Confidentiality Requested:
☑ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1217906

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 # 30606
Name: Murfin Drilling Co., Inc.
Address 1: 250 N WATER STE 300
Address 2:
City: WICHITA State: KS Zip: 67202 + 1216
Contact Person: Ron Schraeder
Phone: (316) 267-3241
CONTRACTOR: License # 30606
Name: Murfin Drilling Co., Inc.
Wellsite Geologist: Andy White
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 #:

06/14/2014	06/20/2014	06/21/2014
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-165-22077-00-00
Spot Description:
N2 - SW - SE - SE Sec. 18 Twp. 16 S. R. 19 ☐ East ☑ West
335 Feet from ☐ North / ☑ South Line of Section
990 Feet from ☑ East / ☐ West Line of Section

Footages Calculated from Nearest Outside Section Corner:
☐ NE ☐ NW ☑ SE ☐ SW

GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Rush
Lease Name: Miller Trust Well #: 1-18
Field Name:
Producing Formation: na
Elevation: Ground: 2113 Kelly Bushing: 2118
Total Vertical Depth: 3970 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 217 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: 56000 ppm Fluid volume: 500 bbls
Dewatering method used: Evaporated

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: 08/11/2014
☑ **Confidential Release Date:** 08/10/2016
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** NAOMI JAMES **Date:** 08/12/2014

[redacted] 1217906

Operator Name: Murfin Drilling Co., Inc. Lease Name: Miller Trust Well #: 1-18

Sec. 18 Twp. 16 S. R. 19 ☐ East ☑ West County: Rush

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 ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:

Attached

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
See Attachment		

CASING RECORD ☑ New ☐ 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
Surface	12.2500	8.6250	23	217	Common	150	3% CC, 2% Gel

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
___ Perforate ___ Protect Casing ___ Plug Back TD ___ 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 *(Amount and Kind of Material Used)*	Depth

TUBING RECORD: Size: Set At: Packer At: Liner Run: ☐ Yes ☐ No

Date of First, Resumed Production, SWD or ENHR. Producing Method: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)* _____

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS:
☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION:
☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*
☐ Other *(Specify)* _____

PRODUCTION INTERVAL:
_____
_____

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Miller Trust 1-18
Doc ID	1217906

All Electric Logs Run

DIL
DUCP
MEL
BHCS

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Miller Trust 1-18
Doc ID	1217906

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.2500	8.6250	23	217	Common	150	3% CC, 2% Gel

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

Miller Trust #1-18

18-16s-19w Rush,KS

Start Date: 2014.06.18 @ 02:56:20
End Date: 2014.06.18 @ 09:47:29
Job Ticket #: 58948 DST #: 1

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

Printed: 2014.06.23 @ 09:17:28

DRILL STEM TEST REPORT

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58948 **DST#: 1**

Test Start: 2014.06.18 @ 02:56:20

GENERAL INFORMATION:

Formation: **LKC B-D**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 05:28:20
Time Test Ended: 09:47:29

Test Type: Conventional Bottom Hole (Initial)
Tester: Tate Lang
Unit No: 49

Interval: 3490.00 ft (KB) To 3540.00 ft (KB) (TVD)
Total Depth: 3540.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

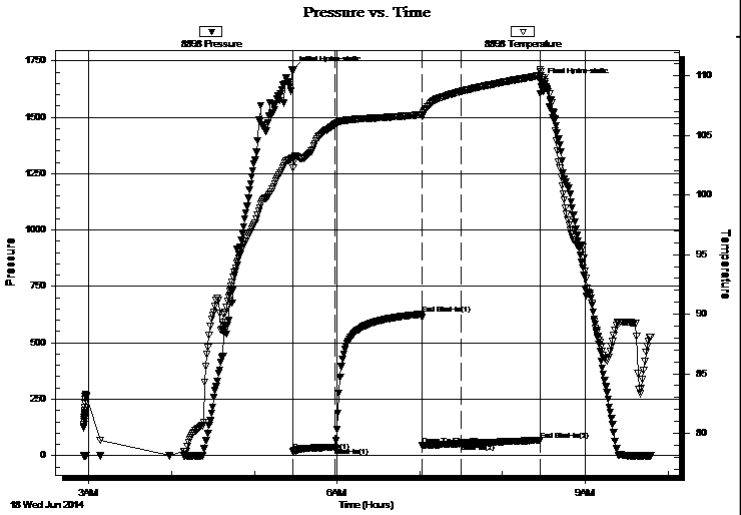
Reference Elevations: 2118.00 ft (KB)
2113.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8898 **Outside**

Press@RunDepth: 53.81 psig @ 3491.00 ft (KB)
Start Date: 2014.06.18 End Date: 2014.06.18
Start Time: 02:56:21 End Time: 09:47:30

Capacity: 8000.00 psig
Last Calib.: 2014.06.18
Time On Btm: 2014.06.18 @ 05:28:10
Time Off Btm: 2014.06.18 @ 08:27:40

TEST COMMENT: Weak surfaceblow built to 3"
Dead no blow back
Weak surface blow built to 1/2"
Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1708.98	103.09	Initial Hydro-static
1	19.95	102.28	Open To Flow (1)
30	37.81	105.93	Shut-In(1)
94	627.05	106.75	End Shut-In(1)
94	47.13	106.61	Open To Flow (2)
122	53.81	108.69	Shut-In(2)
179	67.94	110.03	End Shut-In(2)
180	1655.34	110.31	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
90.00	MCW with skim of oil on top 90%W 10%O	0.99

Gas Rates

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

DRILL STEM TEST REPORT

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58948 **DST#: 1**

Test Start: 2014.06.18 @ 02:56:20

GENERAL INFORMATION:

Formation: **LKC B-D**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 05:28:20
Time Test Ended: 09:47:29

Test Type: Conventional Bottom Hole (Initial)
Tester: Tate Lang
Unit No: 49

Interval: 3490.00 ft (KB) To 3540.00 ft (KB) (TVD)
Total Depth: 3540.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

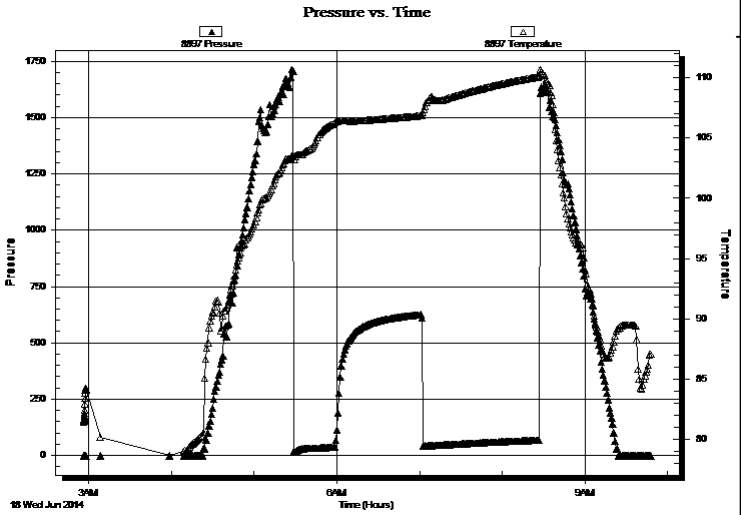
Reference Elevations: 2118.00 ft (KB)
2113.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8897 **Inside**

Press@RunDepth: psig @ 3491.00 ft (KB)
Start Date: 2014.06.18 End Date: 2014.06.18
Start Time: 02:56:30 End Time: 09:47:39

Capacity: 8000.00 psig
Last Calib.: 2014.06.18
Time On Btm:
Time Off Btm:

TEST COMMENT: Weak surfaceblow built to 3"
Dead no blow back
Weak surface blow built to 1/2"
Dead no blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
90.00	MCW with skim of oil on top 90%W 10%O	0.99

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58948 **DST#: 1**

Test Start: 2014.06.18 @ 02:56:20

Tool Information

Drill Pipe:	Length:	3454.00 ft	Diameter:	3.80 inches	Volume:	48.45 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
					Total Volume:	48.60 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		21.00 ft					String Weight:	Initial	50000.00 lb
Depth to Top Packer:		3490.00 ft						Final	50000.00 lb
Depth to Bottom Packer:		ft							
Interval betw een Packers:		50.00 ft							
Tool Length:		77.00 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			3468.00		
Hydraulic tool	5.00			3473.00		
Jars	5.00			3478.00		
Safety Joint	2.00			3480.00		
Packer	5.00			3485.00	27.00	Bottom Of Top Packer
Packer	5.00			3490.00		
Stubb	1.00			3491.00		
Recorder	0.00	8897	Inside	3491.00		
Recorder	0.00	8898	Outside	3491.00		
Perforations	13.00			3504.00		
Change Over Sub	1.00			3505.00		
Drill Pipe	31.00			3536.00		
Change Over Sub	1.00			3537.00		
Bullnose	3.00			3540.00	50.00	Bottom Packers & Anchor
Total Tool Length:	**77.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58948 **DST#: 1**

Test Start: 2014.06.18 @ 02:56:20

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	8.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	64.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.19 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

