



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1203197  
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
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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: \_\_\_\_\_

1203197

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 <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
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:				

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:  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

<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> _____ _____
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Sharp 'A' 1-3
Doc ID	1203197

All Electric Logs Run

Dual Induction
Dual Compensated
Microresistivity
Borehole Compensated





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company, Inc.**

250 N Water STE 300  
Wichita KS 67202-1216

ATTN: Bob Stolzle

### **Sharp "A" #1-3**

### **3-18s-30w Lane,KS**

Start Date: 2014.01.19 @ 08:32:00

End Date: 2014.01.19 @ 15:37:45

Job Ticket #: 54604                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.24 @ 10:30:51



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

**3-18s-30w Lane, KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54604

**DST#: 1**

ATTN: Bob Stolzle

Test Start: 2014.01.19 @ 08:32:00

## GENERAL INFORMATION:

Formation: **Kansas City "H,I,J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:25:15

Time Test Ended: 15:37:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Jace McKinney

Unit No: 46

**Interval: 4085.00 ft (KB) To 4210.00 ft (KB) (TVD)**

Reference Elevations: 2878.00 ft (KB)

Total Depth: 4210.00 ft (KB) (TVD)

2868.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 10.00 ft

**Serial #: 8675**

**Inside**

Press@RunDepth: 997.51 psig @ 4086.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.19

End Date:

2014.01.19

Last Calib.:

2014.01.19

Start Time: 08:32:15

End Time:

15:37:45

Time On Btm:

2014.01.19 @ 10:24:45

Time Off Btm:

2014.01.19 @ 12:56:15

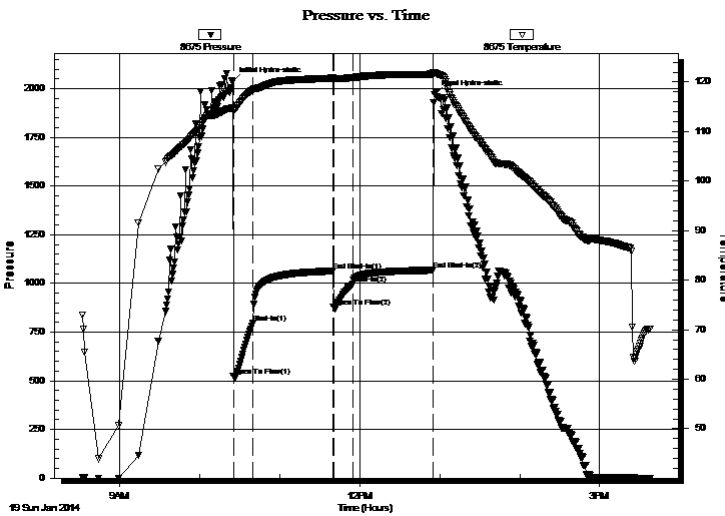
**TEST COMMENT:** B.O.B. in 45 sec.

Bled off for 5 min. No return blow

B.O.B. in 1 1/4 min.

Bled off for 5 min. No return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2034.89	114.78	Initial Hydro-static
1	523.08	114.37	Open To Flow (1)
16	797.26	118.46	Shut-In(1)
76	1063.90	120.81	End Shut-In(1)
76	877.79	120.75	Open To Flow (2)
91	997.51	120.92	Shut-In(2)
151	1067.82	121.59	End Shut-In(2)
152	1970.67	121.95	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1692.00	100% Water	21.23
252.00	mcw 30%M 70%W	3.53
356.00	mcw 50%M 50%W	4.99

## Gas Rates

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



# DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

**3-18s-30w Lane, KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54604

**DST#: 1**

ATTN: Bob Stolzle

Test Start: 2014.01.19 @ 08:32:00

## GENERAL INFORMATION:

Formation: **Kansas City "H,I,J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:25:15

Time Test Ended: 15:37:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Jace McKinney

Unit No: 46

**Interval: 4085.00 ft (KB) To 4210.00 ft (KB) (TVD)**

Reference Elevations: 2878.00 ft (KB)

Total Depth: 4210.00 ft (KB) (TVD)

2868.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 10.00 ft

**Serial #: 8650 Outside**

Press@RunDepth: psig @ 4086.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.19 End Date: 2014.01.19

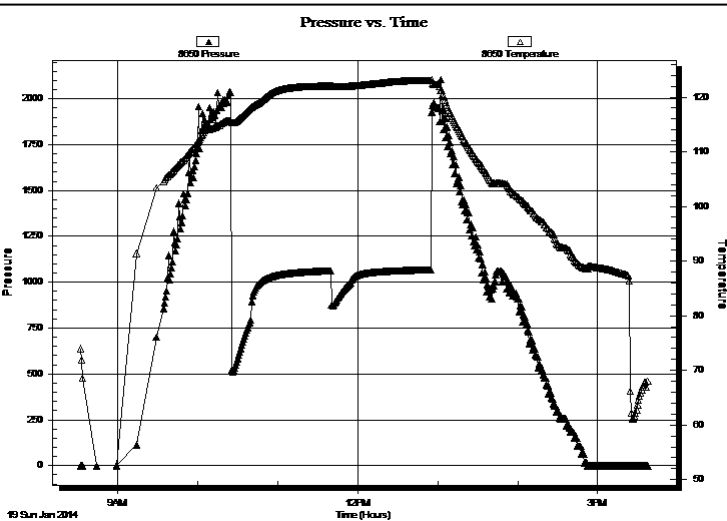
Last Calib.: 2014.01.19

Start Time: 08:32:15 End Time: 15:37:30

Time On Btm:

Time Off Btm:

**TEST COMMENT:** B.O.B. in 45 sec.  
Bled off for 5 min. No return blow  
B.O.B. in 1 1/4 min.  
Bled off for 5 min. No return blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
1692.00	100% Water	21.23
252.00	mcw 30%M 70%W	3.53
356.00	mcw 50%M 50%W	4.99

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54604

**DST#: 1**

ATTN: Bob Stolzle

Test Start: 2014.01.19 @ 08:32:00

## Tool Information

Drill Pipe:	Length: 3800.89 ft	Diameter: 3.80 inches	Volume: 53.32 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	30000.00 lb
Drill Collar:	Length: 274.74 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose:	90000.00 lb
			<u>Total Volume: 54.67 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	18.13 ft			String Weight: Initial	72000.00 lb
Depth to Top Packer:	4085.00 ft			Final	80000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	125.00 ft				
Tool Length:	152.50 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			4058.50	
Shut In Tool	5.00			4063.50	
Hydraulic tool	5.00			4068.50	
Jars	5.00			4073.50	
Safety Joint	2.50			4076.00	
Packer	5.00			4081.00	27.50 Bottom Of Top Packer
Packer	4.00			4085.00	
Stubb	1.00			4086.00	
Recorder	0.00	8675	Inside	4086.00	
Recorder	0.00	8650	Outside	4086.00	
Perforations	22.00			4108.00	
Change Over Sub	1.00			4109.00	
Drill Pipe	97.00			4206.00	
Change Over Sub	1.00			4207.00	
Bullnose	3.00			4210.00	125.00 Bottom Packers & Anchor

**Total Tool Length: 152.50**





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54604

**DST#: 1**

ATTN: Bob Stolzle

Test Start: 2014.01.19 @ 08:32:00

### 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: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.53 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1600.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1692.00	100% Water	21.232
252.00	mcw 30%M 70%W	3.535
356.00	mcw 50%M 50%W	4.994

Total Length: 2300.00 ft      Total Volume: 29.761 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .18 @ 82 F = 30,000

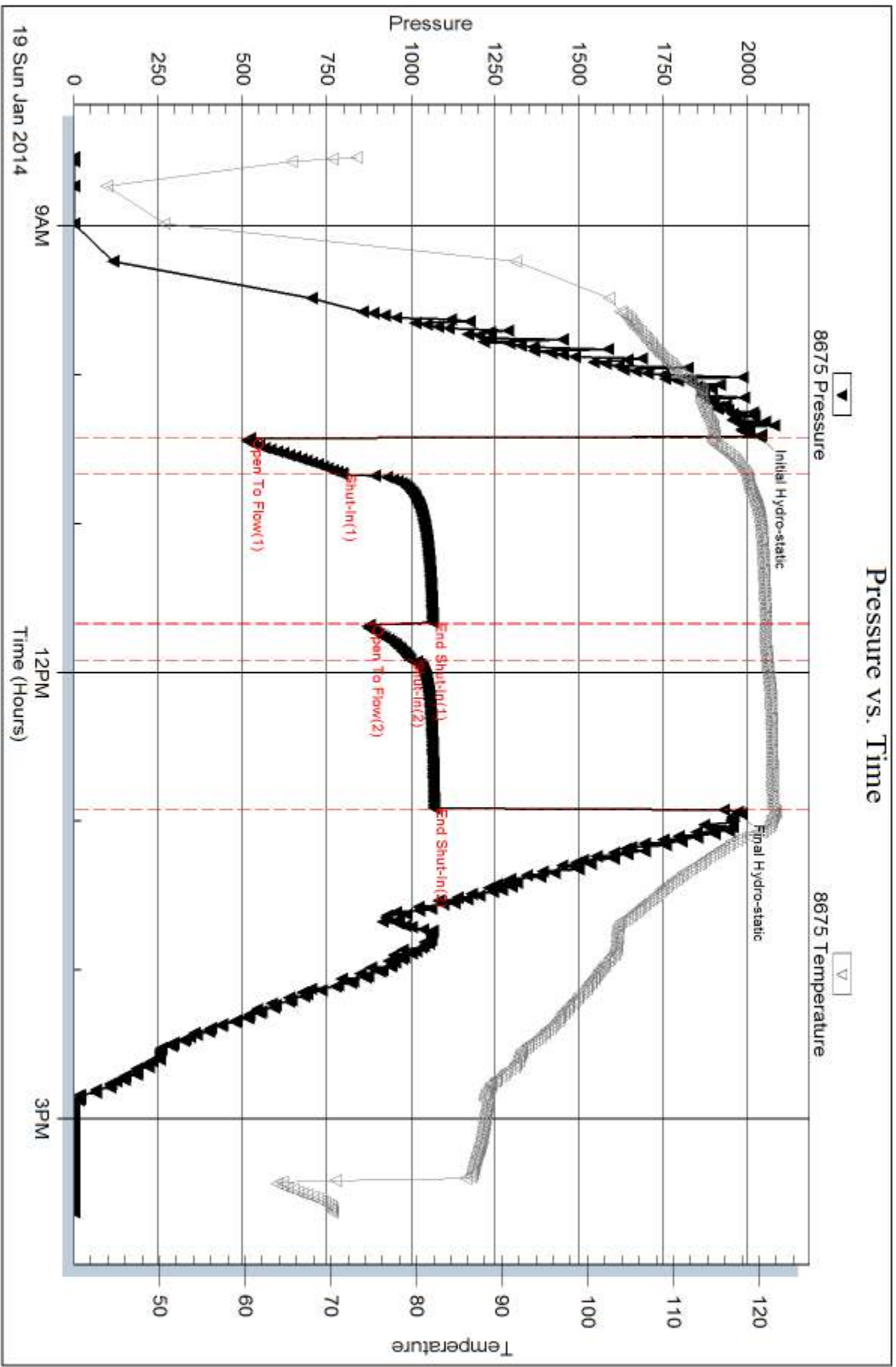
Serial #: 8675

Inside

Murfin Drilling Company, Inc.

Sharp "A" #1-3

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 54604

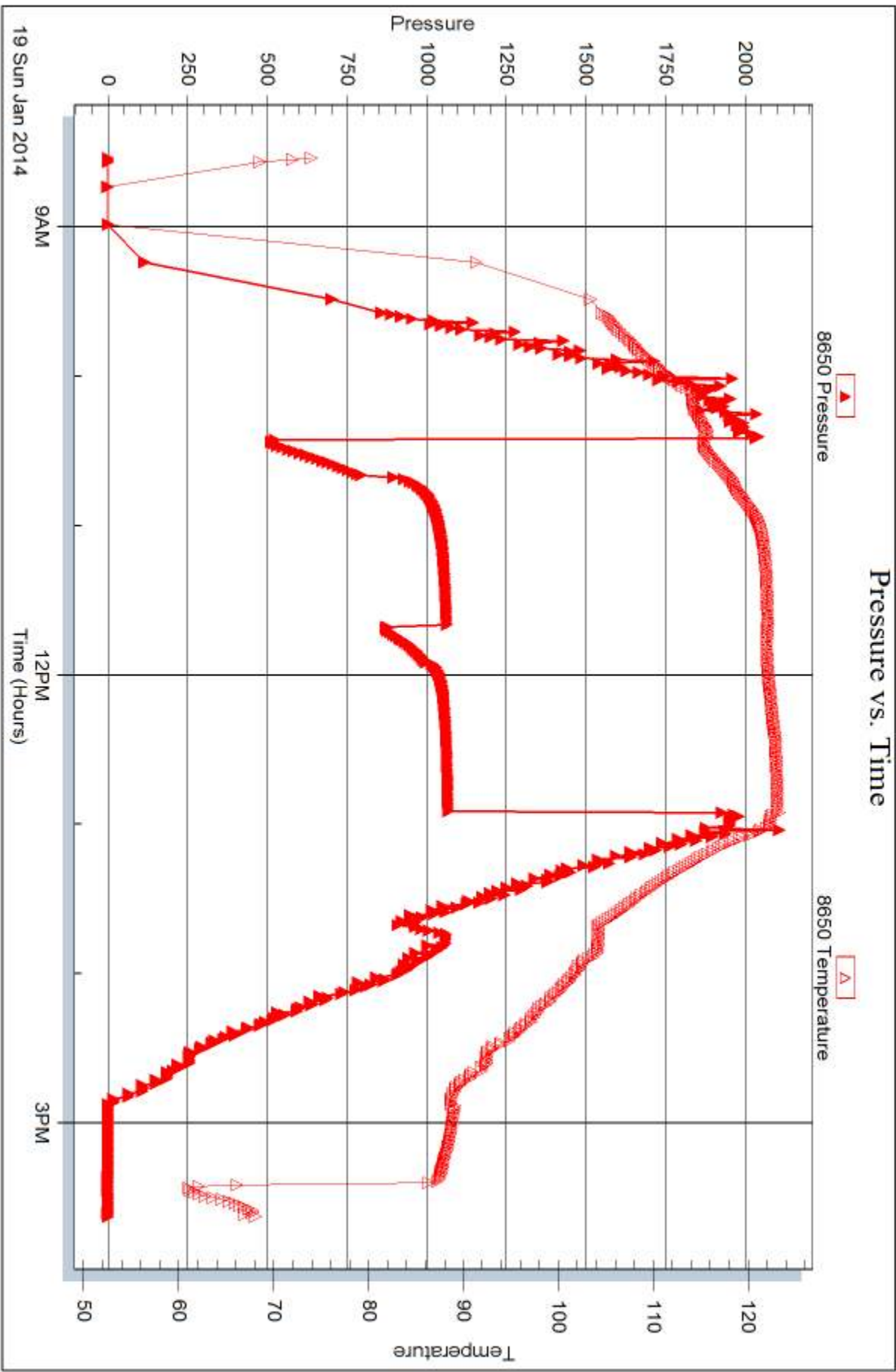
Printed: 2014.01.24 @ 10:30:53

Serial #: 8650

Outside Murfin Drilling Company, Inc.

Sharp "A" #1-3

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 54604

Printed: 2014.01.24 @ 10:30:53



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company, Inc.**

250 N Water STE 300  
Wichita KS 67202-1216

ATTN: Bob Stolzle

### **Sharp "A" #1-3**

### **3-18s-30w Lane,KS**

Start Date: 2014.01.20 @ 05:40:00

End Date: 2014.01.20 @ 15:55:15

Job Ticket #: 54570                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.24 @ 10:30:13



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

**3-18s-30w Lane, KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54570

**DST#: 2**

ATTN: Bob Stolzle

Test Start: 2014.01.20 @ 05:40:00

## GENERAL INFORMATION:

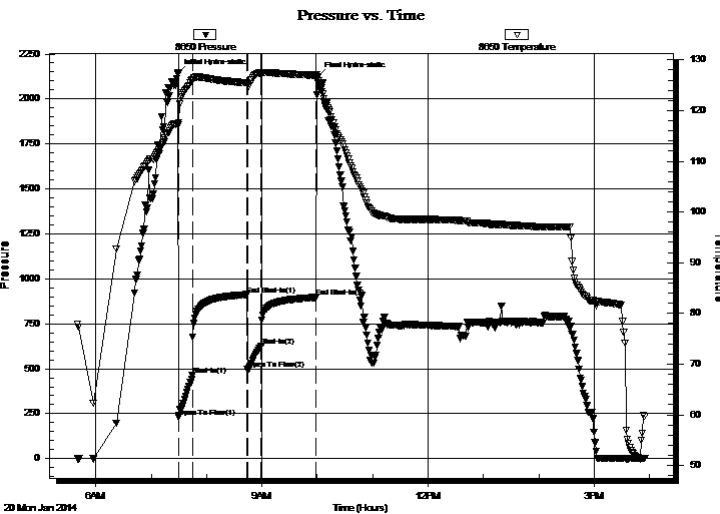
Formation: **KC "L & X- Line**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 07:29:30  
 Time Test Ended: 15:55:15  
 Interval: **4252.00 ft (KB) To 4320.00 ft (KB) (TVD)**  
 Total Depth: 4320.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Cornelio Landa III  
 Unit No: 46  
 Reference Elevations: 2878.00 ft (KB)  
 2868.00 ft (CF)  
 KB to GR/CF: 10.00 ft

## Serial #: 8650

**Outside**

Press@RunDepth: 626.82 psig @ 4254.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.01.20 End Date: 2014.01.20 Last Calib.: 2014.01.20  
 Start Time: 05:40:15 End Time: 15:55:15 Time On Btm: 2014.01.20 @ 07:29:00  
 Time Off Btm: 2014.01.20 @ 10:00:15

**TEST COMMENT:** IF: BOB in 1 min. 15 secs.  
 IS: Bled off in 2 1/2 mins.-BOB in 14 mins.  
 FF: BOB Immediately  
 FS: Bled off in 2 mins.- 4 1/2 in. of Blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2142.58	117.44	Initial Hydro-static
1	231.05	117.19	Open To Flow (1)
16	464.41	126.03	Shut-In(1)
75	912.03	125.46	End Shut-In(1)
76	499.46	125.33	Open To Flow (2)
90	626.82	127.41	Shut-In(2)
150	896.54	126.94	End Shut-In(2)
152	2123.99	126.60	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
126.00	Cog 40o 60g	0.62
1380.50	6 Samples @ 5 min.	18.02
123.50	Gocm 20g 40o 40m	1.73
0.00	GIP=723	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54570

