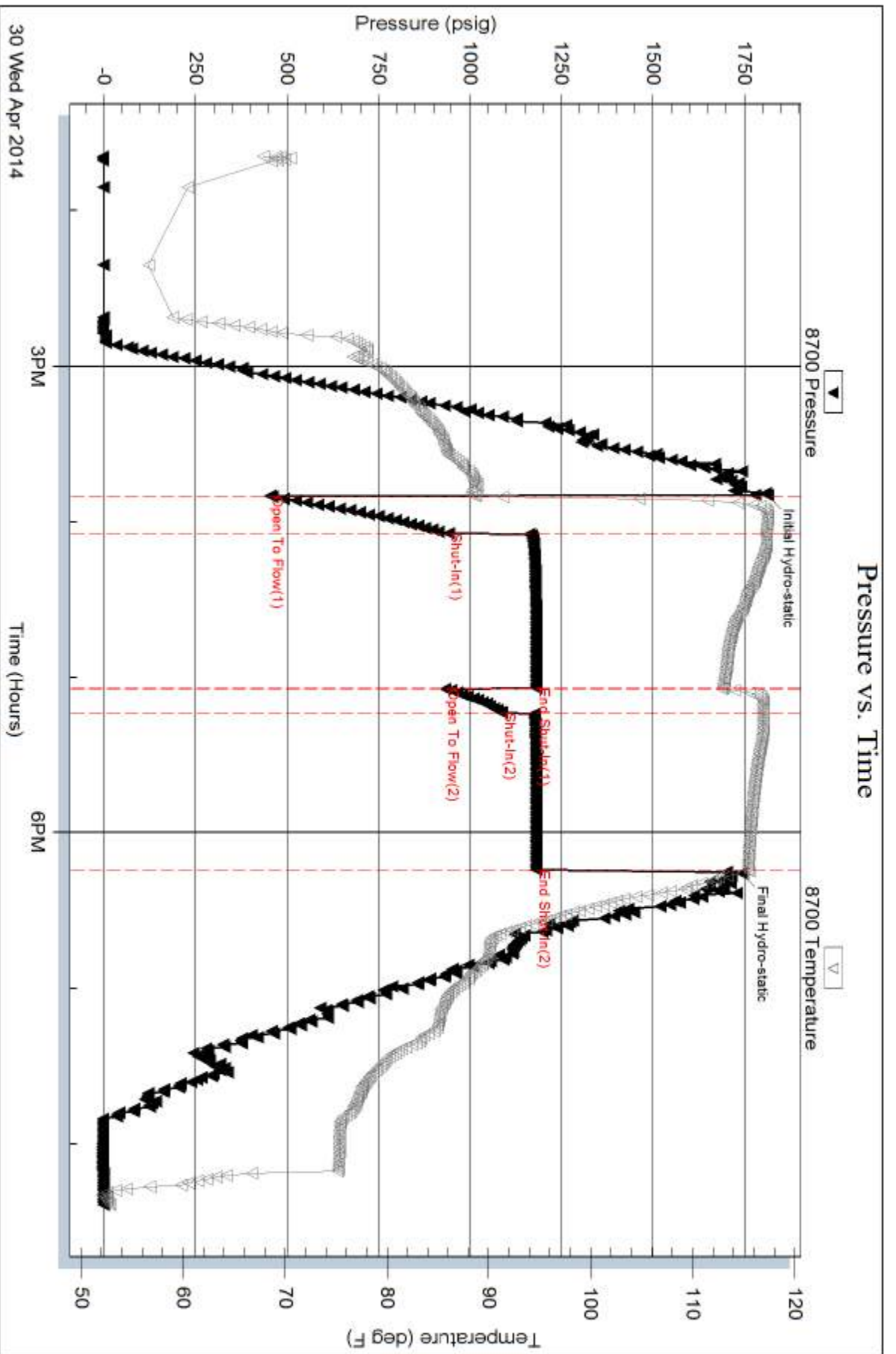
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .18 @ 51 degrees = 64,000 Salinity





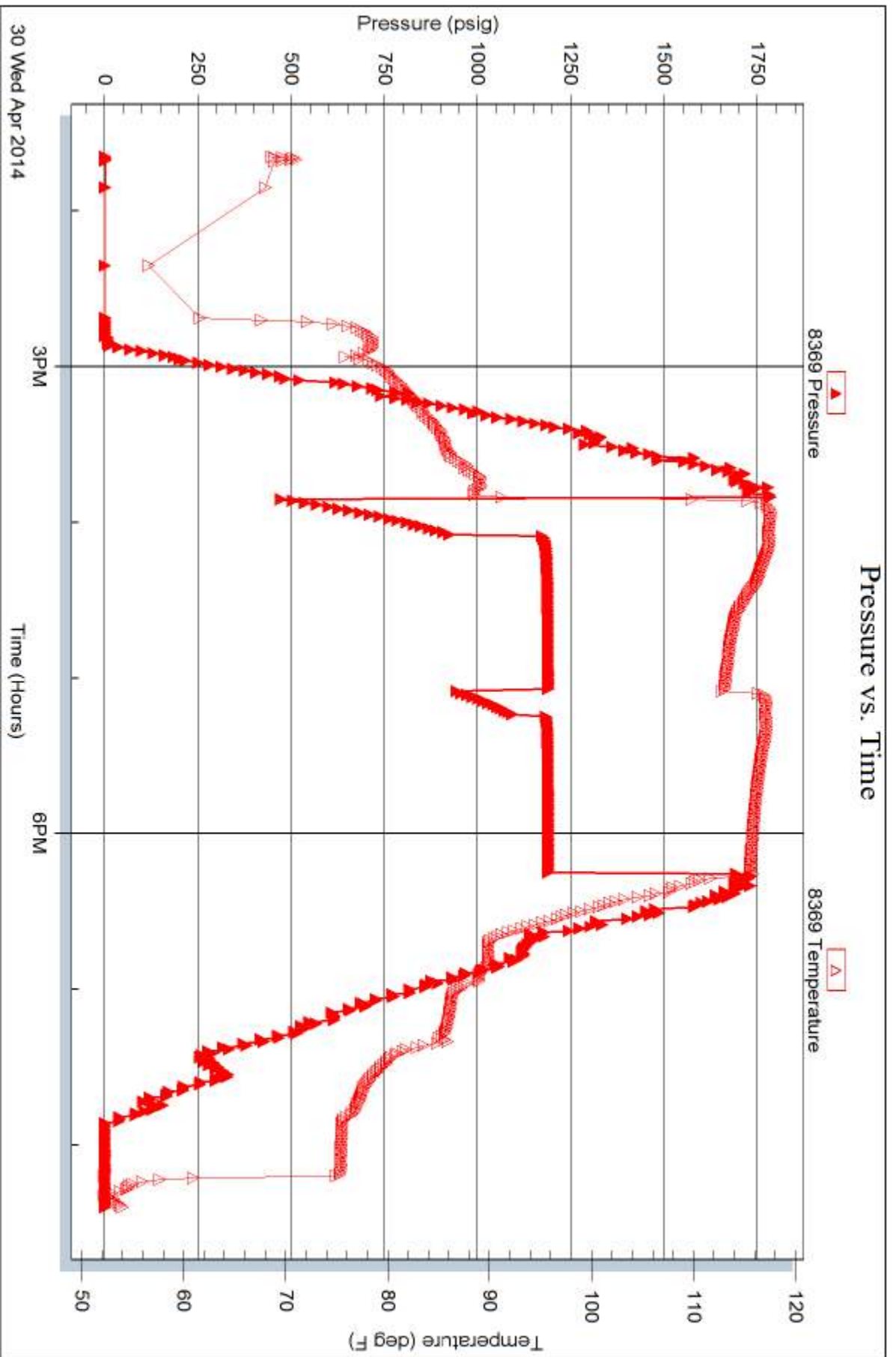
Serial #: 8369

Inside

Murfin Drilling Co Inc

Oelkers "A" #1-2

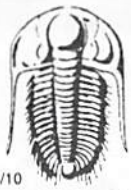
DST Test Number: 6



Trilobite Testing, Inc

Ref. No: 58883

Printed: 2014.05.01 @ 15:09:21



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 55332

Well Name & No. Oelkers "A" # 1-2 Test No. 1 Date 4-26-14  
 Company Murfin Drilling Co Inc Elevation 2022 KB 2017 GL  
 Address 250 N. WATER STE 300 WICHITA, Ks 67202-1216  
 Co. Rep / Geo. Tim Pierce Rig Murfin rig 16  
 Location: Sec. 2 Twp. 16<sup>s</sup> Rge. 19<sup>w</sup> Co. Rush State Ks

Interval Tested 3272-3358 Zone Tested TORONTO - LKC A-B  
 Anchor Length 86 Drill Pipe Run 3235 Mud Wt. 8.9  
 Top Packer Depth 3267 Drill Collars Run 30 Vis 53  
 Bottom Packer Depth 3272 Wt. Pipe Run - WL 8  
 Total Depth 3358 Chlorides 3000 ppm System LCM 2#  
 Blow Description IFP - WEAK TO A FAIR BLOW 1/4" TO 3 1/2" BLOW  
ISIP - NO BLOW  
FFP - WEAK BLOW THROUGHOUT SURFACE TO 1/2" BLOW  
FSIP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>125</u>	<u>WM</u>		<u>45</u>	<u>55</u>	
	<u>w/show foil</u>				

Rec Total 125 BHT 103 Gravity - API RW .2 @ 60 ° F Chlorides 42000 ppm

(A) Initial Hydrostatic 1552  Test 1150 T-On Location 1935  
 (B) First Initial Flow 23  Jars 250 T-Started 2010  
 (C) First Final Flow 50  Safety Joint 75 T-Open 2200  
 (D) Initial Shut-In 923  Circ Sub \_\_\_\_\_ T-Pulled 0200  
 (E) Second Initial Flow 54  Hourly Standby \_\_\_\_\_ T-Out 0400  
 (F) Second Final Flow 79  Mileage 4 RT 68.20  
 (G) Final Shut-In 890  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1541  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90

Sub Total 1543.20

Approved By Tim Pierce Our Representative RAY SCHWAGN Thank you

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. **55333**

Well Name & No. Oelkers "A" #1-2 Test No. 2 Date 4-27-14  
 Company Murfin Drilling Co Inc Elevation 2022 KB 2017 GL  
 Address 250 N. WATER, STE 300 WICHITA, KS 67202-1216  
 Co. Rep / Geo. Tim Pierce Rig MURFIN rig 16  
 Location: Sec. 2 Twp. 16<sup>s</sup> Rge. 19<sup>w</sup> Co. Rush State Ks

Interval Tested 3356-3408 Zone Tested LKC D, E, F  
 Anchor Length 52 Drill Pipe Run 3329 Mud Wt. 9.2  
 Top Packer Depth 3351 Drill Collars Run 30 Vis 53  
 Bottom Packer Depth 3356 Wt. Pipe Run — WL 8.8  
 Total Depth 3408 Chlorides 4000 ppm System LCM 1 1/2 #

Blow Description TFP - SURFACE Blow, died in 23min  
ISIP - NO Blow  
FFP - NO Blow  
FSIP - NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</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 100 Gravity — API RW — @ — °F Chlorides — ppm

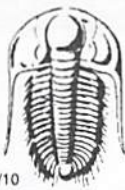
(A) Initial Hydrostatic 1612  Test 1150 T-On Location 1320  
 (B) First Initial Flow 18  Jars — T-Started 1335  
 (C) First Final Flow 22  Safety Joint — T-Open 1525  
 (D) Initial Shut-In 680  Circ Sub — T-Pulled 1825  
 (E) Second Initial Flow 22  Hourly Standby — T-Out 1954  
 (F) Second Final Flow 25  Mileage 48 RT 68.20 Comments —  
 (G) Final Shut-In 632  Sampler —  
 (H) Final Hydrostatic 1572  Straddle —  Ruined Shale Packer —

Initial Open 30  Shale Packer —  Ruined Packer —  
 Initial Shut-In 60  Extra Packer —  Extra Copies —  
 Final Flow 30  Extra Recorder — Sub Total 0  
 Final Shut-In 60  Day Standby — Total 1218.20  
 Accessibility — MP/DST Disc't —  
 Sub Total 1218.20

Approved By Tim Pierce Our Representative Ray Schwager **THANK YOU**

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. 55334

Well Name & No. Oelkers "A" #1-2 Test No. 3 Date 4-28-14  
 Company MURFIN DRILLING Co INC Elevation 2022 KB 2017 GL  
 Address 250 N. WATER, STE 300 WICHITA, KS 67202-1216  
 Co. Rep / Geo. Tim Pierce Rig MURFIN rig 16  
 Location: Sec. 2 Twp. 16<sup>s</sup> Rge. 19<sup>w</sup> Co. Rush State Ks

Interval Tested 3447-3544 Zone Tested LKC H-K  
 Anchor Length 97 Drill Pipe Run 3421 Mud Wt. 9  
 Top Packer Depth 3442 Drill Collars Run 30 Vis 55  
 Bottom Packer Depth 3447 Wt. Pipe Run - WL 8.8  
 Total Depth 3544 Chlorides 4000 ppm System LCM 1 1/2 #  
 Blow Description IFP - WEAK BLOW THRU-OUT 1/4" TO 2 1/2" BLOW  
ISIP - NO BLOW  
FFP - WEAK TO A FAIR BLOW 1 1/2" TO 4 1/2" BLOW  
FSIP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>230</u>	<u>GIP</u>				
<u>63</u>	<u>0+6CM</u>	<u>10</u>	<u>10</u>	<u>80</u>	
<u>20</u>	<u>50CM</u>	<u>5</u>		<u>95</u>	

Rec Total 83 BHT 103 Gravity - API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 1651  Test 1150 T-On Location 1015  
 (B) First Initial Flow 16  Jars - T-Started 1040  
 (C) First Final Flow 33  Safety Joint - T-Open 1250  
 (D) Initial Shut-In 1016  Circ Sub - T-Pulled 1650  
 (E) Second Initial Flow 33  Hourly Standby 4.75h 475 T-Out 2035  
 (F) Second Final Flow 51  Mileage 44 RT 68.20 Comments -  
 (G) Final Shut-In 943  Sampler -  
 (H) Final Hydrostatic 1587  Straddle -  Ruined Shale Packer -  
 Shale Packer -  Ruined Packer -  
 Extra Packer -  Extra Copies -  
 Extra Recorder - Sub Total 0  
 Day Standby - Total 1693.20  
 Accessibility - MP/DST Disc't -  
 Sub Total 1693.20

