



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1124478  
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: \_\_\_\_\_



1124478

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

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

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

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

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

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> _____ <i>(Submit ACO-4)</i>	<b>PRODUCTION INTERVAL:</b> _____ _____
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Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Mark Sievers, Chairman  
Thomas E. Wright, Commissioner  
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

March 14, 2013

Leon Rodak  
Murfin Drilling Co., Inc.  
250 N WATER STE 300  
WICHITA, KS 67202-1216

Re: ACO1  
API 15-195-22836-00-00  
Ruder 'A' 2-1  
SE/4 Sec.01-11S-24W  
Trego County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,  
Leon Rodak

Ruder 'A' #2-1 1680' FSL 860' FEL Sec. 1-T11S-R24W 2296' KB							Ruder 'A' #1-1 1800' FSL 1870' FEL Sec. 1-T11S-R24W 2293' KB	
Formation	Sample tops	Datum	Ref	Log Tops	Datum	Ref	Log Tops	Datum
Anhydrite	1889	+407	+4	1880	+416	+13	1890	+403
B/Anhydrite	1929	+367	+5	1924	+372	+10	1931	+362
Topeka	3380	-1084	+4	3386	-1090	-2	3381	-1088
Heebner	3611	-1315	-4	3611	-1315	-4	3604	-1311
Toronto	3632	-1336	-5	3631	-1335	-4	3624	-1331
Lansing	3646	-1350	-5	3644	-1348	-3	3638	-1345
BKC	3878	-1582	+1	3880	-1584	-1	3876	-1583
Marmaton	3928	-1632	+5	3926	-1630	+7	3930	-1637
RTD	3980						3990	
LTD				3980			3990	



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Sam Sharifaie

**Ruder "A " # 2-1**

**1-11s-24w Trego,KS**

Start Date: 2012.11.24 @ 19:08:01

End Date: 2012.11.25 @ 02:14:20

Job Ticket #: 51528                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.28 @ 09:30:12



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**

**Ruder "A" # 2-1**

Job Ticket: 51528

**DST#: 1**

Test Start: 2012.11.24 @ 19:08:01

## GENERAL INFORMATION:

Formation: **LKC " B "**

Deviated: No Whipstock: 2296.00 ft (KB)

Time Tool Opened: 21:45:20

Time Test Ended: 02:14:20

Test Type: Conventional Bottom Hole (Initial)

Tester: Jim Svaty

Unit No: 41

**Interval: 3666.00 ft (KB) To 3685.00 ft (KB) (TVD)**

Reference Elevations: 2296.00 ft (KB)

Total Depth: 3685.00 ft (KB) (TVD)

2291.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 6752 Inside**

Press @ RunDepth: 37.22 psig @ 3667.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.24

End Date:

2012.11.25

Last Calib.: 2012.11.25

Start Time: 19:08:01

End Time:

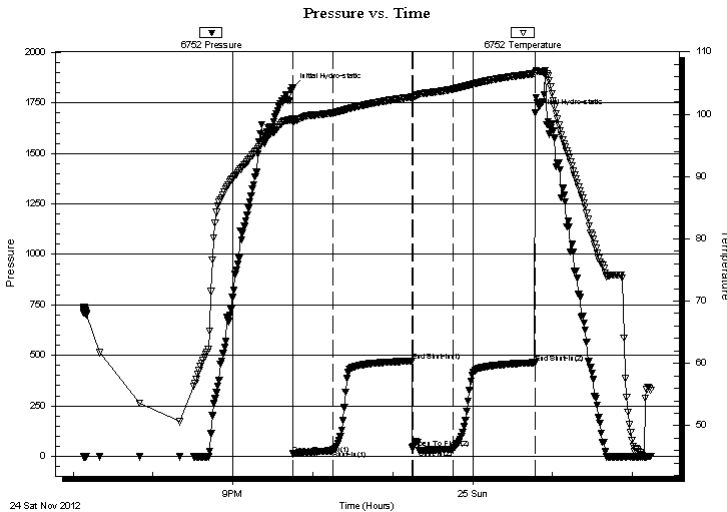
02:14:20

Time On Btm: 2012.11.24 @ 21:45:00

Time Off Btm: 2012.11.25 @ 00:47:00

**TEST COMMENT:** 30-IFP- Surface Blow Building to 1" in 12 min  
60-ISIP- No Blow  
30-FFP- Surface Blow Building to 1/4"  
60-FSIP- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1823.73	99.18	Initial Hydro-static
1	12.26	98.70	Open To Flow (1)
30	29.12	100.21	Shut-In(1)
90	471.71	102.76	End Shut-In(1)
90	40.57	102.72	Open To Flow (2)
120	37.22	104.00	Shut-In(2)
182	463.82	106.50	End Shut-In(2)
182	1698.94	106.70	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
40.00	WCM 40%w 60%m show of oil	0.30
8.00	W & OCM 14%w 18%o 68%m	0.11

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A " # 2-1**  
Job Ticket: 51528 **DST#: 1**  
Test Start: 2012.11.24 @ 19:08:01

## Tool Information

Drill Pipe:	Length: 3615.00 ft	Diameter: 3.80 inches	Volume: 50.71 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 52000.00 lb
			<u>Total Volume: 50.85 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3666.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	19.00 ft			
Tool Length:	46.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			3644.00	
Hydraulic tool	5.00			3649.00	
Jars	5.00			3654.00	
Safety Joint	2.00			3656.00	
Packer	5.00			3661.00	27.00 Bottom Of Top Packer
Packer	5.00			3666.00	
Stubb	1.00			3667.00	
Recorder	0.00	6752	Inside	3667.00	
Recorder	0.00	8322	Outside	3667.00	
Perforations	15.00			3682.00	
Bullnose	3.00			3685.00	19.00 Bottom Packers & Anchor

**Total Tool Length: 46.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A " # 2-1**  
Job Ticket: 51528      **DST#: 1**  
Test Start: 2012.11.24 @ 19:08:01

## 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:	49000 ppm
Viscosity: 78.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.95 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2500.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	WCM 40%w 60%m show of oil	0.297
8.00	W & OCM 14%w 18%o 68%m	0.112

Total Length: 48.00 ft      Total Volume: 0.409 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: .255 @ 43