**DST#: 2**

ATTN: Bob Stolzle

Test Start: 2014.01.20 @ 05:40:00

**GENERAL INFORMATION:**

Formation: **KC "L & X- Line**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:29:30

Time Test Ended: 15:55:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 46

**Interval: 4252.00 ft (KB) To 4320.00 ft (KB) (TVD)**

Reference Elevations: 2878.00 ft (KB)

Total Depth: 4320.00 ft (KB) (TVD)

2868.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 10.00 ft

**Serial #: 8675 Inside**

Press@RunDepth: psig @ 4254.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.20 End Date: 2014.01.20

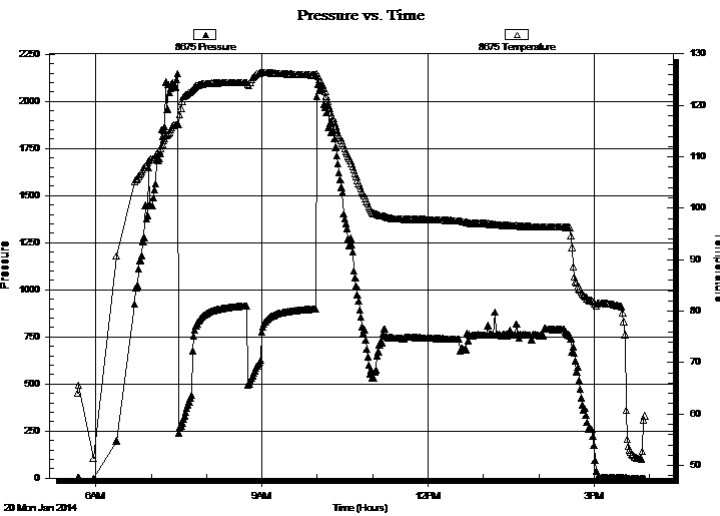
Last Calib.: 2014.01.20

Start Time: 05:40:15 End Time: 15:55:15

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF: BOB in 1 min. 15 secs.  
IS: Bled off in 2 1/2 mins.-BOB in 14 mins.  
FF: BOB Immediately  
FS: Bled off in 2 mins.- 4 1/2 in. of Blow back



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
126.00	Cog 40o 60g	0.62
1380.50	6 Samples @ 5 min.	18.02
123.50	Gocm 20g 40o 40m	1.73
0.00	GIP=723	0.00

\* 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 Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54570

**DST#: 2**

ATTN: Bob Stolzle

Test Start: 2014.01.20 @ 05:40:00

## Tool Information

Drill Pipe:	Length: 3966.00 ft	Diameter: 3.80 inches	Volume: 55.63 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 274.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose: 86000.00 lb
			<u>Total Volume: 56.98 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4252.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	95.00 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			4226.00	
Shut In Tool	5.00			4231.00	
Hydraulic tool	5.00			4236.00	
Jars	5.00			4241.00	
Safety Joint	2.00			4243.00	
Packer	5.00			4248.00	27.00 Bottom Of Top Packer
Packer	4.00			4252.00	
Stubb	1.00			4253.00	
Perforations	1.00			4254.00	
Recorder	0.00	8675	Inside	4254.00	
Recorder	0.00	8650	Outside	4254.00	
Perforations	30.00			4284.00	
Change Over Sub	1.00			4285.00	
Drill Pipe	31.00			4316.00	
Change Over Sub	1.00			4317.00	
Bullnose	3.00			4320.00	68.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>95.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54570

**DST#: 2**

ATTN: Bob Stolzle

Test Start: 2014.01.20 @ 05:40:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

34 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.54 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1400.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
126.00	Cog 40o 60g	0.620
1380.50	6 Samples @ 5 min.	18.017
123.50	Gocm 20g 40o 40m	1.732
0.00	GIP=723	0.000

Total Length: 1630.00 ft      Total Volume: 20.369 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

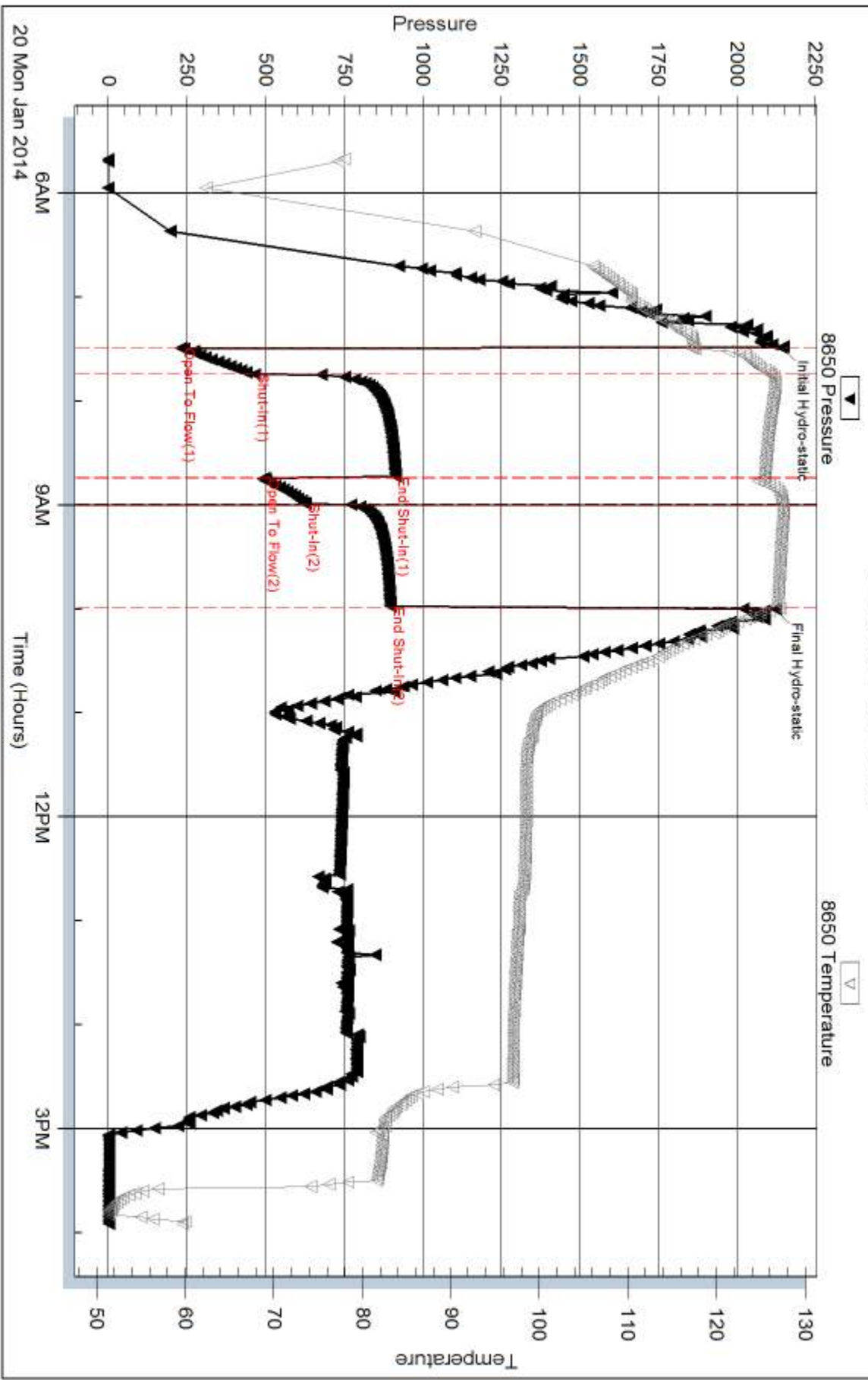
Laboratory Name:

Laboratory Location:

Recovery Comments: 5 & 10 min samples=10g 90o 15 & 20 min. samples=20g 80o  
25 & 30 min. samples= 30g 70o Calculated @ sample every 230'  
Dropped bar-Reversed fluid into truck- 15 bbls



### Pressure vs. Time



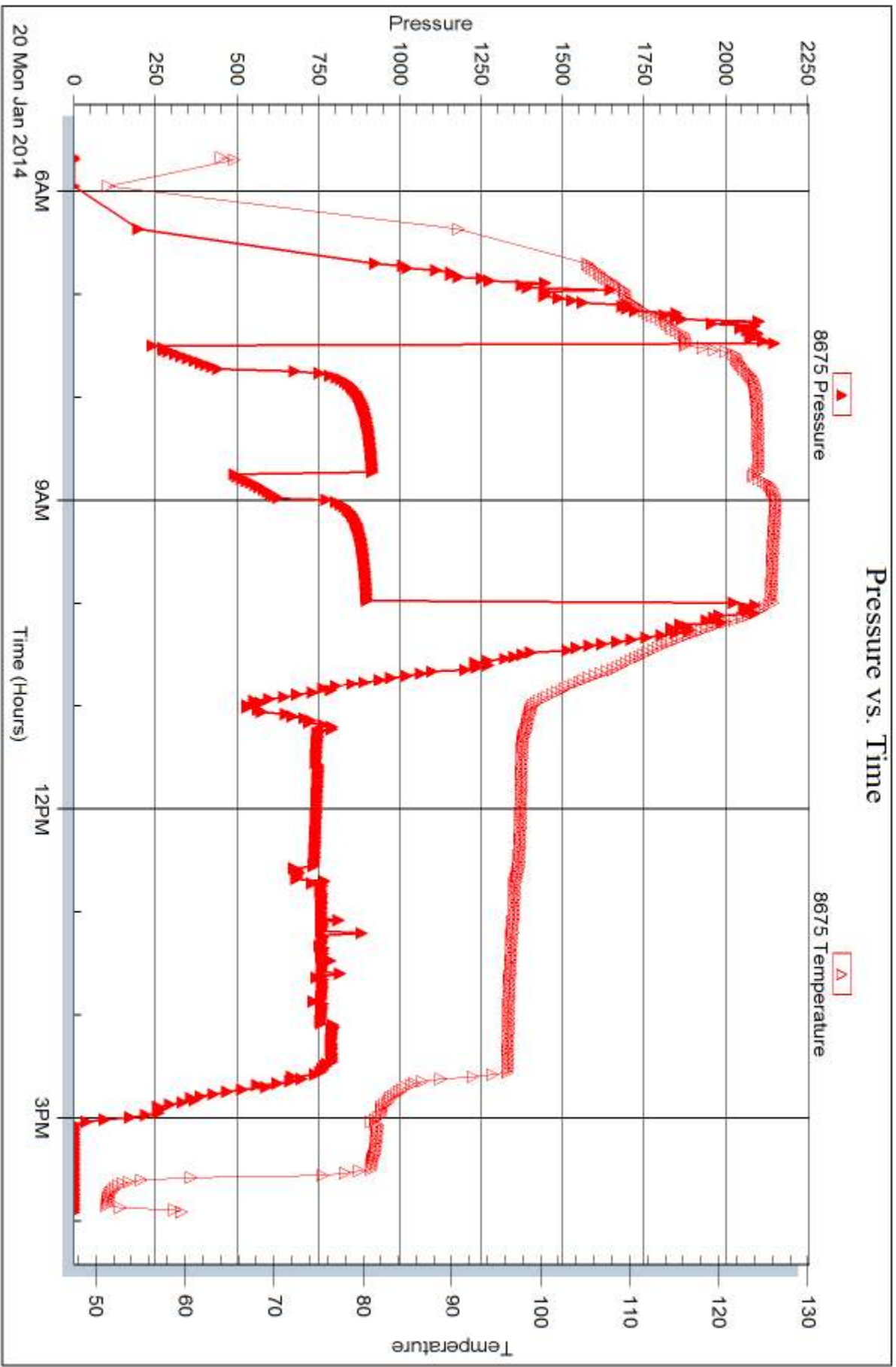
Serial #: 8675

Inside

Murfin Drilling Company, Inc.

Sharp "A" #1-3

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 54570

Printed: 2014.01.24 @ 10:30:15



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company, Inc.**

250 N Water STE 300  
Wichita KS 67202-1216

ATTN: Bob Stolzle

### **Sharp "A" #1-3**

#### **3-18s-30w Lane,KS**

Start Date: 2014.01.21 @ 04:20:00

End Date: 2014.01.21 @ 13:56:15

Job Ticket #: 54571                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.24 @ 10:29:49



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

**3-18s-30w Lane, KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54571

**DST#: 3**

ATTN: Bob Stolzle

Test Start: 2014.01.21 @ 04:20:00

## GENERAL INFORMATION:

Formation: **Marmaton A-C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:39:15

Time Test Ended: 13:56:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 46

**Interval: 4342.00 ft (KB) To 4410.00 ft (KB) (TVD)**

Reference Elevations: 2878.00 ft (KB)

Total Depth: 4410.00 ft (KB) (TVD)

2868.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 10.00 ft

**Serial #: 8650 Outside**

Press@RunDepth: 444.81 psig @ 4344.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.21

End Date: 2014.01.21

Last Calib.: 2014.01.21

Start Time: 04:20:15

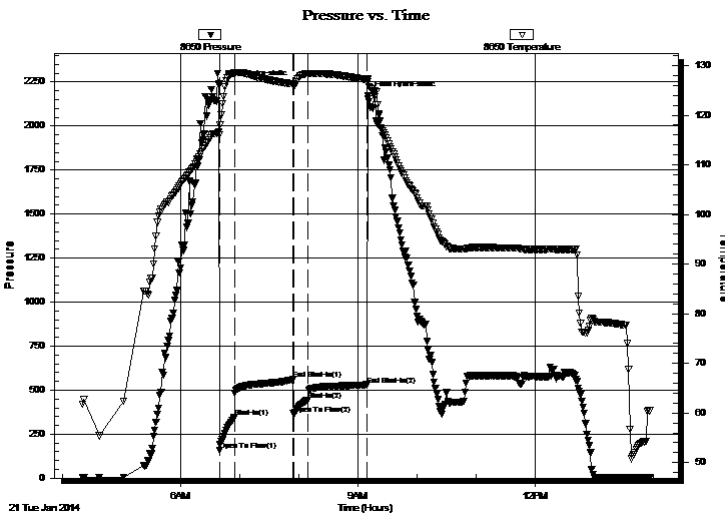
End Time: 13:56:15

Time On Btm: 2014.01.21 @ 06:38:45

Time Off Btm: 2014.01.21 @ 09:10:00

**TEST COMMENT:** IF: BOB in 1 1/2 mins.  
IS: Bled off in 3 mins.-BOB in 8 1/2 mins.  
FF: BOB Immediately  
FS: Bled off in 2 min.- 2 1/2 Return Blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2233.90	116.61	Initial Hydro-static
1	156.30	116.02	Open To Flow (1)
16	345.23	128.50	Shut-In(1)
75	560.06	126.27	End Shut-In(1)
76	365.44	126.20	Open To Flow (2)
90	444.81	128.35	Shut-In(2)
150	530.13	127.18	End Shut-In(2)
152	2172.96	126.72	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
123.00	Gocm 10g 40o 50m	0.60
907.00	Cgo see comments	11.35
108.00	Cgo 50g 50o	1.51

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54571

**DST#: 3**

ATTN: Bob Stolzle

Test Start: 2014.01.21 @ 04:20:00

### GENERAL INFORMATION:

Formation: **Marmaton A-C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:39:15

Time Test Ended: 13:56:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 46

**Interval: 4342.00 ft (KB) To 4410.00 ft (KB) (TVD)**

Total Depth: 4410.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Poor

Reference Elevations: 2878.00 ft (KB)

2868.00 ft (CF)

KB to GR/CF: 10.00 ft

**Serial #: 8675**

**Inside**

Press@RunDepth: psig @ 4344.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.21

End Date: 2014.01.21

Last Calib.: 2014.01.21

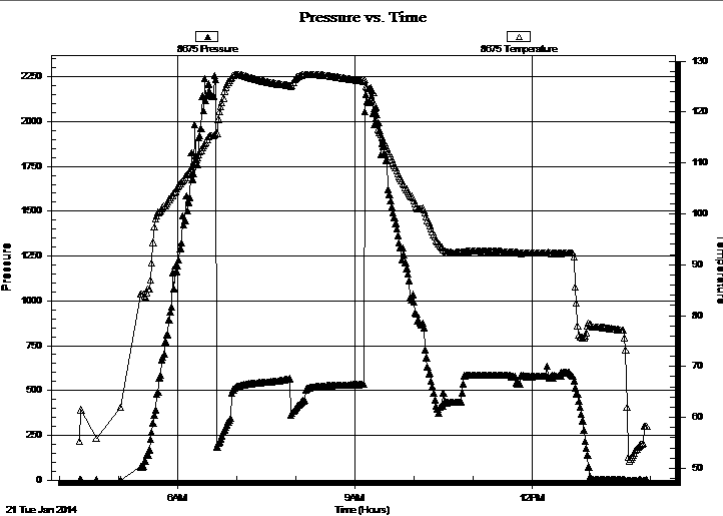
Start Time: 04:20:15

End Time: 13:56:30

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF: BOB in 1 1/2 mins.  
IS: Bled off in 3 mins.-BOB in 8 1/2 mins.  
FF: BOB Immediately  
FS: Bled off in 2 min.- 2 1/2 Return Blow back



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
123.00	Gocm 10g 40o 50m	0.60
907.00	Cgo see comments	11.35
108.00	Cgo 50g 50o	1.51

### 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 Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54571

**DST#: 3**

ATTN: Bob Stolzle

Test Start: 2014.01.21 @ 04:20:00

## Tool Information

Drill Pipe:	Length: 4059.00 ft	Diameter: 3.80 inches	Volume: 56.94 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 274.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 58.29 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4342.00 ft			Final 71000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	95.00 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			4316.00	
Shut In Tool	5.00			4321.00	
Hydraulic tool	5.00			4326.00	
Jars	5.00			4331.00	
Safety Joint	2.00			4333.00	
Packer	5.00			4338.00	27.00 Bottom Of Top Packer
Packer	4.00			4342.00	
Stubb	1.00			4343.00	
Perforations	1.00			4344.00	
Recorder	0.00	8675	Inside	4344.00	
Recorder	0.00	8650	Outside	4344.00	
Perforations	30.00			4374.00	
Change Over Sub	1.00			4375.00	
Drill Pipe	31.00			4406.00	
Change Over Sub	1.00			4407.00	
Bullnose	3.00			4410.00	68.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>95.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54571

**DST#: 3**

ATTN: Bob Stolzle

Test Start: 2014.01.21 @ 04:20:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.56 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
123.00	Gocm 10g 40o 50m	0.605
907.00	Cgo see comments	11.347
108.00	Cgo 50g 50o	1.515

Total Length: 1138.00 ft      Total Volume: 13.467 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