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90

Approved By Tim Pierce Our Representative RAY SCHWAGER Thank you

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. 55335

Well Name & No. Oelkers 'A' #1-2 Test No. 4 Date 4-29-14  
 Company Murfin Drilling Co Inc Elevation 2022 KB 2017 GL  
 Address 250 N. WATER, STE 300 WICHITA, Ks 67202-1216  
 Co. Rep / Geo. Tim Pierce Rig Murfin rig 16  
 Location: Sec. 2 Twp. 16' Rge. 19<sup>w</sup> Co. Rush State Ks

Interval Tested 3557-3596 Zone Tested Arbuckle  
 Anchor Length 39 Drill Pipe Run 3521 Mud Wt. 9.3  
 Top Packer Depth 3552 Drill Collars Run 30 Vis 52  
 Bottom Packer Depth 3557 Wt. Pipe Run - WL 8  
 Total Depth 3596 Chlorides 5000 ppm System LCM 2#

Blow Description IFP - WEAK BLOW THRU-OUT 1/8 TO 1/4" BLOW  
ISIP - NO BLOW  
FFP - NO BLOW  
FSTIP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>50CM</u>	<u>5</u>		<u>95</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 99 Gravity - API RW - @ - °F Chlorides - ppm  
 (A) Initial Hydrostatic 1718  Test 1150 T-On Location 1105  
 (B) First Initial Flow 18  Jars - T-Started 1130  
 (C) First Final Flow 18  Safety Joint - T-Open 1315  
 (D) Initial Shut-In 44  Circ Sub - T-Pulled 1615  
 (E) Second Initial Flow 18  Hourly Standby - T-Out 1736  
 (F) Second Final Flow 19  Mileage 44 RT 68.20  
 (G) Final Shut-In 30  Sampler -  
 (H) Final Hydrostatic 1694  Straddle -  
 Shale Packer -  
 Shale Packer -  
 Extra Packer -  
 Extra Recorder -  
 Day Standby -  
 Accessibility -

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 30  
 Final Shut-In 60  
 Sub Total 0  
 Total 1218.20  
 MP/DST Disc't -  
 Sub Total 1218.20

Approved By Tim Pierce Our Representative Ray Schwager THANK YOU

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. 58882

Well Name & No. Oelkers "A" #1-2 Test No. 5 Date 4-30-14  
 Company Marfin Drilling Co Inc Elevation 2022 KB 2017 GL  
 Address 250 N. Water, Ste 300 Wichita, KS 67202-1216  
 Co. Rep / Geo. Tim Prance Rig Marfin Rig 16  
 Location: Sec. 2 Twp. 16s Rge. 19w Co. Rush State KS

Interval Tested 3559 - 3616 Zone Tested Arbuckle  
 Anchor Length 57' Drill Pipe Run 3511 Mud Wt. 9.3  
 Top Packer Depth 3554 Drill Collars Run 30 Vis 51  
 Bottom Packer Depth 3559 Wt. Pipe Run 0 WL 8.8  
 Total Depth 3616 Chlorides 5,000 ppm System LCM 2#

Blow Description FF - Built to 3 1/4"  
FSI - No Return  
FF - Built to 4 1/2"  
FSI - No Return.

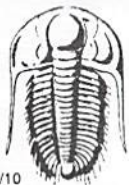
Rec	Feet of	%gas	%oil	%water	%mud
<u>63</u>	<u>VSOCM</u>	<u>5</u>	<u>95</u>	<u>95</u>	<u>95</u>
<u>15</u>	<u>OCM</u>	<u>30</u>	<u>80</u>	<u>80</u>	<u>80</u>
<u>15</u>	<u>0</u>	<u>100</u>	<u>100</u>		

Rec Total 93 BHT 101 Gravity 39 API RW @ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1768  Test 1150 T-On Location 00:26  
 (B) First Initial Flow 16  Jars \_\_\_\_\_ T-Started 00:29  
 (C) First Final Flow 32  Safety Joint \_\_\_\_\_ T-Open 02:48  
 (D) Initial Shut-In 1034  Circ Sub \_\_\_\_\_ T-Pulled 06:48  
 (E) Second Initial Flow 34  Hourly Standby \_\_\_\_\_ T-Out 08:33  
 (F) Second Final Flow 45  Mileage 44 RT 68.20 Comments \_\_\_\_\_  
 (G) Final Shut-In 1074  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1718  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1218.20  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1218.20

Approved By \_\_\_\_\_ Our Representative Phillip Goy "Thank you"  
 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 of 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. 58883

Well Name & No. Delkers "A" #1-2 Test No. 6 Date 4-30-14  
 Company Martin Drilling Co Inc Elevation 2022 KB 2017 GL  
 Address 250 N. Water Stc 300 Wichita, KS 67202-1216  
 Co. Rep / Geo. Tim Preece Rig Martin Rig 16  
 Location: Sec. 2 Twp. 16s Rge. 19w Co. Rush State ks

Interval Tested 3616-3626 Zone Tested Arkshale  
 Anchor Length 10' Drill Pipe Run 3573 Mud Wt. 9.4  
 Top Packer Depth 3611 Drill Collars Run 30 Vis 53  
 Bottom Packer Depth 3616 Wt. Pipe Run 0 WL 10.4  
 Total Depth 3626 Chlorides 5,000 ppm System LCM 2#

Blow Description IF- BOB in 30 secs  
ISI- Weak surface blow started at 7mins, died at 13 mins.  
FF- BOB in 30 secs  
FSI No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>1953</u>	<u>W</u>			<u>100</u>	
<u>504</u>	<u>MW</u>			<u>70</u>	<u>30</u>
Rec Total	<u>2457</u>	BHT <u>116</u>	Gravity <u>—</u>	API RW <u>118</u>	@ <u>51</u> °F Chlorides <u>64,000</u> ppm

(A) Initial Hydrostatic 1813  Test 1150 T-On Location 13:38  
 (B) First Initial Flow 453  Jars \_\_\_\_\_ T-Started 13:39  
 (C) First Final Flow 942  Safety Joint \_\_\_\_\_ T-Open 15:50  
 (D) Initial Shut-In 1182  Circ Sub \_\_\_\_\_ T-Pulled ~~18:20~~ 18:15  
 (E) Second Initial Flow 934  Hourly Standby \_\_\_\_\_ T-Out 20:25  
 (F) Second Final Flow 1088  Mileage 44 RT 68.20 Comments \_\_\_\_\_  
 (G) Final Shut-In 1182  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1741  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 15  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1218.20  
 Final Flow ~~18~~ 10  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 60 Sub Total 1218.20

Approved By \_\_\_\_\_ Our Representative Phil Log "Thank You"  
 Trilobite Testing Inc. shall not be liable for damaged or 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.



# Timothy G. Pierce

## Petroleum Geologist

### GEOLOGIST'S REPORT DRILLING TIME AND SAMPLE LOG

COMPANY Murfin Drilling Co., Inc.  
 LEASE Oelkers' A' #1-2  
 FIELD ELRU  
 LOCATION 1320' FNL & 2310' FWL  
 SEC 2 TWP 16S RGE 19W  
 COUNTY Rush STATE Kansas  
 CONTRACTOR Murfin Drilling Rig #16  
 SPUD 4-22-2014 COMP 5-01-2014  
 RTD 3685 LTD 3678  
 MUD UP 2735 TYPE MUD Chemical  
 SAMPLES SAVED FROM 2890 TO RTD  
 DRILLING TIME KEPT FROM 2890 TO RTD  
 SAMPLES EXAMINED FROM 2890 TO RTD  
 GEOLOGICAL SUPERVISION FROM 2750 TO RTD  
 GEOLOGIST ON WELL Tim Pierce

#### ELEVATIONS

KB 2022'  
 DF \_\_\_\_\_  
 GL 2017'  
 Measurements Are All  
 From Kelly Bushing

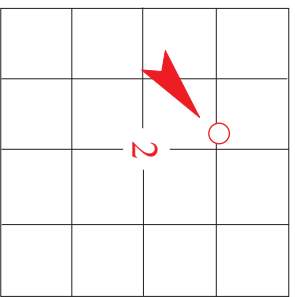
#### CASING

CONDUCTOR \_\_\_\_\_  
 SURFACE 8-5/8" at 1208'  
 PRODUCTION None

#### ELECTRICAL SURVEYS

DIL/DUCP/Sonic/Micro  
Pioneer Energy Svcs


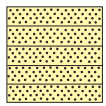
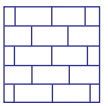
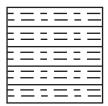

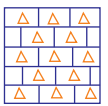

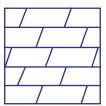
FORMATION TOPS	ELECTRIC LOG	SAMPLE
Anhydrite	1206 (+816)	1205 (+817)
Base/Anhydrite	1248 (+774)	NA
Topeka LS	2992 (-970)	3000 (-978)
Heebner Sh.	3268 (-1246)	3277 (-1255)
Lansing	3311 (-1289)	3325 (-1303)
Stark Sh.	3506 (-1484)	3515 (-1493)
BKC	3552 (-1530)	3562 (-1540)
Arbuckle	3602 (-1580)	3607 (-1585)




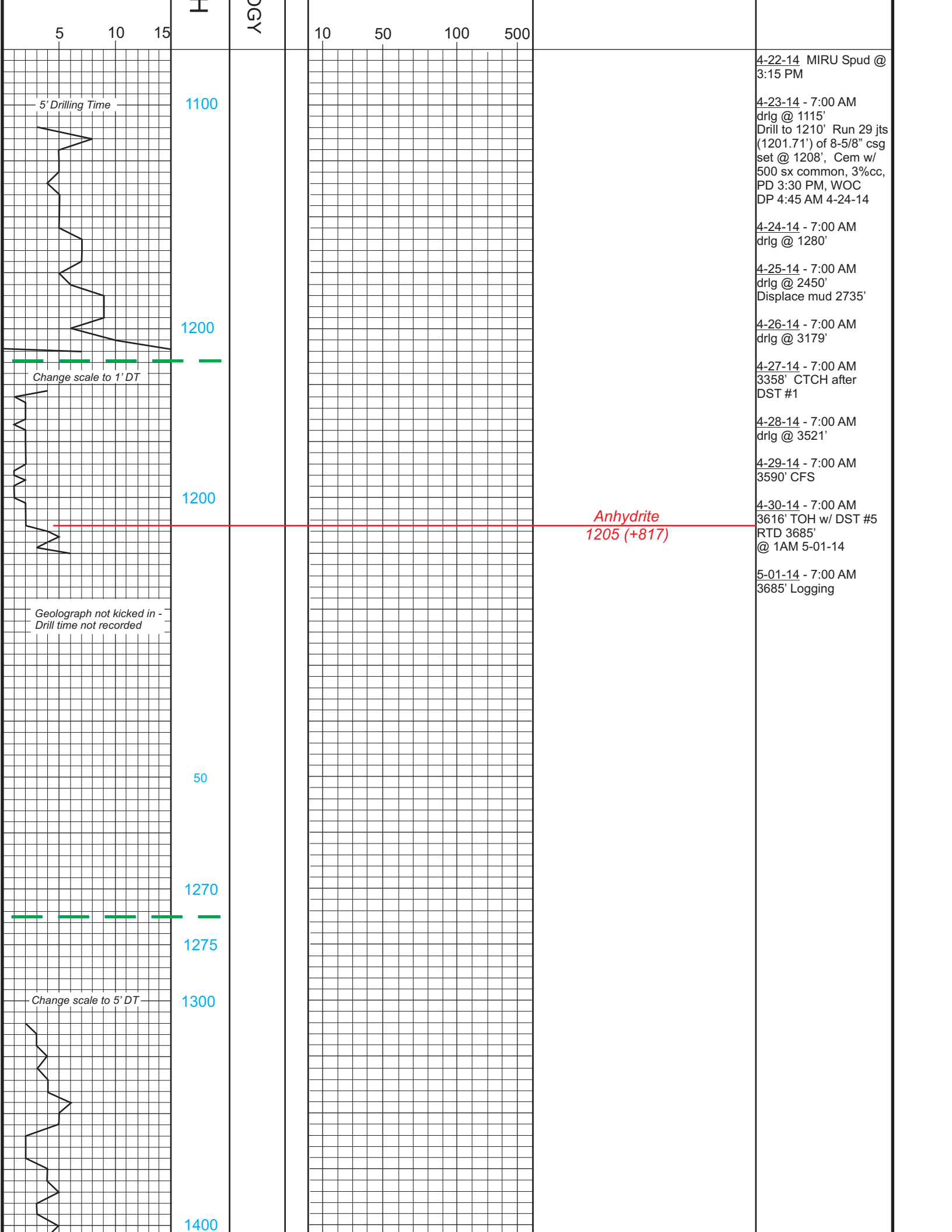
REMARKS An error on the tally board at 1241' resulted in a 6' difference in measurements. All drill time and formation tops below 1241' should be adjusted uphole 6 feet on this report.  
Drill stem test results indicate poor reservoir development in the LKC and a thin oil column in the Arbuckle above water.  
Therefore the decision was made to plug the Oelkers 'A' #1-2 as a dry hole on May 1, 2014.