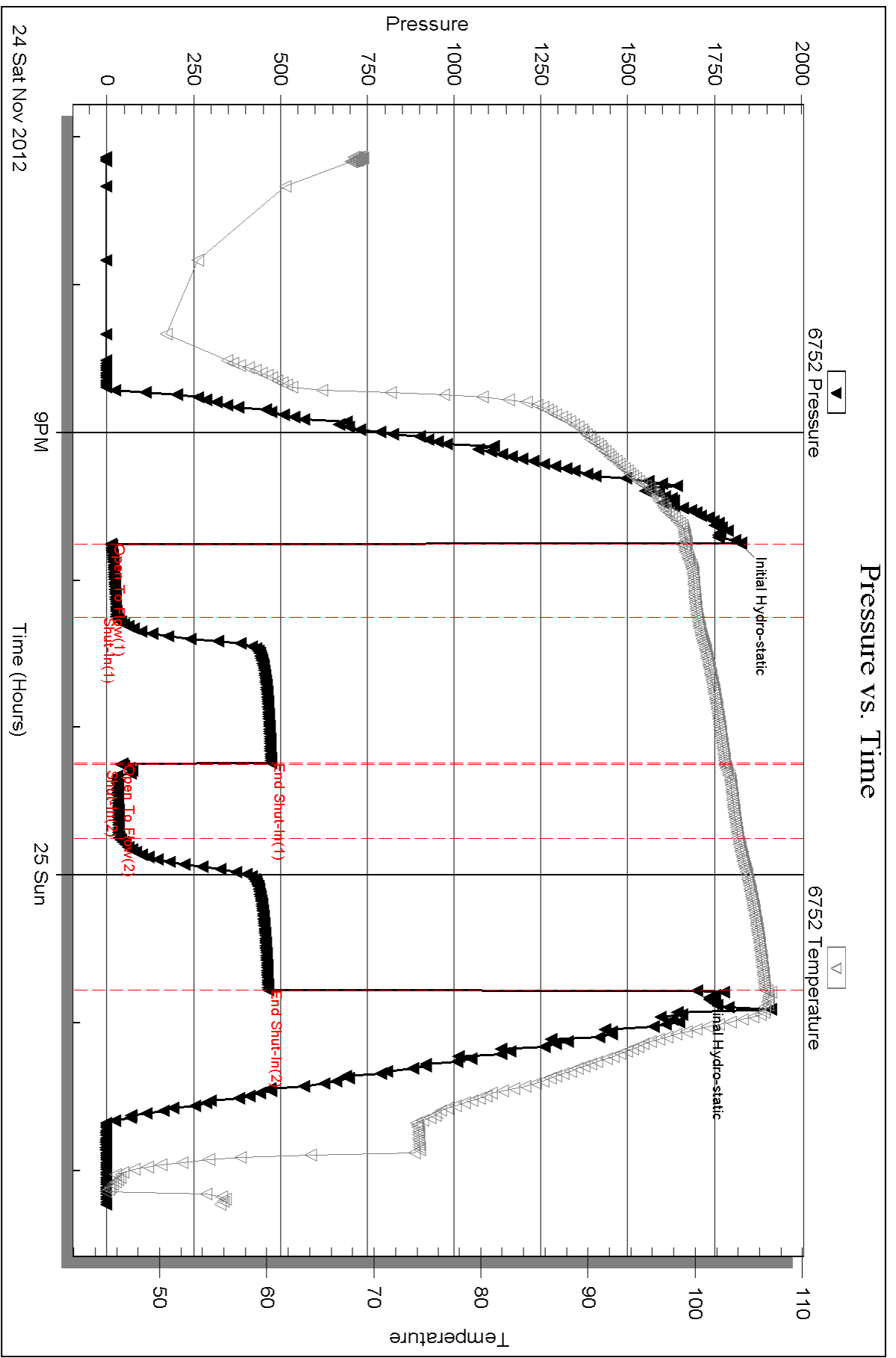
Serial #: 6752

Inside

Murfin Drilling Co Inc

Ruder "A" # 2-1

DST Test Number: 1

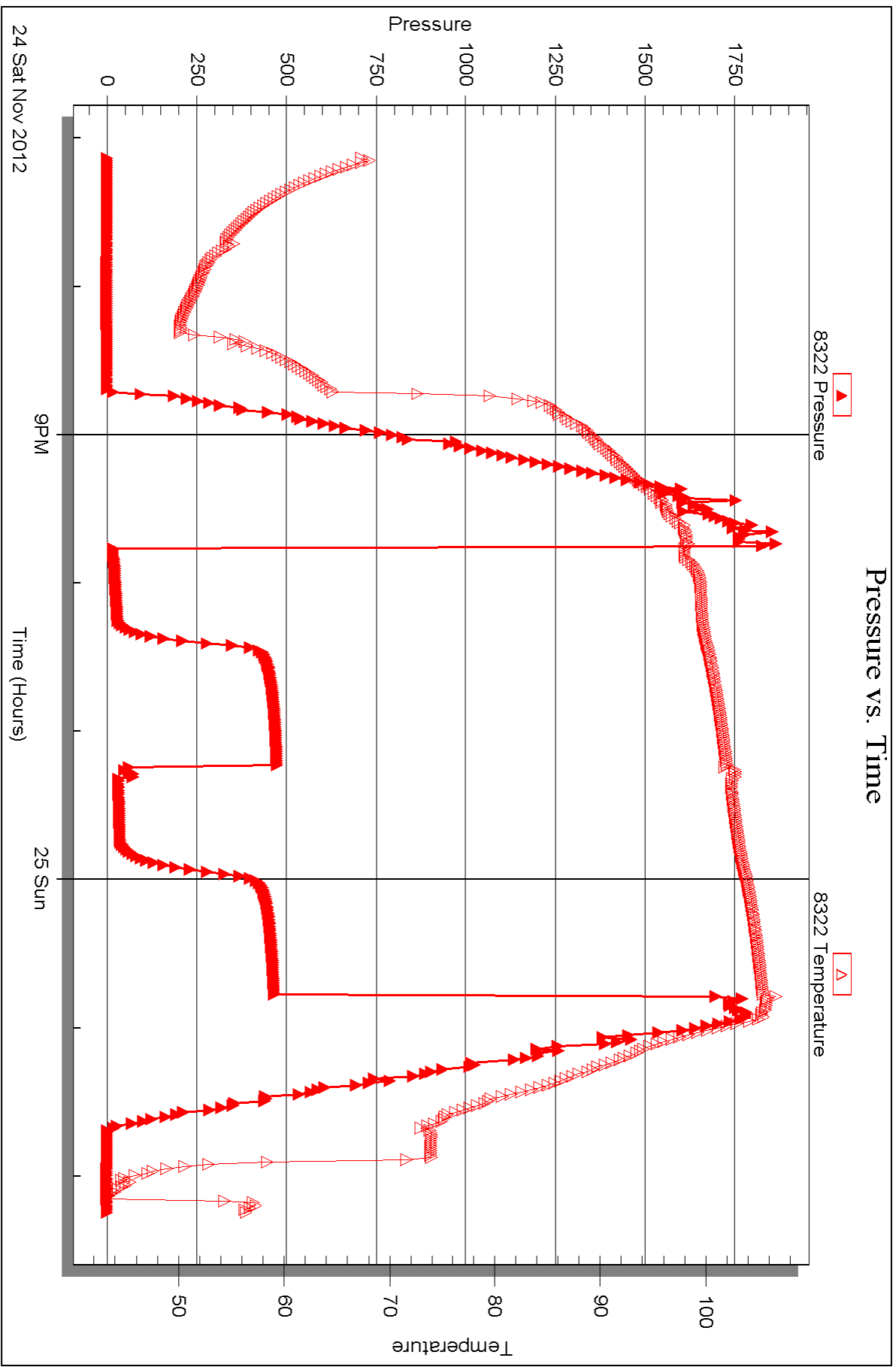


Serial #: 8322

Outside Murfin Drilling Co Inc

Ruder "A" # 2-1

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Sam Sharifaie

**Ruder "A " # 2-1**

**1-11s-24w Trego,KS**

Start Date: 2012.11.25 @ 12:34:00

End Date: 2012.11.25 @ 19:15:00

Job Ticket #: 51529                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.28 @ 09:29:27

Murfin Drilling Co Inc

1-11s-24w Trego,KS

Ruder "A " # 2-1

DST # 2

LKC " D - G "

2012.11.25



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A" # 2-1**  
 Job Ticket: 51529 **DST#: 2**  
 Test Start: 2012.11.25 @ 12:34:00

## GENERAL INFORMATION:

Formation: **LKC " D - G "**  
 Deviated: No Whipstock: 2296.00 ft (KB)  
 Time Tool Opened: 14:17:45  
 Time Test Ended: 19:15:00  
 Interval: **3684.00 ft (KB) To 3750.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 41  
 Reference Elevations: 2296.00 ft (KB)  
 2291.00 ft (CF)  
 KB to GR/CF: 5.00 ft

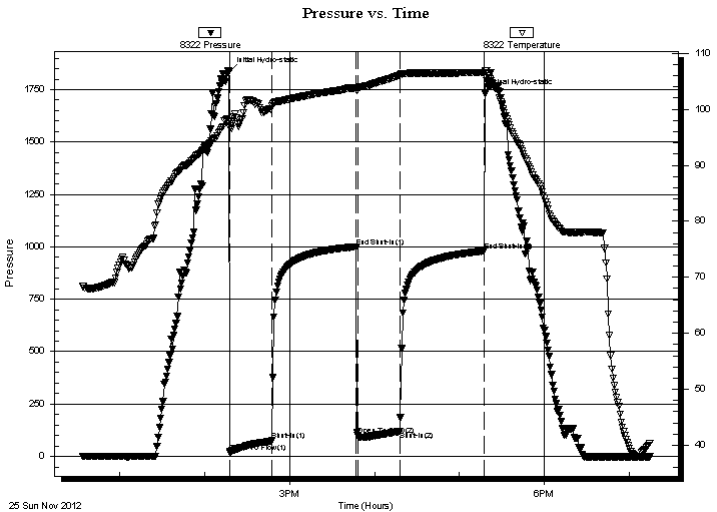
## Serial #: 8322

## Outside

Press @ Run Depth: 119.84 psig @ 3685.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.11.25 End Date: 2012.11.25 Last Calib.: 2012.11.25  
 Start Time: 12:34:05 End Time: 19:14:44 Time On Btm: 2012.11.25 @ 14:17:40  
 Time Off Btm: 2012.11.25 @ 17:18:00

**TEST COMMENT:** 30-IFP- Very Weak Surging Surface Blow  
 60-ISIP- No Blow  
 30-FFP- Very Weak Surging Surface Blow  
 60-FSIP- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1836.83	97.77	Initial Hydro-static
1	19.14	96.63	Open To Flow (1)
30	74.88	100.66	Shut-In(1)
90	1000.73	103.78	End Shut-In(1)
91	99.61	103.65	Open To Flow (2)
121	119.84	106.09	Shut-In(2)
180	980.42	106.55	End Shut-In(2)
181	1728.71	106.82	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
206.00	MCW 40%w 60%m Show of Oil	2.63

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A " # 2-1**  
Job Ticket: 51529 **DST#: 2**  
Test Start: 2012.11.25 @ 12:34:00

**Tool Information**

Drill Pipe:	Length: 3646.00 ft	Diameter: 3.80 inches	Volume: 51.14 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 54000.00 lb
			<u>Total Volume: 51.28 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	3684.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	66.00 ft			
Tool Length:	93.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Shut In Tool	5.00			3662.00	
Hydraulic tool	5.00			3667.00	
Jars	5.00			3672.00	
Safety Joint	2.00			3674.00	
Packer	5.00			3679.00	27.00 Bottom Of Top Packer
Packer	5.00			3684.00	
Stubb	1.00			3685.00	
Recorder	0.00	6752	Inside	3685.00	
Recorder	0.00	8322	Outside	3685.00	
Perforations	28.00			3713.00	
Change Over Sub	1.00			3714.00	
Blank Spacing	32.00			3746.00	
Change Over Sub	1.00			3747.00	
Bullnose	3.00			3750.00	66.00 Bottom Packers & Anchor

**Total Tool Length: 93.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A " # 2-1**  
Job Ticket: 51529      **DST#: 2**  
Test Start: 2012.11.25 @ 12:34:00