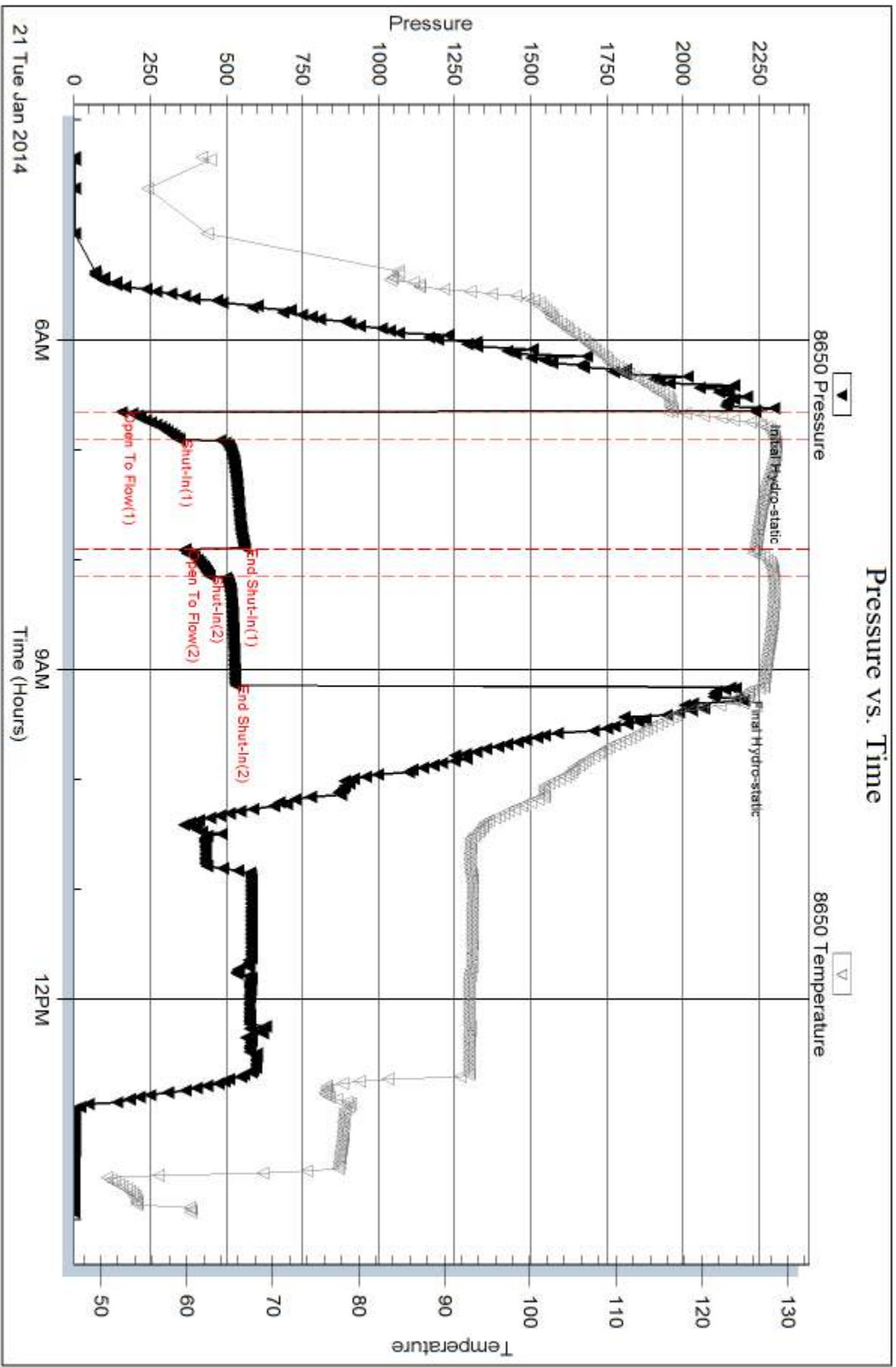
Laboratory Location:

Recovery Comments: 5 min. samples= Cgo 50g 50o

10 & 15 min. samples= Cgo 20g 80o

20min. samples=Cgo 10g 90o

Reversed fluid onto truck= 15bbbls Clean oil





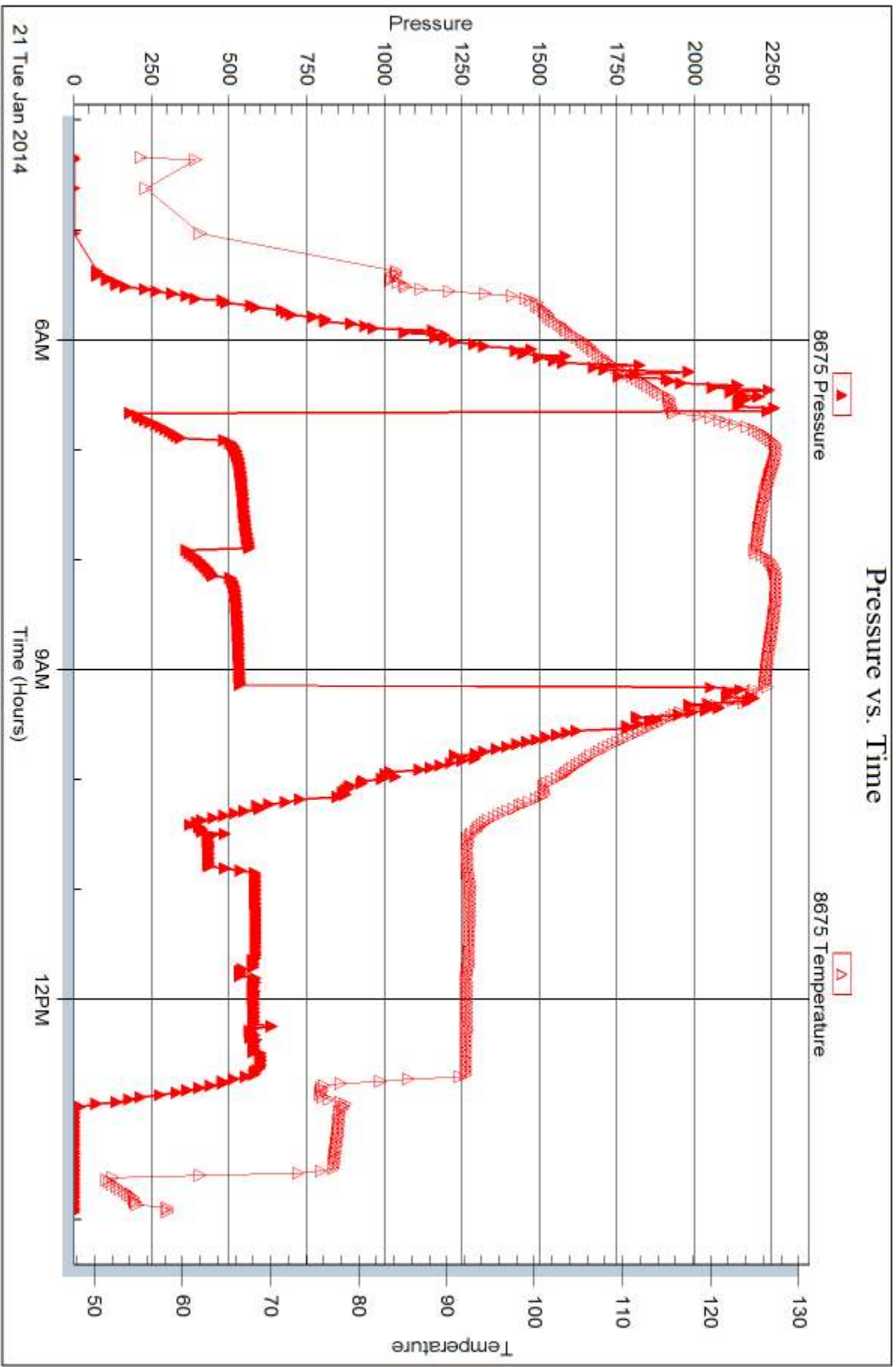
Serial #: 8675

Inside

Murfin Drilling Company, Inc.

Sharp "A" #1-3

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 54571

Printed: 2014.01.24 @ 10:29:51



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company, Inc.**

250 N Water STE 300  
Wichita KS 67202-1216

ATTN: Bob Stolzle

### **Sharp "A" #1-3**

#### **3-18s-30w Lane,KS**

Start Date: 2014.01.22 @ 03:04:00

End Date: 2014.01.22 @ 12:51:30

Job Ticket #: 54573                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.24 @ 10:29:08



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

**3-18s-30w Lane, KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54573

**DST#: 4**

ATTN: Bob Stolzle

Test Start: 2014.01.22 @ 03:04:00

## GENERAL INFORMATION:

Formation: **Pawnee-Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:12:00

Time Test Ended: 12:51:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 46

**Interval: 4402.00 ft (KB) To 4485.00 ft (KB) (TVD)**

Reference Elevations: 2878.00 ft (KB)

Total Depth: 4485.00 ft (KB) (TVD)

2868.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 10.00 ft

**Serial #: 8650 Outside**

Press@RunDepth: 115.21 psig @ 4404.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.22 End Date: 2014.01.22

Last Calib.: 2014.01.22

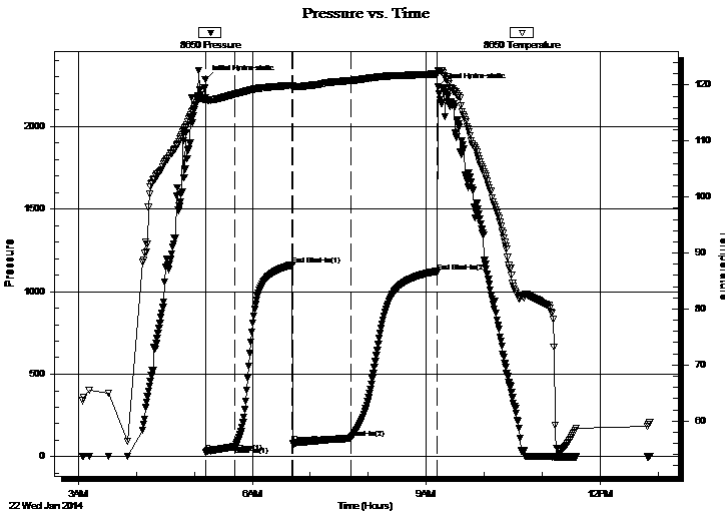
Start Time: 03:04:15 End Time: 12:51:30

Time On Btm: 2014.01.22 @ 05:11:45

Time Off Btm: 2014.01.22 @ 09:12:15

**TEST COMMENT:** IF: BOB. in 22 min.  
IS: Bled off in 2 min.- No return  
FF: BOB in 33 min.  
FS: Bled off in 2 min.- 5 in. blow back after 1 min. shut-in

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2284.26	117.83	Initial Hydro-static
1	29.28	117.20	Open To Flow (1)
31	61.62	118.38	Shut-In(1)
90	1162.28	119.95	End Shut-In(1)
91	81.75	119.75	Open To Flow (2)
151	115.21	120.80	Shut-In(2)
240	1116.29	121.97	End Shut-In(2)
241	2238.16	122.63	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	Cgo 10g 90o	0.15
0.00	269 GIP	0.00

\* 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 Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54573

**DST#: 4**

ATTN: Bob Stolzle

Test Start: 2014.01.22 @ 03:04:00

## Tool Information

Drill Pipe:	Length: 4126.00 ft	Diameter: 3.80 inches	Volume: 57.88 bbl	Tool Weight: 2500.00 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: 274.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 59.23 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4402.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	83.00 ft			
Tool Length:	105.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4381.00	
Shut In Tool	5.00			4386.00	
Hydraulic tool	5.00			4391.00	
Safety Joint	2.00			4393.00	
Packer	5.00			4398.00	22.00 Bottom Of Top Packer
Packer	4.00			4402.00	
Stubb	1.00			4403.00	
Perforations	1.00			4404.00	
Recorder	0.00	8675	Inside	4404.00	
Recorder	0.00	8650	Outside	4404.00	
Perforations	13.00			4417.00	
Change Over Sub	1.00			4418.00	
Drill Pipe	63.00			4481.00	
Change Over Sub	1.00			4482.00	
Bullnose	3.00			4485.00	83.00 Bottom Packers & Anchor

**Total Tool Length: 105.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54573

**DST#: 4**

ATTN: Bob Stolzle

Test Start: 2014.01.22 @ 03:04:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

43 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	Cgo 10g 90o	0.148
0.00	269 GIP	0.000

Total Length: 30.00 ft      Total Volume: 0.148 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

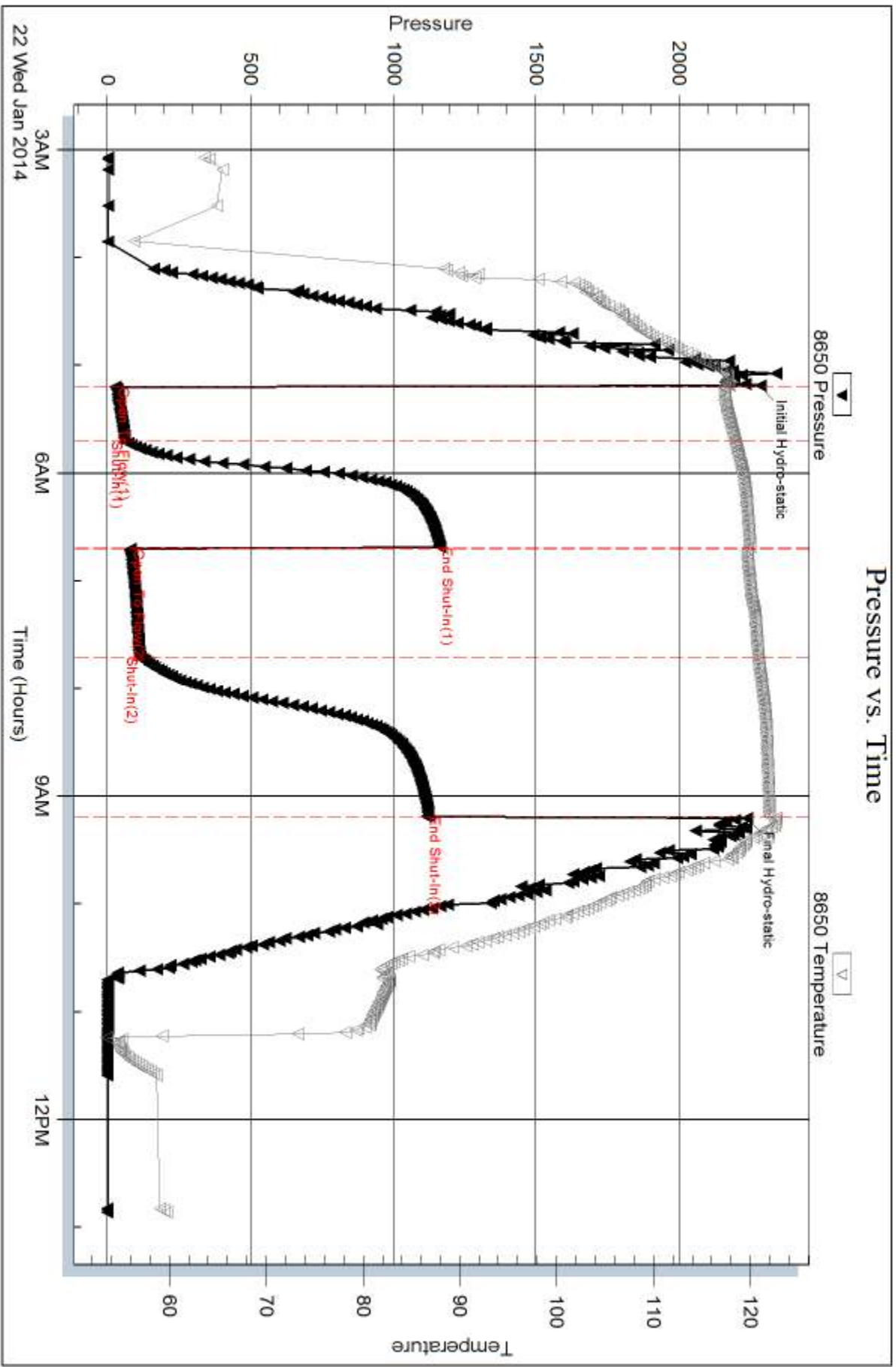
Recovery Comments:

Serial #: 8650

Outside Murfin Drilling Company, Inc.

Sharp "A" #1-3

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 54573

Printed: 2014.01.24 @ 10:29:10

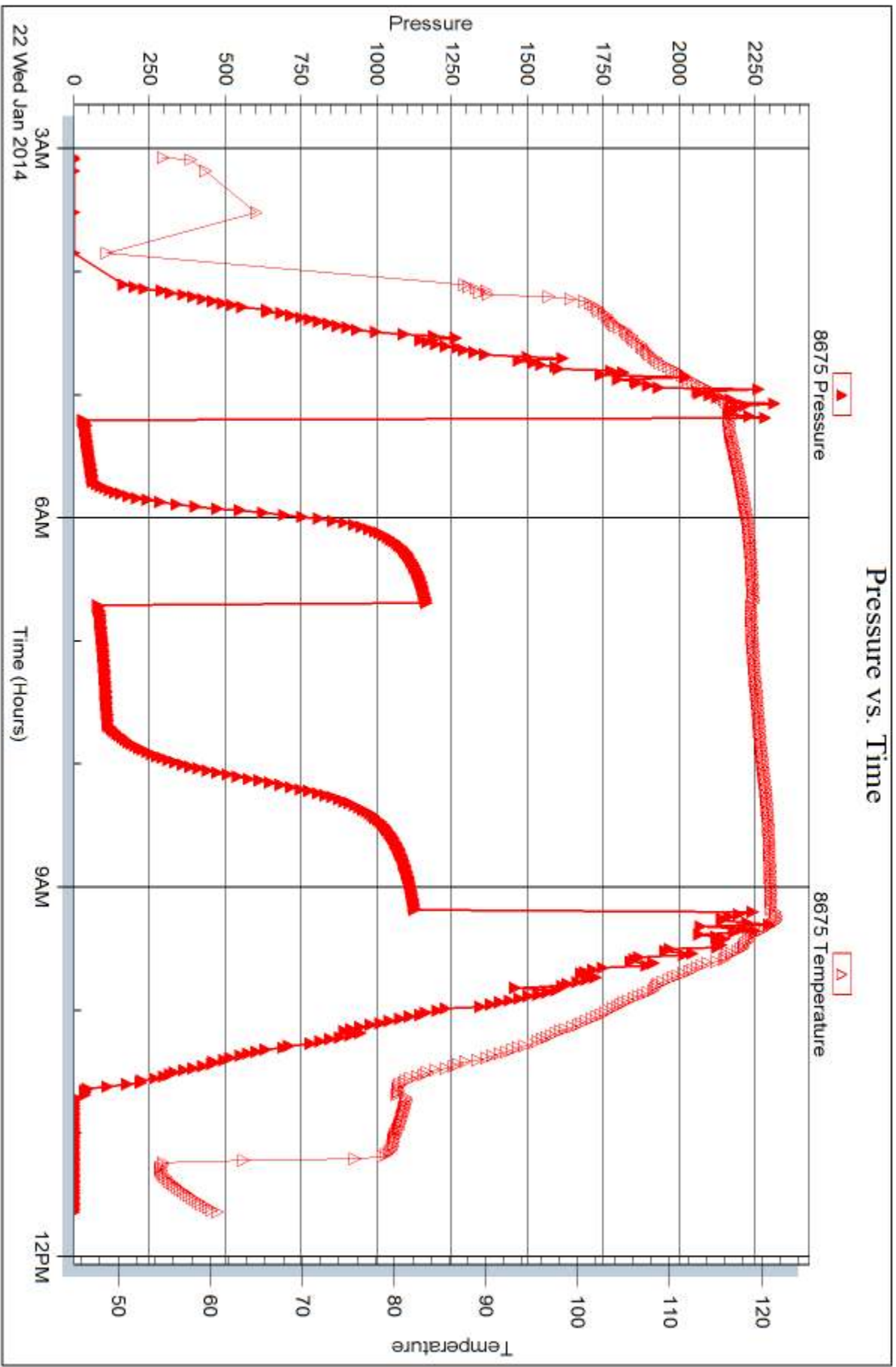
Serial #: 8675

Inside

Murfin Drilling Company, Inc.