Timothy G. Pierce  
 Timothy G. Pierce

#### LEGEND

							
Anhydrite	Sandstone	Limestone	Shale	Carb Sh	Cherty LS	Chert	Dolomite

DRILLING TIME IN MINUTES PER FOOT Rate of Penetration Decreases 	DEPTH	LITHOLOG	GAS SCALE	SAMPLE DESCRIPTION	REMARKS
---	-------	----------	-----------	--------------------	---------



5 10 15

H

OGY

10 50 100 500

5' Drilling Time

1100

Change scale to 1' DT

1200

1200

Geolograph not kicked in -  
Drill time not recorded

50

1270

1275

Change scale to 5' DT

1300

1400

Anhydrite  
1205 (+817)

4-22-14 MIRU Spud @  
3:15 PM

4-23-14 - 7:00 AM  
drlg @ 1115'  
Drill to 1210' Run 29 jts  
(1201.71') of 8-5/8" csg  
set @ 1208', Cem w/  
500 sx common, 3%cc,  
PD 3:30 PM, WOC  
DP 4:45 AM 4-24-14

4-24-14 - 7:00 AM  
drlg @ 1280'

4-25-14 - 7:00 AM  
drlg @ 2450'  
Displace mud 2735'

4-26-14 - 7:00 AM  
drlg @ 3179'

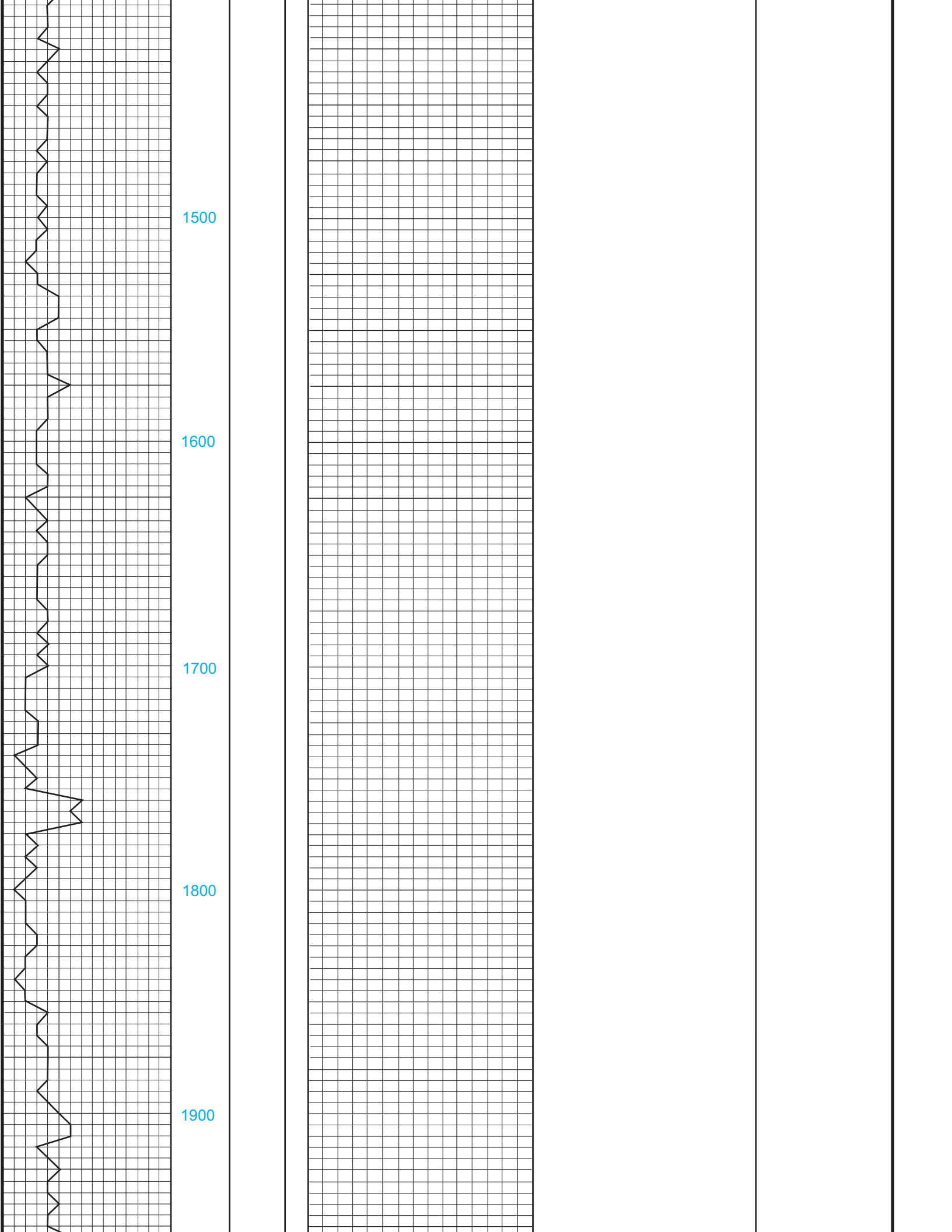
4-27-14 - 7:00 AM  
3358' CTCH after  
DST #1

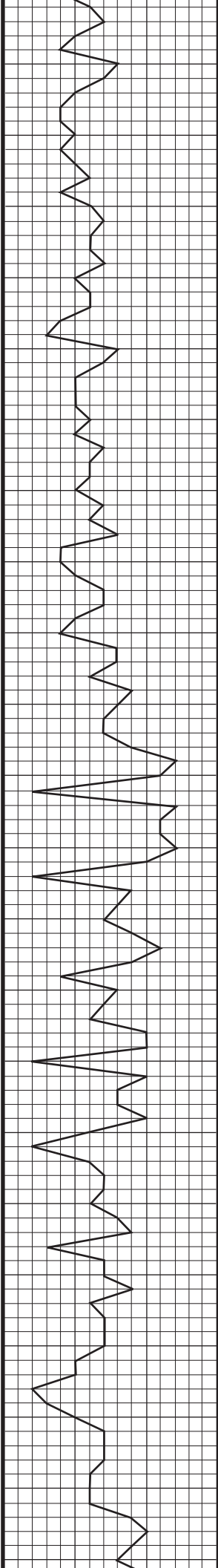
4-28-14 - 7:00 AM  
drlg @ 3521'

4-29-14 - 7:00 AM  
3590' CFS

4-30-14 - 7:00 AM  
3616' TOH w/ DST #5  
RTD 3685'  
@ 1AM 5-01-14

5-01-14 - 7:00 AM  
3685' Logging





2000

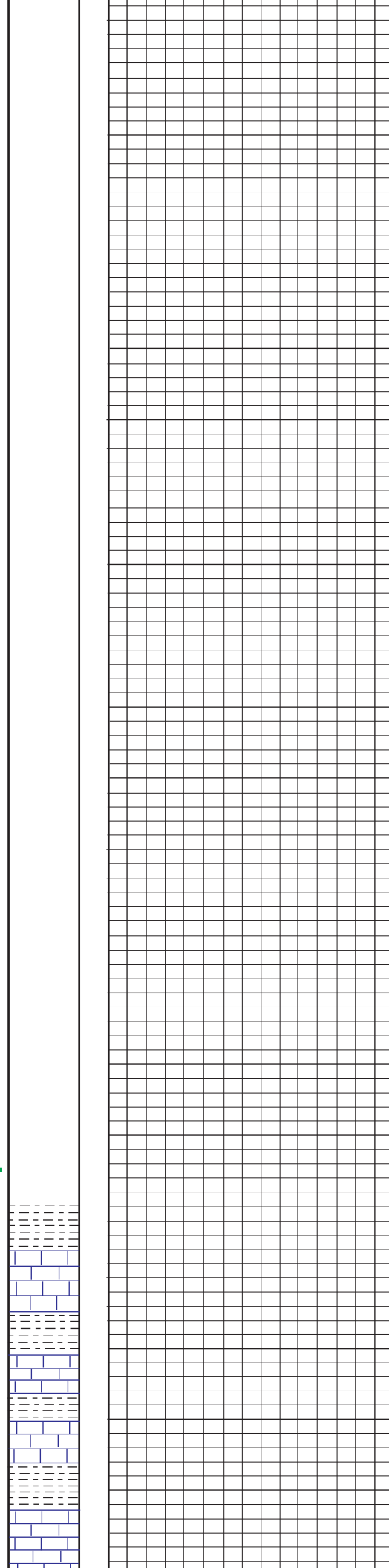
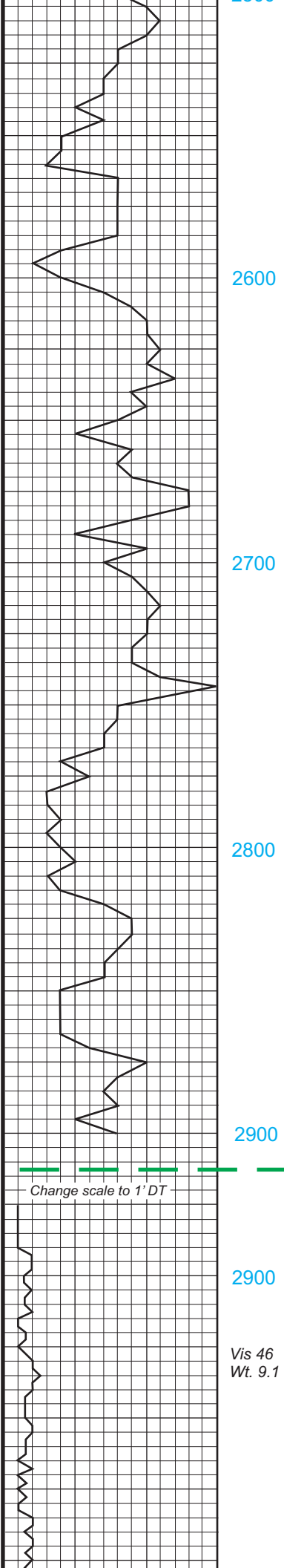
2100

