



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1199790  
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: \_\_\_\_\_

1199790

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	CFT 1-23
Doc ID	1199790

All Electric Logs Run

Dual Induction
Dual Compensated
Microresistivity
Borehole Compensated





PO Box 93999  
Southlake, TX 76092

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

*u.c.c.r.*  
*Prod-LTH*

# INVOICE

Invoice Number: 141505

Invoice Date: Feb 18, 2014

Page: 1

**Bill To:**  
Murfin Drig. Co., Inc.  
250 N. Water  
STE #300  
Wichita, KS 67202

Customer ID	Field Ticket #	Payment Terms	
Murfin	62549	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	Feb 18, 2014	3/20/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	C F T #1-23		
280.00	CEMENT MATERIALS	Class A Common	17.90	5,012.00
11.00	CEMENT MATERIALS	Chloride	64.00	704.00
315.00	CEMENT SERVICE	Cubic Feet Charge	2.48	781.20
1,017.10	CEMENT SERVICE	Ton Mileage Charge	2.60	2,644.46
1.00	CEMENT SERVICE	Surface	1,512.25	1,512.25
70.00	CEMENT SERVICE	Pump Truck Mileage	7.70	539.00
1.00	CEMENT SERVICE	Swedge Manifold Rental	275.00	275.00
70.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	308.00
1.00	CEMENT SUPERVISOR	LaRene Wentz		
1.00	CEMENT SUPERVISOR	Andrew Forslund		

Subtotal	11,775.91
Sales Tax	451.56
Total Invoice Amount	12,227.47
Payment/Credit Applied	
<b>TOTAL</b>	<b>12,227.47</b>

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

\$ 4,121.56 *356*

ONLY IF PAID ON OR BEFORE

Mar 15, 2014

*-4121.56*  
*8105.91*

*OK MSR*





PO Box 93999  
Southlake, TX 76092

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

*acct  
Prod-Lt*

# INVOICE

Invoice Number: 141745  
Invoice Date: Mar 1, 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	61978	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-03	Oakley	Mar 1, 2014	3/31/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	CFT #1-23		
132.00	CEMENT MATERIALS	Class A Common	17.90	2,362.80
88.00	CEMENT MATERIALS	Pozmix	9.35	822.80
8.00	CEMENT MATERIALS	Gel	23.40	187.20
55.00	CEMENT MATERIALS	Flo Seal	2.97	163.35
236.28	CEMENT SERVICE	Cubic Feet Charge	2.48	585.97
662.20	CEMENT SERVICE	Ton Mileage Charge	2.60	1,721.72
1.00	CEMENT SERVICE	Plug to Abandon	1,250.00	1,250.00
70.00	CEMENT SERVICE	Pump Truck Mileage	7.70	539.00
70.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	308.00
1.00	EQUIPMENT SALES	8-5/8 Wooden Plug	107.64	107.64
1.00	CEMENT SUPERVISOR	Kelly Gabel		
1.00	EQUIPMENT OPERATOR	Wayne McGhghy		

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

\$ 2,779.29 ✓

ONLY IF PAID ON OR BEFORE  
Mar 26, 2014

Subtotal	8,048.48
Sales Tax	635.83
Total Invoice Amount	8,684.31
Payment/Credit Applied	
<b>TOTAL</b>	<b>8,684.31</b>

*-2779.29*  
*5905.02*

*OK MSR*

# ALLIED OIL & GAS SERVICES, LLC 061978

Federal Tax I.D. # 20-8651475

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

SERVICE POINT:  
Oakley, KS

DATE <u>3-1-14</u>	SEC. <u>23</u>	TWP. <u>25</u>	RANGE <u>36W</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
LEASE <u>CPT</u>	WELL # <u>1-23</u>	LOCATION <u>Beardsley No 20 B.V. 4 1/2 W</u>		COUNTY <u>Rawlins</u>	STATE <u>KS</u>		
OLD OR NEW (Circle one)			<u>5+E INTO</u>				