Sharp "A" #1-3

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 54573

Printed: 2014.01.24 @ 10:29:10





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company, Inc.**

250 N Water STE 300  
Wichita KS 67202-1216

ATTN: Bob Stolze

### **Sharp "A" #1-3**

#### **3-18s-30w Lane,KS**

Start Date: 2014.01.23 @ 00:06:00

End Date: 2014.01.23 @ 10:38:45

Job Ticket #: 54574                      DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.24 @ 10:28:33



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

**3-18s-30w Lane, KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54574

**DST#: 5**

ATTN: Bob Stolzle

Test Start: 2014.01.23 @ 00:06:00

## GENERAL INFORMATION:

Formation: **Cherokee LS-Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:37:30

Time Test Ended: 10:38:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 46

**Interval: 4469.00 ft (KB) To 4540.00 ft (KB) (TVD)**

Reference Elevations: 2878.00 ft (KB)

Total Depth: 4540.00 ft (KB) (TVD)

2868.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 10.00 ft

**Serial #: 8650 Outside**

Press@RunDepth: 507.68 psig @ 4474.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.23

End Date:

2014.01.23

Last Calib.:

2014.01.23

Start Time: 00:06:15

End Time:

10:38:45

Time On Btm:

2014.01.23 @ 02:37:15

Time Off Btm:

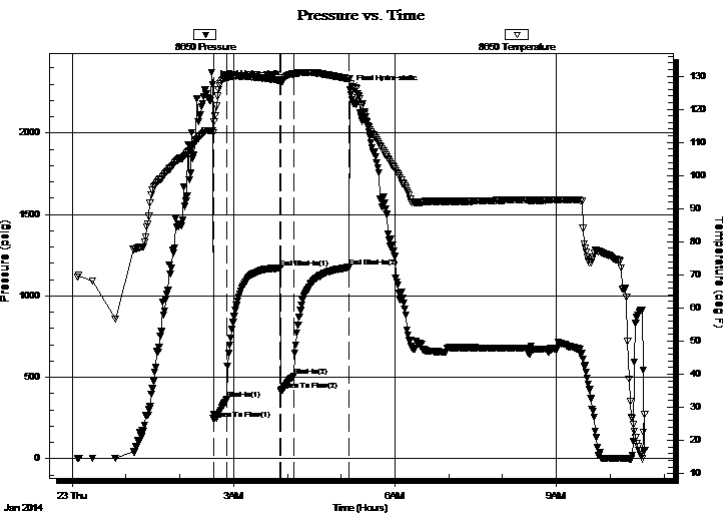
2014.01.23 @ 05:09:30

TEST COMMENT: IF: BOB in 1 min.

IS: Bled off in 5 min.-Surface blow back Immediately-Built to BOB in 6 min.

FF: BOB Immediately

FS: Bled off in 3 min.- BOB. in 6 min.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2298.66	113.53	Initial Hydro-static
1	244.86	112.99	Open To Flow (1)
16	363.71	129.46	Shut-In(1)
75	1173.71	128.70	End Shut-In(1)
76	421.10	128.50	Open To Flow (2)
90	507.68	130.63	Shut-In(2)
151	1175.29	129.23	End Shut-In(2)
153	2267.44	129.21	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
137.00	Gocm 5g 35o 60m	0.67
1145.00	Cgo see comments	14.81
63.00	Cgo 20g 80o	0.88

## Gas Rates

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

\* Recovery from multiple tests



# TRILOBITE TESTING, INC

## DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

3-18s-30w Lane, KS

250 N Water STE 300  
Wichita KS 67202-1216

Sharp "A" #1-3

Job Ticket: 54574

**DST#: 5**

ATTN: Bob Stolzle

Test Start: 2014.01.23 @ 00:06:00

### GENERAL INFORMATION:

Formation: **Cherokee LS-Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:37:30

Time Test Ended: 10:38:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 46

Interval: **4469.00 ft (KB) To 4540.00 ft (KB) (TVD)**

Reference Elevations: 2878.00 ft (KB)

Total Depth: 4540.00 ft (KB) (TVD)

2868.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 10.00 ft

### Serial #: 8675

Inside

Press@RunDepth: psig @ 4474.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.23 End Date: 2014.01.23

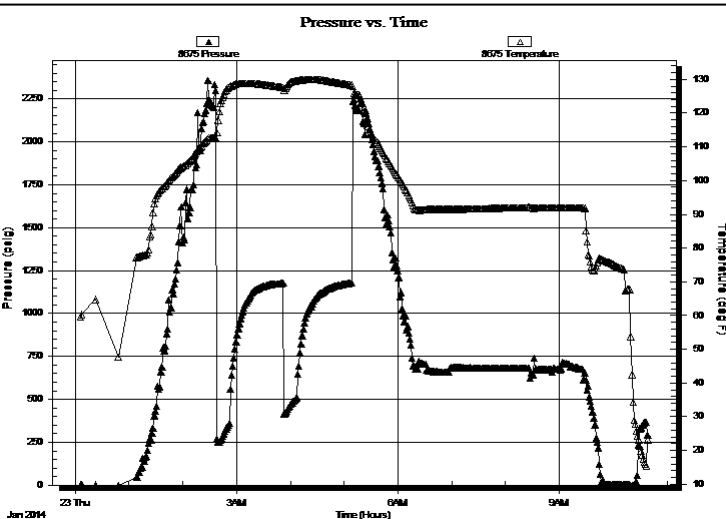
Last Calib.: 2014.01.23

Start Time: 00:06:15 End Time: 10:39:00

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF: BOB in 1 min.  
IS: Bled off in 5 min.-Surface blow back Immediately-Built to BOB in 6 min.  
FF: BOB Immediately  
FS: Bled off in 3 min.- BOB. in 6 min.



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
137.00	Gocm 5g 35o 60m	0.67
1145.00	Cgo see comments	14.81
63.00	Cgo 20g 80o	0.88

### 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 Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54574

**DST#: 5**

ATTN: Bob Stolzle

Test Start: 2014.01.23 @ 00:06:00

## Tool Information

Drill Pipe:	Length: 4184.00 ft	Diameter: 3.80 inches	Volume: 58.69 bbl	Tool Weight: 2500.00 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: 274.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose: 82000.00 lb
			<u>Total Volume: 60.04 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial 69000.00 lb
Depth to Top Packer:	4469.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	71.00 ft			
Tool Length:	93.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4448.00	
Shut In Tool	5.00			4453.00	
Hydraulic tool	5.00			4458.00	
Safety Joint	2.00			4460.00	
Packer	5.00			4465.00	22.00 Bottom Of Top Packer
Packer	4.00			4469.00	
Stubb	1.00			4470.00	
Perforations	4.00			4474.00	
Recorder	0.00	8675	Inside	4474.00	
Recorder	0.00	8650	Outside	4474.00	
Perforations	30.00			4504.00	
Change Over Sub	1.00			4505.00	
Drill Pipe	31.00			4536.00	
Change Over Sub	1.00			4537.00	
Bullnose	3.00			4540.00	71.00 Bottom Packers & Anchor

**Total Tool Length: 93.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Company, Inc.

**3-18s-30w Lane,KS**

250 N Water STE 300  
Wichita KS 67202-1216

**Sharp "A" #1-3**

Job Ticket: 54574

**DST#: 5**

ATTN: Bob Stolzle

Test Start: 2014.01.23 @ 00:06:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

40 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
137.00	Gocm 5g 35o 60m	0.674
1145.00	Cgo see comments	14.813
63.00	Cgo 20g 80o	0.884

Total Length: 1345.00 ft      Total Volume: 16.371 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

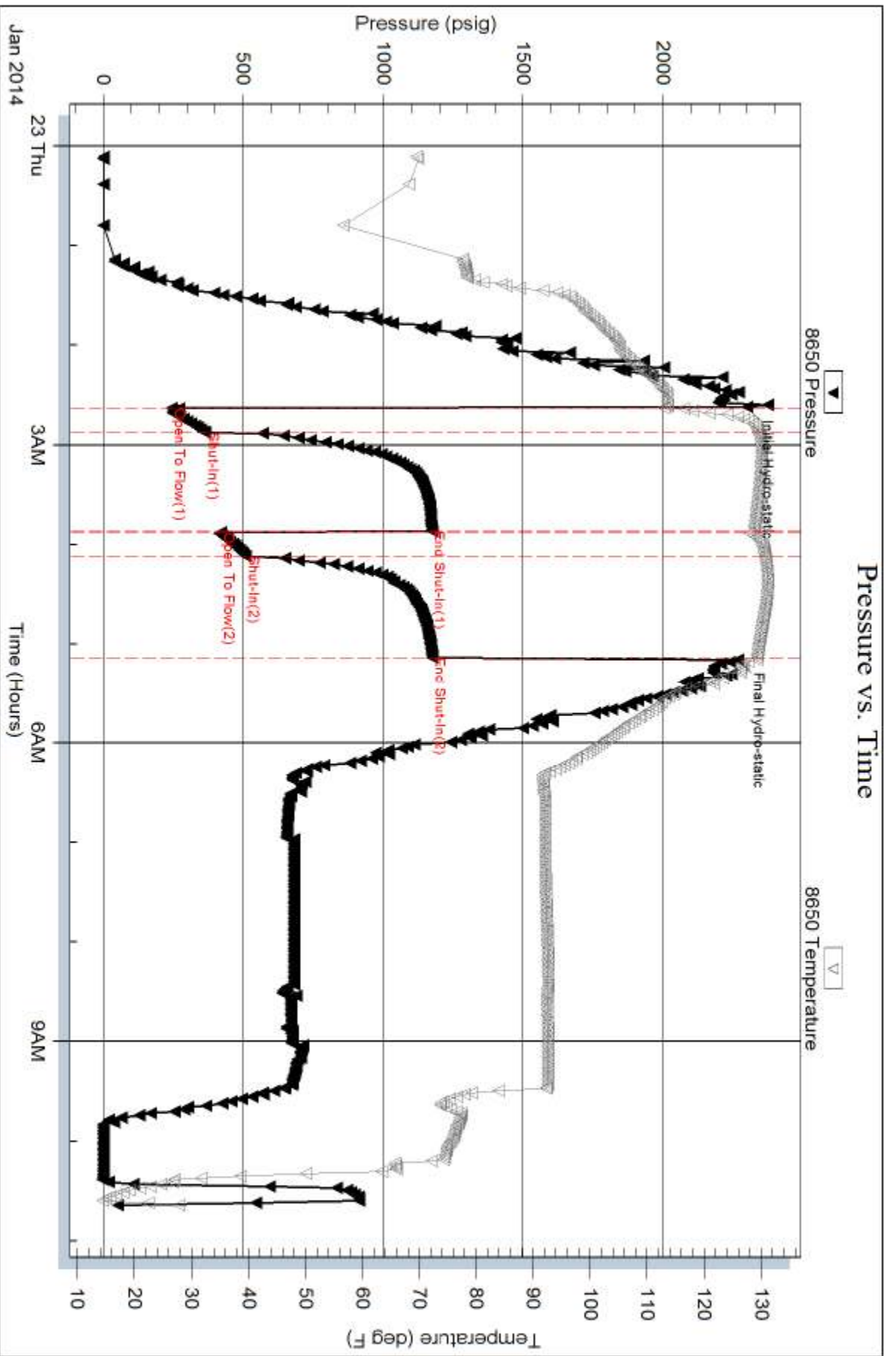
Laboratory Location:

Recovery Comments: 5 min.= 50g 50o

10 & 15 min.= 30g 70o

20 min. = 15g 85o

calculated sample every 302'



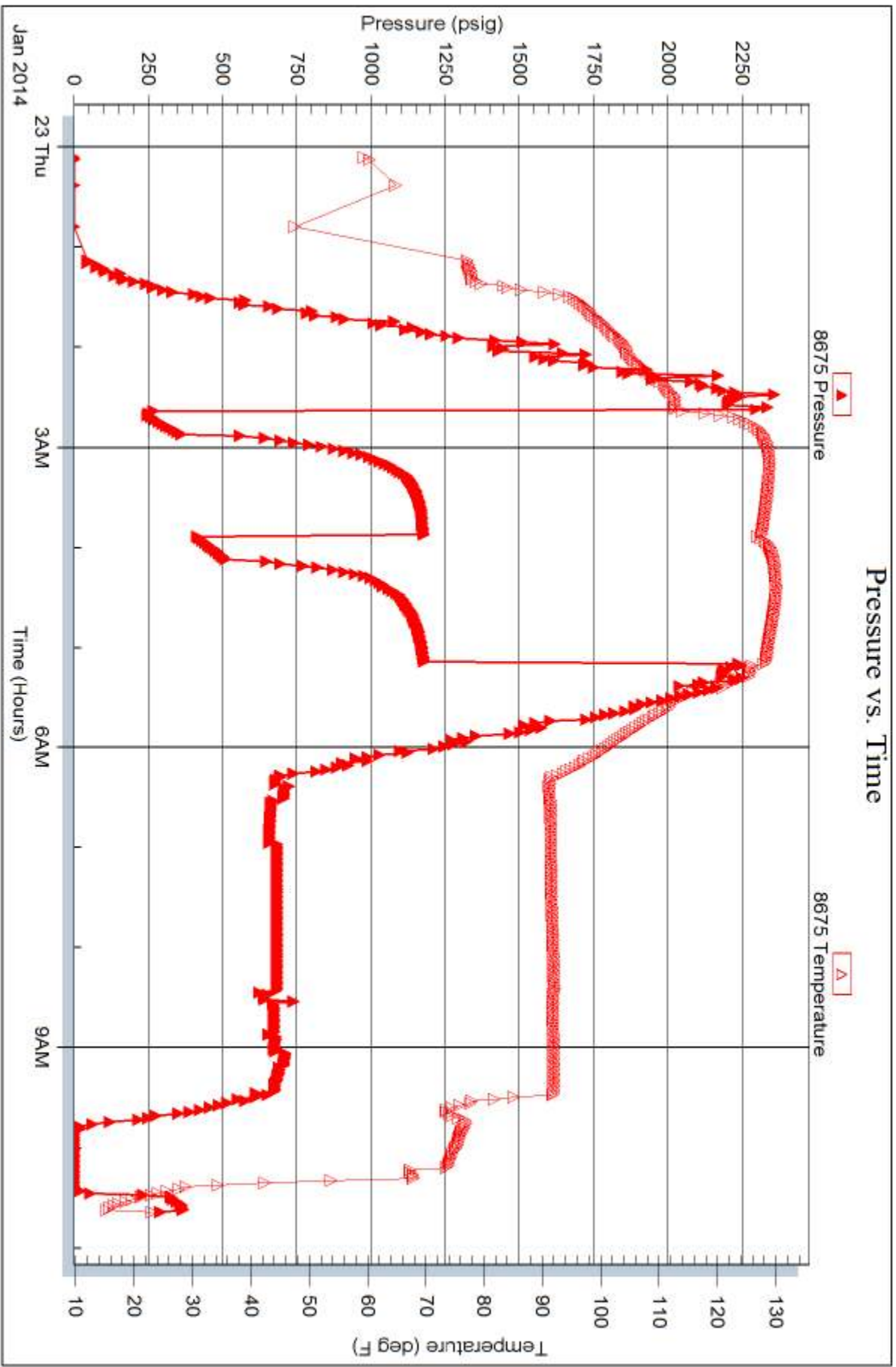
Serial #: 8675

Inside

Murfin Drilling Company, Inc.