2200

2300

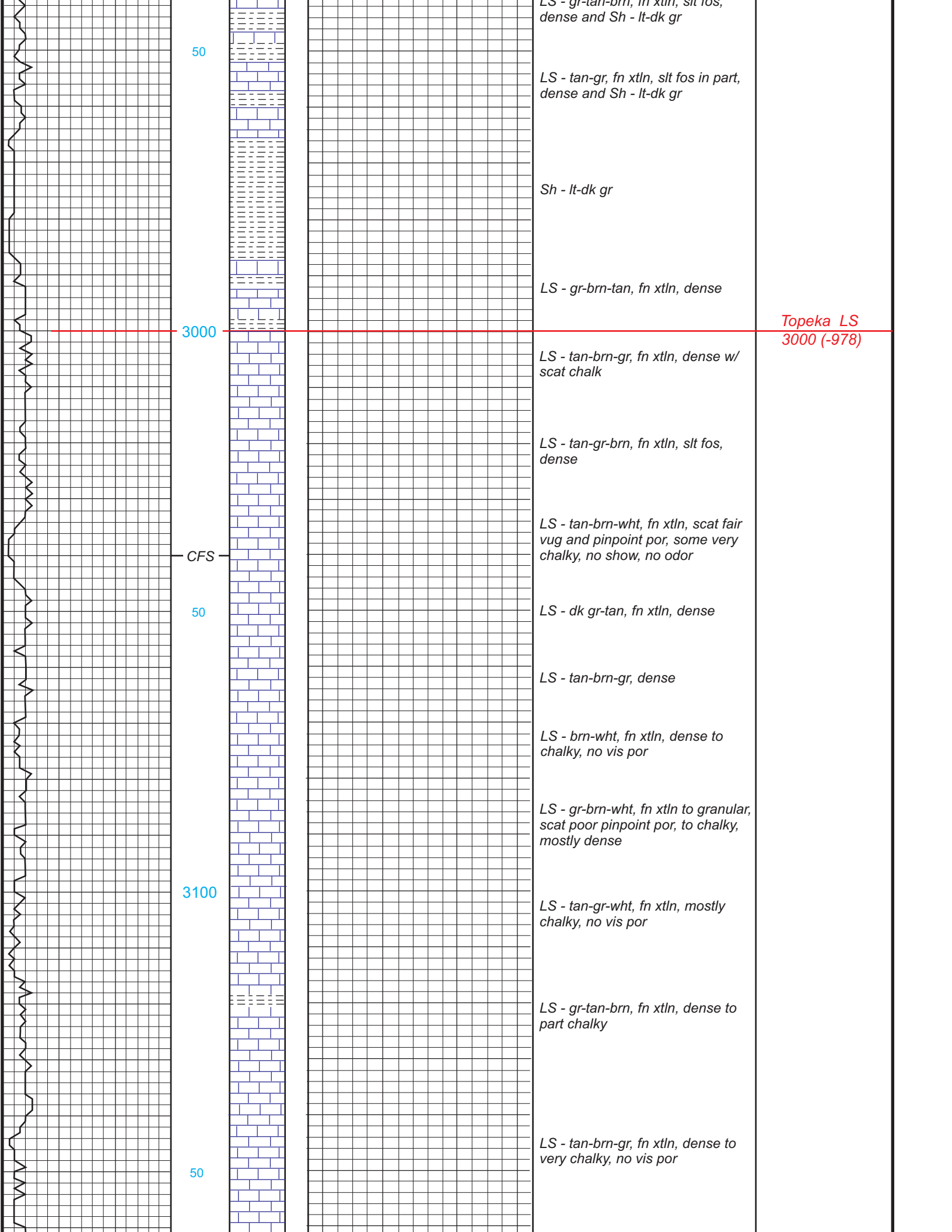
2400

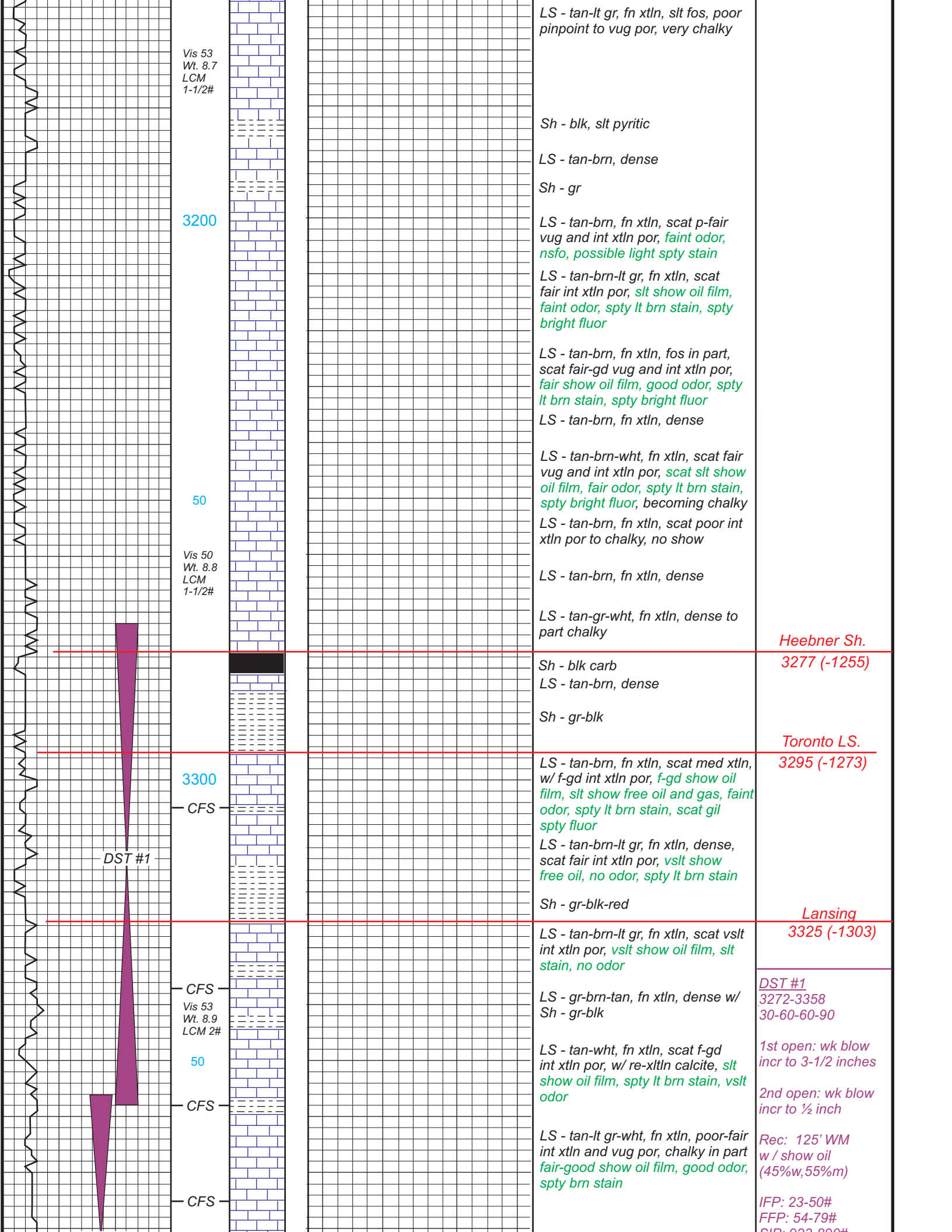
2500

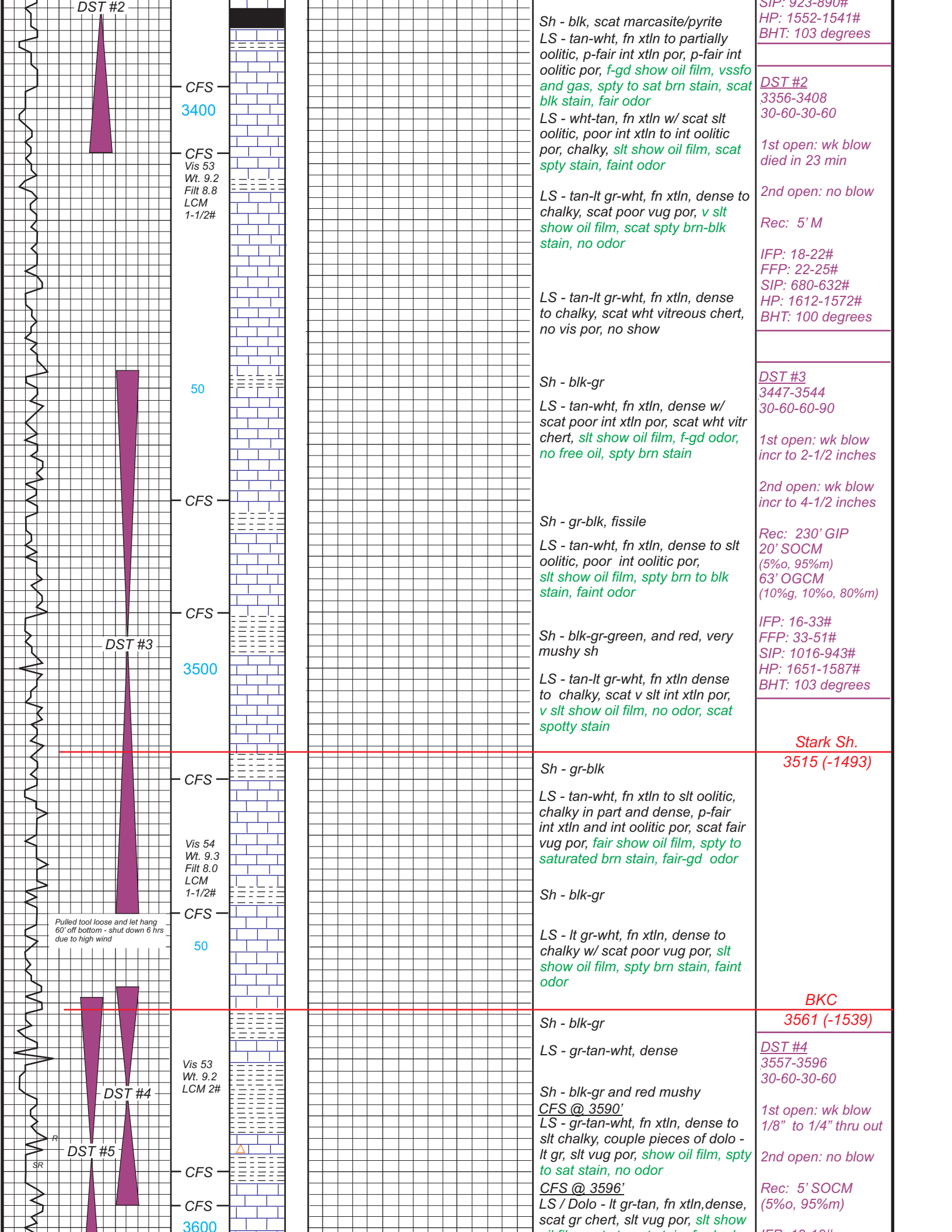


*Sh - gr*  
*LS - tan-brn-gr, fn xtl'n, dense*  
  
*Sh - gr*  
*LS - tan-gr, dense*  
*Sh - gr*  
*LS - gr-tan, dense*  
*Sh - gr-blk*  
  
*LS - gr tan brn fn xtl'n, alt fac*

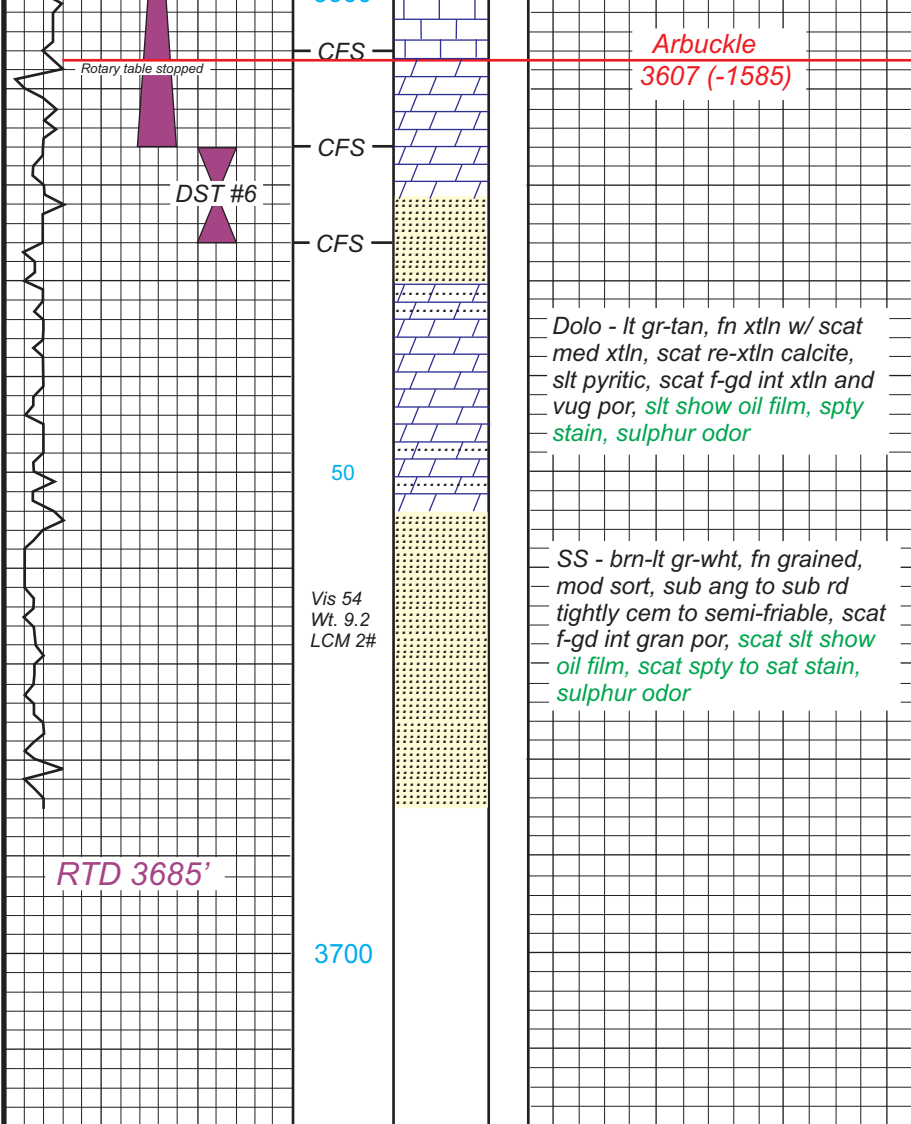
Vis 46  
 Wt. 9.1











**CFS @ 3606'**  
 oil film, spty to sat stain, f-gd odor  
 LS - tan-lt gr, fn xtn to granular, dense, no vis por, abundant Sh - blk-gr-red, fair odor, vslt show oil film

**CFS @ 3616'**  
 Dolo - lt gr-tan-wht, fn and med xtn, abundant large re-xtn calcite shards, f-gd vug and int xtn por, vgd show oil film, scat f-gd show free oil and gas, strong odor, spty to sat brn stain

**CFS @ 3626'**  
 Dolo - tan-wht, mostly fn to med xtn, p-f int xtn por, slt show oil film spty stain, and SS - wht-clear, fn grained, sub rd, tight to semi-fria clusters, ss oil film, scat lt stain, f-gd odor in sample

IFP: 18-18#  
 SIP: 44-30#  
 HP: 1718-1694#  
 BHT: 99 degrees

**DST #5**  
 3559-3616  
 30-60-60-90  
 1st open: wk blow incr to 3-1/4 inches  
 2nd open: fair blow 1" incr to 4-1/2"

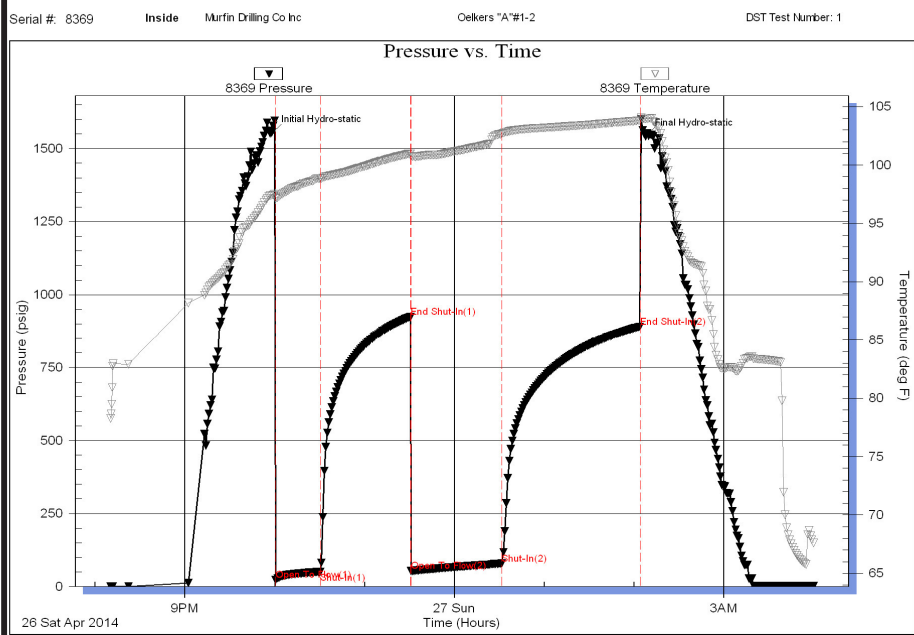
Rec: 63 VSOCM (5%o, 95%*m*)  
 15' OCM (20%o, 80%*m*)  
 15' CO  
 39 deg gravity

IFP: 16-32#  
 FFP: 34-45#  
 SIP: 1034-1074#  
 HP: 1768-1718#  
 BHT: 101 degrees

**DST #6**  
 3616-3626  
 15-60-10-60  
 1st open: str blow OBB in 30 sec.  
 2nd open: str blow OBB in 30 sec.

Rec: 504' MW (70%*w*, 30%*m*)  
 1953' W  
 Chlorides 64,000

IFP: 942-1182#  
 FFP: 934-1088#  
 SIP: 1182-1182#  
 HP: 1813-1741#  
 BHT: 116 degrees

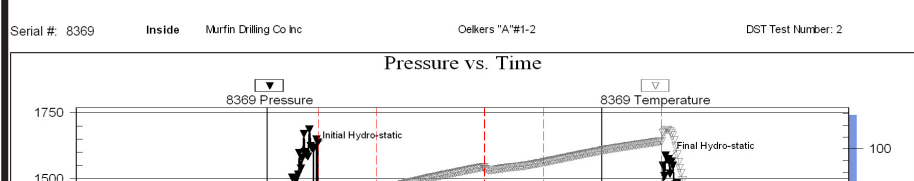


**DST #1**  
 3272-3358  
 30-60-60-90  
 1st open: wk blow incr to 3-1/2 inches  
 2nd open: wk blow incr to 1/2 inch

Rec: 125' WM w / show oil (45%*w*, 55%*m*)

IFP: 23-50#  
 FFP: 54-79#  
 SIP: 923-890#  
 HP: 1552-1541#  
 BHT: 103 degrees

Serial #: 8369 Inside Murfin Drilling Co Inc Oelkers "A" #1-2 DST Test Number: 1  
 Ref. No: 55332 Printed: 2014.04.27 @ 07:02:43