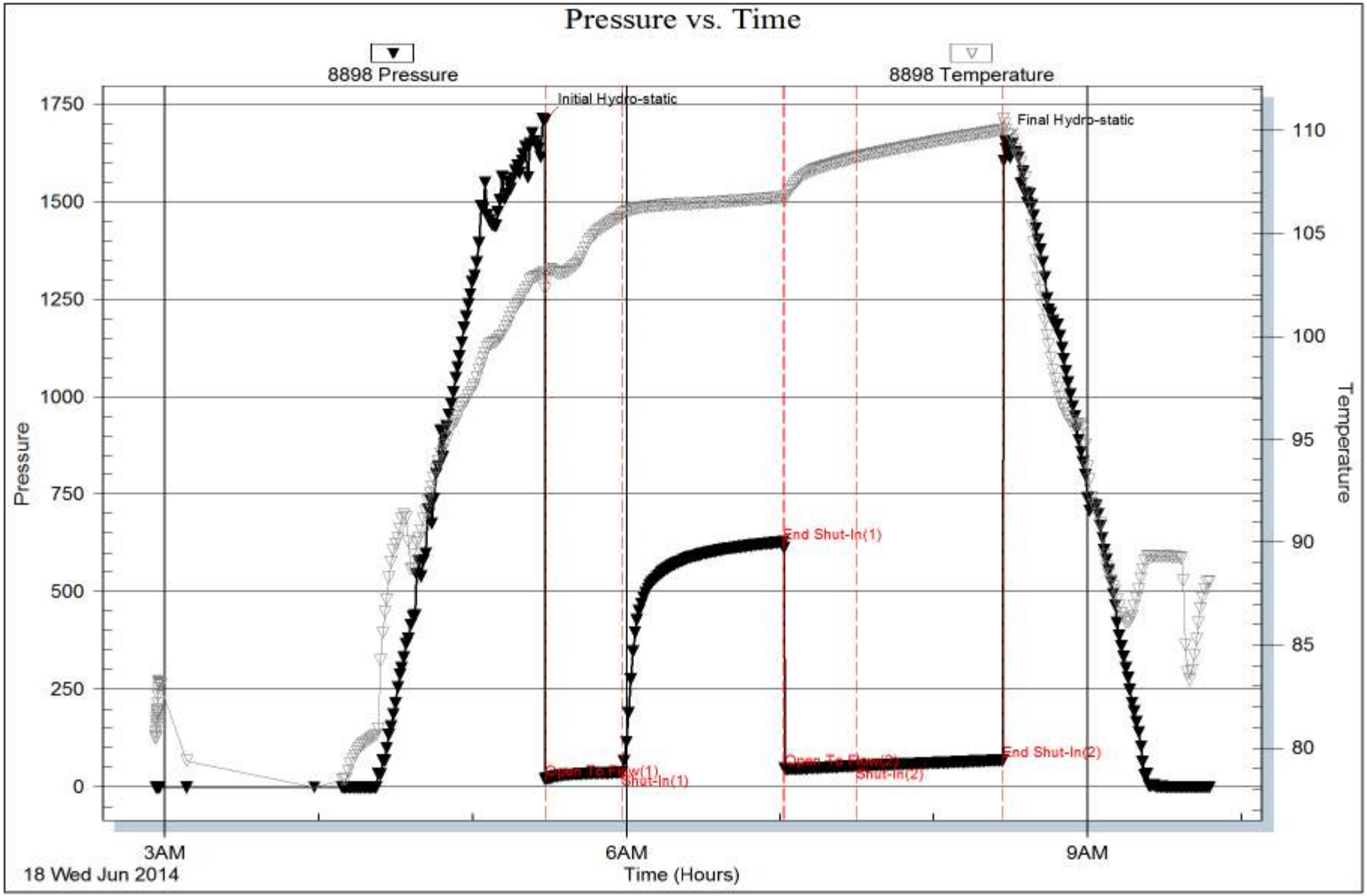
Recovery Table

Length ft	Description	Volume bbl
90.00	MCW with skim of oil on top 90%W 10%M	0.989

Total Length: 90.00 ft Total Volume: 0.989 bbl

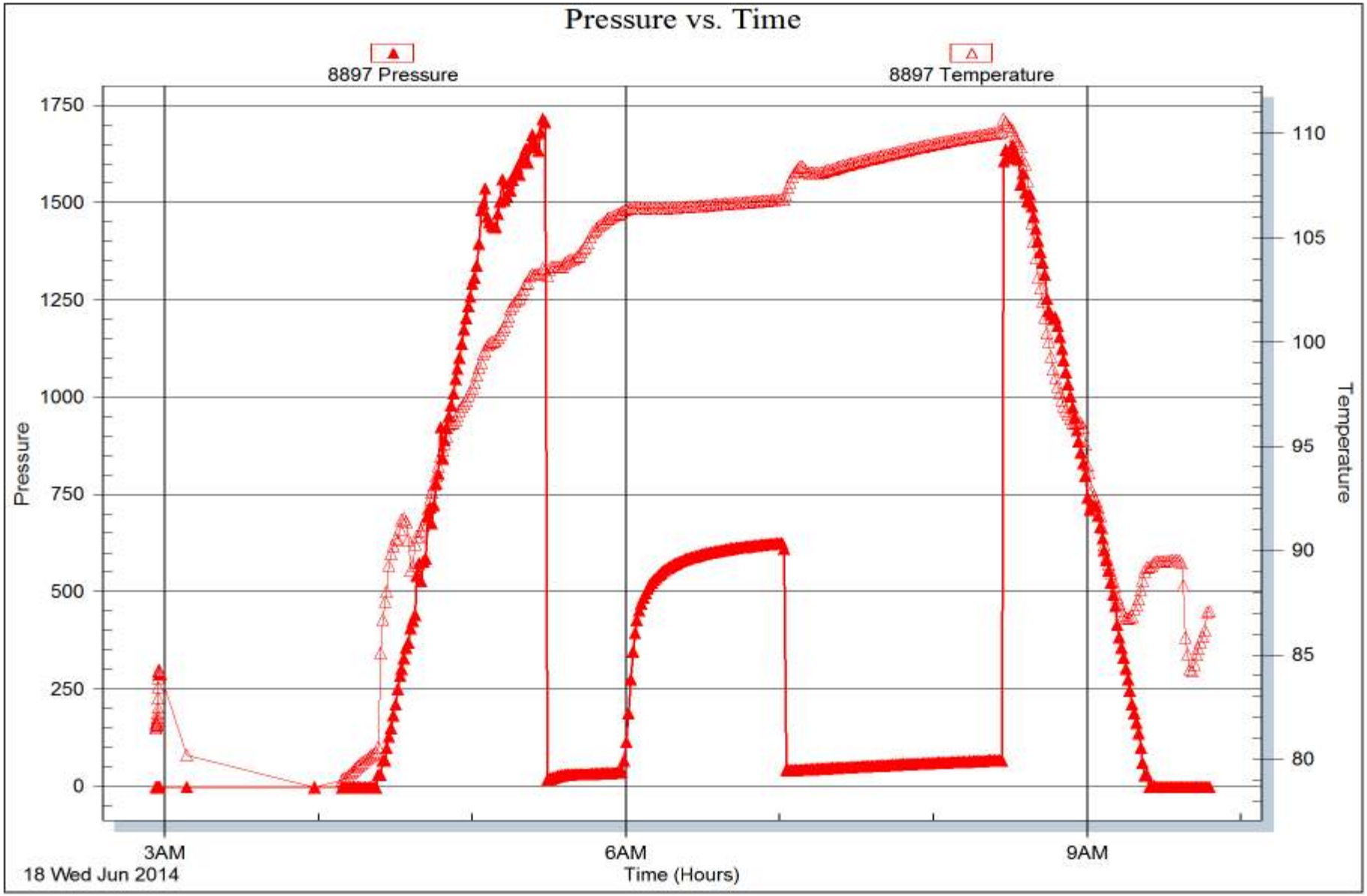
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8898 **Outside** Murfin Drilling Company Miller Trust #1-18 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 58948 Printed: 2014.06.23 @ 09:17:29

Serial #: 8897 **Inside** Murfin Drilling Company Miller Trust #1-18 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 58948 Printed: 2014.06.23 @ 09:17:29

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

Miller Trust #1-18

18-16s-19w Rush,KS

Start Date: 2014.06.19 @ 13:13:11
End Date: 2014.06.19 @ 19:18:11
Job Ticket #: 58949 DST #: 2

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

Printed: 2014.06.23 @ 09:17:06

DRILL STEM TEST REPORT

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58949 **DST#: 2**

Test Start: 2014.06.19 @ 13:13:11

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:05:01
Time Test Ended: 19:18:11

Test Type: Conventional Bottom Hole (Reset)
Tester: Tate Lang
Unit No: 49

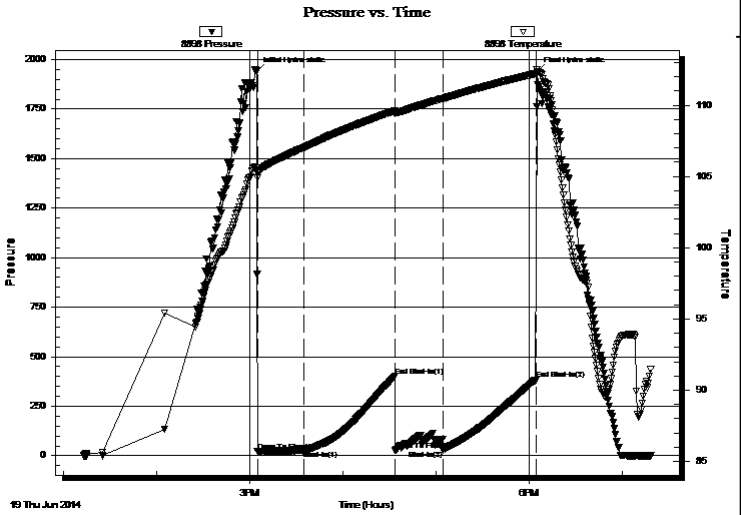
Interval: 3820.00 ft (KB) To 3874.00 ft (KB) (TVD)
Total Depth: 3874.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2118.00 ft (KB)
2113.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8898 **Outside**
Press@RunDepth: 27.80 psig @ 3821.00 ft (KB)
Start Date: 2014.06.19 End Date: 2014.06.19
Start Time: 13:13:12 End Time: 19:18:11

Capacity: 8000.00 psig
Last Calib.: 2014.06.19
Time On Btm: 2014.06.19 @ 15:04:41
Time Off Btm: 2014.06.19 @ 18:05:11

TEST COMMENT: Weak surface blow built to 1/2"
Dead no blow back
Dead no blow
Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1938.90	105.63	Initial Hydro-static
1	22.75	104.93	Open To Flow (1)
31	26.58	107.04	Shut-In(1)
89	402.64	109.61	End Shut-In(1)
90	28.26	109.42	Open To Flow (2)
120	27.80	110.45	Shut-In(2)
180	384.38	112.22	End Shut-In(2)
181	1939.80	112.52	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100%M	0.02

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58949 **DST#: 2**

Test Start: 2014.06.19 @ 13:13:11

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:05:01
Time Test Ended: 19:18:11

Test Type: Conventional Bottom Hole (Reset)
Tester: Tate Lang
Unit No: 49

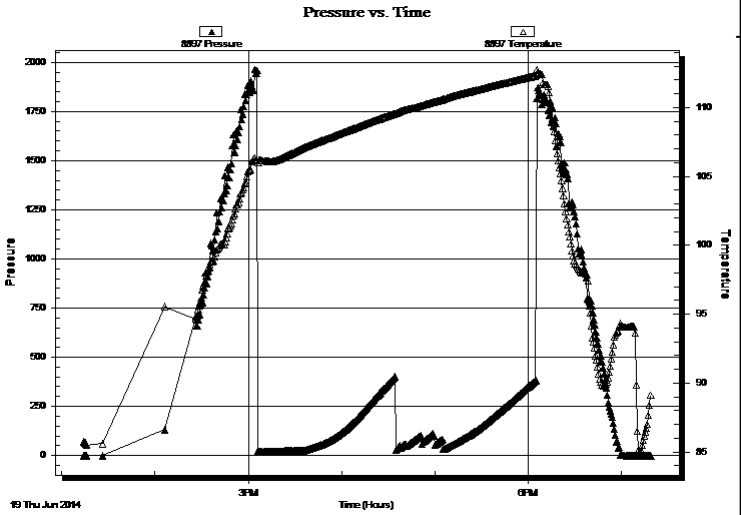
Interval: 3820.00 ft (KB) To 3874.00 ft (KB) (TVD)
Total Depth: 3874.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2118.00 ft (KB)
2113.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8897 **Inside**
Press@RunDepth: psig @ 3821.00 ft (KB)
Start Date: 2014.06.19 End Date: 2014.06.19
Start Time: 13:14:00 End Time: 19:18:59

Capacity: 8000.00 psig
Last Calib.: 2014.06.19
Time On Btm:
Time Off Btm:

TEST COMMENT: Weak surface blow built to 1/2"
Dead no blow back
Dead no blow
Dead no blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100%M	0.02