Sharp "A" #1-3

DST Test Number: 5



Tribble Testing, Inc

Ref. No: 54574

Printed: 2014.01.24 @ 10:28:36



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **54604**

Well Name & No. Sharp "A" #1-3 Test No. 1 Date 1/19/14  
 Company Martin Drilling Company, Inc. Elevation 2878 KB 2868 GL  
 Address 250 W Water STE 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Bob Stolze Rig Martin Drilling Rig 21  
 Location: Sec. 3 Twp. 18S Rge. 30W Co. Lane County State KS

Interval Tested 4085-4210 Zone Tested Kansas City "H, I, J" Zone  
 Anchor Length 125 Drill Pipe Run 3800.89 Mud Wt. 9.3  
 Top Packer Depth 4081 Drill Collars Run 4 1/2 stands 274.74 Vis 64  
 Bottom Packer Depth 4085 Wt. Pipe Run \_\_\_\_\_ WL 5.6  
 Total Depth 4210 Chlorides 1,600 ppm System LCM 2#

Blow Description B.O.B. in 45 sec.  
Bled off for 5 min. No return below  
B.O.B. in 1 1/4 min

Bled off for 5 min. No return below

Rec	Feet of	%gas	%oil	%water	%mud
<u>356</u>	<u>mcw</u>		<u>50</u>	<u>50</u>	
<u>252</u>	<u>mcw</u>		<u>70</u>	<u>30</u>	
<u>1692</u>	<u>water</u>		<u>100</u>		
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total 2,300 BHT 121 Gravity \_\_\_\_\_ API RW 18 @ 82 ° F Chlorides 30,000 ppm  
 (A) Initial Hydrostatic 2,035  Test 1250 T-On Location 08:00  
 (B) First Initial Flow 523  Jars 250 T-Started 08:32  
 (C) First Final Flow 797  Safety Joint 75 T-Open 10:25  
 (D) Initial Shut-In 1,064  Circ Sub N/C T-Pulled 12:55  
 (E) Second Initial Flow 878  Hourly Standby \_\_\_\_\_ T-Out 15:37  
 (F) Second Final Flow 998  Mileage 46 BT 71.30 Comments \_\_\_\_\_  
 (G) Final Shut-In 1,068  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1,971  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 15  
 Initial Shut-In 60  
 Final Flow 15  
 Final Shut-In 60  
 Sub Total 0  
 Total 1646.30  
 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1646.30

Approved By \_\_\_\_\_ Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54570

Well Name & No. Sharp "A" #1-3 Test No. 2 Date 1-20-14  
 Company Murfin Drilling Co Inc. Elevation 2878 KB 2868 GL  
 Address 250 N. Water St #300 - Wichita KS 67202  
 Co. Rep / Geo. Bob Stozle Rig Murfin #21  
 Location: Sec. 3 Twp. 18-S Rge. 30-W Co. Lane State KS

Interval Tested 4252-4320 Zone Tested KC "L & E Line"  
 Anchor Length 68' Drill Pipe Run 3966 Mud Wt. 9.3  
 Top Packer Depth 4248 Drill Collars Run ~~3000~~ 274 Vis 55  
 Bottom Packer Depth 4252 Wt. Pipe Run Ø WL 5.6  
 Total Depth 4320 Chlorides 1400 ppm System LCM #4

Blow Description IF: B.o.b. in 1 min. 15 sec.  
IST: Bled off in 2 1/2 mins. - B.o.b. in 14 mins.  
FF: B.o.b. Immediately  
FST: Bled off in 2 mins. - 4 1/2 ins. of Blowback

Rec	Feet of	COG	1st 10 min	%gas	%oil	%water	%mud
126	Feet of	COG	1st 10 min	60	40		
1380.5	Feet of	6 samples @ 5 min	KG 10g 90				
123.5	Feet of	600m	1st 20 min CG 20g 80	20	40		40
	Feet of		25 & 30 min CG 30g 70				
Ø	Feet of	GIP-723					

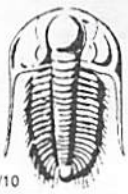
Rec Total 11630 BHT 127 Gravity 34 API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic 2143  Test 1250 T-On Location 5:10  
 (B) First Initial Flow 231  Jars 250 T-Started 5:40  
 (C) First Final Flow 464  Safety Joint 75 T-Open 7:30  
 (D) Initial Shut-In 912  Circ Sub MIC 50 T-Pulled 10:00  
 (E) Second Initial Flow 499  Hourly Standby 1 hr. 25h 25 T-Out 15:58  
 (F) Second Final Flow 627  Mileage 71.30 Comments Dropped Bar reversed  
 (G) Final Shut-In 897  Sampler — Fluid 15 bbls  
 (H) Final Hydrostatic 2124  Straddle —  Ruined Shale Packer —  
 Shale Packer —  Ruined Packer —

Initial Open 15  Extra Packer —  Extra Copies —  
 Initial Shut-In 60  Extra Recorder — Sub Total 0  
 Final Flow 15  Day Standby — Total 1721.30  
 Final Shut-In 60  Accessibility — MP/DST Disc't —  
 Sub Total 1721.30

Approved By Robert Stozle Agent Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54571

Well Name & No. Sharp "A" #1-3 Test No. 3 Date 1-21-14  
 Company Murfin Drilling Co. Inc. Elevation 2878 KB 2868 GL  
 Address 250 N. Water Ste # 300 - Wichita, KS 67202  
 Co. Rep / Geo. Bob Stolzle Rig Murfin #21  
 Location: Sec. 3 Twp. 18-5 Rge. 30-w Co. Lane State KS

Interval Tested 4342-4410 Zone Tested Normaton "A & B" & C  
 Anchor Length 68 Drill Pipe Run 4059' Mud Wt. 9.3  
 Top Packer Depth 4338 Drill Collars Run 274 Vis 56  
 Bottom Packer Depth ~~4338~~ 4342 Wt. Pipe Run Ø WL 5.6  
 Total Depth ~~4338~~ 4410 Chlorides 2000 ppm System LCM #4

Blow Description ~~Ø~~ IF: Bob. in 1 1/2 mins. -  
DST: Bled off in 3 mins. - Bob in 8 1/2 mins  
FF: Bob. Immediately  
FSD: Bled off in 2 min. - 2 1/2" Return Blowback

Rec	Feet of	%gas	%oil	%water	%mud
<del>108</del> <u>108</u>	<u>C90</u>	<u>50</u>	<u>50</u>		
<del>108</del> <u>108</u>	<u>C60 5min Sample</u>	<u>50</u>	<u>50</u>		
<del>108</del> <u>108</u>	<u>C90 = 10 + 15 min</u>	<u>20</u>	<u>80</u>		
<u>907</u>	<u>C60 20 min</u>	<u>10</u>	<u>90</u>		
<u>123</u>	<u>C60 cm</u>	<u>10</u>	<u>40</u>		<u>50</u>

Rec Total 1138.00 BHT 129 Gravity 35 API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic 2234  Test 1250 T-On Location 04:05  
 (B) First Initial Flow 156  Jars 250 T-Started 4:20  
 (C) First Final Flow 345  Safety Joint 75 T-Open 6:39  
 (D) Initial Shut-In 560  Circ Sub N/C T-Pulled 9:09  
 (E) Second Initial Flow 365  Hourly Standby \_\_\_\_\_ T-Out 13:56  
 (F) Second Final Flow 445  Mileage 71.30 Comments Reserved Fluid  
 (G) Final Shut-In 530  Sampler \_\_\_\_\_ into track - 15 bbls  
 (H) Final Hydrostatic 2173  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_

Initial Open 15  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Shut-In 60  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Flow 15  Day Standby \_\_\_\_\_ Total 1646.30  
 Final Shut-In 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1646.30

Approved By \_\_\_\_\_ Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **54573**

Well Name & No. Sharp A' #1-3 Test No. 4 Date 1-22-14  
 Company Murfin Drilling Co. Inc. Elevation 2878 KB 2868 GL  
 Address 250 N. Water. Ste #300 - Wichita, KS - 67202  
 Co. Rep / Geo. Bob Stolze Rig Murfin #21  
 Location: Sec. 3 Twp. 18-S Rge. 30-W Co. Lane State KS

Interval Tested 4402-4485 Zone Tested Dawnee - Ft. Scott  
 Anchor Length 83' Drill Pipe Run 4121 Mud Wt. 9.3  
 Top Packer Depth 4398 Drill Collars Run 274 Vis 57  
 Bottom Packer Depth 4402 Wt. Pipe Run Ø WL 6.0  
 Total Depth 4485 Chlorides 2,000 ppm System LCM #4

Blow Description IF: Bob in 22 min.  
ISI: Bled off in 2 min. - No Return  
FF: Bob in 33 min.  
ISI: Bled off in 2 min - 5" Return Blow back after 1 min. shut-in.

Rec	Feet of	%gas	%oil	%water	%mud
<u>244</u>	<u>60 CM</u>	<u>10</u>	<u>20</u>	<u>70</u>	<u>0</u>
<u>30</u>	<u>CGO</u>	<u>10</u>	<u>90</u>	<u>0</u>	<u>0</u>
<u>269</u>	<u>GIP=269</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>    </u>	<u>    </u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>    </u>	<u>    </u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

Rec Total 274 BHT 127 Gravity 43 API RW      @      °F Chlorides      ppm

(A) Initial Hydrostatic 2284  Test 1250 T-On Location 2:35  
 (B) First Initial Flow 29  Jars      T-Started 3:04  
 (C) First Final Flow 62  Safety Joint 75 T-Open 05:12  
 (D) Initial Shut-In 1162  Circ Sub NIC T-Pulled 9:12  
 (E) Second Initial Flow 82  Hourly Standby      T-Out 11:38  
 (F) Second Final Flow 115  Mileage 71.30 Comments       
 (G) Final Shut-In 1116  Sampler       
 (H) Final Hydrostatic 2238  Straddle       Ruined Shale Packer       
 Shale Packer       Ruined Packer       
 Extra Packer       Extra Copies       
 Extra Recorder      Sub Total 0  
 Day Standby      Total 1396.30  
 Accessibility      MP/DST Disc't       
 Sub Total 1396.30

Approved By      Our Representative *[Signature]*

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54574

Well Name & No. Sharp A' #1-3 Test No. 5 Date 1-22-14  
 Company Murfin Drilling Co. Inc. Elevation 2878 KB 2868 GL  
 Address 250 N Water St #300 - Wichita KS 67202  
 Co. Rep / Geo. Bob Stolze Rig Murfin #22  
 Location: Sec. 3 Twp. 18-S Rge. 30-W Co. Lane State KS

Interval Tested 4469-4540 Zone Tested Cherokee LS + Johnson  
 Anchor Length 71' Drill Pipe Run 4184 Mud Wt. 9.34  
 Top Packer Depth 4465 Drill Collars Run 274 Vis 57  
 Bottom Packer Depth 4469 Wt. Pipe Run Ø WL 6.0  
 Total Depth 4540 Chlorides 2000 ppm System LCM #4

Blow Description IF. Bob in 1 min.  
FSI Bled off in 5 min - surface blowdown immediately - Built to B.O.B. in 6 min.  
FF. B.O.B. Immediately

Rec	Feet of	%gas	%oil	%water	%mud
<u>63</u>	<u>CGO</u>	<u>20%</u>	<u>80%</u>		
<u>1145</u>	<u>CGO</u>				
<u>137</u>	<u>GOCM</u>	<u>5%</u>	<u>35%</u>		<u>60%</u>
	<u>5 min = 30, 50, 10, 15, 30, 70</u>				
	<u>20 min = 15, 8, 5</u>				

Rec Total 1345 BHT 129 Gravity 40 API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2299</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>23:45</u>
(B) First Initial Flow <u>245</u>	<input type="checkbox"/> Jars	T-Started <u>00:06</u>
(C) First Final Flow <u>364</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>2:38</u>
(D) Initial Shut-In <u>1174</u>	<input checked="" type="checkbox"/> Circ Sub <u>NK</u>	T-Pulled <u>5:08</u>
(E) Second Initial Flow <u>421</u>	<input checked="" type="checkbox"/> Hourly Standby <u>1 hr standby</u> .5h 50	T-Out <u>1038</u>
(F) Second Final Flow <u>508</u>	<input checked="" type="checkbox"/> Mileage <u>142.60</u>	Comments <u>Reverse into</u>
(G) Final Shut-In <u>1175</u>	<input type="checkbox"/> Sampler	<u>truck total = 20 bbls</u>
(H) Final Hydrostatic <u>2267</u>	<input type="checkbox"/> Straddle	<u>loaded on 1-23-14 @ 18:20</u>

Initial Open 15  
 Initial Shut-In 60  
 Final Flow 15  
 Final Shut-In 60

Shale Packer  
 Shale Packer  
 Extra Packer  
 Extra Recorder  
 Day Standby  
 Accessibility

Sub Total 1517.60

Approved By Robert Stolze, Agent Our Representative Robert Stolze

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# ROBERT STOLZLE

CONSULTING PETROLEUM GEOLOGIST

AAPO CORP. # 3244

6211 G. 201st ST. W. Goddard, MO 67032 - 0263

(910) 704 - 3000

## DRILLING TIME AND SAMPLE LOG

OPERATOR: **Murfin Drilling Co., Inc.**

LEASE: **Sharp A'** WELL NO.: **1-3**

FIELD: **Wildcat**

LOCATION: **2200' FSL, 1650' FWW (5 1/2 NW 1/4 S2)**

SEC.: **3** TWP.: **18S** RANGE: **30W**

COUNTY: **Lane** STATE: **KS**

API NO.: **15-101-22487-00-00**

CONTRACTOR: **Murfin Drilling Co., Rig # 21**

COMMENCED: **January 14, 2014** COMPLETED: **1/25/14**

ROTARY TOTAL DEPTH: **4680'** LOG TOTAL DEPTH: **4680'**

GEOLOGICAL SUPERVISION FROM: **3560'** to: **T.D.**

FORMATION	DEPTH		LOG		STRENGTH
	TOP	BASE	TOP	BASE	
Stonera G. Rhy	2192	(+686)	2190	(+688)	-2'
Base of Anhydrite	2249	(+629)	2247	(+631)	-2'
Topeka Fm.	3662	(-784)	3662	(-784)	-3'
Hebner Shale	3902	(-1024)	3904	(-1026)	-5'
Lansing Group	3940	(-1062)	3939	(-1061)	-3'
G' Zone Porosity	4057	(-1179)	4054	(-1176)	-0-
Starb Shale	4217	(-1339)	4214	(-1336)	-3'
Base of City Gp.	4296	(-1418)	4296	(-1418)	-5'
Marmaton Gp.	4346	(-1468)	4349	(-1471)	-6'
Pawnee Ls.	4410	(-1532)	4411	(-1533)	+1'
Et. Scott Ls.	4463	(-1585)	4460	(-1582)	+1'
Cherokee Sh.	4482	(-1604)	4482	(-1604)	+1'
Mississippian	4554	(-1676)	4551	(-1673)	+16'
Miss. Spargan Fm.	4629	(-1751)	4626	(-1748)	-6'
Total Depth	4680		4680		

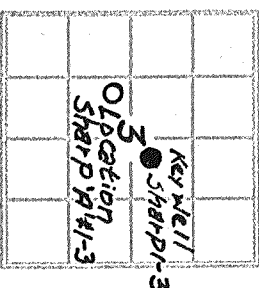
ELEVATIONS  
KB **2878'**  
CL **2867'**  
Measurements are all from KB

CASING RECORD

SIZE: **8 5/8" 23#**  
@ **223' KB, W/1755X**

PRODUCTION: **5 1/2" @**  
**4670' KB, W/1755X**  
**EA-2**

WIRELINE SURVEYS  
**Pioneer Energy Services, BHL Sonic, Microseismicity, Dual Compensated Porosity and Dual Induction Logs were run.**



Reference Well for Structural Comparison: **Murfin Sharp A-3 (approx SW 1/4 S2)**  
Comments and Recommendations: **Recommended Completion for Oil**

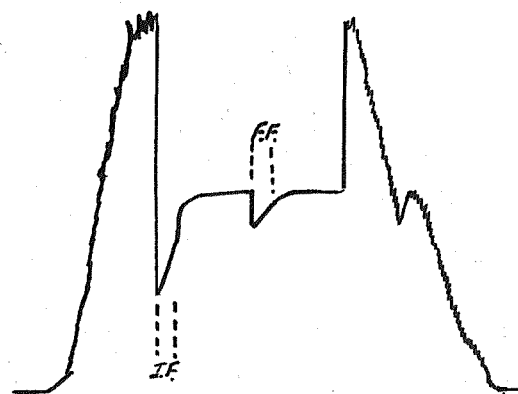
DST # 1 ZONE: LKC'H, I & J Zones  
INTERVAL: 4085'-4210'

DST # 1 8675 Chart  
Interval: 4085'-4210' Depth: 4086'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2035 psi	356' water + mud
2. Initial Flow: Start	0	523 psi	(50% mud)
3. Initial Flow: End	15	797 psi	252' Mud cut water
4. Initial Shut-in: End	60	1064 psi	(30% mud)
5. Final Flow: Start	0	878 psi	1692' salt water
6. Final Flow: End	15	998 psi	Total Recovery 2300'
7. Final Shut-in: End	60	1068 psi	Blow Desc:
8. Final Hydrostatic		1971 psi	I.F. - BOB 45 sec.

BHT: 122°F  
Rv: .18 @ 82°F  
Chlorides 30,000 ppm (Mud Filtrate 1600 ppm)

I.S.I. - No blow  
E.F. - BOB 1 1/4 min.  
F.S.I. - No blow



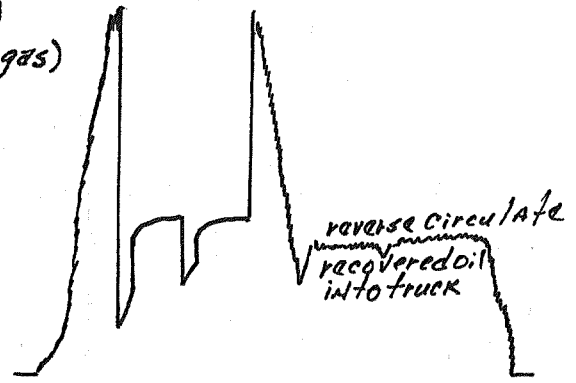
DST # 2 ZONE: Ks City L' Zone + Exline Ls.  
INTERVAL: 4252'-4320'

DST # 2 8650 Chart  
Interval: 4252'-4320' Depth: 4254'

Pressures:	Time	Press.	RECOVERY
------------	------	--------	----------

1. Initial Hydrostatic		2143	psi
2. Initial Flow: Start	0	231	psi
3. Initial Flow: End	15	464	psi
4. Initial Shut-in: End	60	912	psi
5. Final Flow: Start	0	499	psi
6. Final Flow: End	15	627	psi
7. Final Shut-in: End	60	897	psi
8. Final Hydrostatic		2124	psi

723' Gas in Pipe  
 126' Gassy Oil (60% gas)  
 1380.5' Gassy Oil (10-20% gas)  
 123.5' Gas + Oil cut Mud  
 (20% gas, 40% Mud)  
 Total Recovery 1630'  
 (34° gravity Oil)  
 Blow Desc:  
 I.F. - BOB 1 1/4 min.  
 I.S.I. - BOB 14 min.  
 F.F. - BOB - 1 sec.  
 F.S.I. - 4 1/2" blow



BHT: 127°F

Rv: \_\_\_\_\_

DST # 3 ZONE: Marmaton A, B + C Zones

INTERVAL: 4342'-4410'

Pressures:	Time	Press.
1. Initial Hydrostatic		2234 psi
2. Initial Flow: Start	0	156 psi
3. Initial Flow: End	15	345 psi
4. Initial Shut-in: End	60	560 psi
5. Final Flow: Start	0	365 psi
6. Final Flow: End	15	445 psi
7. Final Shut-in: End	60	530 psi
8. Final Hydrostatic		2173 psi

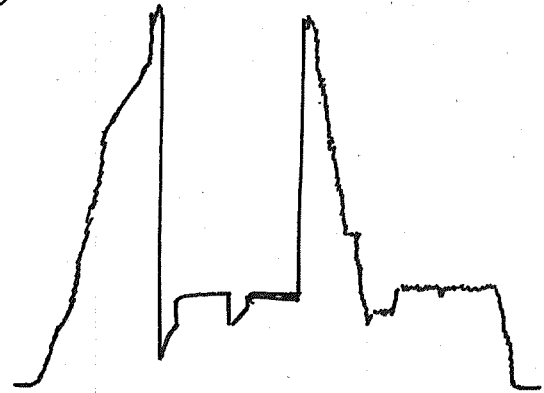
RECOVERY  
 108' Gassy Oil (50% gas)  
 907' Gas cut Oil (10% gas)  
 123' Gas + Oil cut Mud  
 (10% gas, 50% Mud)  
 (35° gravity Oil)  
 Total Recovery 1138'  
 Blow Desc:  
 I.F. - BOB 1 1/2 min.  
 I.S.I. - BOB 8 1/2 min.  
 F.F. - BOB 1 sec.  
 F.S.I. - 2 1/2" blow