## Mud and Cushion Information

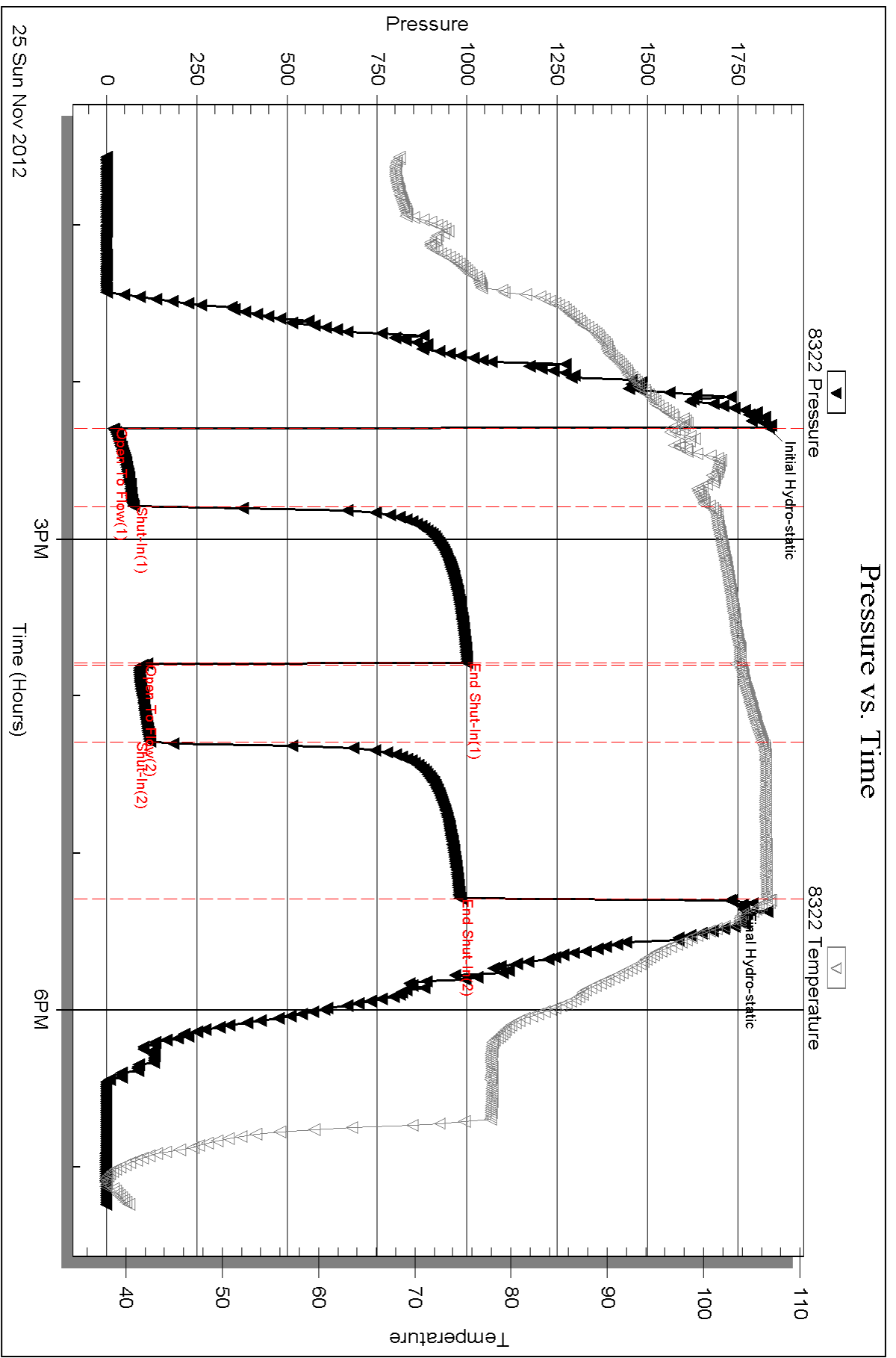
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 64.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.37 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2600.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
206.00	MCW 40%w 60%m Show of Oil	2.625

Total Length: 206.00 ft      Total Volume: 2.625 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Sam Sharifaie

**Ruder "A " # 2-1**

**1-11s-24w Trego,KS**

Start Date: 2012.11.26 @ 04:36:00

End Date: 2012.11.26 @ 10:50:00

Job Ticket #: 51530                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.28 @ 09:28:42



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A" # 2-1**  
 Job Ticket: 51530 **DST#: 3**  
 Test Start: 2012.11.26 @ 04:36:00

## GENERAL INFORMATION:

Formation: **LKC " H & I "**  
 Deviated: No Whipstock: 2296.00 ft (KB)  
 Time Tool Opened: 06:26:00  
 Time Test Ended: 10:50:00  
 Interval: **3757.00 ft (KB) To 3820.00 ft (KB) (TVD)**  
 Total Depth: 3820.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 41  
 Reference Elevations: 2296.00 ft (KB)  
 2291.00 ft (CF)  
 KB to GR/CF: 5.00 ft

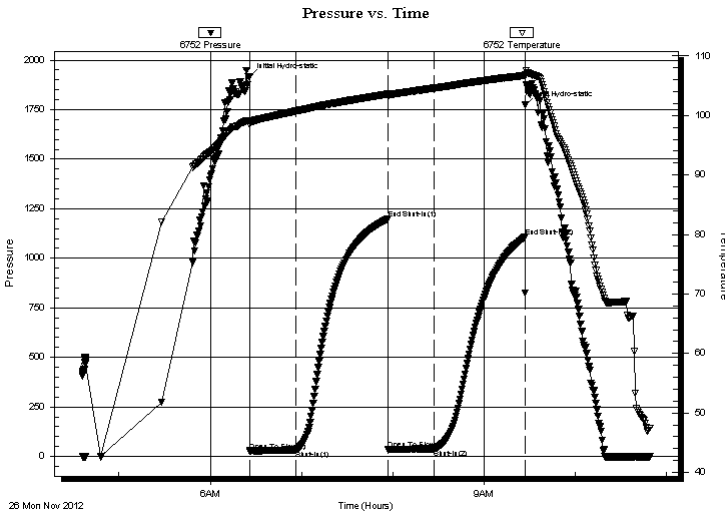
## Serial #: 6752

Inside

Press @ Run Depth: 38.69 psig @ 3758.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.11.26 End Date: 2012.11.26 Last Calib.: 2012.11.26  
 Start Time: 04:36:01 End Time: 10:49:30 Time On Btm: 2012.11.26 @ 06:25:50  
 Time Off Btm: 2012.11.26 @ 09:27:10

TEST COMMENT: 30-IFP- Surface Blow Building to 1/2" in 5 min. Died Back in 7 min.  
 60-ISIP- No Blow  
 30-FFP- Surface Blow Died in 5 min.  
 60-FSIP- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1914.06	99.18	Initial Hydro-static
1	27.05	98.46	Open To Flow (1)
31	32.87	100.71	Shut-In(1)
91	1197.16	103.59	End Shut-In(1)
92	35.79	103.44	Open To Flow (2)
121	38.69	104.59	Shut-In(2)
181	1107.15	106.73	End Shut-In(2)
182	1772.27	106.87	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	Oil Speck Mud	0.07

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A " # 2-1**  
Job Ticket: 51530      **DST#: 3**  
Test Start: 2012.11.26 @ 04:36:00

**Tool Information**

Drill Pipe:	Length: 3711.00 ft	Diameter: 3.80 inches	Volume: 52.06 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose:	52000.00 lb
			<u>Total Volume: 52.20 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3757.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	63.00 ft				
Tool Length:	90.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut In Tool	5.00			3735.00	
Hydraulic tool	5.00			3740.00	
Jars	5.00			3745.00	
Safety Joint	2.00			3747.00	
Packer	5.00			3752.00	27.00      Bottom Of Top Packer
Packer	5.00			3757.00	
Stubb	1.00			3758.00	
Recorder	0.00	6752	Inside	3758.00	
Recorder	0.00	8322	Outside	3758.00	
Perforations	25.00			3783.00	
Change Over Sub	1.00			3784.00	
Blank Spacing	32.00			3816.00	
Change Over Sub	1.00			3817.00	
Bullnose	3.00			3820.00	63.00      Bottom Packers & Anchor

**Total Tool Length: 90.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A " # 2-1**  
Job Ticket: 51530      **DST#: 3**  
Test Start: 2012.11.26 @ 04:36:00

## 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: 59.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.39 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3000.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	Oil Speck Mud	0.074

Total Length: 15.00 ft      Total Volume: 0.074 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