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58949 **DST#: 2**

Test Start: 2014.06.19 @ 13:13:11

Tool Information

Drill Pipe:	Length:	3769.00 ft	Diameter:	3.80 inches	Volume:	52.87 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:		56000.00 lb
					Total Volume:	53.02 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		6.00 ft					String Weight:	Initial	52000.00 lb
Depth to Top Packer:		3820.00 ft						Final	52000.00 lb
Depth to Bottom Packer:		ft							
Interval betw een Packers:		54.00 ft							
Tool Length:		81.00 ft							
Number of Packers:		2	Diameter:	6.75 inches					

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Shut In Tool	5.00			3798.00		
Hydraulic tool	5.00			3803.00		
Jars	5.00			3808.00		
Safety Joint	2.00			3810.00		
Packer	5.00			3815.00	27.00	Bottom Of Top Packer
Packer	5.00			3820.00		
Stubb	1.00			3821.00		
Recorder	0.00	8897	Inside	3821.00		
Recorder	0.00	8898	Outside	3821.00		
Perforations	17.00			3838.00		
Change Over Sub	1.00			3839.00		
Drill Pipe	31.00			3870.00		
Change Over Sub	1.00			3871.00		
Bullnose	3.00			3874.00	54.00	Bottom Packers & Anchor
Total Tool Length:	**81.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58949 **DST#: 2**

Test Start: 2014.06.19 @ 13:13:11

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	50.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	8000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

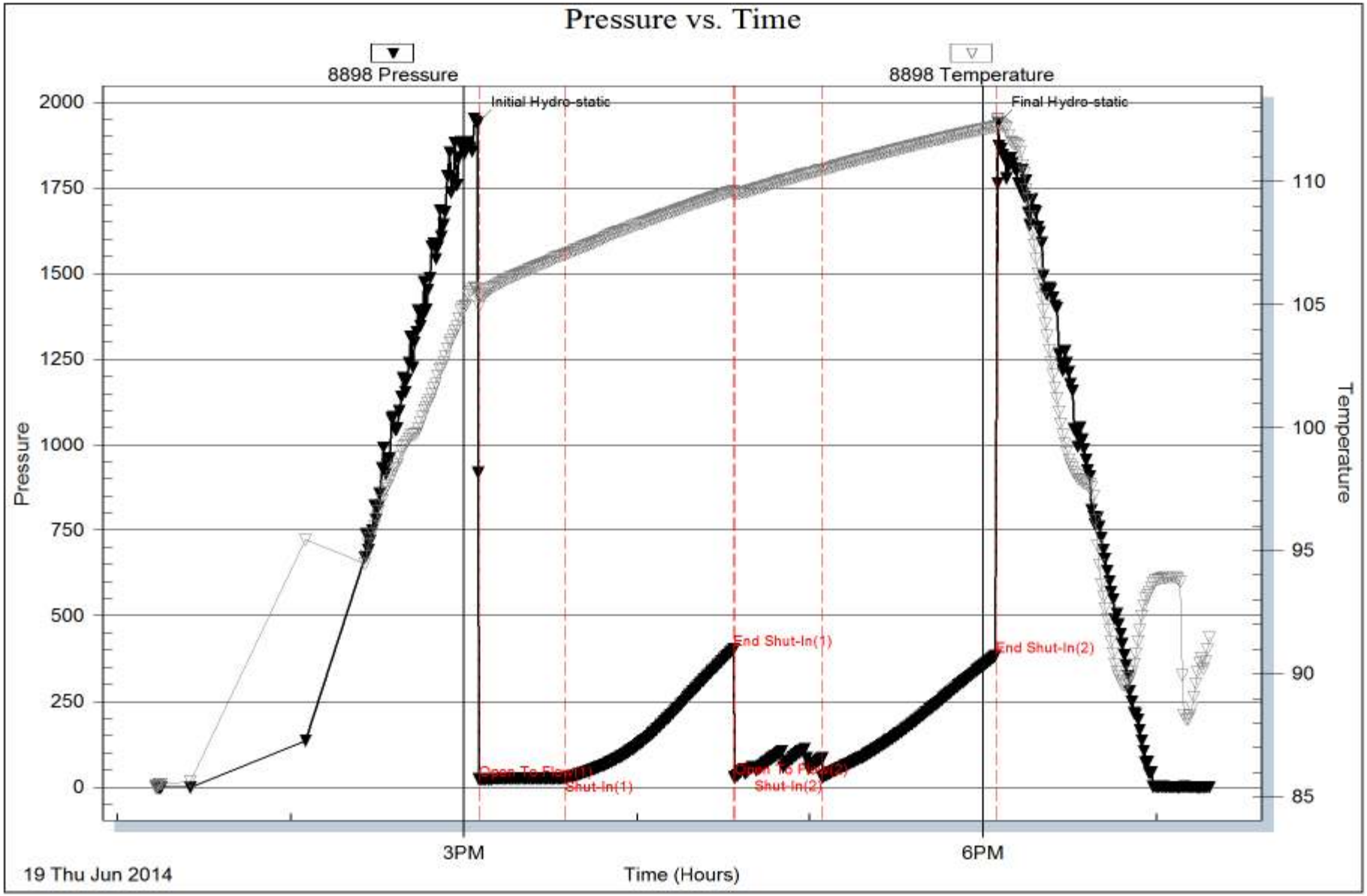
Recovery Table

Length ft	Description	Volume bbl
5.00	100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

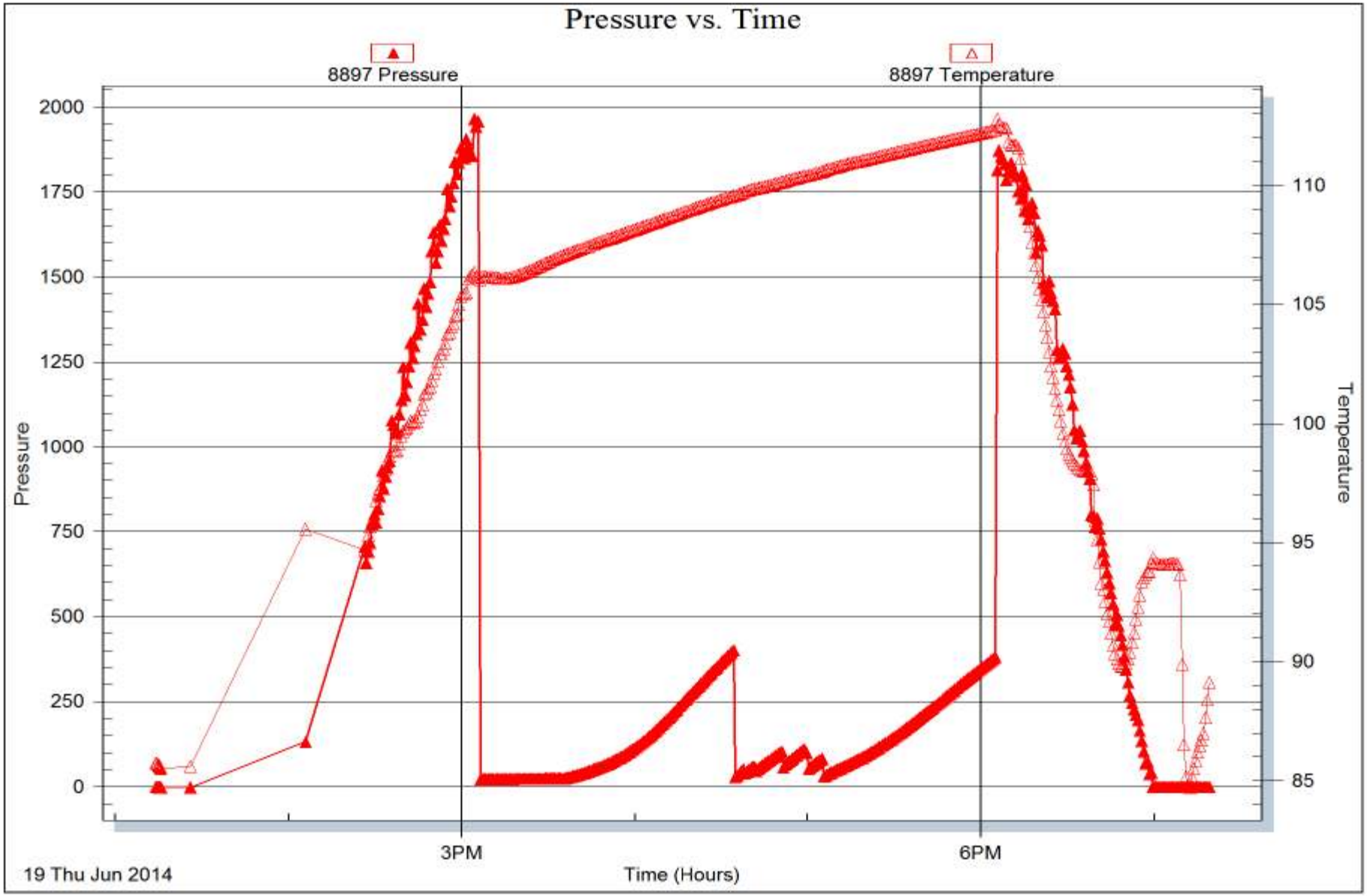
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8898 **Outside** Murfin Drilling Company Miller Trust #1-18 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 58949 Printed: 2014.06.23 @ 09:17:07

Serial #: 8897 **Inside** Murfin Drilling Company Miller Trust #1-18 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 58949 Printed: 2014.06.23 @ 09:17:07

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

Miller Trust #1-18

18-16s-19w Rush,KS

Start Date: 2014.06.20 @ 01:03:27
End Date: 2014.06.20 @ 08:43:47
Job Ticket #: 58950 DST #: 3

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

Printed: 2014.06.23 @ 09:16:35

DRILL STEM TEST REPORT

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58950 **DST#: 3**

Test Start: 2014.06.20 @ 01:03:27

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:56:57
Time Test Ended: 08:43:47

Test Type: Conventional Bottom Hole (Reset)
Tester: Tate Lang
Unit No: 49

Interval: 3820.00 ft (KB) To 3884.00 ft (KB) (TVD)
Total Depth: 3884.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

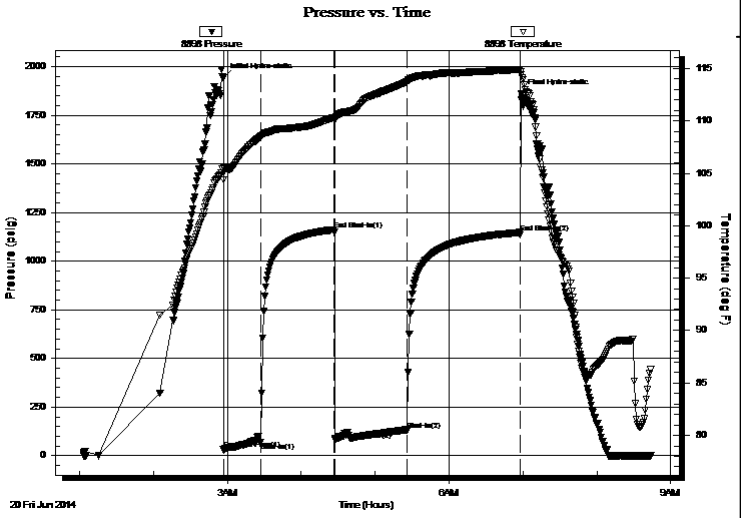
Reference Elevations: 2118.00 ft (KB)
2113.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8898 **Outside**