DST # 3

Interval: 4342'-4410'

8650 Chart

Depth: 4344'



DST # 4 ZONE: Upper + Lower Pawnee + Ft. Scott

INTERVAL: 4402'-4485'

Pressures:	Time	Press.
1. Initial Hydrostatic		2284 psi
2. Initial Flow: Start	0	29 psi
3. Initial Flow: End	30	62 psi
4. Initial Shut-in: End	60	1162 psi
5. Final Flow: Start	0	82 psi
6. Final Flow: End	60	115 psi
7. Final Shut-in: End	90	1116 psi
8. Final Hydrostatic		2238 psi

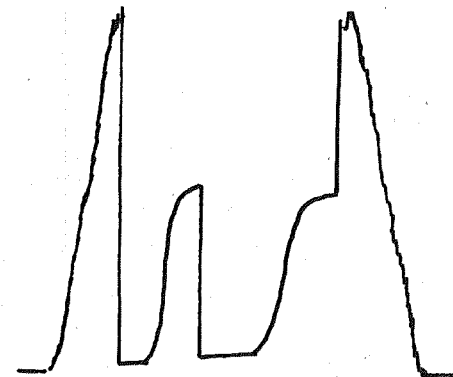
RECOVERY  
 269' Gas in Pipe  
 30' Gassy Oil (10% gas)  
 244' Gas + Oil cut Mud  
 (10% gas, 20% Oil)  
 Total Recovery 274'  
 Blow Desc:  
 I.F. - BOB 22 min.  
 I.S.I. - No blow  
 F.F. - BOB - 33 min.  
 F.S.I. - 5" blow

DST # 4

Interval: 4402'-85'

8650 Chart

Depth: 4404'



BHT: 123°F

Rv: \_\_\_\_\_

Oil is 43° API Gravity

DST # 5 ZONE: Cherokee Ls. + Johnson Zone

INTERVAL: 4469'-4540'

Pressures:	Time	Press.
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RECOVERY

DST # 5

Interval: 4469'-4540'

8650 Chart

Depth: 4474'



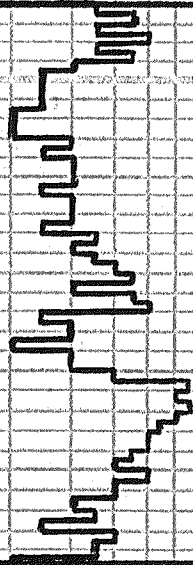
2150

Shallow hole drilled with  
PDC bit



2200

stone Corral  
Anhydrite  
(+686')



2250

Base of  
Anhydrite  
(+629')



2300

Displace Mud system  
at 3189'



3550

Strap Pipe @  
3569', .41' long  
to board  
Deviation .40

Made bit trip for button bit  
at 3569'

Start drilling time and 10'  
wet and dry samples at 3570

Ls. gry. m. sft. hrd. dns. VFG-MXN.  
foss. - v. foss. NΦNSFOC

Sh. gry. - dk. gry., sft. - m. sft., earthy  
Sh. A. A., occ. hackly.

Mud Chack @ 3569'

M.W. 8.8 lb. / gal.

W.L. 54 sec. / qt.

Vis. 6 cc. / 30 min.

chl. 1200 ppm

Solids 3.5%

LCM. 4 lbs. / bbl.

Ls. crm. - gry. sft. - m. hrd. dns. VFG -  
MXN. tr. chik. tr. sndy. - sft. -  
foss. - v. foss. sh. std. NΦNSFOC

Ls. crm. - gry. v. sft. chiky. - m. hrd.  
VFG - MXN. sh. std. foss. - v.  
foss. tr. sndy. NΦNSFOC

tr. sh. dk. gry. m. sft. hack - earthy  
Ls. crm. - gry. sft. chiky. tr. dns.  
mic. foss. - v. foss. sh. std. sh.  
pellets. NΦNSFOC

tr. sh. A. A.  
Ls. P. A.

Sh. gry. - dk. gry. m. sft. - sft. -  
earthy - hackly, occ. sndy. - sft.

Sh. A. A. more sft.

Ls. crm. - TAN - dk. gry. hrd. dns. -  
VFG - MXN. foss. sh. std. NΦNSFOC

Ls. gry. - TAN - crm. hrd. dns. VFG -  
MXN. occ. foss. - v. foss. sh. std.  
tr. sndy. NΦNSFOC

tr. sh. dk. gry. m. sft. hackly  
Sh. A. A. tr. earthy

Ls. gry. - dk. gry. - crm. - TAN. hrd. -  
dns. VFG - MXN. foss. sh. std. -  
tr. sndy. - v. sndy. NΦNSFOC

Ls. A. A. more sndy. NΦNSFOC

Sh. dk. gry. m. hrd. dns. hack -  
earthy

Sh. A. A.

Ls. gry. - crm. hrd. - sft. dns. foss. -  
sh. std. sndy. NΦNSFOC

Ls. dk. gry. - crm. hrd. dns. VFG -  
MXN. tr. mic. tr. v. foss. tr.  
sndy. sh. std. NΦNSFOC

Ls. A. A. sh. more crm. NΦNSFOC

Sh. dk. gry. m. sft. - m. hrd. dns. -  
hackly

Ls. gry. - crm. hrd. dns. VFG - MXN.  
occ. foss. sh. std. NΦNSFOC

Sh. lt. - dk. gry. sft. chiky. sft.  
- m. sft. earthy sndy

Ls. crm. sft. chiky. - hrd. dns. -  
VFG - MXN. occ. foss. +ool. wll  
qd - ex. oom. + moldic φ NSFOC

Ls. crm. - gry. hrd. dns. VFG - MXN.  
tr. chiky. occ. foss. +ool. wll  
oom. φ. occ. sh. std. NSFOC

Sh. dk. gry. m. hrd. dns. hackly  
Ls. crm. - lt. gry. hrd. dns. VFG -  
MXN. occ. chiky. foss. +ool. wll  
pt. moldic φ. sh. std. NSFOC

Sh. gry. sft. - sft. - clayey - earthy  
Sh. A. A. earthy, less clayey

Ls. crm. hrd. dns. - sft. chiky. -  
VFG - MXN. occ. foss. +ool. wll occ.  
tr. pt. moldic φ NSFOC

Ls. crm. hrd. - sft. chiky. VFG - MXN.  
foss. sh. std. tr. pt. pp. φ  
NSFOC

Ls. crm. - TAN. hrd. dns. VFG - MXN.  
occ. sft. chiky. foss. sh. std.  
tr. pt. foss. moldic φ NSFOC

Ls. crm. - TAN. hrd. dns. VFG - MXN.  
occ. sft. chiky. foss. sh. std.  
tr. pt. foss. moldic φ NSFOC

Ls. crm. - TAN. hrd. dns. VFG - MXN.  
occ. sft. chiky. foss. sh. std.  
tr. pt. foss. moldic φ NSFOC

Ls. crm. - TAN. hrd. dns. VFG - MXN.  
occ. sft. chiky. foss. sh. std.  
tr. pt. foss. moldic φ NSFOC

Ls. crm. - TAN. hrd. dns. VFG - MXN.  
occ. sft. chiky. foss. sh. std.  
tr. pt. foss. moldic φ NSFOC

Ls. crm. - TAN. hrd. dns. VFG - MXN.  
occ. sft. chiky. foss. sh. std.  
tr. pt. foss. moldic φ NSFOC

Ls. crm. - TAN. hrd. dns. VFG - MXN.  
occ. sft. chiky. foss. sh. std.  
tr. pt. foss. moldic φ NSFOC

Ls. crm. - TAN. hrd. dns. VFG - MXN.  
occ. sft. chiky. foss. sh. std.  
tr. pt. foss. moldic φ NSFOC

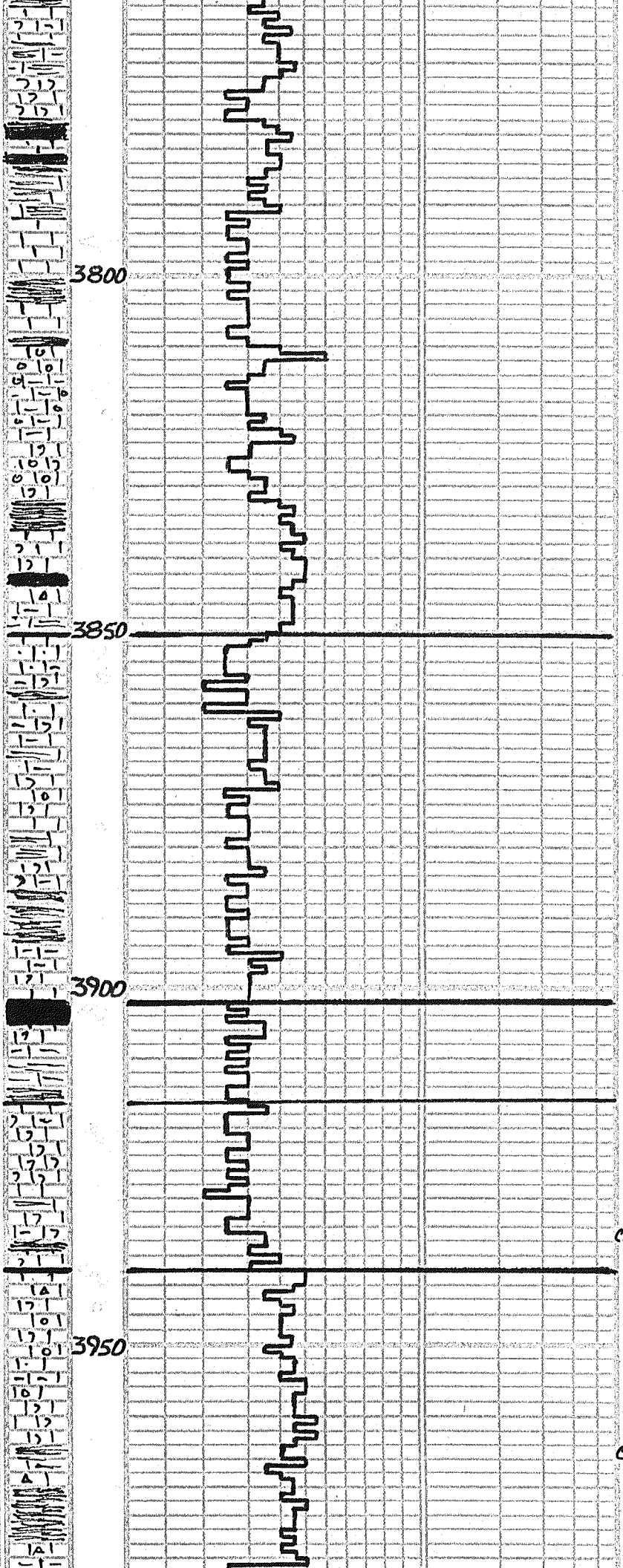
3600

3650

3700

3750

Top of Fm.  
(-784')



Ls. crm. - tan-gry, m. hrd. - m. sft., dns.,  
 VEG-mxln, occ. foss. + sh. stnd.  
 occ. sandy NΦNSFOC  
 sh. lt.-dk. gry. m. sft., hackly  
 sh. A.A., occ. blk., carb., earthy  
 Ls. crm.-gry., hrd.-m. sft., dns.,  
 VEG-mxln, it. mic. occ. foss.  
 v. foss. sh. stnd. NΦNSFOC  
 Ls. crm.-gry., m. hrd.-sft., dns., VEG-  
 mxln, foss. + ool. tr. pr. dom. φ, abun.  
 sh. stn. it. sandy NSFOC  
 sh. dk. gry. m. sft., sft., earthy-hark.  
 Ls. A.A. NSFOC

sh. dk. gry. - blk., m. hrd.-sft., hackly,  
 carb. porraceous  
 tr. sh. A.A.  
 Ls. crm., m. hrd.-m. sft., VEG-mxln,  
 foss. + VEG ool. w/ occ. pr. - gd.  
 dom. φ NSFOC  
 Ls. crm., hrd.-sft., VEG-mxln, mic.,  
 tr. chrt., occ. sft., chiky., occ. ool.  
 qn. stn. w/ dom. + int. part. vug. φ  
 tr. sh. A.A. NSFOC  
 Ls. prm.-lt. gry., sft., chiky. - hrd.  
 dns., mic., VEG-mxln, occ. v. foss.  
 abun. sh. stnd. NΦNSFOC

Ls. A.A., tr. fr-pr. moldic. vug. φ  
 NSFOC  
 sh. dk. gry. - blk., m. sft.-m. hrd.,  
 dns., hackly, carb.  
 sh. A.A.

Ls. crm. - tan-gry., hrd., dns., VEG-  
 mxln, mic. it. chrt., it. chiky., abun.  
 sh. stn., tr. foss. moldic. φ NSFOC

Orcad Ls.  
 (-972')

Ls. crm. - tan, hrd., dns. - sft., chiky.,  
 VEG-mxln, it. chrt., occ. foss.,  
 abun. sh. stnd., it. sandy.  
 NΦNSFOC

Ls. crm. - tan-lt. gry., sft., chiky. -  
 hrd., dns., mic., chrt., VEG-mxln,  
 occ. foss., abun. sh. stn.  
 NΦNSFOC

Ls. crm. - brn., m. sft., sft. chiky.,  
 foss., sh. stn., w/ hrd., dns.,  
 mic., mxln, occ. pr. moldic.  
 vug. φ NSFOC  
 Ls. A.A. NΦNSFOC

sh. dk. gry., m. hrd.-m. sft., dns.,  
 hackly  
 Ls. crm.-gry., sft.-hrd., VEG-mxln,  
 abun. chiky., abun. sh. stnd., occ.  
 foss. w/ tr. pr. pr. vug. φ NSFOC

Ls. A.A. NΦNSFOC

Heebner Shale  
 (-1024')

sh. dk. gry. - blk., m. sft.-m. hrd., dns.,  
 hackly, carb.  
 sh. lt. gry. - blk., sft.-m. hrd., dns.,  
 earthy-hack., occ. carb.

Toronto Ls.  
 (-1038')

Ls. crm. - hrd. sft., chiky., mic. occ.  
 foss. sh. stnd. NΦNSFOC  
 Ls. crm. - tan, hrd.-sft., chiky., VEG-  
 mxln, sh. stnd., foss. v. foss. it.  
 pr. int. part. vug. φ + tr. moldic. φ  
 NSFOC

Ls. A.A., occ. lt. gry., sh. stnd., tr. v.  
 pr. φ A.A. NSFOC

Lansing Group  
 (-1062')

Ls. crm., hrd., dns., mic., NΦNSFOC  
 sh. lt.-dk. gry., sft., sft., earthy  
 Ls. crm., hrd., dns., VEG-mxln,  
 mic., tr. chrt., occ. foss. it. ool.  
 w/ pr. vug. moldic. φ NSFOC

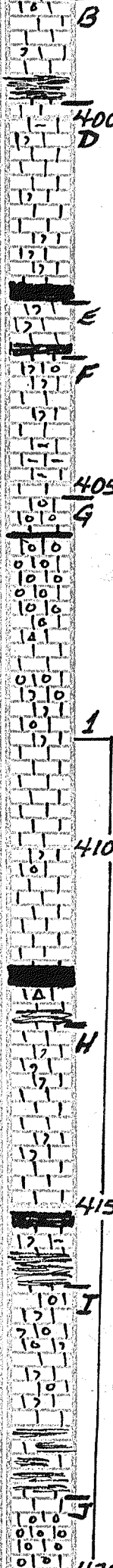
Ls. wh.-crm., hrd., dns., occ. sft. +  
 chiky., VEG-mxln, mic., occ.  
 foss. it. sh. stnd. NΦNSFOC

Ls. crm., hrd.-sft., chiky., tr. mic.,  
 occ. foss. NΦNSFOC  
 Ls. A.A., tr. ool., tr. sh. stnd. it.  
 chrt., occ. chiky. NΦNSFOC

sh. rd. brn., sft., clayey-dk. gry., m.  
 sft., dns., hackly  
 Ls. crm., hrd., dns., VEG-mxln, mic.  
 tr. chrt., v. foss. NΦNSFOC

CPS

CPS



MudChack@3989  
M.w. 9.3  
Vis. 64  
W.L. 5.6  
chl. 1,600  
Solids 7.1%  
L.C.M. 2#

CFS  
Ls. wh.-crm. hrd. dns. VEG-mx/N.  
mic. occ. sfl. +chiky. rare foss.  
+ool. NΦ NSFOC  
Sh. dk. gry. m. sfl. hrcly

Ls. wh.-crm. hrd. dns. VEG-mx/N.  
mic. occ. sfl. +chiky. rare foss.  
tr. sh. stnd. NΦ NSFOC

Ls. wh.-crm. sfl. +chiky-hrd.  
dns. mic. rare foss.  
NΦ NSFOC

CFS  
Ls. wh.-crm. gry. m. sfl. +chiky-hrd.  
dns. mic. occ. foss. NΦ NSFOC  
Sh. dk. gry. blk. m. hrd. m. sfl. carb.

Ls. crm. hrd. sfl. +chiky. VEG-mx/N.  
mic. occ. foss. +ool. sh. stnd.  
tr. pt. vug. moldic φ? wk. cut. No F.O.  
1-2 pc. wk. odor, No F.O. tr. wk. cut.  
+fl.

Ls. crm.-wh. hrd. dns. sfl. +chiky.  
VEG-mx/N. occ. mic. rare foss.  
tr. sh. stnd. NΦ NSFOC

CFS  
Ls. crm. sfl. +chiky-hrd. VEG-mx/N.  
foss. +ool. w/ qd. -ex. moldic. vug.  
φ, tr. int part. φ NSFOC

Ls. crm.-tan. hrd. dns. VEG-mx/N.  
occ. sfl. +chiky. ool. w/ qd. -  
ex. oom. φ NSFOC

Ls. crm.-tan. lt. gry. hrd. dns.  
VEG-mx/N. mic. tr. pt. occ.  
sfl. +chiky NΦ NSFOC

Ls. crm.-tan. lt. gry. hrd. dns. VEG  
-mx/N. mic. occ. sfl. +chiky.  
tr. foss. +ool. w/ pt. moldic φ  
NSFOC

Ls. crm.-lt. gry. hrd. dns. occ.  
sfl. +chiky. med. xln-mx/N.  
mic. rare foss. NΦ NSFOC

Ls. crm.-lt. gry. hrd. dns. VEG-mx/N.  
mic. tr. rev. med. xln. tr. pt.  
v. pr. vug. moldic φ NSFOC

Sh. blk. m. hrd. dns. carb. hrcly.  
Ls. tan.-brn. sfl. hrd. VEG. occ.  
foss. +sh. stnd. rare pc. w/ tr. pr.  
pp. φ. sfl. stn. tr. odor. qd. cut. No F.O.