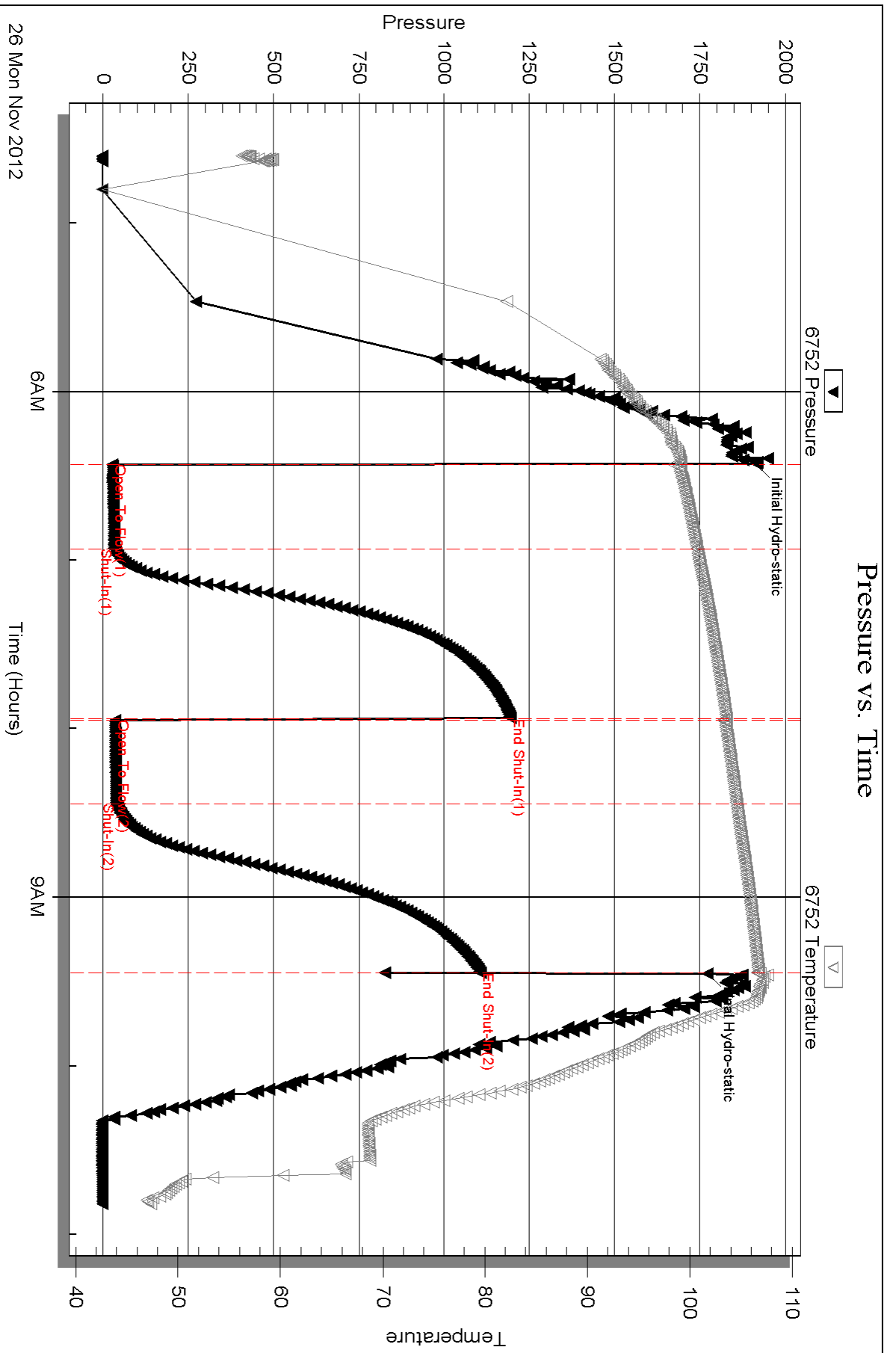
Serial #: 6752

Inside

Murfin Drilling Co Inc

Ruder "A" # 2-1

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 51530

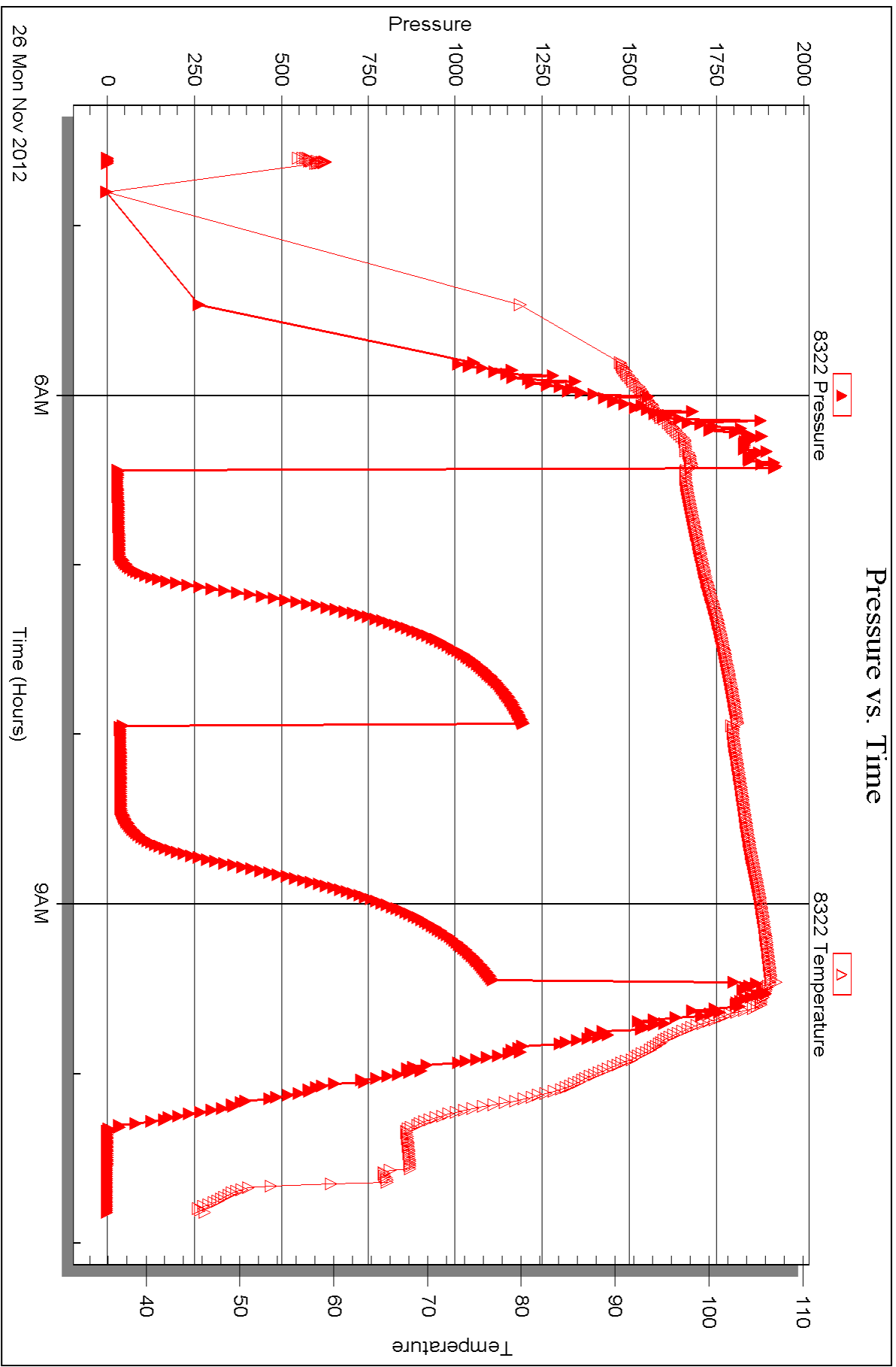
Printed: 2012.11.28 @ 09:28:47

Serial #: 8322

Outside Murfin Drilling Co Inc

Ruder "A" # 2-1

DST Test Number: 3





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Sam Sharifaie

**Ruder "A " # 2-1**

**1-11s-24w Trego,KS**

Start Date: 2012.11.26 @ 18:33:00

End Date: 2012.11.27 @ 03:33:00

Job Ticket #: 51531                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.28 @ 09:28:00

Murfin Drilling Co Inc

1-11s-24w Trego,KS

Ruder "A " # 2-1

DST # 4

LKC " J & K "

2012.11.26





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A" # 2-1**  
 Job Ticket: 51531 **DST#: 4**  
 Test Start: 2012.11.26 @ 18:33:00

## GENERAL INFORMATION:

Formation: **LKC " J & K "**  
 Deviated: No Whipstock: 2296.00 ft (KB)  
 Time Tool Opened: 20:46:30  
 Time Test Ended: 03:33:00  
 Interval: **3814.00 ft (KB) To 3860.00 ft (KB) (TVD)**  
 Total Depth: 3860.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 41  
 Reference Elevations: 2296.00 ft (KB)  
 2291.00 ft (CF)  
 KB to GR/CF: 5.00 ft

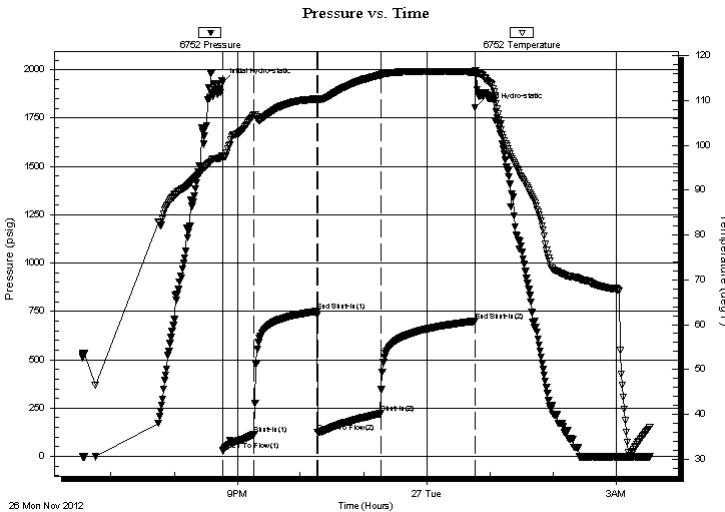
## Serial #: 6752

Inside

Press @ Run Depth: 221.10 psig @ 3815.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.11.26 End Date: 2012.11.27 Last Calib.: 2012.11.27  
 Start Time: 18:33:01 End Time: 03:32:00 Time On Btm: 2012.11.26 @ 20:46:20  
 Time Off Btm: 2012.11.27 @ 00:46:20

TEST COMMENT: 30-IFP- BOB in 8 min  
 60-ISIP- Surface Blow Building to 3/4" in 10 min Died Back in 27 min.  
 60-FFP- BOB in 14 min  
 90-FSIP- Surface Blow Building to 1/2" in 12 min Died Back in 40 min

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1935.30	97.78	Initial Hydro-static
1	29.23	97.45	Open To Flow (1)
30	113.10	106.88	Shut-In(1)
90	750.01	110.38	End Shut-In(1)
90	123.25	110.25	Open To Flow (2)
150	221.10	115.76	Shut-In(2)
240	699.42	116.38	End Shut-In(2)
240	1803.21	116.76	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
252.00	MCW 10% m 90% w	3.27
63.00	GOMCW 15% g 15% o 30% m 40% w	0.88
146.00	MCO 30% m 70% o	2.05
0.00	484 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 Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A " # 2-1**  
Job Ticket: 51531      **DST#: 4**  
Test Start: 2012.11.26 @ 18:33:00

**Tool Information**

Drill Pipe:	Length: 3775.00 ft	Diameter: 3.80 inches	Volume: 52.95 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 53000.00 lb
			<u>Total Volume: 53.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3814.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	46.00 ft			
Tool Length:	73.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut In Tool	5.00			3792.00	
Hydraulic tool	5.00			3797.00	
Jars	5.00			3802.00	
Safety Joint	2.00			3804.00	
Packer	5.00			3809.00	27.00      Bottom Of Top Packer
Packer	5.00			3814.00	
Stubb	1.00			3815.00	
Recorder	0.00	6752	Inside	3815.00	
Recorder	0.00	8322	Outside	3815.00	
Perforations	8.00			3823.00	
Change Over Sub	1.00			3824.00	
Blank Spacing	32.00			3856.00	
Change Over Sub	1.00			3857.00	
Bullnose	3.00			3860.00	46.00      Bottom Packers & Anchor