**DST #2**

Serial #: 8369 Inside Murfin Drilling Co Inc Oelkers "A" #1-2 DST Test Number: 2

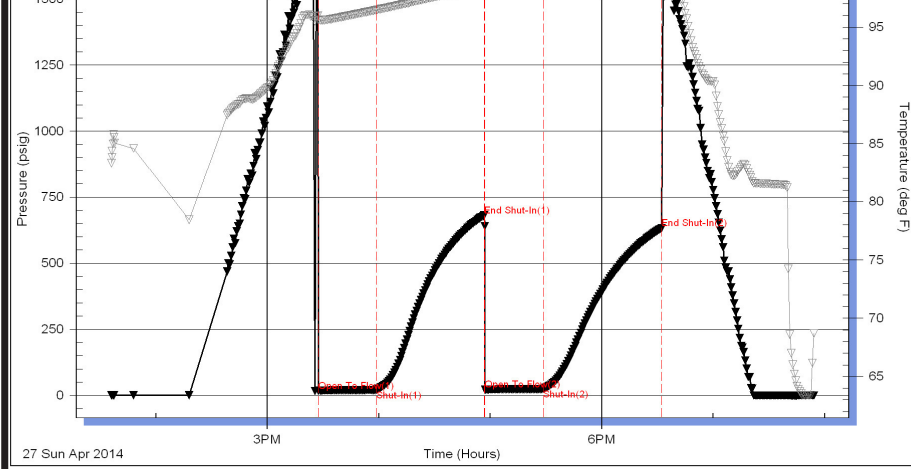
3356-3408  
30-60-30-60

1st open: wk blow  
died in 23 min

2nd open: no blow

Rec: 5' M

IFP: 18-22#  
FFP: 22-25#  
SIP: 680-632#  
HP: 1612-1572#  
BHT: 100 degrees

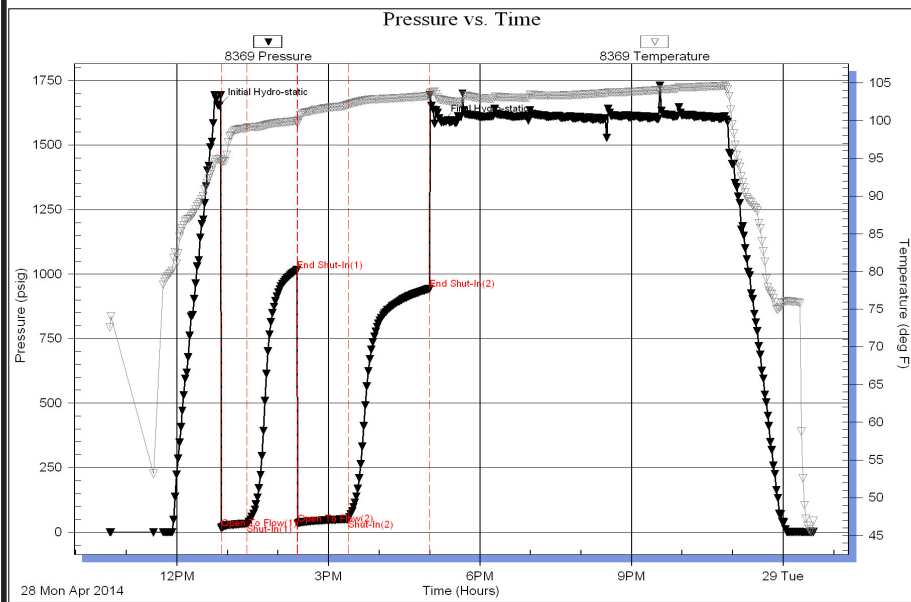


Tribolite Testing, Inc

Ref. No: 55333

Printed: 2014.04.27 @ 20:12:30

Serial #:	8369	Inside	Murfin Drilling Co Inc	Coilers "A" #1-2	DST Test Number: 3
-----------	------	--------	------------------------	------------------	--------------------



DST #3  
3447-3544  
30-60-60-90

1st open: wk blow  
incr to 2-1/2 inches

2nd open: wk blow  
incr to 4-1/2 inches

Rec: 230' GIP  
20' SOCM  
(5%o, 95% m)  
63' OGCM  
(10%g, 10%o, 80% m)

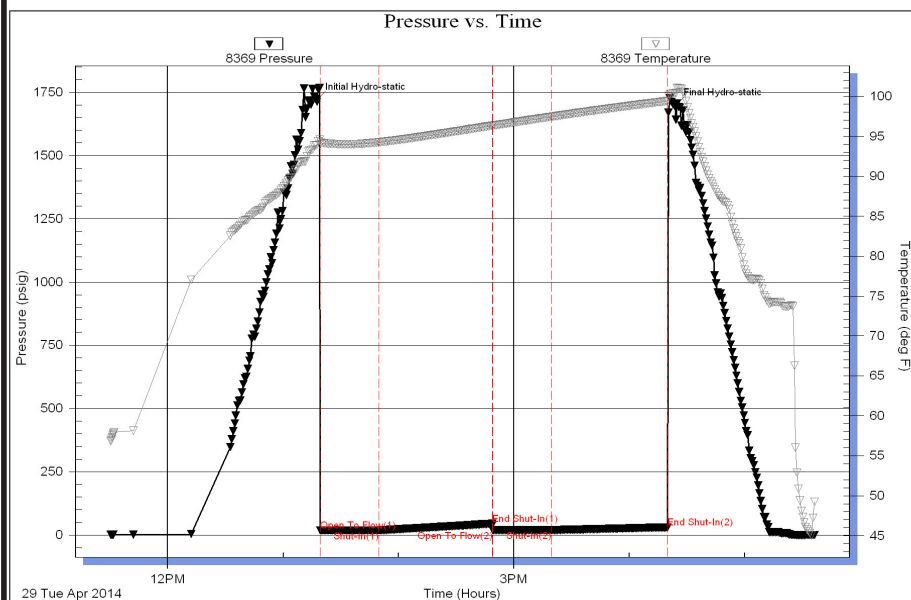
IFP: 16-33#  
FFP: 33-51#  
SIP: 1016-943#  
HP: 1651-1587#  
BHT: 103 degrees

Tribolite Testing, Inc

Ref. No: 55334

Printed: 2014.04.29 @ 00:57:35

Serial #:	8369	Inside	Murfin Drilling Co Inc	Coilers "A" #1-2	DST Test Number: 4
-----------	------	--------	------------------------	------------------	--------------------



DST #4  
3557-3596  
30-60-30-60

1st open: wk blow  
1/8" to 1/4" thru out

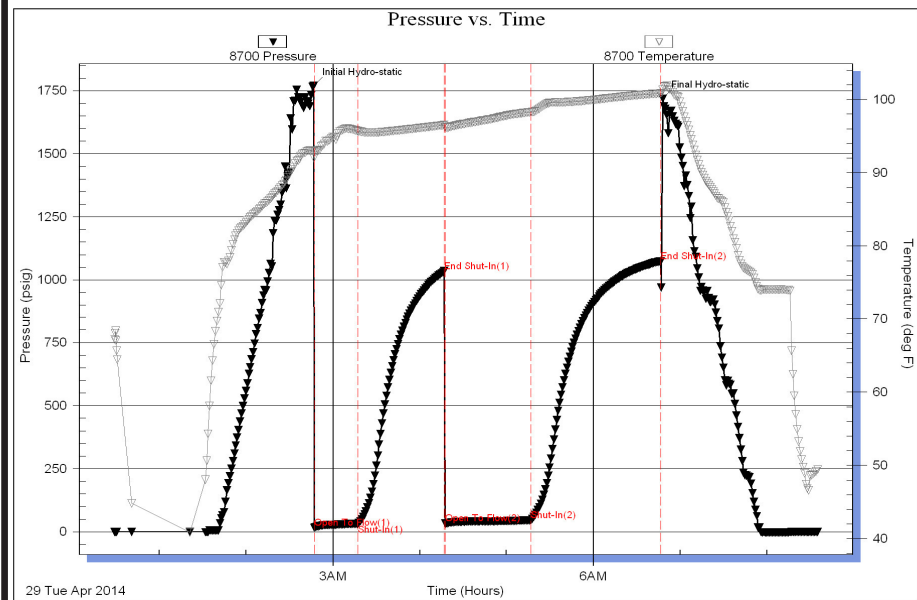
2nd open: no blow

Rec: 5' SOCM  
(5%o, 95% m)

IFP: 18-18#  
FFP: 18-19#  
SIP: 44-30#  
HP: 1718-1694#  
BHT: 99 degrees

29 Tue Apr 2014

Serial #: 8700 Outside Murfin Drilling Co Inc Oelkers "A" #1-2 DST Test Number: 5



**DST #5**  
3559-3616  
30-60-60-90

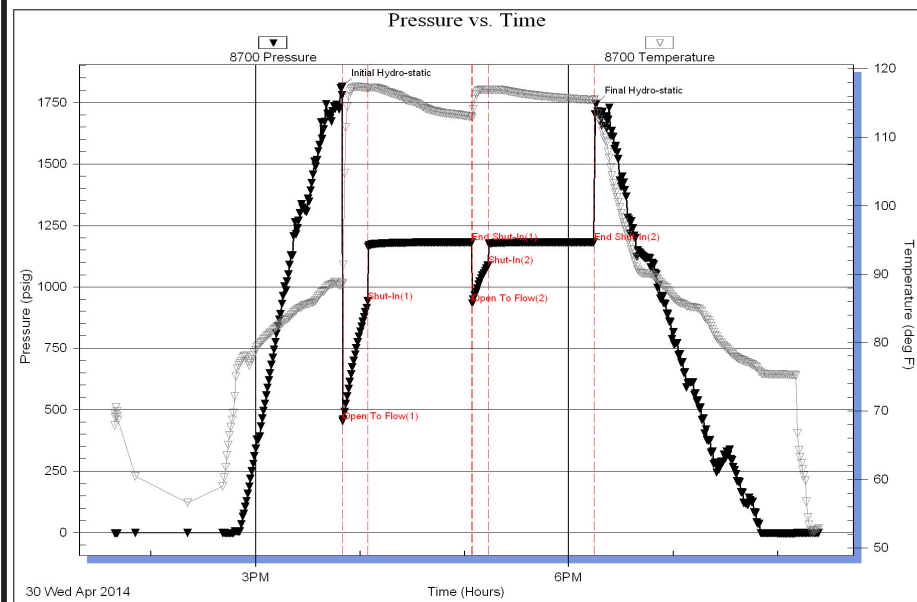
1st open: wk blow  
incr to 3-1/4 inches

2nd open: fair blow  
1" incr to 4-1/2"

Rec: 63 VSOCM  
(5%o, 95%m)  
15' OCM  
(20%o, 80%m)  
15' CO  
39 deg gravity

IFP: 16-32#  
FFP: 34-45#  
SIP: 1034-1074#  
HP: 1768-1718#  
BHT: 101 degrees

Serial #: 8700 Outside Murfin Drilling Co Inc Oelkers "A" #1-2 DST Test Number: 6



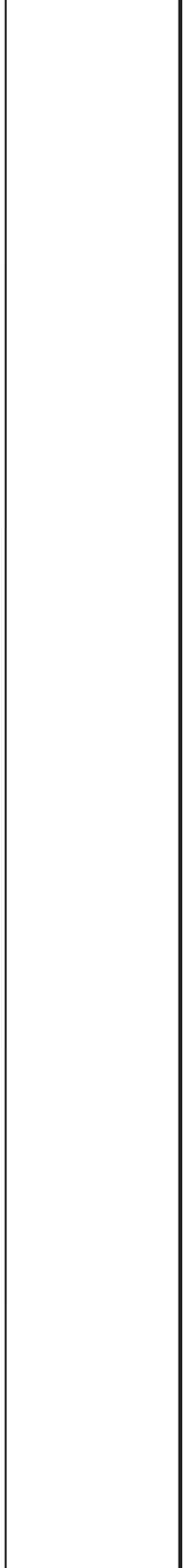
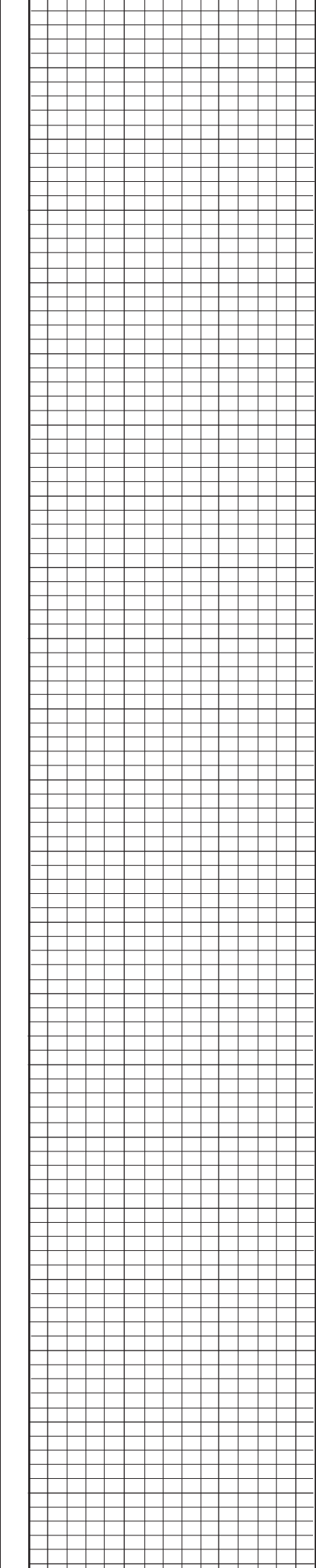
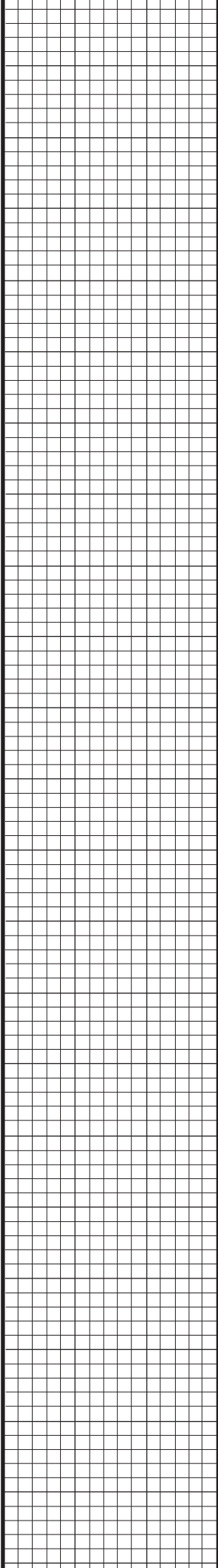
**DST #6**  
3616-3626  
15-60-10-60