Press@RunDepth: 133.19 psig @ 3821.00 ft (KB)
Start Date: 2014.06.20 End Date: 2014.06.20
Start Time: 01:03:28 End Time: 08:43:47

Capacity: 8000.00 psig
Last Calib.: 2014.06.20
Time On Btm: 2014.06.20 @ 02:56:47
Time Off Btm: 2014.06.20 @ 06:58:47

TEST COMMENT: Strong blow built to 8"
Dead no blow back
B.O.B. in 35 mins
Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1943.72	105.59	Initial Hydro-static
1	31.16	104.37	Open To Flow (1)
31	69.80	108.45	Shut-In(1)
90	1161.64	110.30	End Shut-In(1)
91	80.77	110.13	Open To Flow (2)
150	133.19	113.73	Shut-In(2)
241	1147.49	114.91	End Shut-In(2)
242	1860.72	114.43	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
180.00	MCW 35%M 65%W	2.25
60.00	100%M	0.84

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58950 **DST#: 3**

Test Start: 2014.06.20 @ 01:03:27

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:56:57
Time Test Ended: 08:43:47

Test Type: Conventional Bottom Hole (Reset)
Tester: Tate Lang
Unit No: 49

Interval: 3820.00 ft (KB) To 3884.00 ft (KB) (TVD)
Total Depth: 3884.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

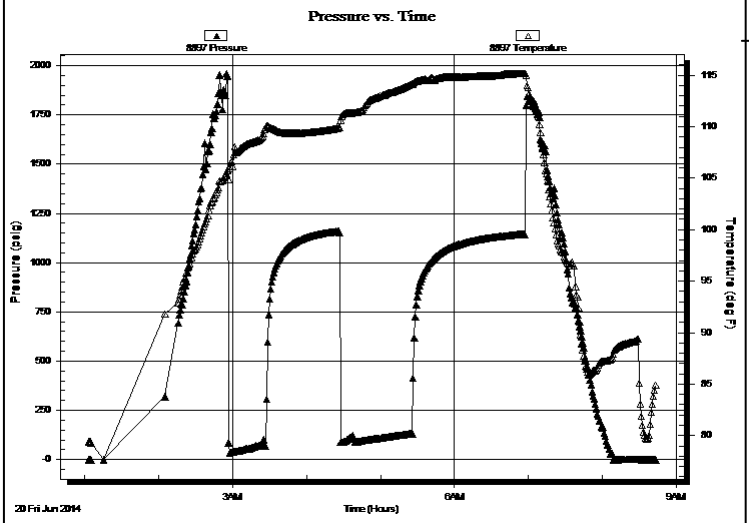
Reference Elevations: 2118.00 ft (KB)
2113.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8897 **Inside**

Press@RunDepth: psig @ 3821.00 ft (KB)
Start Date: 2014.06.20 End Date: 2014.06.20
Start Time: 01:03:03 End Time: 08:43:32

Capacity: 8000.00 psig
Last Calib.: 2014.06.20
Time On Btm:
Time Off Btm:

TEST COMMENT: Strong blow built to 8"
Dead no blow back
B.O.B. in 35 mins
Dead no blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
180.00	MCW 35%M 65%W	2.25
60.00	100%M	0.84

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58950 **DST#: 3**

Test Start: 2014.06.20 @ 01:03:27

Tool Information

Drill Pipe:	Length:	3769.00 ft	Diameter:	3.80	inches	Volume:	52.87	bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00	inches	Volume:	0.00	bbl	
Drill Collar:	Length:	30.00 ft	Diameter:	2.25	inches	Volume:	0.15	bbl	
						Total Volume:	53.02	bbl	

Drill Pipe Above KB:	6.00 ft
Depth to Top Packer:	3820.00 ft
Depth to Bottom Packer:	ft
Interval betw een Packers:	50.00 ft
Tool Length:	77.00 ft
Number of Packers:	2
Diameter:	6.75 inches

Tool Weight:		2200.00 lb
Weight set on Packer:		25000.00 lb
Weight to Pull Loose:		60000.00 lb
Tool Chased		0.00 ft
String Weight:	Initial	52000.00 lb
	Final	55000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Shut In Tool	5.00			3798.00		
Hydraulic tool	5.00			3803.00		
Jars	5.00			3808.00		
Safety Joint	2.00			3810.00		
Packer	5.00			3815.00	27.00	Bottom Of Top Packer
Packer	5.00			3820.00		
Stubb	1.00			3821.00		
Recorder	0.00	8897	Inside	3821.00		
Recorder	0.00	8898	Outside	3821.00		
Perforations	13.00			3834.00		
Change Over Sub	1.00			3835.00		
Drill Pipe	31.00			3866.00		
Change Over Sub	1.00			3867.00		
Bullnose	3.00			3870.00	50.00	Bottom Packers & Anchor
Total Tool Length:	**77.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

250 N Water STE 300
Wichita KS 67202

ATTN: Andy White

18-16s-19w Rush,KS

Miller Trust #1-18

Job Ticket: 58950 **DST#: 3**

Test Start: 2014.06.20 @ 01:03:27

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	50.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	8000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