**Total Tool Length: 73.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Sam Sharifaie

**1-11s-24w Trego,KS**  
**Ruder "A " # 2-1**  
Job Ticket: 51531      **DST#: 4**  
Test Start: 2012.11.26 @ 18:33:00

## Mud and Cushion Information

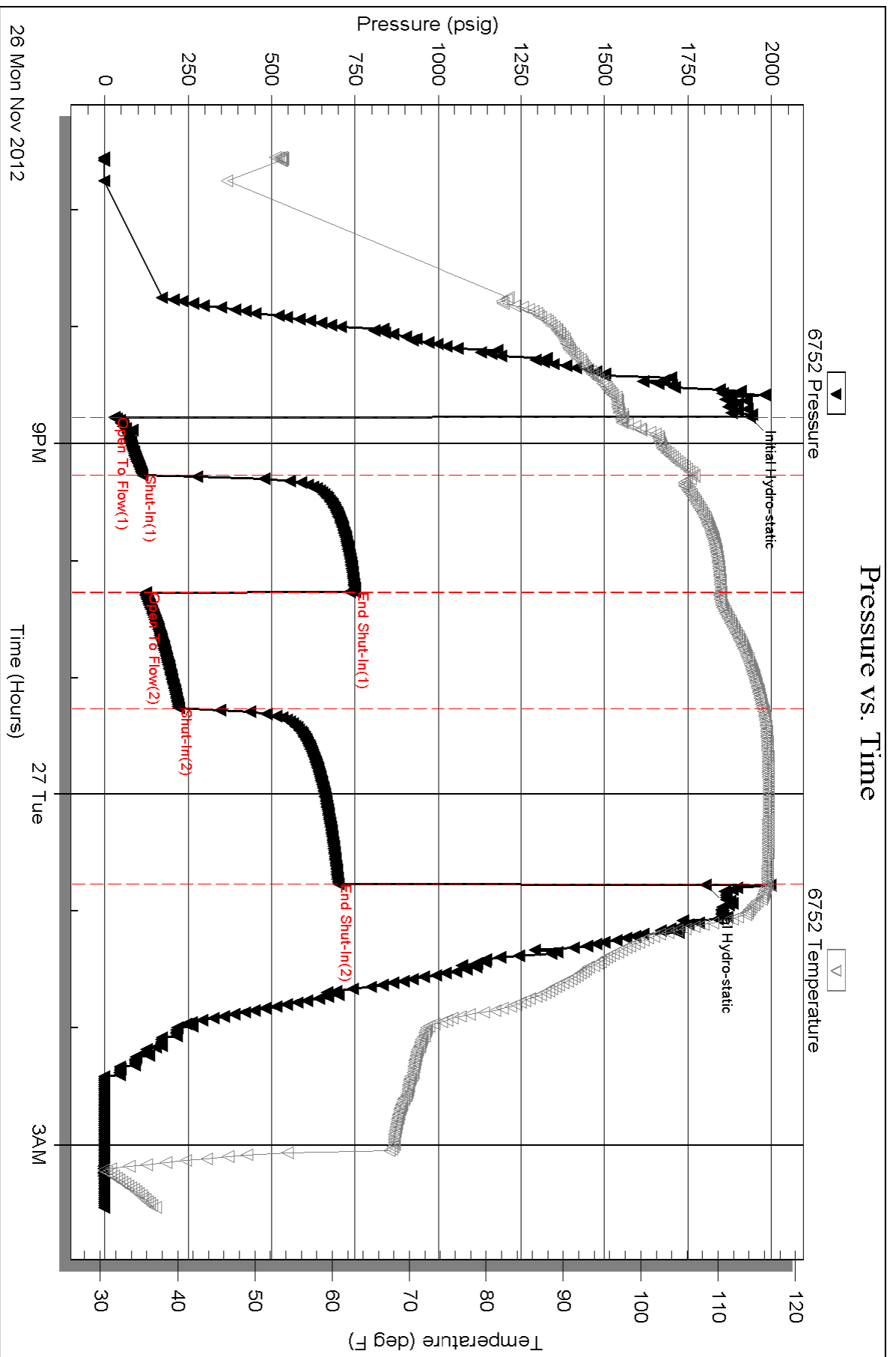
Mud Type: Gel Chem	Cushion Type:	Oil API: 27 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 51000 ppm
Viscosity: 59.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.39 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 3000.00 ppm		
Filter Cake: inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
252.00	MCW 10%m 90%w	3.271
63.00	GOMCW 15%g 15%o 30%m 40%w	0.884
146.00	MCO 30%m 70%o	2.048
0.00	484 GIP	0.000

Total Length: 461.00 ft      Total Volume: 6.203 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments: .262 @ 40

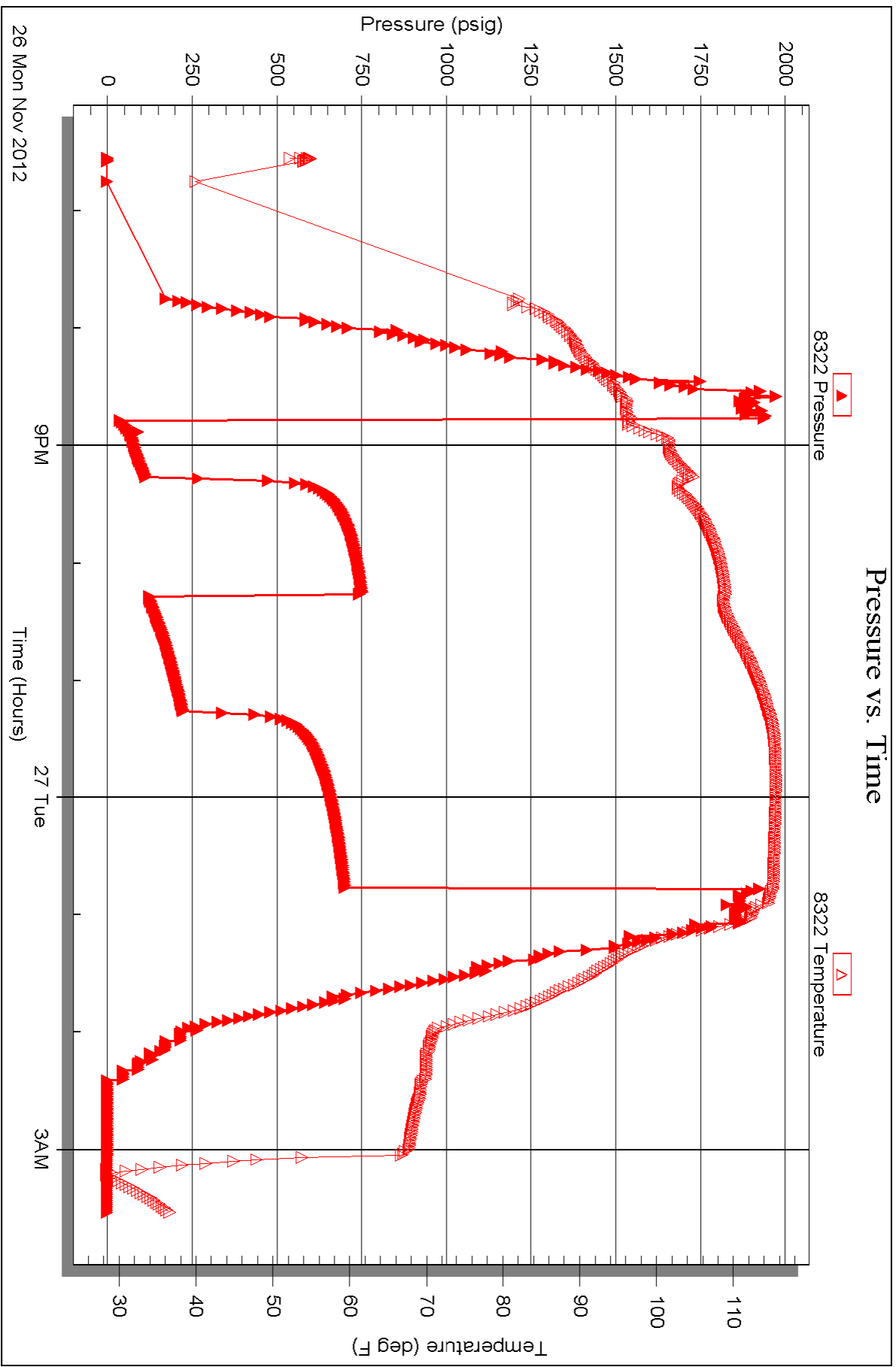


Serial #: 8322

Outside Murfin Drilling Co Inc

Ruder "A" # 2-1

DST Test Number: 4





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51528

Well Name & No. Ruder A #2-1 Test No. 1 Date 11-24-12  
 Company Murfin Drilling Co. Inc. Elevation 2296 KB 2291 GL  
 Address 250 N. WATER St & 300 Wichita Ks, 67202-1216  
 Co. Rep / Geo. SAMAN SHARIFAIE Rig MURFIN #16  
 Location: Sec. 1 Twp. 11<sup>S</sup> Rge. 24<sup>W</sup> Co. Trego State KS

Interval Tested 3666-3685 Zone Tested LKC "B"  
 Anchor Length 19 Drill Pipe Run 3615 Mud Wt. 8.7  
 Top Packer Depth 3661 Drill Collars Run 29 Vis 78  
 Bottom Packer Depth 3666 Wt. Pipe Run 0 WL 6.0  
 Total Depth 3685 Chlorides 2500 ppm System LCM 0