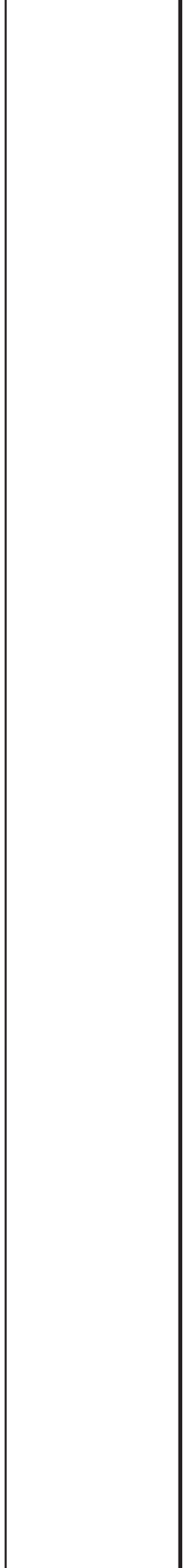
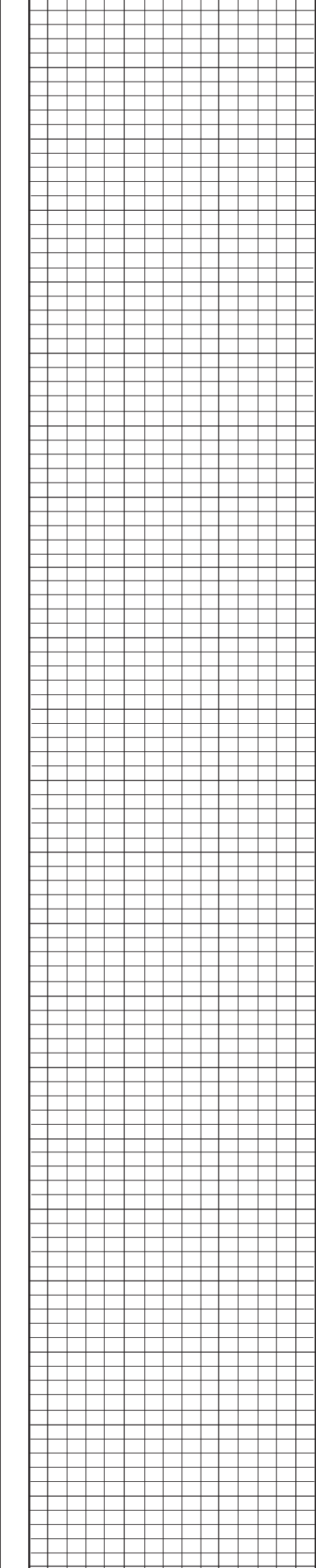
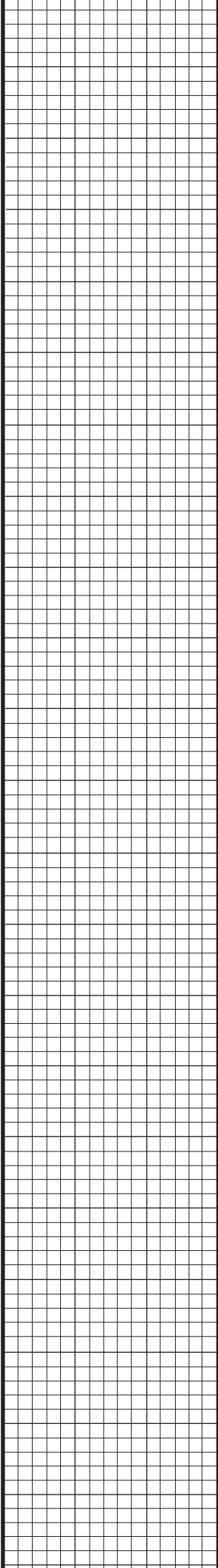
1st open: str blow  
OBB in 30 sec.

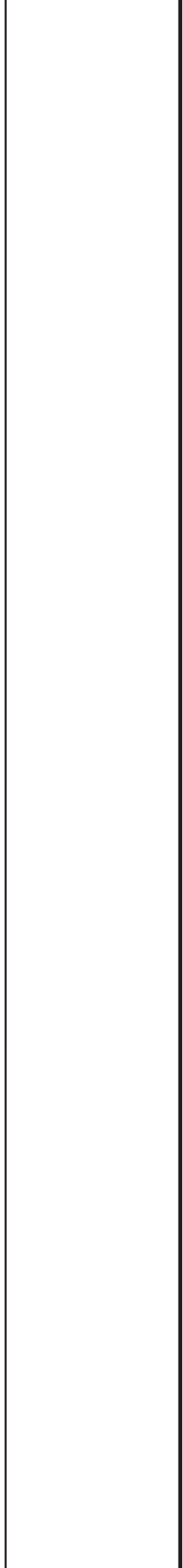
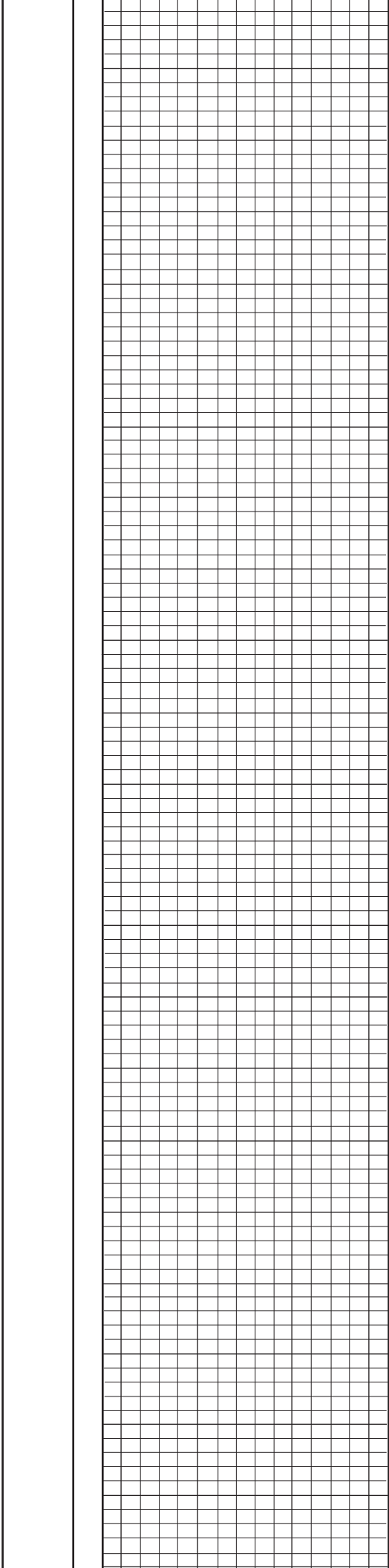
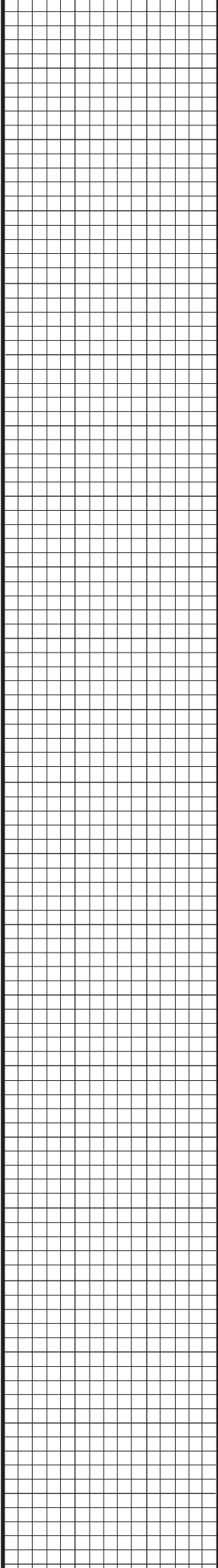
2nd open: str blow  
OBB in 30 sec.

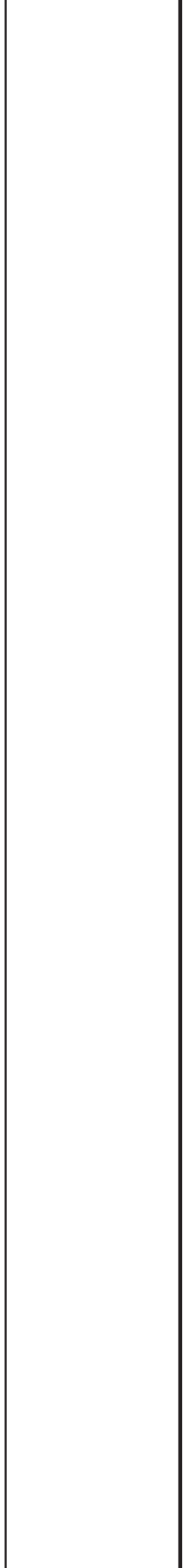
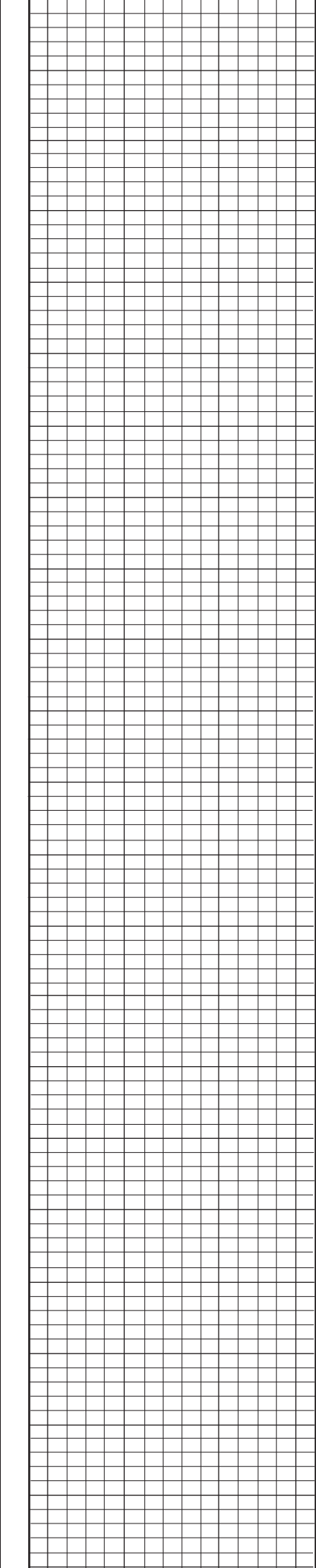
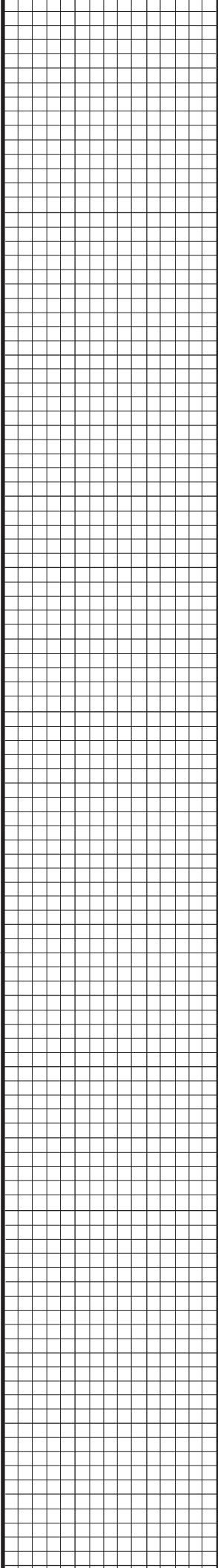
Rec: 504' MW  
(70%w, 30%m)  
1953' W  
Chlorides 64,000

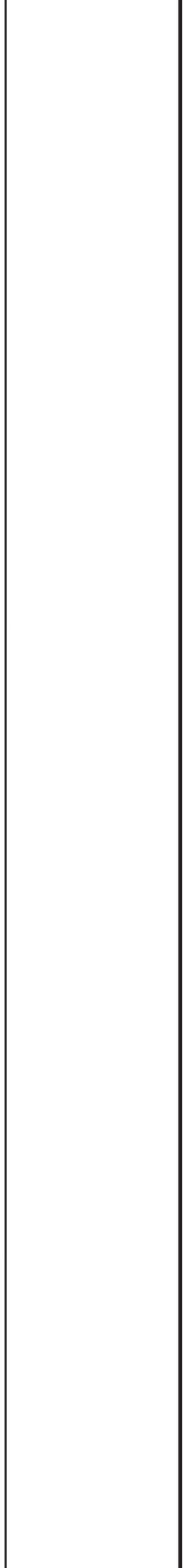
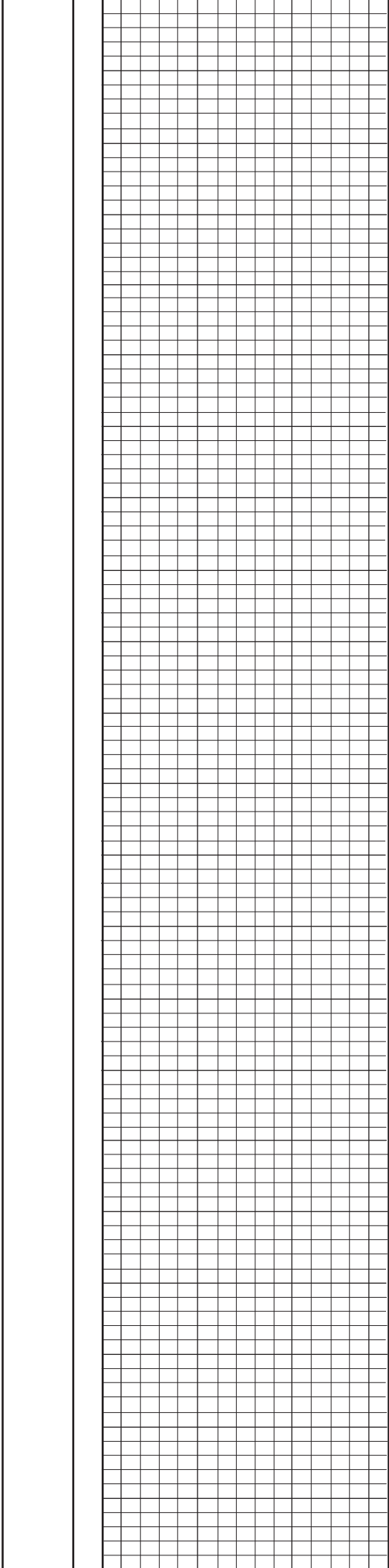
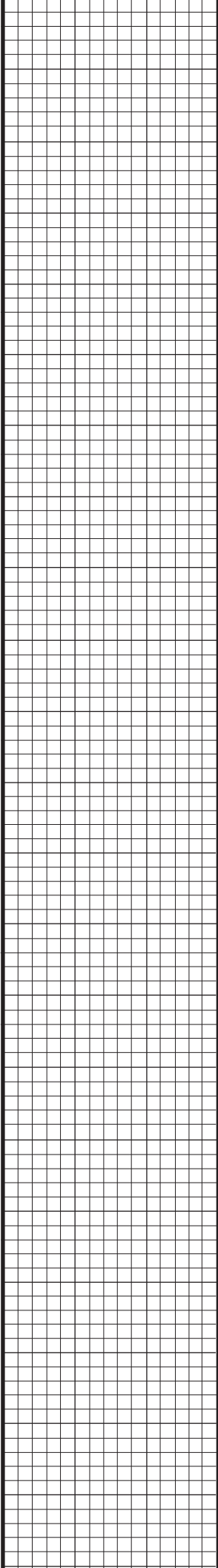
IFP: 942-1182#  
FFP: 934-1088#  
SIP: 1182-1182#  
HP: 1813-1741#  
BHT: 116 degrees