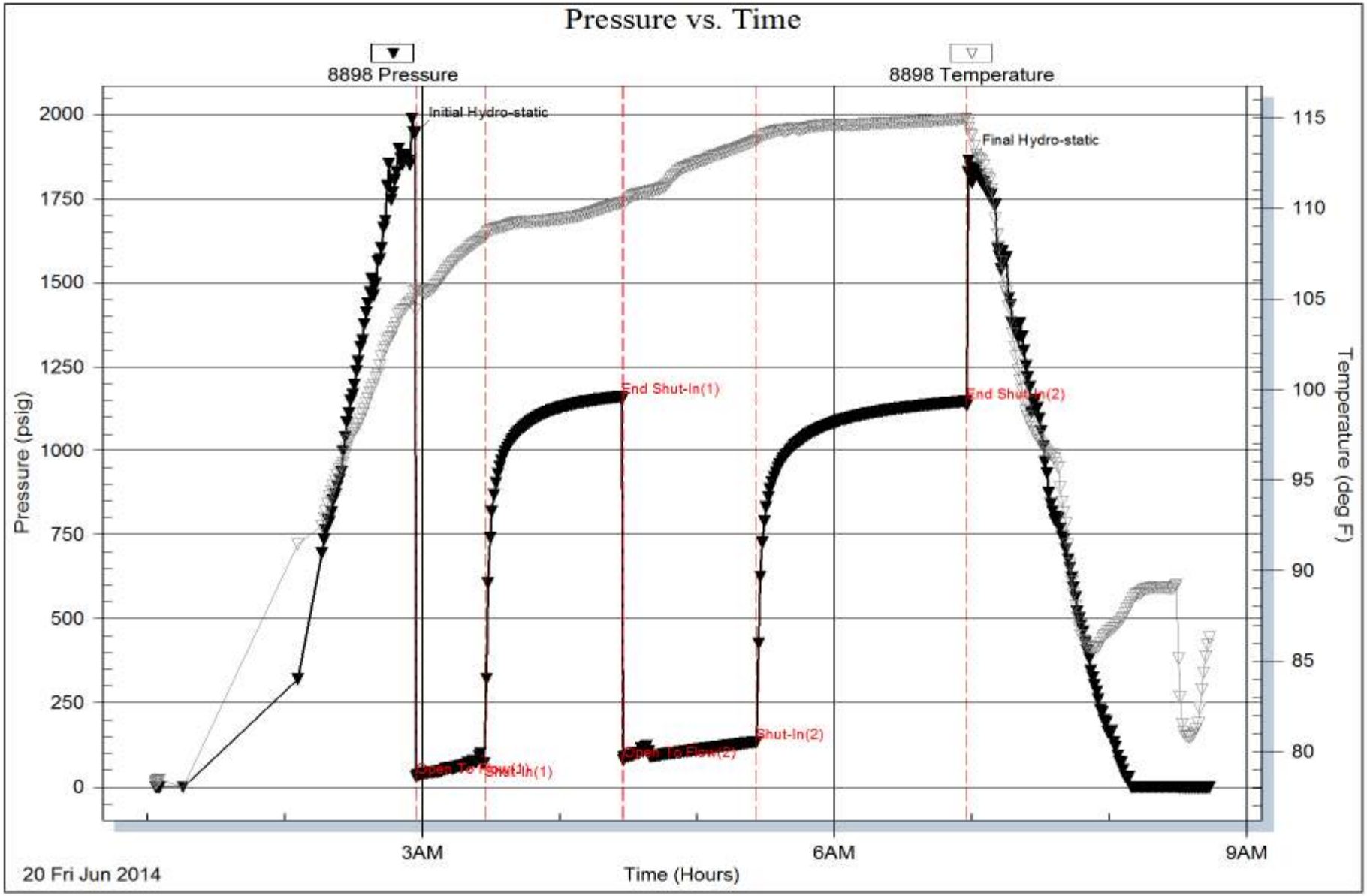
Recovery Table

Length ft	Description	Volume bbl
180.00	MCW 35%M 65%W	2.252
60.00	100%M	0.842

Total Length: 240.00 ft Total Volume: 3.094 bbl

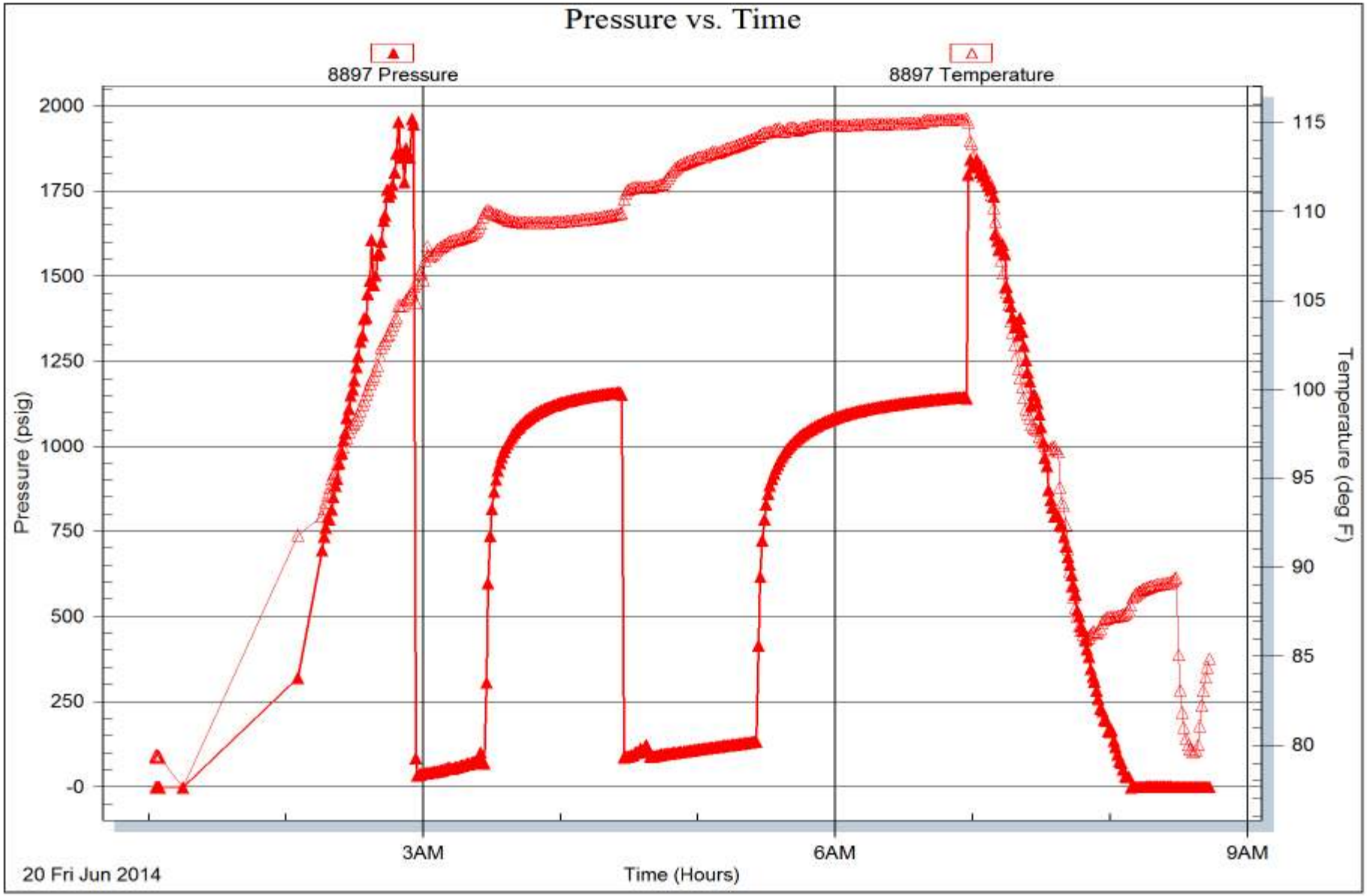
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8898 **Outside** Murfin Drilling Company Miller Trust #1-18 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 58950 Printed: 2014.06.23 @ 09:16:36

Serial #: 8897 **Inside** Murfin Drilling Company Miller Trust #1-18 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 58950 Printed: 2014.06.23 @ 09:16:36

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 58948

Well Name & No. Miller Trust #1-18 Test No. 1 Date 6-18-14

Company Murfin Drilling Company Elevation 2118 KB 2113 GL

Address 250 N Water STE 300 Wichita KS 67202

Co. Rep / Geo. Andy White Rig Murfin #16

Location: Sec. 18 Twp. 16S Rge. 19W Co. Rush State KS

Interval Tested 3490 3540 Zone Tested LKC B-D

Anchor Length 50 Drill Pipe Run 3454 Mud Wt. 8.5

Top Packer Depth 3485 Drill Collars Run 30 Vis 64

Bottom Packer Depth 3490 Wt. Pipe Run 0 WL 7.2

Total Depth 3540 Chlorides 2000 ppm System LCM 1#

Blow Description Weak surface blow built to 3in.
Dead no blow back
Weak surface blow built to ½in
Dead no blow back

Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec 90	Feet of MCW Skim of Oil on top	%gas	%oil	90	%water	10 %mud
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	

Rec Total 90 BHT Gravity API RW @ °F Chlorides ppm

(A) Initial Hydrostatic	1709	☒ Test	1150	T-On Location	1245
(B) First Initial Flow	20	☒ Jars	250	T-Started	0256
(C) First Final Flow	38	☒ Safety Joint	75	T-Open	0528
(D) Initial Shut-In	627	☐ Circ Sub		T-Pulled	0828
(E) Second Initial Flow	47	☐ Hourly Standby		T-Out	0947
(F) Second Final Flow	54	☒ Mileage	52rt 80.60	Comments	
(G) Final Shut-In	628	☐ Sampler			
(H) Final Hydrostatic	1655	☐ Straddle		☐ Ruined Shale Packer	
		☐ Shale Packer		☐ Ruined Packer	
Initial Open	30	☐ Extra Packer		☐ Extra Copies	
Initial Shut-In	60	☐ Extra Recorder		Sub Total	0
Final Flow	30	☐ Day Standby		Total	1555.60
Final Shut-In	60	☐ Accessibility		MP/DST Disc't	
		Sub Total	1555.60		

Approved By Our Representative

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 58949

Well Name & No. Miller Trust #1-18 Test No. 2 Date 6-19-14

Company Murfin Drilling Company Elevation 2118 KB 2113 GL

Address

Co. Rep / Geo. Andy White Rig Murfin #16

Location: Sec. 18 Twp. 16S Rge. 19W Co. State KS

Interval Tested 3820 3874 Zone Tested Arbuckle

Anchor Length 54 Drill Pipe Run Mud Wt. 9.1

Top Packer Depth 3815 Drill Collars Run 30 Vis 50

Bottom Packer Depth 3820 Wt. Pipe Run 0 WL 9.6

Total Depth 3874 Chlorides 8000 ppm System LCM 1#

Blow Description Weak surface blow built to 0 1/2 in
Dead no blow back
Dead no blow
Dead no blow back

Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec 5	Feet of Mud	%gas	%oil	%water 100	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 112 Gravity API RW @ °F Chlorides ppm

(A) Initial Hydrostatic	1939	☒ Test	1150	T-On Location	1310
(B) First Initial Flow	23	☒ Jars	250	T-Started	1313
(C) First Final Flow	27	☒ Safety Joint	75	T-Open	1506
(D) Initial Shut-In	403	☐ Circ Sub		T-Pulled	1806
(E) Second Initial Flow	28	☐ Hourly Standby		T-Out	1918
(F) Second Final Flow	28	☒ Mileage	80.60	Comments	
(G) Final Shut-In	384	☐ Sampler			
(H) Final Hydrostatic	1940	☐ Straddle		☐ Ruined Shale Packer	
		☐ Shale Packer		☐ Ruined Packer	
Initial Open	30	☐ Extra Packer		☐ Extra Copies	
Initial Shut-In	60	☐ Extra Recorder		Sub Total	116.67
Final Flow	30	☒ Day Standby	+3 1/2 hrs	Total	1672.27
Final Shut-In	60	☐ Accessibility		MP/DST Disc't	
		Sub Total	1555.60		

Approved By Our Representative

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 58950

Well Name & No. Miller Trust #1-18 Test No. 3 Date 6-20-14

Company MurFin Drilling Company Elevation 2147 KB 2155 GL

Address

Co. Rep / Geo. Andy White Rig MurFin #16

Location: Sec. 18 Twp. 16S Rge. 19W Co. Rice State KS

Interval Tested 3820 3884 Zone Tested Arbuckle

Anchor Length 64 Drill Pipe Run Mud Wt. 9.1

Top Packer Depth 3815 Drill Collars Run 30 Vis 50

Bottom Packer Depth 3820 Wt. Pipe Run WL 9.4

Total Depth 3884 Chlorides 8000 ppm System LCM 1#

Blow Description Strong blow built to 5in
Dead No blow back
B.O.B. In 35 mins
Dead No blow back

	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec 180	Feet of MCW	%gas	%oil 65	%water 35	%mud
Rec 60	Feet of Mud	%gas	%oil	%water 100	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 240 BHT 114 Gravity API RW .295 @ 71 °F Chlorides 24000 ppm

(A) Initial Hydrostatic	1943	☒ Test 1150	T-On Location 0045
(B) First Initial Flow	31	☒ Jars 250	T-Started 0103
(C) First Final Flow	70	☒ Safety Joint 75	T-Open 0257
(D) Initial Shut-In	1162	☒ Circ Sub	T-Pulled 0657
(E) Second Initial Flow	81	☐ Hourly Standby	T-Out 0943
(F) Second Final Flow	133	☒ Mileage 80.60	Comments
(G) Final Shut-In	1147	☐ Sampler	
(H) Final Hydrostatic	1861	☐ Straddle	☐ Ruined Shale Packer
		☐ Shale Packer	☐ Ruined Packer
Initial Open	30	☐ Extra Packer	☐ Extra Copies
Initial Shut-In	60	☐ Extra Recorder	Sub Total 0
Final Flow	60 90	☐ Day Standby	Total 1555.60
Final Shut-In		☐ Accessibility	MP/DST Disc't
		Sub Total 1555.60	

Approved By Our Representative

Prod-MC acct.

Date: 6/14/2014
Invoice # 48

P.O.#:

Due Date: 7/15/2014
Division: Russell

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

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 _____

Reference:
MILLER TRUST 1-18

Description of Work:
SURFACE JOB

Services / Items Included:	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		$ 1,020.55	No				
Common-Class A	150	$ 2,514.71	Yes				
Bulk Truck Matl-Material Service Charge	158	$ 353.18	No				
Calcium Chloride	5	$ 311.04	Yes				
Pump Truck Mileage-Job to Nearest Camp	28	$ 312.32	No				
Bulk Truck Mileage-Job to Nearest Bulk Plant	28	$ 182.76	No				
Premium Gel (Bentonite)	3	$ 54.59	Yes				

Invoice Terms:
Net 30

SubTotal:	$	*4,749.13*
Discount Available ONLY if Invoice is Paid & Received within listed terms of invoice:	$	(712.37)
SubTotal for Taxable Items:	$	2,448.28
SubTotal for Non-Taxable Items:	$	1,588.48
Total:	$	4,036.76
6.15% Rush County Sales Tax Tax:	$	150.57
Amount Due:	$	**4,187.33**
Applied Payments:		
Balance Due:	$	**4,187.33**

Thank You For Your Business!

Past Due Invoices are subject to a service charge (annual rate of 24%)
This does not include any applicable taxes unless it is listed.

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025 Home Office P.O. Box 32 Russell, KS 67665 No. 048

Cell 785-324-1041

Date	Sec.	Twp.	Range	County	State	On Location	Finish
6-14-14	18	16	19	Rush	KS		7:30 p.m.

Location Liebenthal 8W 1 3/4S 1W 1/4W Into

Lease Miller Trust Well No. 1-18

Owner

Contractor 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 12 1/4 T.D. 220

Csg. 8 5/8 Depth 218

Charge To Murfin Drilling

Tbg. Size Depth

Street

Tool Depth

City State

The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. 15' Shoe Joint

Cement Amount Ordered 150 com 3% cc 2% gel

Meas Line Displace 13 BBL

EQUIPMENT

Pumptrk 17 No. Cementer / Helper Craig

Bulktrk No. Driver / Driver

Bulktrk 1 No. Driver / Driver Doug

JOB SERVICES & REMARKS

Remarks:

Rat Hole

Mouse Hole

Centralizers

Baskets

D/V or Port Collar

8 5/8 on bottom. Est Circ to pit. Mix 150 sx cement & Displace.