Blow Description IFP - SURFACE Blow Building to 1 in. in 12 min.  
FSIP - No Blow  
FFP - SURFACE Blow Building to 1/4 in.  
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>WCM Show of Oil</u>		<u>40</u>	<u>60</u>	
<u>8</u>	<u>W &amp; OCM</u>	<u>18</u>	<u>14</u>	<u>68</u>	

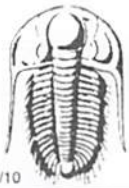
Rec Total 48 BHT 106 Gravity \_\_\_\_\_ API RW 1255 @ 43 °F Chlorides 49000 ppm

(A) Initial Hydrostatic 1823  Test 1150 T-On Location 18:32  
 (B) First Initial Flow 12  Jars 250 T-Started 19:08  
 (C) First Final Flow 29  Safety Joint 75 T-Open 21:45  
 (D) Initial Shut-In 471  Circ Sub T-Pulled 00:45  
 (E) Second Initial Flow 40  Hourly Standby T-Out 02:15  
 (F) Second Final Flow 37  Mileage 84 RT 130.20  
 (G) Final Shut-In 463  Sampler  
 (H) Final Hydrostatic 1698  Straddle

Initial Open 30  Shale Packer  
 Initial Shut-In 60  Extra Packer  
 Final Flow 30  Extra Recorder  
 Final Shut-In 60  Day Standby  
 Sub Total 1605.20  Accessibility  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative [Signature]  
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51529

Well Name & No. Ruder A # 2-1 Test No. 2 Date 11-25-12  
 Company Murfin Drilling Co. Inc. Elevation 2296 KB 2291 GL  
 Address 250N. WATER STe 300 WICHITA KS. 67202-1216  
 Co. Rep / Geo. SAMAN SHARIFAIE Rig Murfin # 16  
 Location: Sec. 1 Twp. 11<sup>s</sup> Rge. 24<sup>w</sup> Co. Trego State K5

Interval Tested 3684 - 3750 Zone Tested LKC "D-2"  
 Anchor Length 66 Drill Pipe Run 3646 Mud Wt. 9.0  
 Top Packer Depth 3679 Drill Collars Run 29 Vis 64  
 Bottom Packer Depth 3684 Wt. Pipe Run Ø WL 6.4  
 Total Depth 3750 Chlorides 2600 ppm System LCM Ø

Blow Description IFP - Very Weak Surging Blow  
ISIP - No Blow  
FFP - Very Weak Surging Blow  
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>206</u>	<u>WCM show of oil</u>		<u>40</u>	<u>60</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 206 BHT 106 Gravity \_\_\_\_\_ API RW 1212 @ 50 ° F Chlorides 50000 ppm

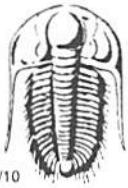
(A) Initial Hydrostatic 1836  Test 1150 T-On Location 12:33  
 (B) First Initial Flow 19  Jars 250 T-Started 12:34  
 (C) First Final Flow 74  Safety Joint 75 T-Open 14:18  
 (D) Initial Shut-In 1000  Circ Sub \_\_\_\_\_ T-Pulled 17:18  
 (E) Second Initial Flow 99  Hourly Standby \_\_\_\_\_ T-Out 19:15  
 (F) Second Final Flow 119  Mileage 130.20 Comments \_\_\_\_\_  
 (G) Final Shut-In 980  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1728  Straddle \_\_\_\_\_

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 60  Extra Packer \_\_\_\_\_  
 Final Flow 30  Extra Recorder \_\_\_\_\_  
 Final Shut-In 60  Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1605.20 Total 1605.20 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51530

4/10

Well Name & No. Rader A # 2-1 Test No. 3 Date 11-26-12  
 Company Murfin Drilling Co. Inc. Elevation 2296 KB 2291 GL  
 Address 250 N. WATER Ste 300 WICHITA KS, 67202-1216  
 Co. Rep / Geo. SAMAN SHARIFAIE Rig Murfin #16  
 Location: Sec. 1 Twp. 11s Rge. 24w Co. Trego State K5

Interval Tested 3757-3820 Zone Tested LRC "H & I"  
 Anchor Length 63 Drill Pipe Run 3711 Mud Wt. 9.2  
 Top Packer Depth 3752 Drill Collars Run 29 Vis 59  
 Bottom Packer Depth 3757 Wt. Pipe Run 0 WL 6.4  
 Total Depth 3820 Chlorides 3000 ppm System LCM 0

Blow Description IFP - SURFACE Blow Building to 1/2 in. in 5 min. Died Back in 7 min.  
ISIP - No Blow  
FFP - SURFACE Blow Died Back in 5 min  
FSIP - No Blow

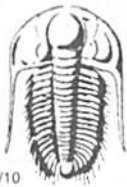
Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>Oil Speck Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 15 BHT 106 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1914</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>04:03</u>
(B) First Initial Flow <u>27</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>04:36</u>
(C) First Final Flow <u>32</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>06:27</u>
(D) Initial Shut-In <u>1197</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>09:27</u>
(E) Second Initial Flow <u>35</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>10:50</u>
(F) Second Final Flow <u>38</u>	<input checked="" type="checkbox"/> Mileage <u>130.20</u>	Comments _____
(G) Final Shut-In <u>1107</u>	<input type="checkbox"/> Sampler _____	<input type="checkbox"/> Ruined Shale Packer _____
(H) Final Hydrostatic <u>1772</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Extra Copies _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Total <u>1605.20</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	MP/DST Disc't _____
	<input type="checkbox"/> Accessibility _____	
	Sub Total <u>1605.20</u>	

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

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51531

4/10

Well Name & No. Ruder A #2-1 Test No. 4 Date 11-26-12  
 Company Murfin Drilling Co., Inc Elevation 2296 KB 2291 GL  
 Address 250 N. Water Ste 300 Wichita KS, 67202-1216  
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #16  
 Location: Sec. 1 Twp. 11<sup>s</sup> Rge. 24<sup>w</sup> Co. Trego State KS

Interval Tested 3814-3860 Zone Tested LKC "J&K"  
 Anchor Length 46 Drill Pipe Run 3775 Mud Wt. 9.2  
 Top Packer Depth 3809 Drill Collars Run 29 Vis 59  
 Bottom Packer Depth 3814 Wt. Pipe Run 0 WL 6.4  
 Total Depth 3860 Chlorides 3000 ppm System LCM 0

Blow Description IFP - BOB in 8min  
ISIP - Surface Blow Building to 3/4 in. in 10min. Died Back in 27min  
FFP - BOB in 14min  
FSIP - Surface Blow Building to 1/2 in. in 12min. Died Back in 40min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>252</u>	<u>mcw</u>		<u>90</u>	<u>10</u>	
<u>63</u>	<u>20mcw</u>	<u>15</u>	<u>15</u>	<u>40</u>	<u>30</u>
<u>146</u>	<u>mco</u>		<u>70</u>	<u>30</u>	
	<u>484 DIP</u>				

Rec Total 461 BHT 116 Gravity 27 API RW 262 @ 40 °F Chlorides 51000 ppm

(A) Initial Hydrostatic 1935  Test 1150 T-On Location 17:45  
 (B) First Initial Flow 29  Jars 250 T-Started 18:33  
 (C) First Final Flow 113  Safety Joint 75 T-Open 20:47  
 (D) Initial Shut-In 750  Circ Sub \_\_\_\_\_ T-Pulled 00:47  
 (E) Second Initial Flow 123  Hourly Standby \_\_\_\_\_ T-Out 03:33  
 (F) Second Final Flow 221  Mileage 130.20 Comments \_\_\_\_\_  
 (G) Final Shut-In 699  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1803  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1605.20  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90  
 Sub Total 1605.20

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

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



**CONSOLIDATED**  
Oil Well Services, LLC

**REMIT TO**  
Consolidated Oil Well Services, LLC  
Dept. 970  
P.O. Box 4346  
Houston, TX 77210-4346

*acct Prod - Liz H.*  
**MAIN OFFICE**  
P.O. Box 884  
Chanute, KS 66720  
620/431-9210 • 1-800/467-8676  
Fax 620/431-0012

INVOICE

Invoice # 254815

Invoice Date: 11/27/2012 Terms: 10/10/30,n/30

Page 1

MURFIN DRILLING  
P.O. BOX 288  
RUSSELL KS 67665  
( ) -

RUDER 'A' 2-1  
39153  
1-11-24  
11-21-2012  
KS  
USED FOR IC 103  
APPROVED [Signature]

Part Number	Description	Qty	Unit Price	Total
1104S	CLASS "A" CEMENT (SALE)	150.00	17.6500	2647.50
1102	CALCIUM CHLORIDE (50#)	423.00	.8900	376.47

Sublet Performed	Description	Total
9996-130	CEMENT MATERIAL DISCOUNT	-302.40
9995-130	CEMENT EQUIPMENT DISCOUNT	-192.40

Description	Hours	Unit Price	Total
463 CEMENT PUMP (SURFACE)	1.00	1085.00	1085.00
463 EQUIPMENT MILEAGE (ONE WAY)	50.00	5.00	250.00
693 TON MILEAGE DELIVERY	1.00	589.00	589.00

*AKM*

Amount Due 5153.60 if paid after 12/27/2012

Parts:	3023.97	Freight:	.00	Tax:	185.07	AR	4638.24
Labor:	.00	Misc:	.00	Total:	4638.24		
Sublt:	-494.80	Supplies:	.00	Change:	.00		

Signed \_\_\_\_\_

Date \_\_\_\_\_

BARTLESVILLE, OK 918/338-0808    EL DORADO, KS 316/322-7022    EUREKA, KS 620/583-7664    PONCA CITY, OK 580/762-2303    OAKLEY, KS 785/672-2227    OTTAWA, KS 785/242-4044    THAYER, KS 620/839-5269    GILLETTE, WY 307/686-4914