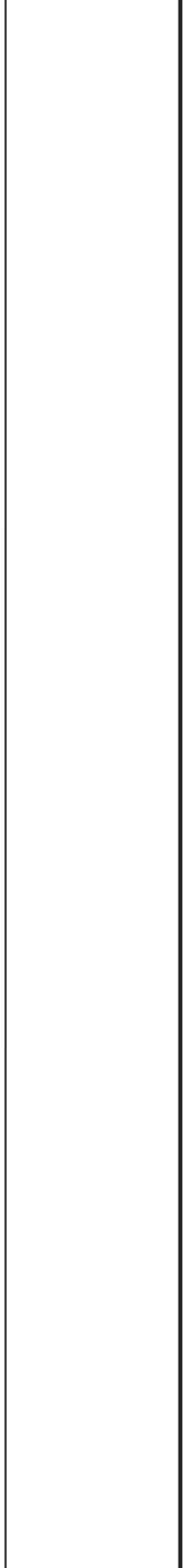
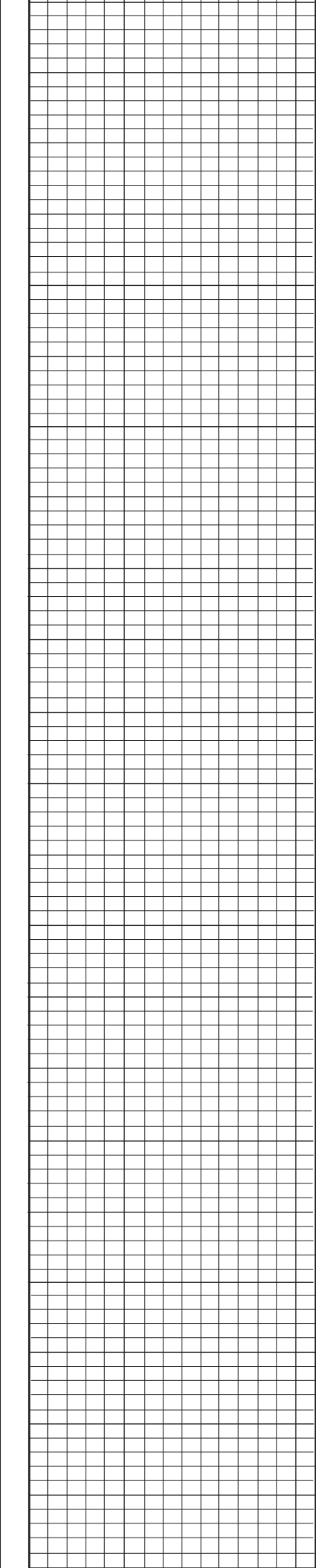
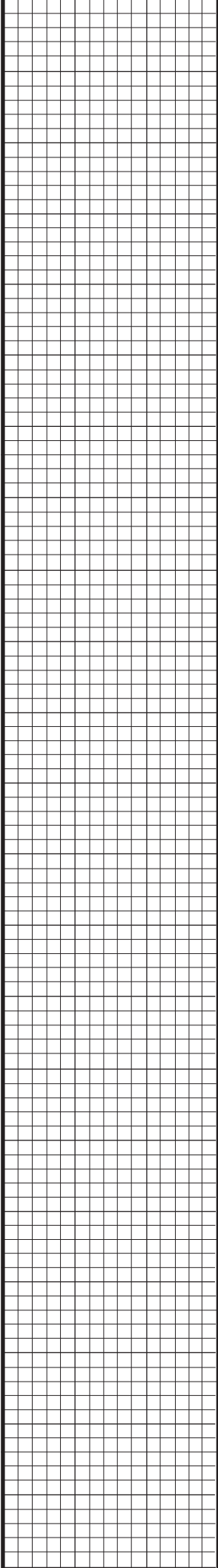


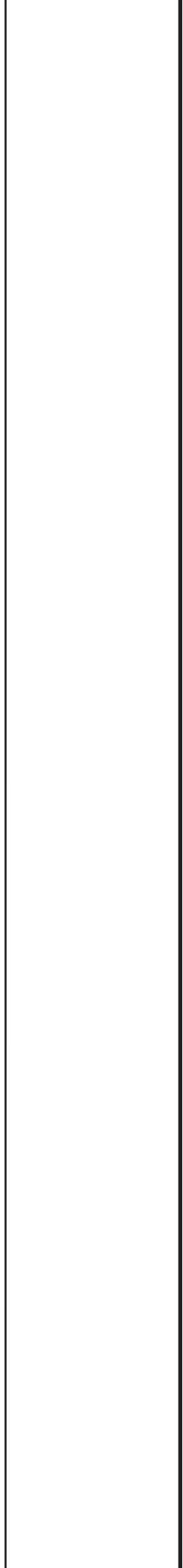
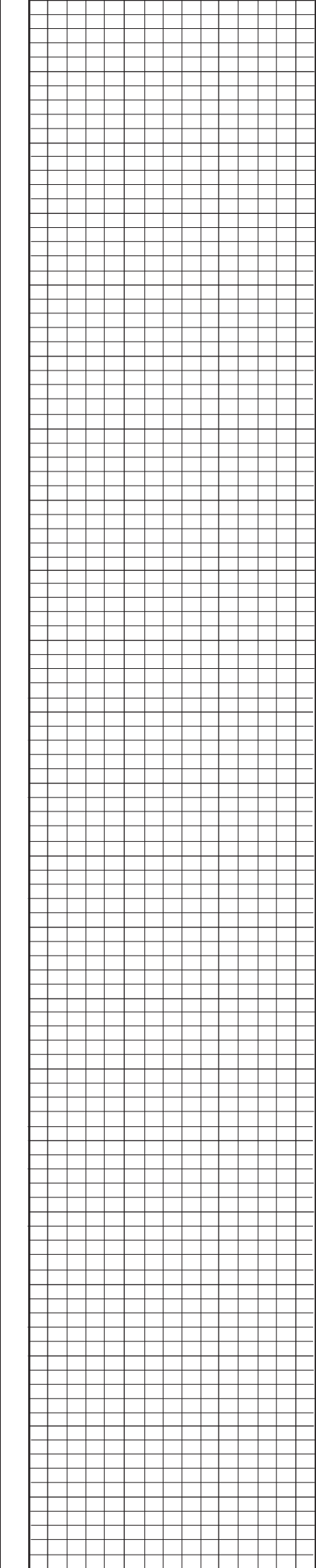
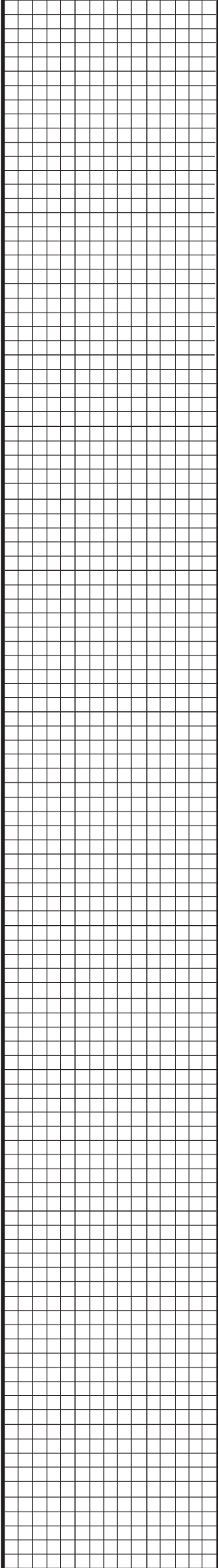


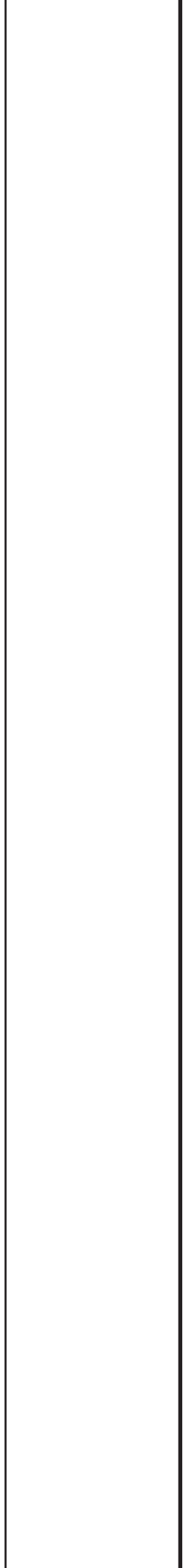
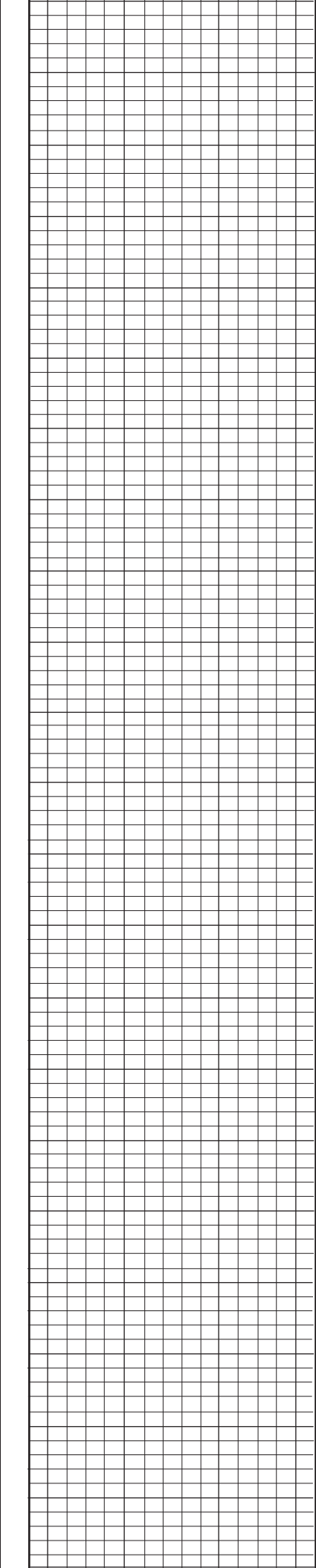
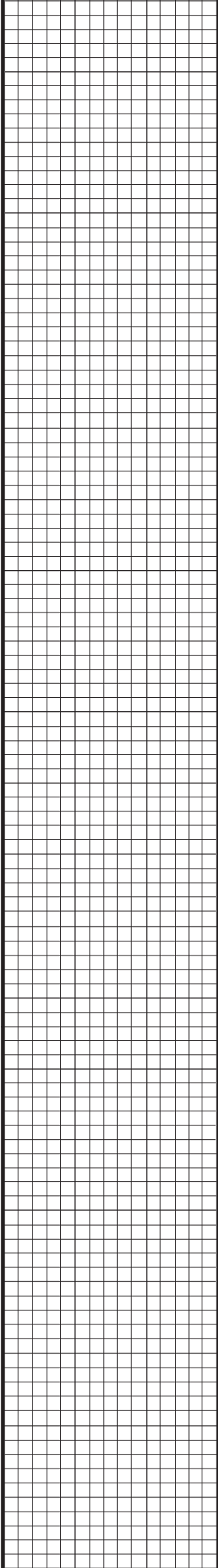


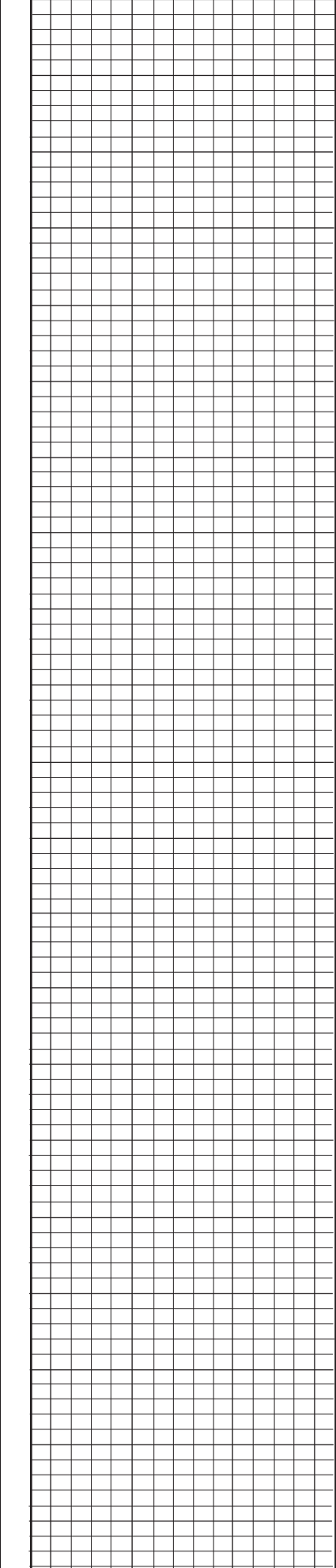
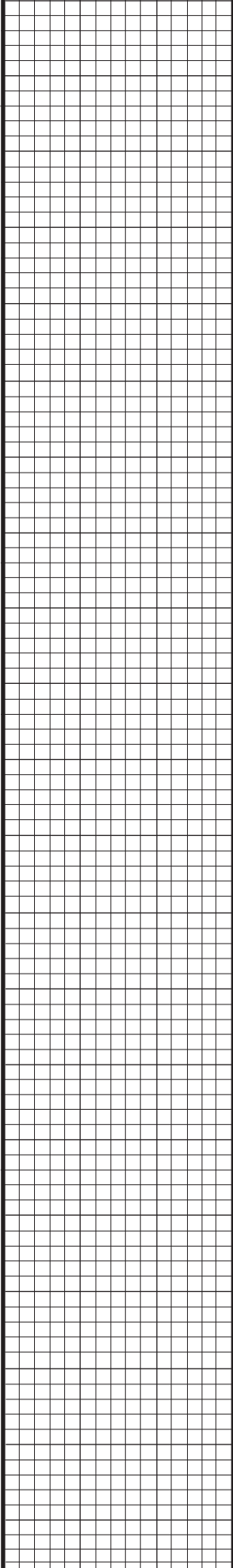