Common	150
Poz. Mix	
Gel.	3
Calcium	5
Hulls	
Salt	
Flowseal	
Kol-Seal	
Mud CLR 48	
CFL-117 or CD110 CAF 38	
Sand	
Handling	158
Mileage	

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	
Baskets	8 5/8 Swage
AFU Inserts	
Float Shoe	
Latch Down	
Pumptrk Charge	Surface
Mileage	28
Tax	
Discount	
Total Charge	

X Signature Ag Oilfield

Acct. Prod - MG

Date: 6/21/2014
Invoice # 249

P.O.#:

Due Date: 7/21/2014
Division: *Russell*

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

Invoice

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

OPERATOR PAY MDC
LEASE:_____

USED FOR _____
APPROVED _____

Reference:
MILLER TRUST 1-18

Description of Work:
PLUG JOB

Services / Items Included:	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		$ 1,020.55	Yes				
Common-Class A	156	$ 2,615.29	Yes				
POZ Mix-Standard	104	$ 732.28	Yes				
Bulk Truck Matl-Material Service Charge	269	$ 601.29	Yes				
Pump Truck Mileage-Job to Nearest Camp	28	$ 312.32	Yes				
Bulk Truck Mileage-Job to Nearest Bulk Plant	28	$ 182.76	Yes				
Premium Gel (Bentonite)	9	$ 163.76	Yes				
Flo Seal	65	$ 145.29	Yes				

Invoice Terms:
Net 30

SubTotal:	$	*5,773.54*
Discount Available ONLY if Invoice is Paid & Received within listed terms of invoice:	$	(866.03)
SubTotal for Taxable Items:	$	4,907.51
SubTotal for Non-Taxable Items:	$	-
Total:	$	4,907.51
6.15% Rush County Sales Tax Tax:	$	301.81
Amount Due:	**$**	**5,209.32**
Applied Payments:		
Balance Due:	**$**	**5,209.32**

Thank You For Your Business!

Past Due Invoices are subject to a service charge (annual rate of 24%)
This does not include any applicable taxes unless it is listed.

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. 249

Date	Sec.	Twp.	Range	County	State	On Location	Finish
6-21-14	18	16	19	Rush	KS		3:00AM

Location Liebenthal W to 170 Rd, 1N, 1/4W, NnE

Lease Miller Trust | Well No. 1-18

Owner

Contractor 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 Plug

Charge To Murfin Drlg

Hole Size | T.D.

Csg. | Depth

Street

Tbg. Size | Depth

City | State

Tool | Depth

The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. | Shoe Joint

Cement Amount Ordered 260 60/40, 4% gel 1/4 Flow

Meas Line | Displace

EQUIPMENT

Pumptrk 17	No.	Cementer Helper	Lonnie W. Travis
Bulktrk 1	No.	Driver Driver	Ryan
Bulktrk PU	No.	Driver Driver	Tyler

JOB SERVICES & REMARKS

Remarks:

Rat Hole

Mouse Hole

Centralizers

Baskets

D/V or Port Collar

50 sx @ 3864
50 sx @ 1430
40 sx @ 600
50 sx @ 240
20 sx @ 60
30 sx Rat
20 sx Mouse

Common	156
Poz. Mix	104
Gel.	9
Calcium	
Hulls	
Salt	
Flowseal	65#
Kol-Seal	
Mud CLR 48	
CFL-117 or CD110 CAF 38	
Sand	
Handling	269
Mileage	

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	
Pumptrk Charge	plug
Mileage 28	
Tax	
Discount	
Total Charge	

X Signature

6/20/14 Depth 3884'. Cut 49'. DT: None. CT: 21hrs. Dev.: None. **DST #2 3820-3874' (Arb)**: 30-60-30-60. IF: wk surf blw built to ½". FF: dead no blw. Rec.: 5'M. HP: 1939-1940. FP: 23/27, 28/28. SIP: 403-384. BHT: 112°. ***Arb***: dol, fxln, sli friable, pr-fr por, VSSFO, few pieces with dead flakes, sli dull fluor, no odor. **DST# 3 3820-3884 (Arb)**: 30-60-60-90. IF: strng blw built to 8". FF: BOB in 35mins. Rec.: 180'MCW (35%M, 65%W), 60'M. HP: 1944-1861. FP: 31/70, 81/133. SIP: 1162-1147. BHT: 115°.

6/21/14 RTD: 3970'. Cut 86'. DT: None. CT: 21hrs. Dev.: 1½° @ 3970'. HC @ 1:45PM 6/20. Pioneer logged 4:15PM – 9:45PM 6/20. LTD: 3964'. Quality plugged hole, 12:00AM – 3:00AM 6/21, as follows using 60/40Poz, 4%Gel, 50sxs # 3864', 50sxs @ 1430', 40sxs @ 600', 50sxs @ 240', 20sxs @ 60', 30sxs RH, 20sxs MH. Orders Mike Maier KCC Hays. RR @ 7:00AM 6/21/14. FINAL REPORT

	MDCI Miller Trust #1-18 335' FSL 990' FEL Sec. 18-T16S-R19W 2118' KB						Mai Oil Oper Oelkers #3 380FNL 330FEL Sec. 19-T16S-R19W 2108' KB	
Formation	Sample top	Datum	Ref	Log tops	Datum	Ref	Log tops	Datum
Anhydrite	1355	+763	-2	1352	+766	+1	1343	+765
B/Anhydrite	1394	+724	-2	1391	+727	+1	1382	+726
Topeka	3158	-1040	-2	3146	-1028	+10	3146	-1038
Heebner	3434	-1316	-6	3426	-1308	+2	3418	-1310
Toronto	3449	-1331	-3	3444	-1326	+2	3436	-1328
Lansing	3474	-1356	-2	3470	-1352	+2	3462	-1354
Stark				3671	-1553	+8	3669	-1561
BKC	3728	-1610	-1	3732	-1614	-5	3717	-1609
Arbuckle	3864	-1746	-9	3866	-1748	-11	3845	-1737
RTD	3970						3898	
LTD				3964			3899	

Andrew White

Petroleum Geologist

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	**Miller Trust #1-18**		
Location:	**18-16S-19S**		
License Number:	**API: 15-165-22077**	**Region:**	**Rush Co, KS**
Spud Date:	**06-14-14**	**Drilling Completed:**	**06-21-14**
Surface Coordinates:	**335' FSL, 990' FEL**		
Bottom Hole Coordinates:			
Ground Elevation (ft):	**2113**	**K.B. Elevation (ft):**	**2118**
Logged Interval (ft):	**To:**	**Total Depth (ft):**	**3970 RTD; 3964 LTD**
Formation:	**Arbuckle**		
Type of Drilling Fluid:	**Chemical**		

OPERATOR

Company: **Murfin Drilling Company, Inc.**
Address: **250 N. Water, Suite 300**
Wichita, KS 67202

GEOLOGIST

Name: **Andrew White**
Company: **White Exploration Inc.**
Address: **1635 N. Waterfront Pkwy, Suite 100**
Wichita, KS 67206

Remarks

Due to negative Drill Stem Tests the well was P&A.

General Info

Drilling Contractor: Murfin Drilling Rig 16

Logs: Pioneer
Compensated Density/Neutron, Dual Induction, Micro, Sonic

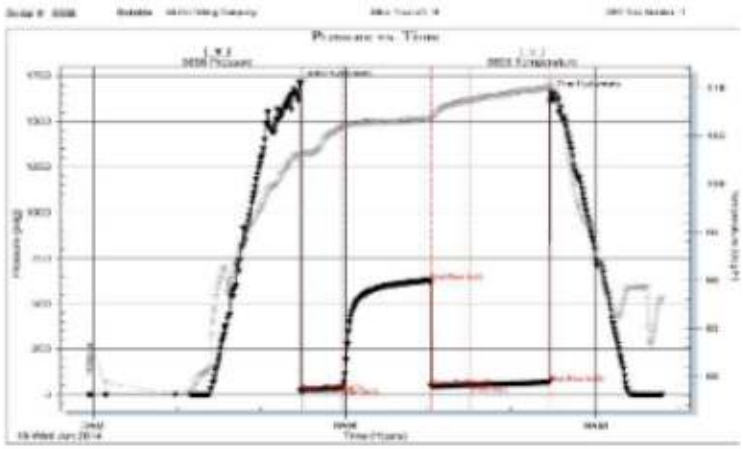
Drilling Mud: KDT

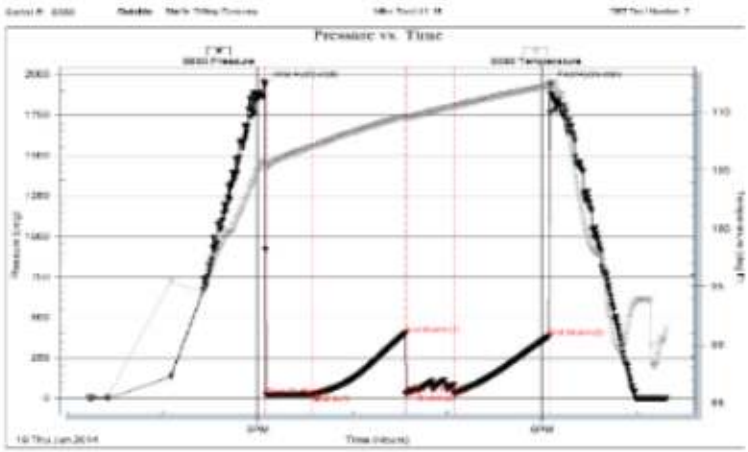
Surveys: 220'-.25, 3540'-1, 3970'-1.5
No pipe straps during drilling because of extremely windy conditions

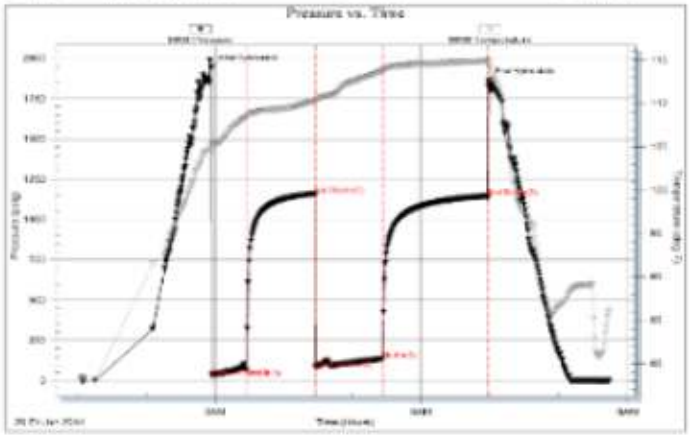
Daily Status

6/14/14: MIRT
6/15/14: Drill 460', set 8 5/8" Csg at 217', 150 sx comm 3% cc, 2% gel
6/16/14: Drilling ahead at 2200'
6/17/14: Drilling ahead at 3155'
6/18/14: Running DST#1 at 3540'
6/19/14: Drilling ahead at 3835'
6/20/14: Running DST #3 at 3884'
6/21/14: RTD 3970, LTD 3964, plugged with 60/40Poz, 4% gel, 50 sxs @ 3864', 50 sxs @ 1430', 40 sxs @600', 50 sxs @ 240', 20 sxs @ MH