**CONSOLIDATED**  
Oil Well Services, LLC

TICKET NUMBER 39153  
LOCATION Oakley KS  
FOREMAN Miles Shaw

PO Box 884, Chanute, KS 66720  
620-431-9210 or 800-467-8676

**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
11-21-12	5406	Ruder 'A' #2-1	1	11S	24W	Trego
CUSTOMER <u>Martin Drilling</u>						
MAILING ADDRESS						
CITY STATE ZIP CODE						
TRUCK #	DRIVER	TRUCK #	DRIVER			
463	Jerry Y					
683	M. K. M					

JOB TYPE Surface HOLE SIZE 12 1/4 HOLE DEPTH 220' CASING SIZE & WEIGHT 8 5/8 24#  
 CASING DEPTH 220' DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER \_\_\_\_\_  
 SLURRY WEIGHT 148# SLURRY VOL 1.18 WATER gal/sk \_\_\_\_\_ CEMENT LEFT in CASING 20'  
 DISPLACEMENT 12 1/2 bbls DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Safety Meeting and rig up on Martin drilling #16 Circulate casing mix 150 sbl common class A cement with 32 sbl 28 cel dis. Allowed 12 1/2 bbls water shut in cement did circulate 5 bbls to pit

*Thanks Miles & crew*

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
54015	1	PUMP CHARGE	1085. <sup>00</sup>	1085. <sup>00</sup>
5406	50	MILEAGE	5. <sup>00</sup>	250. <sup>00</sup>
5407A	705 tons	Ton mileage delivery	1.67	589. <sup>00</sup>
11045	152 sbls	Common Class A cement	17.65	2647. <sup>50</sup>
1102	423 #	Calcium Chloride	1.89	376. <sup>47</sup>
			Subtotal	4947. <sup>97</sup>
			less 10% discount	494. <sup>80</sup>
			Subtotal	4453. <sup>17</sup>
			SALES TAX	185. <sup>07</sup>
			ESTIMATED TOTAL	4638. <sup>24</sup>

Ravin 3737

AUTHORIZATION [Signature]

TITLE \_\_\_\_\_ DATE \_\_\_\_\_

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.

251815

Accty

cc: WF  
cc: L-1  
cc: L-1



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



# Invoice

DATE	INVOICE #
12/6/2012	22984

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

IC 103  
*[Signature]*

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	# 2	Ruder A	Trego	Company Tools	Oil	Development	Port Collar	Nick
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				40	Miles	6.00	240.00
576D-D	Pump Charge - Port Collar - 1921 Feet				1	Job	1,250.00	1,250.00
279	Bentonite Gel				6	Sack(s)	25.00	150.00T
290	D-Air				2	Gallon(s)	35.00	70.00T
330	Swift Multi-Density Standard (MIDCON II)				150	Sacks	16.50	2,475.00T
276	Flocele				50	Lb(s)	2.00	100.00T
581D	Service Charge Cement				225	Sacks	2.00	450.00
583D	Drayage				440	Ton Miles	1.00	440.00
	Subtotal							5,175.00
	Sales Tax Trego County						6.80%	190.06

**Thank You For Your Business & Best Wishes For A Wonderful Holiday Season!!**

**Total** \$5,365.06



**Services, Inc.**

CHARGE TO: Martin D-ly Co, Inc.  
 ADDRESS  
 CITY, STATE, ZIP CODE

TICKET N° **22984**

PAGE 1 OF 1

SERVICE LOCATIONS

1. Hays, Ks. WELL PROJECT NO. A 79 LEASE Rader COUNTY/PARISH Treege STATE Ks CITY  DATE 12-6-12 OWNER same

2. Ness City, Ks. CONTRACTOR Co Tools RIG NAME/NO.  SHIPPED VIA CH DELIVERED TO Location ORDER NO.

3. WELL TYPE oil WELL CATEGORY Development JOB PURPOSE Part Collar WELL PERMIT NO.  WELL LOCATION

4. REFERRAL LOCATION INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575					MILEAGE #111	40	mi			6.00	240.00
576 D					Part Charge (Part Collar)	1	ea	1921		1250.00	1250.00
279					Branigan gel	6	skts			25.00	150.00
290					D-Air	2	gal			35.00	70.00
330					SMD Cement	150	skts			16.50	2475.00
276					Flocele	50	#			2.00	100.00
581					Cement Service Charge	225	skts			2.00	450.00
583					Drayage	440	TM			1.00	440.00

**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 DATE SIGNED 12-6-12 TIME SIGNED 1445  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?

ARE YOU SATISFIED WITH OUR SERVICE?  YES  NO

CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL	5175.00
TOTAL	5365.00

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

SWIFT OPERATOR Michael [Signature] APPROVAL

Thank You!

**JOB LOG**

**SWIFT Services, Inc.**

DATE 12-6-12 PAGE NO. 4

CUSTOMER Murphy Drilling Co. Inc.

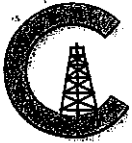
WELL NO. A #1

LEASE Rader

JOB TYPE Part Collar

TICKET NO. 22984

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1300							on loc w/Trks 2 3/8" x 5 1/2" P.C. 1921'
	1320						1200	Test Csg to 1200 Psi Open P.C.
	1330	3	3				400	Taking inj. rate 3bpm @ 400 Psi
	1338	4	0				450	Start Cement 150skts SMD
		4	70				600	Circ Cement / raise weight
		4	75/0				600	End Cement / Start Displacement
	1355		6.5				650	Cement Displaced
								Close P.C.
	1400						1200	Test Csg to 1200 Psi
								Run 5 jts
	1415	3	0				150	Reverse out
	1425		20					Hole Clean
								150skts SMD circ 20skts to pit
								Thank you Nick, David E. & Rob



**CONSOLIDATED**  
Oil Well Services, LLC

**REMIT TO**  
Consolidated Oil Well Services, LLC  
Dept. 970  
P.O. Box 4346  
Houston, TX 77210-4346

**MAIN OFFICE**  
P.O. Box 884  
Chanute, KS 66720  
620/431-9210 • 1-800/467-8676  
Fax 620/431-0012

INVOICE

Invoice # 254948

Invoice Date: 11/29/2012 Terms: 10/10/30,n/30

Page 1

MURFIN DRILLING  
P.O. BOX 288  
RUSSELL KS 67665  
( ) -

RUDER 'A' 2-1 ✓  
39158  
1-11-29  
11-28-2012  
KS

USED FOR IC103  
APPROVED J.P. K.

Part Number	Description	Qty	Unit Price	Total
1126	OIL WELL CEMENT	200.00	22.5500	4510.00
1107	FLO-SEAL (25#)	50.00	2.8200	141.00
1135A	FL- 115 (FLUID LOSS)	47.00	10.5500	495.85
1146	CAF - 38	47.00	9.7200	456.84
4130	CENTRALIZER 5 1/2"	10.00	58.0000	580.00
4104	CEMENT BASKET 5 1/2"	1.00	276.0000	276.00
4315	ROTATING SCRATCHERS	10.00	90.0000	900.00
4159	FLOAT SHOE AFU 5 1/2"	1.00	413.0000	413.00
4454	5 1/2" LATCH DOWN PLUG	1.00	303.0000	303.00
1102	CALCIUM CHLORIDE (50#)	240.00	.8900	213.60
1111A	SODIUM METASILICATE	200.00	2.4000	480.00
4285	5 1/2" PORT COLLAR	1.00	2075.0000	2075.00

Sublet Performed	Description	Total
9996-130	CEMENT MATERIAL DISCOUNT	-1084.43
9995-130	CEMENT EQUIPMENT DISCOUNT	-405.50

Description	Hours	Unit Price	Total
T-118 SINGLE PUMP	1.00	3020.00	3020.00
T-118 EQUIPMENT MILEAGE (ONE WAY)	50.00	5.00	250.00
566 TON MILEAGE DELIVERY	1.00	785.00	785.00

Amount Due 15636.70 if paid after 12/29/2012

Parts:	10844.29	Freight:	.00	Tax:	663.67	AR	14073.03
Labor:	.00	Misc:	.00	Total:	14073.03		
Sublt:	-1489.93	Supplies:	.00	Change:	.00		

Signed \_\_\_\_\_

Date \_\_\_\_\_





**CONSOLIDATED**  
Oil Well Services, LLC

TICKET NUMBER 39158  
LOCATION Oakley KS  
FOREMAN Miles Shaw  
Kelly Gaber

PO Box 884, Chanute, KS 66720  
620-431-9210 or 800-467-8676

**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

KS

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
11-20-12	5406	Ruder 'A' #2-1	1	11S	24W	Trego
CUSTOMER			TRUCK #			
MAILING ADDRESS			DRIVER			
CITY			TRUCK #			
STATE			DRIVER			
ZIP CODE			TRUCK #			
			DRIVER			

JOB TYPE Port collar HOLE SIZE 7 7/8 HOLE DEPTH 3980' CASING SIZE & WEIGHT 5 1/2" 15.5#  
CASING DEPTH 3973 DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER to 1 @ 1923'  
SLURRY WEIGHT 13.8 SLURRY VOL 1.4 WATER gal/sk \_\_\_\_\_ CEMENT LEFT in CASING 22'  
DISPLACEMENT \_\_\_\_\_ DISPLACEMENT PSI 100 MIX PSI 1400 RATE \_\_\_\_\_

REMARKS: Safety meeting and rig up on Murkin drilling #16 Floast Equipment  
centralizers @ 1, 2, 3, 4, 6, 8, 10, 12, 14, 47 Bag Net on 48 75' scratches  
Port collar tool on top of 48 @ 1923's Pump 5bbls water 240# Calcium with 5bbls water  
5bbl water spacer 200# metasilicate with 5bbls water 5bbl water spacer Mix 30 sbs  
AH 205Ks MHA mix 150 sbs awc with 1/4" flo seal skin down clear pump & line  
release plug displace 94/4bbls with 800 psi @ 1400 psi