Ls. crm.-brn. hrd. sfl. +chiky. VEG-  
mx/N. mic. tr. cut. tr. foss.  
NΦ NSFOC

Sh. dk. gry. m. hrd. dns. hrcly  
Ls. crm.-lt. gry. hrd. sfl. +chiky.  
rare foss. tr. pt. pr. vug. φ w/  
brn. stn. qd. cut +fl. qd. odor.  
No F.O. v. perm.

Ls. crm.-gry. hrd. dns. sfl. +chiky  
VEG-mx/N. rare foss. w/ 2-3 pc.  
pr. vug. pp. φ. lt. stn. wk. cut +  
fl. wk. odor. No F.O. v. perm.

Ls. crm.-brn.-gry. hrd. dns. VEG-  
mx/N. mic. occ. sfl. +chiky. occ.  
foss. +sh. stnd. NΦ NSFOC

CFS  
Ls. crm.-tan. gry. hrd. sfl. +chiky.  
VEG-mx/N. mic. occ. foss. +ool.  
w/ 6-8 pc. tan. pr. int part. vug. φ  
lt. stn. qd. odor. qd. pr. cut +fl. No F.O.

Ls. A.A. less φ, some moldic, lt.  
stn. tr. odor. wk. cut +fl. No F.O.  
v. perm.

Ls. crm.-tan. gry. hrd. sfl. +chiky.  
VEG-mx/N. occ. ool. w/ 3-4 pc. pr.  
int. part. φ. lt. stn. wk. odor. wk. cut  
+fl. No F.O. v. perm.

CFS  
Ls. crm. hrd. dns. VEG-mx/N. ool. w/ qd.  
qd. -ex. oom. φ -brn. -No show.

2-3 pc. w/ lt. sm. vug. φ. idk. stn.  
wk. cut +fl. qd. odor. No F.O. v. perm.

Ls. crm.-tan. gry. hrd. sfl. +chiky.  
VEG-mx/N. occ. ool. w/ 3-4 pc. pr.  
int. part. φ. lt. stn. wk. odor. wk. cut  
+fl. No F.O. v. perm.

Very Weak Show

G' Zone Porosity

DST#1  
4085-4210'  
Rec. 2300' MSW  
Deviation .5°

Very Weak Show

Weak Show

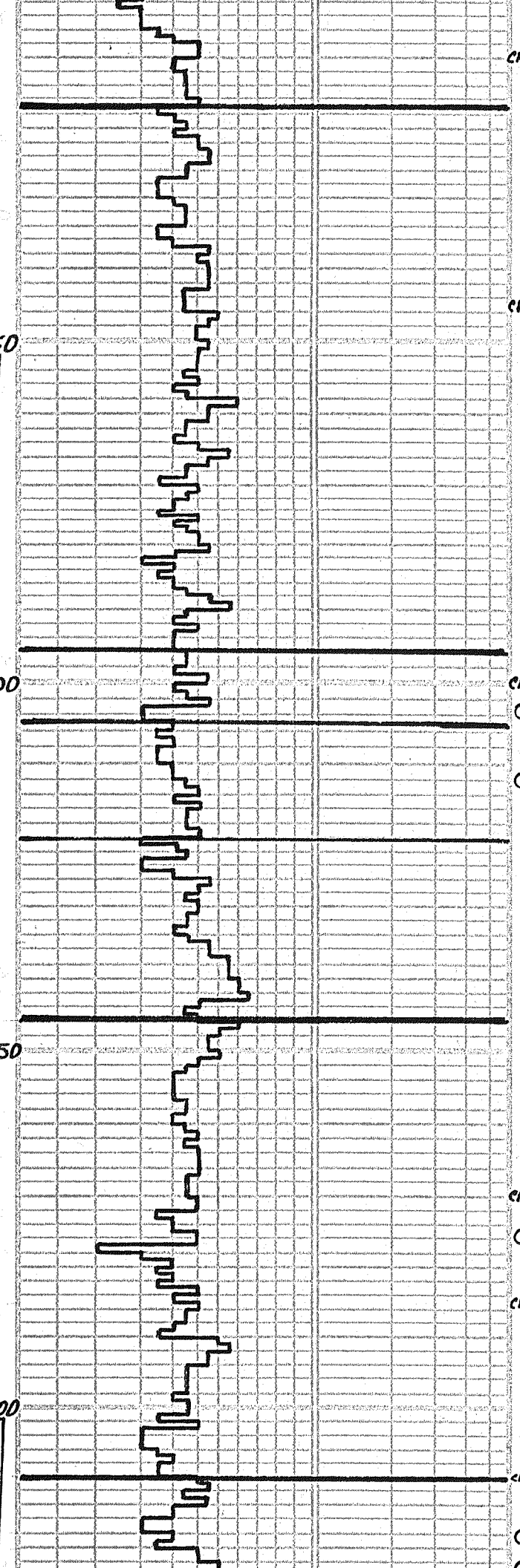
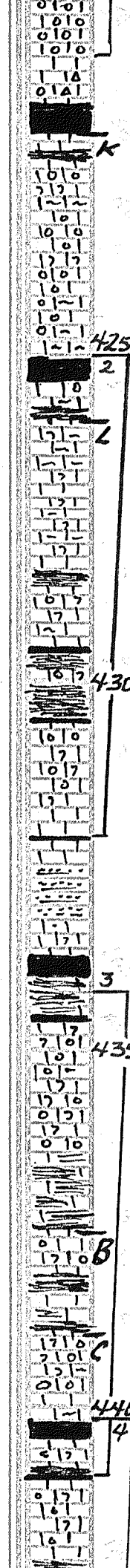
Very Weak Show

Weak Show

Very Weak Show

Very Weak Show

Very Weak Show



ES: crm, mic, mxN, tr, chiky, rare foss, VEG  
 dol, w/fg - ex. dom.  $\phi$ , NSFOC  
 sh: bik, hrd, dns, carb.

CPS  
 sh: bik, m. sft, dns, carb, hacc  
 LS: crm-tan-gry, hrd, dns, VEG, xN  
 - mxN, tr, ch, occ. ool. w/ pr.  
 qd. oomoldic  $\phi$  NSFOC  
 LS: crm-brn, hrd-sft, chiky,  
 VEG, mxN, occ. mic, tr, foss,  $\phi$   
 ool. w/ tr. pr. oom.  $\phi$  NSFOC

LS: crm-tan, sft, chiky, hrd, dns,  
 mic, VEG-mxN, tr, ool. w/ pr.  
 oom.  $\phi$ , occ. sh. std. NSFOC

CPS  
 LS: A.A., less chiky, occ. sh. std,  
 rare foss. + ool. NSFOC  
 LS: crm-lt. gry, hrd, dns, VEG-mxN  
 mic, tr, chiky, tr. foss. + ool. NSFOC  
 sh: bik, m. sft - m. hrd, dns, carb, hacc  
 LS: crm-brn, hrd, dns, occ. foss,  
 + ool. sh. std. tr. pr. oom.  $\phi$   
 NSFOC  
 LS: crm-gry, hrd, dns, VEG-mxN,  
 mic, tr, chiky, tr. chiky, occ. foss.  
 + sh. std., 1-2 pc. w/ pr. vug.  $\phi$ , wk. sh.  
 wk. cut + fl., Fr. odor, No F.O. V. perm. V. Very weak show

LS: crm-gry, m. sft, chiky, hrd,  
 dns, mic, med xN-mxN, tr, foss  
 + sh. std. NSFOC  
 LS: crm-lt. gry, sft + chiky - hrd,  
 dns, mic, tr, mxN-mxN, occ. foss  
 + ool. w/ 1-2 pc. pr. moldic  $\phi$   
 NSFOC  
 LS: crm-brn-gry, hrd, dns, sft +  
 chiky, occ. foss. + sh. std. tr. rexted.  
 NSFOC

CPS  
 sh: lt. gry, m. sft, earthy-harkly  
 LS: crm-brn, m. sft, hrd, dns, VEG-  
 mxN, mic, occ. foss. + ool. w/ pr.  
 fr. in part. vug.  $\phi$ , lt. brn. sh.,  
 blq. ool. qd. odor, cut + fl., No F.O.

LS: crm-brn-gry, hrd, dns, VEG-  
 mxN, occ. foss. + ool. w/ occ. fr.  
 pr. in part.  $\phi$ , lt. sh., wk. odor,  
 fr. cut + fl., No F.O.

Sh: gry, grn - rd, brn - bik, m. sft -  
 m. hrd, earthy, haccly, occ. sly  
 tr. ss: gry, hrd, dns, tr, grn, w/ rd.  
 w. cm. to shly-sly. NSFOC  
 Sh: A.A. predom. dk. gry.  
 LS: crm-brn, hrd, dns, VEG-mxN,  
 mic, tr, sft, chiky, rare foss.  
 NSFOC  
 LS: tan-brn, crm, hrd, dns, VEG-mxN,  
 tr, rexted, occ. foss, abun. sh.  
 std. NSFOC  
 sh: dk. gry - bik, m. sft, earth, carb.  
 Sh: A.A.  
 LS: A.A. occ. sft + chiky, 1-2 pc.  
 w/ pr. in part. + oom.  $\phi$ , lt. brn. sh.  
 fr. - wk. cut + fl., No odor, No F.O.  
 LS: crm-tan, hrd, dns, occ. sft + chiky  
 VEG-mxN, tr, foss. + ool. w/ pr. sft.  
 in part. vug.  $\phi$ , pr. - fr. cut + fl.,  
 No odor, No F.O., 1 perm.

CPS  
 LS: crm-tan, hrd, dns, occ. m. sft +  
 chiky, occ. v. foss. + ool., tr, mxN-mxN,  
 occ. fr. ex. lb., fr. - fr. vug. in part.  $\phi$   
 lt. sh., wk. odor, fr. cut + fl., tr.  $\phi$ , on bik  
 LS: A.A., tr. pr. - fr. in part. vug.  $\phi$ , tr.  
 oom.  $\phi$ , lt. brn. sh., wk. odor, No F.O.

CPS  
 LS: crm-tan-gry, hrd, dns, tr, chiky,  
 foss, tr. pol. sh. std. NSFOC  
 LS: crm-tan, hrd, dns, fr. xN-mxN,  
 mic, occ. chiky, occ. foss. + ool. w/ pr.  
 rare vug.  $\phi$ , tr. pass. loc. vugs, lt. sh.,  
 wk. - fr. cut + fl., V. wk. odor, No F.O.  
 LS: A.A. 1/6 - 3/8 pc. fr. vug. w/ pr. in part.  
 vug.  $\phi$ , lt. brn. sh., tr. cut +  
 fl., No odor, No F.O.

CPS  
 sh: bik - dk. gry, m. hrd, dns, carb.  
 LS: crm-tan, hrd - m. sft + chiky,  
 VEG-mxN, tr, mic, occ. foss. + ool.  
 w/ pr. - fr. in part. in part. vug.  $\phi$   
 brn. mott. sh., tr. F.O. on brn., wk. odor Fair-weak show  
 LS: A.A. occ. VEG, vug.  $\phi$  around foss. Mudchack @ 4410'

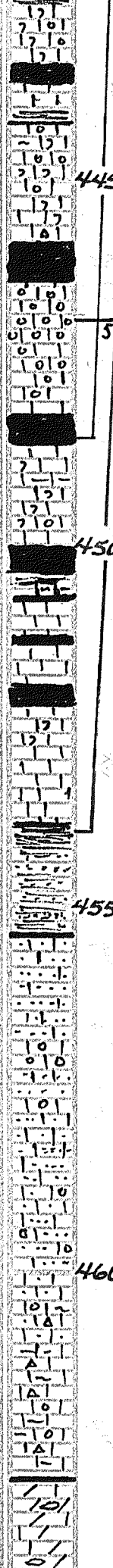
**Stark Shale (-1339')**

**DST #2**  
 4252-4320'  
 Rec. 126' HGCO  
 1380' GO  
 124' OY GCM

**Base of Kansas City Group (-1418')**  
 Weak Show  
 Exline Ls.  
 Weak Show  
 Pleasanton Fm.

Mudchack @ 4320'  
 M.W. 91 Solids 5.7%  
 Vis. 65 LCM 5#  
 W.L. 5.6  
 Chl. 2000

**Marmaton Gp.**  
 V. Very Weak Show  
 Very Weak Show  
 Weak Show  
 Very Weak Show  
**DST #3**  
 4342-4410'  
 Rec. 1138' GO  
 Very Weak Show  
 Very Weak Show  
**Pawnee Ls.**  
 Fair-weak Show



grns., brn. mot. stn., fr. cut + fl. M.W. 9.3 vis. 72  
 v. wk. odor, No F.O., 7 perm

○ Ls. crm.-tan, hrd, dns., veg. mxln.  
 occ. foss. + ool. w/ pr. int. part.  
 vug. φ, brn. stn., fr. F.O. on bk., fr.  
 cut + fl., wk. odor, 6pc. th. ay, bk. sh.

○ Ls. crm.-brn., hrd, dns., veg. mxln.,  
 foss. + ool. w/ pr. int. part. p. owl  
 brn. mot. stn., fr. - wk. cut + fl., wk.  
 odor, 7 perm, No F.O.  
 Ls. A. A., tr. chik., tr. cht., less.  
 foss., NΦ NSFOC

○ Sh. bik., m. sft., earthy, carb.  
 Sh. A. A.  
 Ls. crm.-brn., hrd, dns., veg. mxln.  
 mic., occ. ool., - v. ool. grn. stn.  
 NΦ NSFOC

○ Ls. crm.-tan-brn., hrd, dns., veg-  
 mxln., tr. cht., mic., occ. pol. grn. stn.  
 w/ 3-4 pc. w/ pr. fr. int. ool. φ, brn.  
 stn. gd. cut + fl., No F.O. wk. odor

○ Ls. brn., hrd, dns., mxln. mic., NΦ NSFOC  
 Sh. bik., m. hrd, dns., carb., hackly

○ Ls. brn., hrd, dns., occ. gd. fr. vug. int. part.  
 φ, gd. odor, sfo, gd. cut + fl., thin zone

○ Ls. crm.-brn., hrd, dns., veg. mxln., occ.  
 foss. w/ pr. - gd. vug. moldic? φ, gd.  
 unit. stn., gd. odor, wk. show F.O., gd.  
 cut + fl., thin zone

○ Ls. A. A., tr. fr. - gd. vug. moldic + int-  
 part. φ, lrg. vugs. - stn. + shows A. A.

○ Sh. dk. gry.-bik., m. sft., dns., carb. earthy  
 Ls. crm.-brn., hrd, dns., mic., NΦ NSFOC

○ Ls. crm.-brn., gry., hrd, dns., veg. mxln.  
 mic., fr. foss., NΦ NSFOC

○ Sh. lt. dk. gry.-bik., m. sft., m. hrd, dns.  
 occ. carb., earthy - hackly

○ Sh. A. A.  
 Ls. crm.-brn.-gry., hrd, dns., veg. mxln.  
 mic., occ. foss. p. v. 2 pc. w/ v. pr. BZ  
 φ, dk. stn., wk. cut + fl., No odor, No F.O.

○ Ls. brn.-gry., hrd, dns., veg. mxln., tr. foss.  
 w/ 2-3 pc. th. ay w/ th. vug φ - lrg. vugs.  
 br. stn., fr. cut + fl., No F.O. v. wk.  
 odor, thin zone

○ Ls. A. A., tr. sandy, NΦ NSFOC  
 Sh. gry. gr. - dk. gry., tr. rd. brn., m.  
 sft., earthy, tr. sandy, - v. sandy.

○ Sh. A. A.  
 Ls. crm.-tan - gry., hrd - sft. chiky, veg.  
 - mxln., tr. sfo., tr. sandy - fr. grn. -  
 calc. ss. cong. - rd. ang. NΦ NSFOC

○ Ls. A. A. w/ occ. stn. A. A. NΦ NSFOC  
 calc. ss. rare pc. med. fr. grn. sub.  
 ang. - hrd., calc. cm. cong. NΦ NSFOC

○ Ls. crm.-gry., - brn., hrd, dns., veg. mxln.  
 mic., tr. cht., occ. sandy - v. sandy, occ.  
 ool., tr. sh. stnd. NΦ NSFOC

○ Ls. crm.-brn., gry., hrd, dns., veg. mxln.  
 mic., sandy - v. sandy, ool. - v. ool., tr.  
 sh. stnd. NΦ NSFOC

○ Ls. crm.-brn., hrd, dns., veg. mxln.  
 mic., chky., occ. sandy - v. sandy,  
 tr. ool. NΦ NSFOC

○ Ls. crm.-brn., hrd, dns., tr. m. sft., chiky.  
 tr. ool., occ. sandy - v. sandy, mic.,  
 chky., tr. sh. stnd. NΦ NSFOC

○ Ls. crm.-brn., hrd, dns. - m. sft. + chiky.  
 veg. mxln., mic., occ. cht., occ. ool.  
 tr. sandy, tr. sh. stnd. NΦ NSFOC

○ Ls. crm.-brn., hrd - m. sft., veg. mxln.,  
 mic., tr. cht., occ. pol., sh. stnd., 1-2  
 pc. w/ pr. vug φ + fr. de ool. stn. No  
 odor. No cut + fl. NSFOC

○ Ls. A. A. occ. gry.-tan Dol. hrd, tr. vug. φ  
 sh. stnd., ool. + sandy NSFOC

○ Dol. crm., m. sft., fr. - veg. mxln., tr. vug. moldic  
 φ, ? int. xln. φ NSFOC

○ Dol. - calc. Dol. crm.-gry., m. sft. - hrd,  
 tr. chky. NSFOC

Weak Show  
 W.L. 6.0 Chl. 2000  
 Solids 7.1 LCM. 5#

Weak Show

Tower Pawnee Ls.  
 Very Weak Show  
 DST #4  
 4402'-4485'  
 Rec: 274' 0" + GEM

Ft. Scott Ls.  
 (-1585')

Very Weak Show

Charokel Shale  
 (-1604')

Fair Show  
 Mud Check @ 4485'  
 M.W. 9.3 vis. 69 w.L. 6.0

Fair Show  
 Fair Show

DST #5  
 4469'-4540'  
 Rec: 1208' 0" G  
 137' 4" 0" CM

Johnson Zone  
 V. Very Weak Show

Very Weak Show

Mississippian  
 (-1676')

Mud Check @ 4540'  
 M.W. 9.4  
 vis. 65  
 W.L. 6.0  
 Chl. 2000  
 Solids 7.8%  
 LCM. 4.0#

SPERGEM Fm.  
 (-1751')