	Murfin Miller Trust #1-18 18-16S-19W 335' FSL. 990' FEL KB: 2118			Mai Oil #3 Oelkers 19-16S-19W 380' FNL, 330' FEL KB: 2033	Mai Oil Oelkers #1 19-16S-19W NW-NE-NE KB: 2115
	Sample	Log	Datum	Relationship	
Anhydrite	1355	1352	766	+1	-1
Base Anhy	1394	1391	727	+1	-1
Topeka	3158	3146	-1028	+10	+5
Heebner	3434	3426	-1308	+2	+1
Toronto	3449	3444	-1326	+2	+1
Lansing	3474	3470	-1352	+2	+2
Stark	3681	3671	-1553	+8	+4
BKC	3728	3732	-1614	-5	-5
Arbuckle	3864	3866	-1748	-11	+16







ROCK TYPES

LITHOLOGY

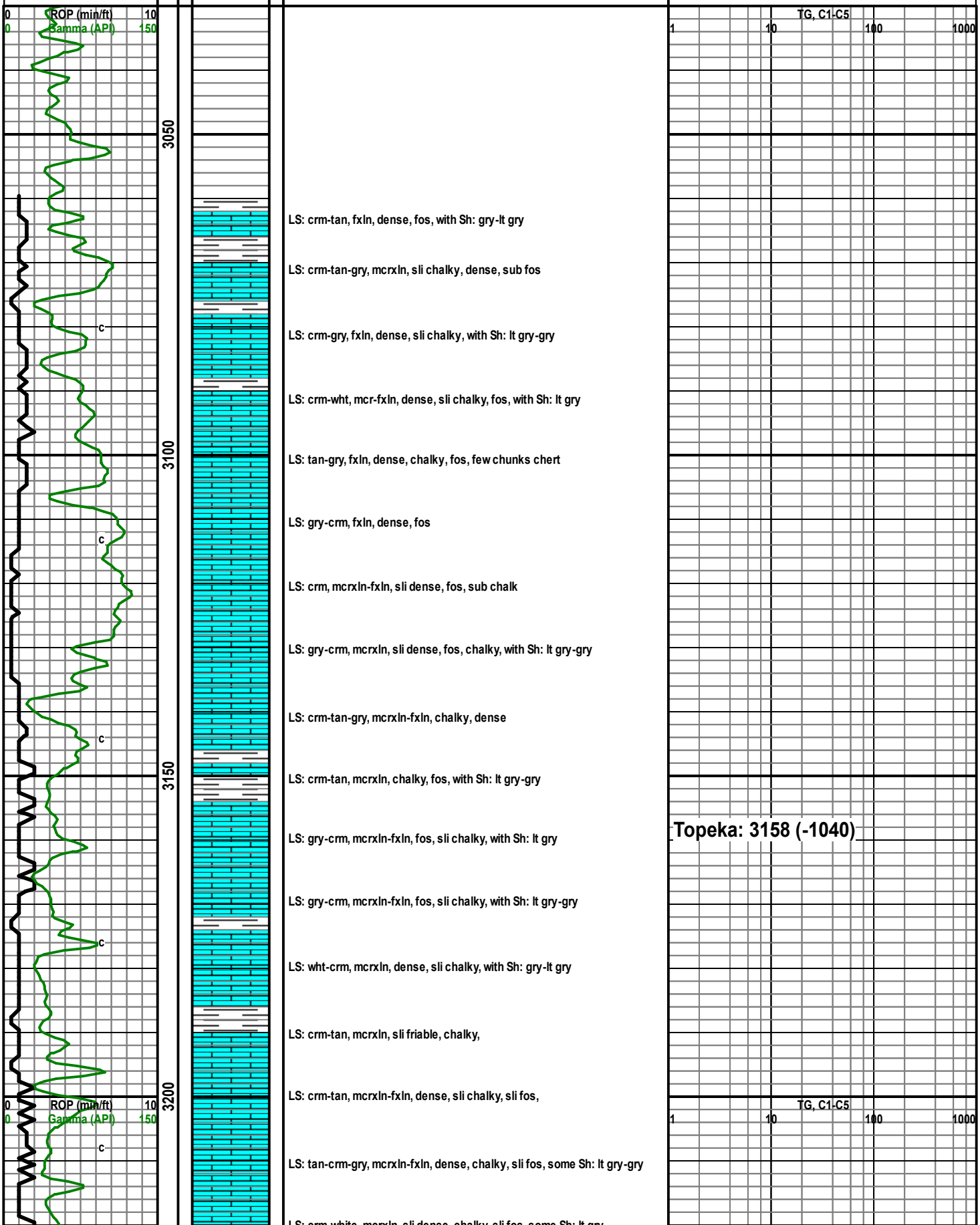
- Anhy
- Bent
- Brec
- Cht
- Clyst
- Black shale
- Congl
- Dol
- Gyp
- Igne
- Lmst
- Meta
- Mrlst
- Salt
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till

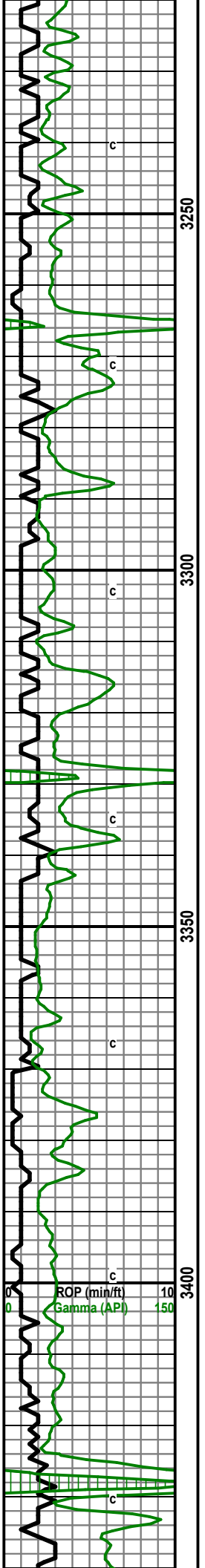
STRINGER

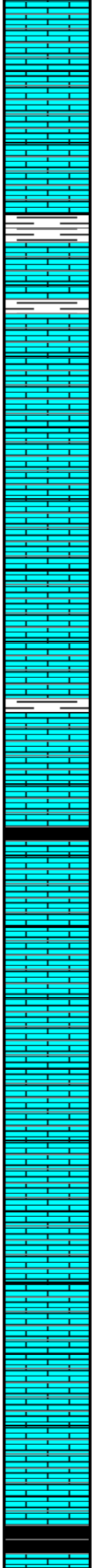
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

OIL SHOW

- Even
- Spotted
- Ques
- Dead


Curve Track 1
ROP (min/ft)
Gamma (API)
Depth
Porosity Type
Lithology
Oil Shows
Geological Descriptions
TG, C1-C5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
0 ROP (min/ft) 10
0 Gamma (API) 150
TG, C1-C5
1 10 100 1000
3050
3100
3150
3200
c
LS: crm-tan, fxln, dense, fos, with Sh: gry-lt gry
LS: crm-tan-gry, mcrxln, sli chalky, dense, sub fos
LS: crm-gry, fxln, dense, sli chalky, with Sh: lt gry-gry
LS: crm-wht, mcr-fxln, dense, sli chalky, fos, with Sh: lt gry
LS: tan-gry, fxln, dense, chalky, fos, few chunks chert
LS: gry-crm, fxln, dense, fos
LS: crm, mcrxln-fxln, sli dense, fos, sub chalk
LS: gry-crm, mcrxln, sli dense, fos, chalky, with Sh: lt gry-gry
LS: crm-tan-gry, mcrxln-fxln, chalky, dense
LS: crm-tan, mcrxln, chalky, fos, with Sh: lt gry-gry
LS: gry-crm, mcrxln-fxln, fos, sli chalky, with Sh: lt gry
Topeka: 3158 (-1040)
LS: gry-crm, mcrxln-fxln, fos, sli chalky, with Sh: lt gry-gry
LS: wht-crm, mcrxln, dense, sli chalky, with Sh: gry-lt gry
LS: crm-tan, mcrxln, sli friable, chalky,
LS: crm-tan, mcrxln-fxln, dense, sli chalky, sli fos,
LS: tan-crm-gry, mcrxln-fxln, dense, chalky, sli fos, some Sh: lt gry-gry





LS: crm-white, mcrxln, sli dense, chalky, sli fos, some Sh: lt gry

LS: crm, some gry, mcrxln, friable, chalky, sli fos

LS: crm, mcrxln, friable, chalky

LS: crm-gry, mcrxln, sli friable, sli chalky, some Sh: lt gry some grn

LS: crm-tan, mcrxln, dense, chalky, sli fos, some Sh: lt gry-gry

LS: crm-gry, mcrxln, friable, chalky

LS: crm-tan, mcrxln, dense, sli chalky, sli fos,

LS: crm-tan, some gry, mcrxln, dense, chalky

LS: crm-tan, mcrxln-fxln, sli dense, chalky, sli fos

LS: crm-gry, mcrxln, friable, chalky

LS: crm, mcrxln, dense, sli chalky, few pieces of Sh: gry-drk gry, some blck

LS: crm-gry, mcrxln, dense, sli chalky, sli fos

LS: crm, mcrxln, dense, sli chalky, sli fos, some Sh: drk gry-blck

LS: A.A.

LS: crm-gry, mcrxln-fxln, dense, chalky, sli fos

LS: crm-tan, mcrxln, friable, chalky

LS: crm-gry, mcrxln, sli dense, chalky

LS: crm-tan-gry, mcrxln, sli dense, chalky, sli fos

LS: crm-gry, mcrxln, dense, sli chalky, sli fos

LS: A.A.