Thanks Miles & crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401C	1	PUMP CHARGE	3000. <sup>00</sup>	3000. <sup>00</sup>
5406	50	MILEAGE	5. <sup>00</sup>	250. <sup>00</sup>
5407A	9.4 tons	Ton mileage delivery	1.67	785. <sup>00</sup>
1126	200 sbs	OWC	22.55	4510. <sup>00</sup>
1107	50 #	Flo seal	2.82	141. <sup>00</sup>
1135A	47 #	CEI 115 Floast case	10.55	495. <sup>85</sup>
1146	47 #	CFA 38 Debramer	9.72	456. <sup>84</sup>
4130	10	CS 1/2" centralizers	58. <sup>00</sup>	580. <sup>00</sup>
4104	1	5 1/2" Basket	276	276. <sup>00</sup>
4315	10	Scratches	90. <sup>00</sup>	900. <sup>00</sup>
4159	1	Floast shoe 5 1/2" AEU	413. <sup>00</sup>	413. <sup>00</sup>
4454	1	1 ct ch down with plug 5 1/2"	303. <sup>00</sup>	303. <sup>00</sup>
1162	240 #	Calcium chloride	1.84	213.60
1111A	200 #	Metasilicate	2.40	480. <sup>00</sup>
4285	1	5 1/2" Port collar	2075. <sup>00</sup>	2075. <sup>00</sup>
		Subtotal		14899.29
		loss 108 dr & cement		1489.93
				13409.36
		SALES TAX		663.67
		ESTIMATED TOTAL		14073.03

Ravin 3737

AUTHORIZATION Wade Kivry TITLE \_\_\_\_\_ DATE \_\_\_\_\_

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.

254948

# Saman Sharifaie

## Petroleum Geologist

### GEOLOGIST'S REPORT

#### DRILLING TIME AND SAMPLE LOG

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

WELL: **Ruder "A" #1-1**

FIELD: **Detroit West**

LOCATION: **1680' FSL & 860' FEL**

SEC: **1 TWP 51 S RGE 24 W**

COUNTY: **Trego STATE Kansas**

CONTRACTOR: **Murfin Drilling #16**

SPUD: **11/21/12 COMP 11/28/12**

RTD: **3390' LTD 3390'**

MUD UP: **3074' TYPE MUD Chemical**

SAMPLES SAVED FROM: **3290' TO RTD**

DRILLING TIME KEPT FROM: **3290' TO RTD**

SAMPLES EXAMINED FROM: **3290' TO RTD**

GEOLOGICAL SUPERVISION FROM: **2990'**

REFERENCE WELL: **Ruder "A" #1-1**

FORMATION: **Sample Tops**

Formation: **Sample Tops**

Base Anhydritic: **1928 (-386)**

Topeka: **3380 (-1084)**

Deer Creek: **3447 (-1151)**

Heebner: **3557 (-1261)**

Toronto: **3632 (-1350)**

Lansing: **3646 (-1348)**

BKC: **3878 (-1582)**

ELEVATIONS

KG 2296'

DF

GL 2291'

Measurements Are All From Kelly Bushing

CASING

CONDUCTION

SURFACE 8'-5/8" at 218'

PRODUCTION 5-1/2" at 3974'

ELECTRICAL

CONDUCTIVITY

CND: DIL. METL. Sonic

PROCESSED BY: **Pioneer Wireline**

Formulation

Sample Tops

Base Anhydritic

Topeka

Deer Creek

Heebner

Toronto

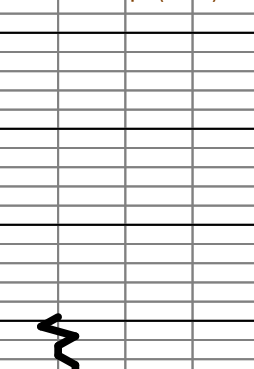
Lansing

BKC

REMARKS Due to fair shows of oil in multiple pay zones and positive DST results, it is recommended and agreed upon by all parties that production casing be set to further evaluate this well.

Respectfully Submitted,  
Saman Sharifaie  
Petroleum Geologist

API #15-195-22836



Curve Track 1  
ROP (Min/Ft)  
Gamma (API)  
Caliper (inches)

Curve Track 1  
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Gamma (API)  
Caliper (inches)

Geological Descriptions

Geological Descriptions

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**Anhydrite 1889 (+407)**

**Anhydrite Base 1928 (+366)**

**DAILY PENETRATION @ 7:00 AM**  
11/21/12 - Spudded at 10:00 AM  
11/22/12 - Drilling at 1090'  
11/23/12 - Drilling at 2700'  
11/24/12 - Drilling at 3505'  
11/25/12 - Drilling at 3700'  
11/26/12 - Testing at 3820'  
11/27/12 - Drilling at 3865'

LS, wh/crm, sing, chky, sbang, n/s

Sh, gry, fri to argil

LS, crm, f gr, sing to sil mott, intgran & frac por, Tr embd foss, brecc IP, n/s

LS, crm/tan, vf to f gr, sub-chky, fr por, n/s

Sh, gry, silty, lincr foss LS

LS, crm/tan, sil mott, m to microxin, abund Pkst, foss, brecc, n/s

Sh, gry, silty

LS, crm, sing, blk, NVP, n/s

**Topeka 3380 (-1084)**

Sh, gry/dk gry, silty, fri, chky IP

LS, crm/whit, sing, vf gr, foss, chky, frac, sbang, n/s

Sh, blk carb

LS, crm/tan/brn, vf gr, sing to mott IP, microxin, sub-chky to fri, shly, glauc IP, rr dd O spks, no fluor, no odr, n/s

LS, crm, sing, f gr, fr intgran por, chky, n/s

**Deer Creek 3447 (-1151)**

LS, lt gry, mott, m gr, silty, chky, Tr pyr, scat foss, brecc, n/s

LS, crm/tan/lt gry, sing to mott IP, f gr, foss IP, intgran & foss por, v chky, scat varic Sh, n/s

Sh, blk carb

LS, aa

Stst, gry, f gr, srt, intgran por, chky, scat varic Sh, n/s

**Lecompton 3516 (-1220)**

LS, crm/tan, f gr, sing, intgran por, scat brn spks, chky, abund mdst & pkst, n/s

LS, wh/tan/lt gry, vf gr, m xln, foss, intbn & foss por, sli fri to fri, brecc w micro pyr, chky, shly, n/s

LS, aa, v chky, Tr brn Cht

Sh, blk carb

**Oread 3557 (-1261)**

Sh, varic, silty, fri

LS, crm/tan, vf to f gr, sing to mott IP, hd to argil, fri IP, Oldic, chky, chky, foss, n/s

LS, aa, v chky

**Heebner 3611 (-1315)**

LS, crm, sing, vf gr, fri to chky, Ool, intgran & foss por, brecc, Tr pyr, scat dd O stn, no fluor, no odr, NSLO

LS, crm/tan, sing, vf gr, dnse, fri, scat vug por, Tr irid, rr scat O spks, no odr, Tr fluor, pr SO

**Toronto 3632 (-1336)**

LS, crm/tan, f gr, sing, frac, scat foss, chky, Tr Cht, Tr fluor, rr dd O spks, no odr, NSLO

LS, aa, n/s

**Lansing 3646 (-1350)**

LS, crm, sing, vf gr, chky IP, ang to sbang, scat foss, Tr blk Sh, Tr Cht, n/s

LS, wh/crm, sing, dnse, hd to sli fri, sub-chky IP, micro pyr, embd foss, Tr Cht, rr dd O spks, no odr, scat fluor, NSLO

LS, aa

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**DST #1**  
(LKC B)  
3666' - 3685'

30"-60"-30"-60"  
IF: Surf blw building to 1" in 12 mins (No BB)  
FF: Surf blw building to 1/4" (No BB)  
Rec: 40' WCM (40% W, 60% M, show O), 8' W & OCM (14% W, 18% O, 68% M)

IFP: 12# - 29#  
FFP: 41# - 37#  
ISIP: 472#  
FHIP: 464#  
IHP: 1824#  
FHP: 1699#

**Morgan Mud @ 3632'**  
Wt: 8.7  
Vis: 78  
Chl: 2,500  
LCM: 0#

**DST #2**  
(LKC D-G)  
3684' - 3750'

30"-60"-30"-60"  
IF: Vry wk surging surf blw (No BB)  
FF: Vry wk surging surf blw (No BB)  
Rec: 206' MCW (40% W, 60% M, show O)

IFP: 19# - 75#  
FFP: 100# - 120#  
ISIP: 1001#  
FHIP: 980#  
IHP: 1837#  
FHP: 1729#

**Morgan Mud @ 3750'**  
Wt: 9.0  
Vis: 64  
Chl: 2,600  
LCM: 0#

**Morgan Mud @ 3820'**  
Wt: 5.9  
Vis: 78  
Chl: 3,000  
LCM: 0#

**DST #3**  
(LKC H-I)  
3757' - 3820'

30"-60"-60"-60"  
IF: Surf blw building to 1/2" in 5 mins, died back in 7 mins (No BB)  
FF: Surf blw died in 5 mins (No BB)  
Rec: 15' O specked M

IFP: 27# - 33#  
FFP: 36# - 39#  
ISIP: 1157#  
FHIP: 1107#  
IHP: 1914#  
FHP: 1772#

**Morgan Mud @ 3910'**  
Wt: 9.2  
Vis: 67  
Chl: 3,300  
LCM: 2#

**DST #4**  
(LKC J-K)  
3814' - 3860'

30"-60"-60"-90"  
IF: BOB in 8 mins (3/4" BB)  
FF: BOB in 14 mins (1/2" BB)  
Rec: 252' MCW (10% W, 90% M), 63' GOMCW (15% W, 1