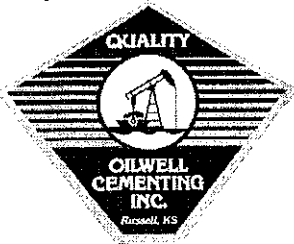








acct.  
Prod-MG



**QUALITY OILWELL CEMENTING, INC.**  
PO Box 32 - 740 West Wichita Ave, Russell KS 67665  
Phone:785-324-1041 fax:785-483-1087  
Email: cementing@ruraltel.net

Date: 4/23/2014  
Invoice # 417  
P.O.#:  
Due Date: 5/23/2014  
Division: *Russell*

# Invoice

**Contact:**  
Murfin Drilling Company  
**Address/Job Location:**  
Murfin Drilling Company  
P.O. Box 288  
Russell Ks 67665

**OPERATOR PAY MDC**  
**LEASE:** BM

USED FOR \_\_\_\_\_  
APPROVED [Signature]

**Reference:**  
OELKERS A 1-2  
**Description of Work:**  
LONG SURFACE JOB

Services / Items Included:	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		\$ 1,051.47	No				
Common-Class A	500	\$ 8,636.36	Yes				
Bulk Truck Matl-Material Service Charge	618	\$ 1,423.27	No				
Calcium Chloride	18	\$ 1,153.68	Yes				
Pump Truck Mileage-Job to Nearest Camp	23	\$ 264.32	No				
Bulk Truck Mileage-Job to Nearest Bulk Plant	23	\$ 154.67	No				
8 5/8" Top Rubber Plug	1	\$ 122.06	Yes				
Baffle Plate Aluminum, 8 5/8"	1	\$ 103.64	Yes				

**Invoice Terms:**  
Net 30

SubTotal:	\$ 12,909.48
Discount Available <u>ONLY</u> if Invoice is Paid & Received within listed terms of invoice:	\$ (1,936.42)
SubTotal for Taxable Items:	\$ 8,513.38
SubTotal for Non-Taxable Items:	\$ 2,459.67
Total:	\$ 10,973.06
Tax:	\$ 523.57

6.15% Rush County Sales Tax

**Thank You For Your Business!**

**Amount Due: \$ 11,496.63**  
**Applied Payments:**  
**Balance Due: \$ 11,496.63**

Past Due Invoices are subject to a service charge (annual rate of 24%)  
This does not include any applicable taxes unless it is listed.  
©2008-2013 Straker Investments, LLC. All rights reserved.

[Signature]

# QUALITY OILWELL CEMENTING, INC.

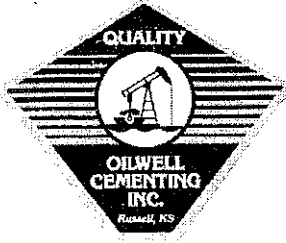
Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 417

Date	4-23-14	Sec.	2	Twp.	16	Range	19	County	Rush	State	KS	On Location	1:30pm	Finish	3:30pm
Lease								Location		hays St0 CL 15 4W					
Oelkers - H								Well No.		1-2					
Contractor								Owner		Nito					
Murfin 16								To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.							
Type Job								Surface							
Hole Size				T.D.				Che To							
12 1/4				<del>1200</del> 1210				Murfin Dtg							
Csg.				Depth				Street							
8 5/8				1208											
Tbg. Size				Depth				City				State			
Tool				Depth				The above was done to satisfaction and supervision of owner agent or contractor.							
								Cement Amount Ordered				600 Com 3%CC			
Cement Left in Csg.				Shoe Joint				Meas Line				Displace			
25.60				23.60				7.74 BBL				used 500			
<b>EQUIPMENT</b>															
Pumptrk #17		No.		Cementer		Helper		Common		500					
				Matt				Poz. Mix							
Bulktrk #12		No.		Driver		Driver		Gel.							
				Nick											
Bulktrk #1		No.		Driver		Driver		Calcium							
				Clyton		Doug		1/8							
JOB SERVICES & REMARKS															
Remarks:								Oelkers - H - 1-2							
Rat Hole								Salt							
Mouse Hole								Flowseal							
Centralizers								Kol-Seal							
Baskets								Mud CLR 48							
D/V or Port Collar								CFL-117 or CD110 CAF 38							
m.x 500 SKS								Sand							
75% BBL of water								Handling 618							
Hand placed								Mileage							
								8 7/8							
<b>FLOAT EQUIPMENT</b>															
Cement did								Guide Shoe							
Circulate								Centralizer							
Hank								Baskets							
for								AFU Inserts							
								Float Shoe							
								Latch Down							
								Baffle Plate							
								Rubber Plug							
								Pumptrk Charge							
								long Surface							
								Mileage							
								23							
Tax															
Discount															
Total Charge															
X Signature		H. J. [Signature]													



**QUALITY OILWELL CEMENTING, INC.**  
 PO Box 32 - 740 West Wichita Ave, Russell KS 67665  
 Phone: 785-324-1041 fax: 785-483-1087  
 Email: cementing@ruraltel.net

Date: 5/1/2014  
 Invoice # 215

*acct Prod-MG*

P.O.#:  
 Due Date: 5/31/2014  
 Division: Russell

# Invoice

USED FOR \_\_\_\_\_  
 APPROVED \_\_\_\_\_

**Contact:**  
 Murfin Drilling Company  
**Address/Job Location:**  
 Murfin Drilling Company  
 P.O. Box 288  
 Russell Ks 67665

**OPERATOR PAY MDC**  
**LEASE: Oelkers A 1-2**

**Reference:**  
 OELKERS A1-2

**Description of Work:**  
 PLUG JOB

Services / Items Included:	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		\$ 1,020.55	Yes				
Common-Class A	132	\$ 2,212.94	Yes				
POZ Mix-Standard	88	\$ 619.62	Yes				
Bulk Truck Matl-Material Service Charge	228	\$ 509.65	Yes				
Pump Truck Mileage-Job to Nearest Camp	23	\$ 256.54	Yes				
Bulk Truck Mileage-Job to Nearest Bulk Plant	23	\$ 150.12	Yes				
Premium Gel (Bentonite)	8	\$ 145.56	Yes				
Flo Seal	55	\$ 122.94	Yes				

**Invoice Terms:**

Net 30

SubTotal: \$ 5,037.93  
 Discount Available ONLY if Invoice is Paid & Received within listed terms of invoice: \$ (755.69)

SubTotal for Taxable Items: \$ 4,282.24  
 SubTotal for Non-Taxable Items: \$ -

6.15% Rush County Sales Tax

Total: \$ 4,282.24  
 Tax: \$ 263.36

**Thank You For Your Business!**

**Amount Due: \$ 4,545.60**  
**Applied Payments:**  
**Balance Due: \$ 4,545.60**

Past Due Invoices are subject to a service charge (annual rate of 24%)  
 This does not include any applicable taxes unless it is listed.  
 ©2008-2013 Straker Investments, LLC. All rights reserved.

*[Handwritten signature]*

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 215

Date	Sec.	Twp.	Range	County	State	On Location	Finish
5-1-14	2	16	19	Rush	KS		2:00PM

Location *Hays S to C.L., 15, 4W, N12*

Lease <i>Oelkers A</i>	Well No. <i>1-2</i>	Owner
Contractor <i>Murfin #16</i>		To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Type Job <i>Plug</i>		Charge To <i>Murfin Drilling</i>
Hole Size	T.D.	Street
Csg.	Depth	City State
Tbg. Size	Depth	
Tool	Depth	The above was done to satisfaction and supervision of owner agent or contractor.
Cement Left in Csg.	Shoe Joint	Cement Amount Ordered <i>220 60/40 4% gel, 1/4 #Flow</i>
Meas Line	Displace	

**EQUIPMENT**

Pumptrk <i>17</i>	No.	Cementer	Common <i>132</i>
		Helper <i>Lonnie W</i>	Poz. Mix <i>88</i>
Bulktrk <i>14</i>	No.	Driver	Gel. <i>8</i>
		Driver <i>Claton</i>	Calcium
Bulktrk <i>14</i>	No.	Driver	
		Driver <i>Travis</i>	

**JOB SERVICES & REMARKS**

Remarks:	Hulls
Rat Hole	Salt
Mouse Hole	Flowseal <i>55#</i>
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38
<i>50 sx at 3607</i>	Sand
<i>50 sx at 1230</i>	Handling <i>228</i>
<i>50 sx at 480</i>	Mileage
<i>20 sx at 60</i>	<b>FLOAT EQUIPMENT</b>
<i>30 sx Rat</i>	Guide Shoe
<i>20 sx Mouse</i>	Centralizer
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down
	<del>Travel Plug</del>
	Pumptrk Charge <i>plug</i>
	Mileage <i>23</i>

X Signature *Ag Lill*

Tax  
Discount  
Total Charge



Oelkers 'A' #1-2  
Daily Drilling Report  
Page Two

- 4/29/14 Depth 3590'. Cut 70'. DT: None. CT: 19¼ hrs (6hrs wind). Dev.: None. **DST #3 3447-3544'(LKC H-K)**: 30-60-60-90. IF: wk blw thru-out ¼" to 2 ½"blw. FF: wk to a fr bl 1½" to 4½" blw. Rec.: 230'GIP, 63'O&GCM (10%G, 10%O, 80%M), 20'SOCM (5%O, 95%M). HP: 1652-1588. FP: 17/34, 33/51. SIP: 1016-944. BHT: 103°.
- 4/30/14 Depth 3616'. Cut 26'. DT: None. CT: 22½ hrs. Dev.: None. **Paw**: LS - gr-tan-wht, fn xtlm, dense to slt chalky, couple pieces of dolo - lt gr, slt vug por, show oil film, spty to sat stain, no odor. **DST #4 3557-3596 (Pawnee)**: 30-60-30-60. IF: wk blw thru-out 1/8"-1/4" blw. Rec.: 5'SOCM (5%O, 95%M). HP: 1718/1694. FP: 18/18, 19/19. SIP: 45/30. BHT: 99°. **Dolo**: lt gr-tan-wht, fn and med xtlm, abundant large re-xtlm calcite shards, f-gd vug and int xtlm por, vgd show oil film, scat f-gd show free oil and gas, strong odor, spty to sat brn stain. **DST #5 3559-3616 (Arbuckle)**: 30-60-60-90. IF: built to ¾". FF: built to 4½". Rec.: 15'O, 15'OCM (20%O, 80%M), 63'VSOCM (5%O, 95%M). HP: 1769-1719. FP: 16/32, 34/46. SIP: 1035-1074. BHT: 101°. **Arb**: Dolo - tan-wht, mostly fn to med xtlm, p-f int xtlm por, slt show oil film spty stain, and SS - wht-clear, fn grained, sub rd, tight to semi-fria clusters, ss oil film, scat lt stain, f-gd odor in sample. **DST #6 3616-3626' (Arb)**:
- 5/1/14 RTD: 3685'. Cut 69'. DT: None. CT: 21¾ hrs. Dev.: 1° @ 3685'. **DST #6 3616-3626' (Arb)**: 15-60-10-60. IF: BOB in 30secs. ISI: wk surf blw @ 7mins, died @ 13mins. FF: BOB in 30secs. Rec.: 1953'W, 504'MW (30%M, 70%W). HP: 1813-1742. FP: 453-943, 934-1089. SIP: 1182-1182. BHT: 115°. HC @ 12:45AM 5/1. Pioneer started logging @ 4:00AM 5/1. LTD: 3678'. Will be plugging.
- 5/2/14 RTD: 3685'. CT: 11hrs. Pioneer finished logging @ 8:00AM 5/1. Quality plugged hole, 11:00AM -2:00PM 5/1, as follows using 60/40Poz, 4%Gel, ¼#Floseal, 50sxs @ 3607', 50sxs @ 1230', 50sxs @ 480, 20sxs @60', 30sxs RH, 20sxs MH. Orders Eric MaClaren KCC Dodge. RR @ 6:00PM 5/1/14. FINAL REPORT

Formation	MDCI Oelkers 'A' #1-2 1320' FNL 2310' FWL Sec. 2-T16S-R19W 2022' KB						MDCI Braun #1-36 330' FSL 1500' FWL Sec. 36-T15S-R19W 1991' KB	
	Sample top	Datum	Ref	Log tops	Datum	Ref	Log tops	Datum
Anhydrite	1205	817	+2	1206	+816	+1	1176	+815
B/Anhydrite	---	---	---	1248	+774	-1	1216	+775
Topeka	3000	-978	-12	2994	-972	-6	2957	-966
Heebner	3277	-1255	-20	3268	-1246	-11	3226	-1235
Toronto	3295	-1273	-18	3288	-1266	-11	3246	-1255
Lansing	3325	-1303	-18	3311	-1289	-4	3276	-1285
Stark	3515	-1493	-13	3506	-1484	-4	3471	-1480
BKC	3561	-1539	-15	3551	-1529	-5	3515	-1524
Arbuckle	3602	-1580	-14	3598	-1576	-10	3557	-1566
RTD	3685						3660	
LTD				3678			3658	