LS: crm-gry, mcrxln, dense, sli chalky, fos,

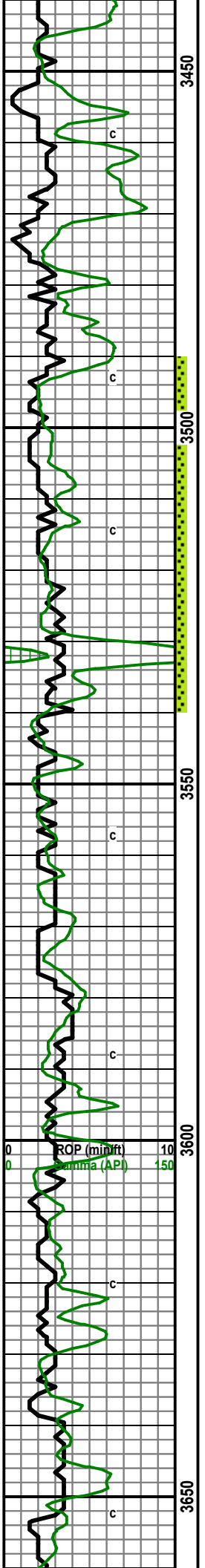
LS: crm-tan, mcrxln-fxln, dense, chalky, sli fos

Sh: blck, carb

KDT md ck
wt: 8.5 Vis: 64
pH: 11.5 Fil: 7.2
LCM: 1

TG, C1-C5
1
10
100
1000

Heebner: 3434 (-1316)



LS: crm-tan, mcrxln-fxln, dense, chalky, sli fos

LS: crm-tan, mcrxln-fxln, dense, sli friable, sli chalk, sli fos, some Sh: gry-lt gry

LS: crm-tan, mcrxln-fxln, dense, chalky, sli fos

LS: crm-tan, some gry, mcrxln, dense, chalky, sli fos

Sh: gry-drk gry, some blck

LS: crm-tan, fxln, dense, chalky, sli fos

LS: tan-gry, fxln, dense, sli chalky, sli fos, some Sh: gry-lt gry

LS; crm-tan-gry, fxln, dense, chalky, sli fos, NSFO some Sh: gry-lt gry

LS; crm-tan, fxln, dense, sli chalky, sli ool, fr vis por, vrrsfo

LS: crm-tan, fxln, few friable, sli ool, fr-gd vis por, vrrsfo, vrr gas, sli dull yellow fluor, no odor

Sh: gry-lt gry

LS: crm, some gry, mcrxln, some fxln, friable sub dense, chalky, fos, NSFO

LS: crm, some gry, mcrxln-fxln, friable, sli dense, sli fos, sli chalky, NSFO

Sh: gry-drk gry, some blck

LS; crm-gry, mcrxln, dense, sli friable, fos

Sh: gry-lt gry

LS; crm, mcrxln, dense, sli chalky, sli fos

LS: crm, mcrxln, dense, some friable, sli chalky, sli fos

LS: crm, mcrxln, sli friable, sli fos

Sh: gry-lt gry

LS: crm-tan, mcrxln, dense, chalky, sli ool

LS: A.A.

LS: crm-tan, mcrxln, dense, sli chalky, sli ool

LS: A.A. with some Sh: lt gry-gry

LS: crm, mcrxln, dense, sli chalky

LS: crm, mcrxln, dense, sli chalky, sample contained a good amount of green and gray shale

LS: crm, mcrxln, dense, sli chalky, some ool

Sh: gry-lt gry

LS: crm-gry, mcrxln, dense, ool, sli chalky

LS: crm some gry, mcrxln, dense, chalky

Sh: lt gry-gry

CFS

Lansing: 3474 (-1356)

CFS

DST #1 3490-3540
30-60-30-60
IF: weak surface built to 3"
FF: weak surface built to .5"
Rec: 90' MCW with skim of oil on top (90% W 10%m)
IFP: 20-38 ISIP: 627
FFP: 47-54 FSIP: 68
appears tool did not shut-in on 2nd shut in

CFS

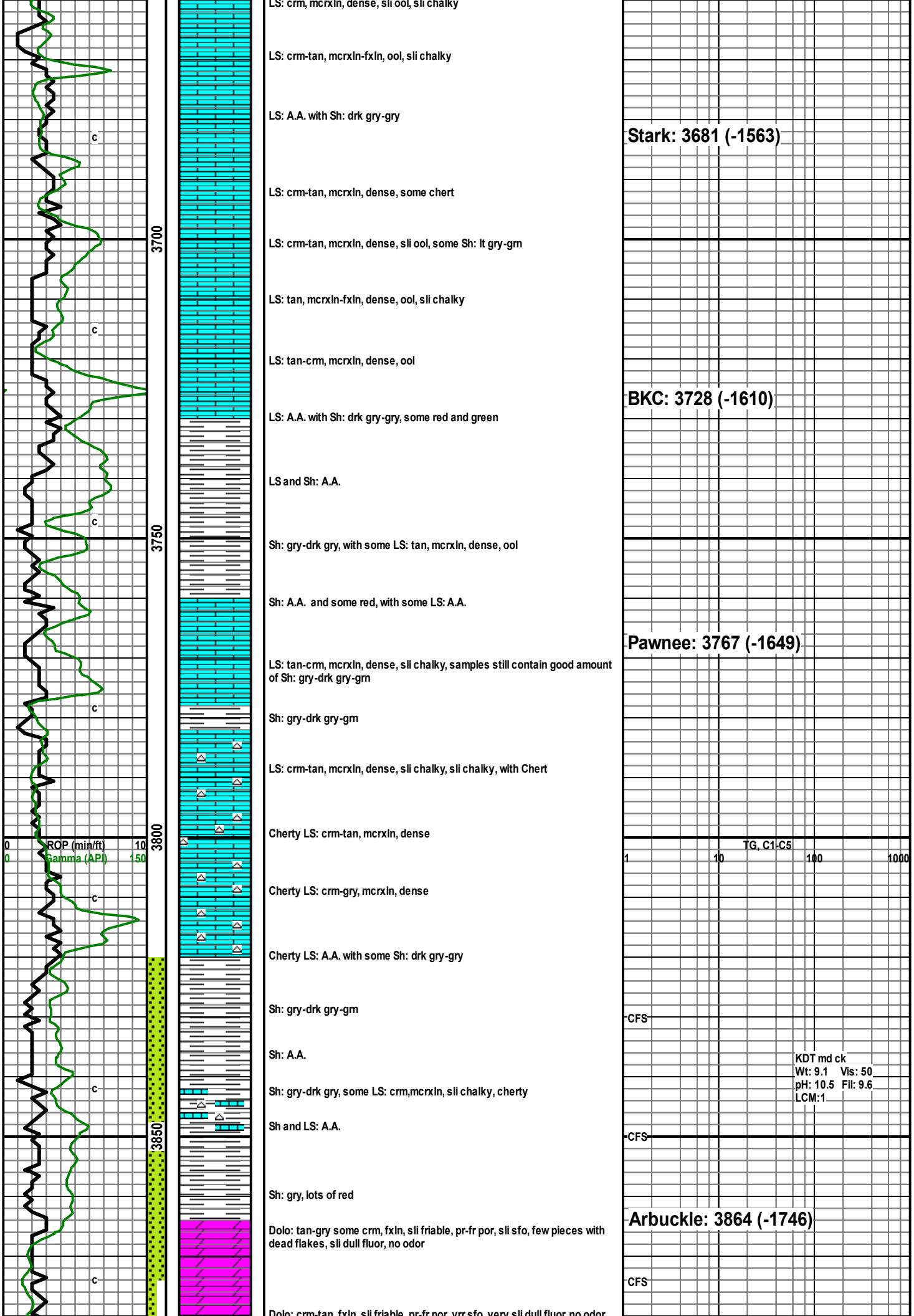
KDT md ck
Wt: 9 Vis: 61
pH: 11 Fil: 8.8
LCM: 1

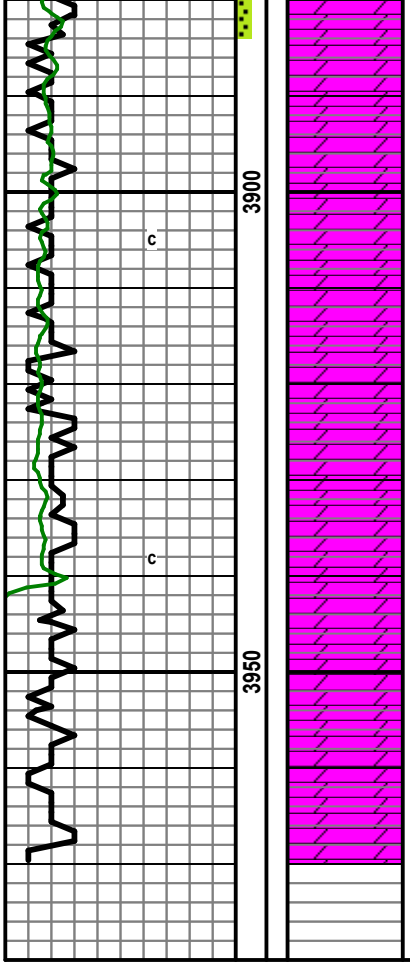
CFS

TG, C1-C5
1 10 100 1000

CFS

CFS


0 ROP (min/ft) 10
0 Gamma (API) 150
3700
3750
3800
3850
c
LS: crm, mcrxln, dense, sli ool, sli chalky
LS: crm-tan, mcrxln-fxln, ool, sli chalky
LS: A.A. with Sh: drk gry-gry
Stark: 3681 (-1563)
LS: crm-tan, mcrxln, dense, some chert
LS: crm-tan, mcrxln, dense, sli ool, some Sh: lt gry-grn
LS: tan, mcrxln-fxln, dense, ool, sli chalky
LS: tan-crm, mcrxln, dense, ool
LS: A.A. with Sh: drk gry-gry, some red and green
BKC: 3728 (-1610)
LS and Sh: A.A.
Sh: gry-drk gry, with some LS: tan, mcrxln, dense, ool
Sh: A.A. and some red, with some LS: A.A.
Pawnee: 3767 (-1649)
LS: tan-crm, mcrxln, dense, sli chalky, samples still contain good amount of Sh: gry-drk gry-grn
Sh: gry-drk gry-grn
LS: crm-tan, mcrxln, dense, sli chalky, sli chalky, with Chert
Cherty LS: crm-tan, mcrxln, dense
TG, C1-C5
1 10 100 1000
Cherty LS: crm-gry, mcrxln, dense
Cherty LS: A.A. with some Sh: drk gry-gry
Sh: gry-drk gry-grn
CFS
Sh: A.A.
KDT md ck
Wt: 9.1 Vis: 50
pH: 10.5 Fil: 9.6
LCM:1
Sh: gry-drk gry, some LS: crm,mcrxln, sli chalky, cherty
Sh and LS: A.A.
CFS
Sh: gry, lots of red
Arbuckle: 3864 (-1746)
Dolo: tan-gry some crm, fxln, sli friable, pr-fr por, sli sfo, few pieces with dead flakes, sli dull fluor, no odor
CFS
Dolo: crm-tan, fxln, sli friable, pr-fr por, vrr sfo, very sli dull fluor, no odor



Dolo: crm-tan, fxln, sli friable, pr-fr por, vfr sfo, very sli dull fluor, no odor

Dolo: crm, fxln, sli friable, sample contains a lot of red and gry shale

Dolo: crm-gry, mcrxln-fxln, dense

Dolo: crm-gry, mcrxln-fxln, sli friable, pr-fr por, sli sfo, dull fluor, no odor,

Dolo: A.A.

Dolo: crm-gry, mcrxln-fxln, dense, sli friable, pr-fr por, sli sfo, dull yellow, fluor, no odor

Dolo: crm-tan-gry, mcrxln-fxln, dense

Dolo: A.A.

Dolo: crm-tan, fxln, some mcrxln, dense, nsfo

RTD: 3970
LTD: 3964

CFS

KDT md ck
Wt: 9.4 Vis: 51
pH: 10.5 Fil: 10.4
LCM: 1.5

DST #2 3820-3874
30-60-30-60
IF: surface blow built to .5"
FF: no blow
Rec: 5' M
IFP: 23-27 ISIP: 403
FFP: 28-28 FSIP: 384

DST#3 3820-3884
30-60-60-90
IF: strong blow built to 8"
FF: B.O.B in 35 min.
Rec: 60'M, 180' MCW (35% M, 65% W)
IFP: 31-70 ISIP: 1162
FFP: 81-133 FSIP: 1147
BHT: 115