4450

5

4500

4550

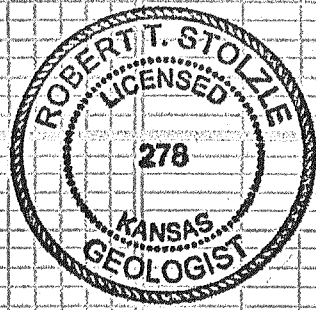
4600

1/1  
1/1  
0/1  
0/1  
1/0  
1/0  
1/10  
1/10  
1-1  
1-1  
10/0  
10/0  
10/1

4650



4700



CFS

tn. v. g. 1, m. o. c. s. n. s. n. 1, o. c. fr. -  
gd. v. u. g. m. o. l. d. i. c.  $\phi$  NSFOC

calc. Dol. - Dol. crm. - gry., hrd. - sft. +  
chik., occ. gry ool., gry. mott. sft.  
occ. pr. v. u. g. m. o. l. d. i. c.  $\phi$ , tr. ch.  
NSFOC

Ls. - calc. Dol. crm. - dk. gry., hrd. dns;  
sft. techy., occ. gry. ool., tr. rexlzd.  
tr. pr. v. u. g. m. o. l. d. i. c.  $\phi$  NSFOC

Ls. + Dol. tan. - gry., m. sft. - hrd., fin. in-  
mxn., mic. 1 gry. sh. stnd. 1 gry. ool.,  
occ. fr. - gd. v. u. g. m. o. l. d. i. c.  $\phi$  NSFOC

D.T.D. 4680'

L.T.D. 4680'

Robert Stofle  
1/24/14

Deviation 6°

Sharp 'A' #1-3  
 Daily Drilling Report  
 Page Three

Sharp 'A' #1-3 2200 FSL 1650 FWL Sec. 3-T18S-R30W 2878' KB							Sharp #1-3 2293 FNL 2310 FEL Sec. 3-T18S-R30W 2874' KB	
Formations	Sample Tops	Datum	Ref	Log tops	Datum	Ref	Log Tops	Datum
Anhydrite	2192	+686	-4	2190	+688	-2	2184	+690
B/Anhydrite	2250	+628	-5	2247	+631	-2	2241	+633
Topeka	3662	-784	-3	3662	-784	-3	3655	-781
Heebner	3902	-1025	-3	3904	-1026	-5	3895	-1021
Lansing	3940	-1062	-4	3939	-1061	-3	3932	-1058
Stark	4217	-1339	-6	4214	-1336	-3	4207	-1333
Pawnee	4428	-1540	-6	4410	-1532	+2	4408	-1534
Mississippian	4565	-1687	+2	4551	-1673	+16	4563	-1689
RTD	4680						4675	
LTD				4680			4673	



PO Box 93999  
Southlake, TX 76092

Voice: (817) 546-7282  
Fax: (817) 246-3361

*Overcat.  
Prod-LH*

# INVOICE

Invoice Number: 140862

Invoice Date: Jan 14, 2014

Page: 1

<b>Bill To:</b>
Murfin Drig. Co., Inc. 250 N. Water STE #300 Wichita, KS 67202

Customer ID	Field Ticket #	Payment Terms	
Murfin	62201	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	Jan 14, 2014	2/13/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	Sharp A #1-3		
175.00	CEMENT MATERIALS	Class A Common	17.90	3,132.50
6.00	CEMENT MATERIALS	Chloride	64.00	384.00
183.75	CEMENT SERVICE	Cubic Feet Charge	2.48	455.70
493.20	CEMENT SERVICE	Ton Mileage Charge	2.60	1,282.32
1.00	CEMENT SERVICE	Surface	1,512.25	1,512.25
60.00	CEMENT SERVICE	Pump Truck Mileage	7.70	462.00
1.00	CEMENT SERVICE	Swedge Manifold Rental	275.00	275.00
60.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	264.00
1.00	CEMENT SUPERVISOR	Kelly Gabel		
1.00	EQUIPMENT OPERATOR	Wayne McGhghy		

*Q14 N*

ALL PRICES ARE NET, PAYABLE 30 DAYS FOLLOWING DATE OF INVOICE. 1 1/2% CHARGED THEREAFTER. IF ACCOUNT IS CURRENT, TAKE DISCOUNT OF

\$ 2,718.71 *350*

ONLY IF PAID ON OR BEFORE Feb 8, 2014

Subtotal	7,767.77
Sales Tax	251.43
Total Invoice Amount	8,019.20
Payment/Credit Applied	
<b>TOTAL</b>	<b>8,019.20</b>

*- 2718.71*  
*5300.49*



# ALLIED OIL & GAS SERVICES, LLC 062201

Federal Tax I.D. # 20-8651475

REMIT TO P.O. BOX 93999  
SOUTHLAKE, TEXAS 76092

SERVICE POINT:

Cahly, KS

DATE <u>1-14-14</u>	SEC. <u>3</u>	TWP. <u>18W</u>	RANGE <u>30W</u>	CALLED OUT	ON LOCATION	JOB START <u>9:30 AM</u>	JOB FINISH <u>12:00 PM</u>
LEASE <u>Shaupt</u>		WELL # <u>1-3</u>		LOCATION <u>North of E. to Rd 160 1/2 W</u>		COUNTY <u>Stano</u>	STATE <u>KS</u>
OLD OR (NEW) (Circle one)				1/2 S Wenton			

CONTRACTOR Murfin #21 OWNER Same

TYPE OF JOB <u>Surface</u>	CEMENT
HOLE SIZE <u>12 1/4</u> T.D. <u>223</u>	AMOUNT ORDERED <u>175.000 com 370 cc</u>
CASINO SIZE <u>8 5/8</u> DEPTH <u>223</u>	
TUBING SIZE DEPTH	
DRILL PIPE DEPTH	
TOOL DEPTH	
PRES. MAX MINIMUM	COMMON <u>175 @ 17.00 313.050</u>
MEAS. LINE SHOE JOINT	POZMIX @
CEMENT LEFT IN CSG. <u>15'</u>	GEL @
PERFS.	CHLORIDE <u>6 @ 64.00 384.00</u>
DISPLACEMENT <u>13</u>	ASC @

EQUIPMENT	HANDLING <u>193.75 com</u> @ <u>248</u> <u>455.70</u>
PUMP TRUCK CEMENTER <u>Willy Gabriel</u>	MILEAGE <u>8,227 mi x 60 x 2.00</u> <u>1282.32</u>
# <u>4531</u> HELPER <u>Wayne McGibghy</u>	TOTAL <u>5754.52</u>
BULK TRUCK	
# <u>3964306</u> DRIVER <u>Juan Lopez (TWS)</u>	
BULK TRUCK	
# DRIVER	

REMARKS:  
mixed 175.000 com 370 cc  
displaced with water  
shut in

Cement did circulate

Shankster  
Willy Garcia

CHARGE TO: Murfin

STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

SERVICE

DEPTH OF JOB	<u>223</u>
PUMP TRUCK CHARGE	<u>1512.35</u>
EXTRA FOOTAGE @	
MILEAGE <u>MILV 60</u> @ <u>7.22</u>	<u>462.00</u>
MANIFOLD <u>suwedge</u> @	<u>275.00</u>
<u>MILV 60</u> @ <u>4.80</u>	<u>264.00</u>
TOTAL	<u>2513.35</u>

PLUG & FLOAT EQUIPMENT

_____	@	
_____	@	
_____	@	
_____	@	
_____	@	
TOTAL		

To: Allied Oil & Gas Services, LLC.  
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME Juan Lopez

SIGNATURE Juan Lopez

SALES TAX (if Any) \_\_\_\_\_

TOTAL CHARGES 7,767.77

DISCOUNT 2,718.71 IF PAID IN 30 DAYS

5,049.05 Net.



P. O. Box 466  
Ness City, KS 67560  
Off: 785-798-2300



# Invoice

DATE	INVOICE #
1/24/2014	25371

BILL TO
Murfin Drilling Co Inc P. O. Box 130 Hill City, KS 67642-0130

- Acidizing
- Cement
- Tool Rental

IC 103  
J.Y. R

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1-3	Sharp A	Lane	Company Rig	Oil	Development	Cement LongStri...	Don
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				50	Miles	6.00	300.00
578D-L	Pump Charge - Long String - 4670 Feet				1	Job	1,500.00	1,500.00
221	Liquid KCL (Clayfix)				4	Gallon(s)	25.00	100.00T
280	Flocheck 21				500	Gallon(s)	3.00	1,500.00T
290	D-Air				3	Gallon(s)	42.00	126.00T
403-5	5 1/2" Cement Basket				1	Each	300.00	300.00T
404-5	5 1/2" Port Collar				1	Each	2,900.00	2,900.00T
406-5	5 1/2" Latch Down Plug & Baffle				1	Each	275.00	275.00T
407-5	5 1/2" Insert Float Shoe With Auto Fill				1	Each	375.00	375.00T
409-5	5 1/2" Turbolizer				10	Each	90.00	900.00T
413-5	5 1/2" Roto Wall Scratcher				35	Each	40.00	1,400.00T
419-5	5 1/2" Rotating Head Rental				1	Each	200.00	200.00T
325	Standard Cement				225	Sacks	14.50	3,262.50T
276	Flocele				57	Lb(s)	2.50	142.50T
283	Salt				1,125	Lb(s)	0.20	225.00T
284	Calseal				11	Sack(s)	35.00	385.00T
285	CFR-1				159	Lb(s)	4.50	715.50T
581D	Service Charge Cement				225	Sacks	2.00	450.00
583D	Drayage				588.73	Ton Miles	1.00	588.73
	Subtotal							15,645.23
	Sales Tax Lane County						7.15%	915.66

**Thank You For Your Business In 2013!**  
**We Look Forward To Serving You In 2014!**

**Total** \$16,560.89



Services, Inc.

TICKET 25371

CHARGE TO: Mentor Dig Co.  
 ADDRESS: \_\_\_\_\_  
 CITY, STATE, ZIP CODE: \_\_\_\_\_

PAGE 1 of 2

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. <u>Sharp A'</u>	1-3	Sharp A'	Lane	K5		1-24-14	
2. <u>Ness City, KS</u>	TICKET TYPE <input checked="" type="checkbox"/> SERVICE <input type="checkbox"/> SALES	CONTRACTOR <u>CRS</u>	RIG NAME/NO <u>#21</u>	SHIPPED VENDOR	DELIVERED TO <u>See Header</u>	ORDER NO.	
3.	WELL TYPE <u>011</u>	WELL CATEGORY <u>in field</u>	JOB PURPOSE <u>Concrete Longstring</u>	WELL PERMIT NO.	WELL LOCATION		
4.	REFERRAL LOCATION	INVOICE INSTRUCTIONS					

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575					MILEAGE #113	50	mi			600	300.00
578					Pump Charge - cut Longstring	1	ea			150000	150000
281					Liquid Kite	4	gal			2500	10000
280					Flackack 21	500	gal			300	150000
292					D-912	3	gal			4000	12000
283					Concrete Cement Basket	1	ea			5 1/2 in	300.00
404					Bnt Galva	1	ea			5 1/2 in	2900.00
406					Lot 41 Drain Plug & Baffle	1	ea			5 1/2 in	275.00
407					Insect Proof Sine w/ Hubs 21	1	ea			5 1/2 in	375.00
409					Turbolizers	1	ea			5 1/2 in	920.00
413					Rot 1200 Sine 175'	35	ea			5 1/2 in	1400.00
419					Rotating Head Rental	1	ea			5 1/2 in	200.00

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

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

X Blake King DATE SIGNED 1-24-14 TIME SIGNED 2:30  A.M.  P.M.

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

SURVEY	AGREE	UN-DECIDED	DIS-AGREE	
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?				
WE UNDERSTOOD AND MET YOUR NEEDS?				
OUR SERVICE WAS PERFORMED WITHOUT DELAY?				
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?				
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO		
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND				

PAGE TOTAL \$9876.00  
 Sub total 15645.23  
 TAX 7.15% 915.66  
 TOTAL 16,560.89

SWIFT OPERATOR Alan Stewart APPROVAL \_\_\_\_\_

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

Thank You!



PO Box 466  
Ness City, KS 67560  
Off: 785-798-2300

TICKET CONTINUATION

TICKET No. 25371

PAGE 2 95

CUSTOMER  
Murphy Digo Co

WELL  
1-3 Skard 'A'

DATE  
1-24-14

PRICE REFERENCE	SECONDARY REFERENCE / PART NUMBER	ACCOUNTING		TIME	DESCRIPTION	WELL				UNIT PRICE	AMOUNT
		LOC	ACCT			QTY	QTY	QTY	QTY		
285		1			Standard Cement #1-2	285 SKS	2150	15		14.50	3862.50
276		2			Fluore	57	lbs			250	142.50
283		2			Sert	1195	lbs			80	225.00
284		2			Cement	1058	lbs	11	SKS	3500	385.00
285		2			OT-R-1	159	lbs			4.50	715.50
581		2								200	450.00
583		2								100	588.73

SERVICE CHARGE

Cement

MESSAGE TOTAL WEIGHT CHARGE

23549 lbs

LOADED MILES

50

CUBIC FEET

285 SKS

TON MILES

588.725

CONTINUATION TOTAL

5769.83

JOB LOG

SWIFT Services, Inc.

DATE 1-24-14 PAGE NO. 7

CUSTOMER *Martin Dug Co* WELL NO. *1-3* LEASE *Sharp 'A'* JOB TYPE *Cement Longstring* TICKET NO. *25371*

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1945							TD-4680 On loc - Hoal equip Hooking up Fongs
	2015							Start 5 1/2" - 15.5' casing to 4670 175' Rot Well Scratches Insert Float Shoe w/ Anti-Fell L.D. Baffle - 55-30' @ 4640' Cant 1, 2, 3, 4, 5, 7, 9, 11, 13, 57 Cement Packer #58" An eval. Port Collar #58" Collar @ 2234'
	2130							#60 - cir casing Drop fillup ball - 6 sts out Finish running casing Tag & Log IT down start cir / Rotate casing Fin cir -
	2230							300 Pump 15 BBL HCL Flush 200 Pump 500 gal Floccide 300 Pump 5 BBL HCL Spacers 800 Start 175 sts EA-2 cont. 200 Fin cont - Washout - Pump & Lines 300 Drop L.D. Plug - Start Displ 400 Cement 1/2 PL 800 slow rate 700 slow rate 900 slow rate 1000 Lost air press 1100 Plug Draw - Hold 0 Release & Hold Job Complete Washup & Rekey
	0030		110 1/2					
	0035							
	<del>0040</del>							
	0040		8					Thanks Ken, Tom & Russell Plug Rt 30 sts EA-2 cont Plug Mt 20 sts EA-2 out
	0115		5					



P. O. Box 466  
Ness City, KS 67506  
Off: 785-798-230

*Acidizing*  
*cc: WF*  
*cc: Liz*  
*@: L-1*

# Invoice

DATE	INVOICE #
1/31/2014	25852

BILL TO
Murfin Drilling Co Inc P. O. Box 130 Hill City, KS 67642-0130
USED FOR <u>IC 103</u>
APPROVED <u>[Signature]</u>

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1-3	Sharp A	Lane	Company Tools	Oil	Development	Cement Port Collar	Blaine
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				60	Miles	6.00	360.00
576D-D	Pump Charge - Port Collar				1	Job	1,500.00	1,500.00
330	Swift Multi-Density Standard (MIDCON II)				190	Sacks	18.50	3,515.00T
276	Flocele				50	Lb(s)	2.50	125.00T
290	D-Air				2	Gallon(s)	42.00	84.00T
581D	Service Charge Cement				275	Sacks	2.00	550.00
583D	Drayage				820.96	Ton Miles	1.00	820.96
	Subtotal							6,954.96
	Sales Tax Lane County						7.15%	266.27
<b>We Appreciate Your Business!</b>							<b>Total</b>	\$7,221.23



CHARGE TO: **MURPHY Dr. King**  
 ADDRESS  
 CITY, STATE, ZIP CODE

TICKET 25852

PAGE 1 OF 1

SERVICE LOCATIONS: **Wellb Project No. 1-3** LEASE: **Sharp A** COUNTY/PARISH: **Lane** STATE: **KS** CITY: **Any** DATE: **31 Jan 14** OWNER  
 1. **Wellb 1/3** CONTRACTOR: **CO Tools** RIG NAME/NO.: **Development cement port collar** SHIPPED BY: **BT** DELIVERED TO: **Location** ORDER NO.:  
 2. TICKET TYPE:  SERVICE  SALES  
 3. WELL TYPE: **6.1** WELL PERMIT NO.:  
 4. INVOICE INSTRUCTIONS:

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575		1			MILEAGE	60	mi			8.00	480.00
576D		1			TRK Charge	1	ea			1500.00	1500.00
330		1			SM D cement	190	sk			185.00	35150.00
276		1			Fluore	50	lb			2.50	125.00
296		1			D-air	2	gal			42.00	84.00
581		1			Service charge	275	sk			2.00	550.00
583		1			Drayage	27365	lb			1.00	27365.00

**LEGAL TERMS:** Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY**, and **LIMITED WARRANTY** provisions.  
 MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS  
 DATE SIGNED: **John Duck** TIME SIGNED: **1:00**  A.M.  P.M.  
**REMIT PAYMENT TO:**  
 SWIFT SERVICES, INC.  
 P.O. BOX 466  
 NESS CITY, KS 67560  
 785-798-2300  
 SURVEY:  OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?  WE UNDERSTOOD AND MET YOUR NEEDS?  OUR SERVICE WAS PERFORMED WITHOUT DELAY?  WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?  
 CUSTOMER DID NOT WISH TO RESPOND

SWIFT OPERATOR: **APR** APPROVAL: **APR**  
 CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES: The customer hereby acknowledges receipt of the materials and services listed on this ticket.  
 TOTAL: **7221.23**  
 TAX: **266.27**  
**Thank You!**

JOB LOG

SWIFT Services, Inc.

DATE 31 Jan 14 PAGE NO. 1  
TICKET NO. 25852

CUSTOMER MURPIN Drilling

WELL NO.

LEASE

Sharp

JOB TYPE

concrete put collar

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
								275sk SMD cement w/ 1/4" floc 6sk Bentonite gel put collar 2234' 2 3/4" x 5 1/2"
	0830							on loc TRK 114
	0850					1100	1100	test to 1100psi - hold open put collar
		3	3			300		injection rate
	0915	3	100			300		Mix SMD cement @ 11.2 ppg
		3	105			350		increase to 13 ppg
	0955							→ cement to surface 190sk mixed 20 to pit
	1000	3	12			350		Displace w/ 12 bbl H <sub>2</sub> O close put collar
	1010					1100	1100	test to 1100psi - hold RUN 5 joints - to 2411'
	1020		30					Reverse hole clean - 2 cement plugs - wash tool Pack up
	1100							job complete Turn Crag, Blow & Flat