CONTRACTOR Martin #8 OWNER Same

TYPE OF JOB <u>PTA</u>	CEMENT
HOLE SIZE <u>7 7/8</u> T.D. <u>21960</u>	AMOUNT ORDERED <u>220 SKS 60/40 Poz.</u>
CASING SIZE _____ DEPTH _____	<u>490 gel 1/4" #10-seal</u>
TUBING SIZE _____ DEPTH _____	
DRILL PIPE _____ DEPTH _____	
TOOL _____ DEPTH _____	
PRES. MAX _____ MINIMUM _____	
MEAS. LINE _____ SHOE JOINT _____	
CEMENT LEFT IN CSG. _____	
PERFS. _____	
DISPLACEMENT _____	

COMMON	<u>132 @ 17.90</u>	<u>2362.80</u>
POZMIX	<u>88 @ 9.35</u>	<u>822.80</u>
GEL	<u>8 @ 23.40</u>	<u>187.20</u>
CHLORIDE	@	
ASC	@	
Flo-seal	<u>255 @ 29.7</u>	<u>1632.5</u>
	@	
	@	
	@	
	@	
	@	
	@	
HANDLING	<u>236,28 cu ft @ 2.45</u>	<u>585.27</u>
MILEAGE	<u>9.46 to 70 X 70 X 2.00</u>	<u>172.12</u>
TOTAL		<u>4243.84</u>

**EQUIPMENT**

PUMP TRUCK	CEMENTER <u>Kelly Grabel</u>
# <u>4234281</u>	HELPER <u>Maxine McElroy</u>
BULK TRUCK	
# <u>8184287</u>	DRIVER <u>Alex (TWS)</u>
BULK TRUCK	
# _____	DRIVER _____

**REMARKS:**

25 @ 3100

100 @ 2425

40 @ 300

10 @ 40 w/ wiper Plug

30 RH

15 MH

Thank you Kelly & crew

**SERVICE**

DEPTH OF JOB	<u>3100'</u>
PUMP TRUCK CHARGE	<u>1250.00</u>
EXTRA FOOTAGE	@
MILEAGE <u>MILV 70</u>	<u>@ 7.20 539.00</u>
MANIFOLD	@
<u>MILV 70</u>	<u>@ 4.20 308.00</u>
	@
TOTAL	<u>2097.00</u>

CHARGE TO: Martin

STREET \_\_\_\_\_

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

**PLUG & FLOAT EQUIPMENT**

	@	
<u>1-8 5/8 Wooden Plug</u>	@	<u>107.04</u>
	@	
	@	
	@	
TOTAL		<u>107.04</u>

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.

SALES TAX (If Any) \_\_\_\_\_

TOTAL CHARGES 6,448.48

DISCOUNT 2,219.29 IF PAID IN 30 DAYS

4,229.18 Net

PRINTED NAME \_\_\_\_\_

SIGNATURE [Signature]



CFT #1-23  
 Daily Drilling Report  
 Page Three

MDCI CFT #1-23 2310' FSL 1485' FEL Sec. 23-2S-36W 3272' KB							MDCI Frisbie #2-23 2290' FNL 1950' FEL Sec. 23-2S-36W 3294' KB	
Formation	Sample top	Datum	Ref	Log tops	Datum	Ref	Log tops	Datum
Anhydrite	3130	+142	Flat	3130	+142	Flat	3152	+142
B/Anhydrite	3168	+104	-8	3168	+104	-8	3182	+112
Neva	3638	-366	-11	3637	-365	-10	3649	-355
Stotler	3911	-639	-12	3912	-640	-13	3921	-627
Topeka	3984	-712	-12	3986	-714	-14	3994	-700
Heebner	4145	-873	-12	4150	-878	-17	4155	-861
Lansing	4197	-925	-13	4200	-928	-16	4206	-912
Stark	4418	-1146	-16	4419	-1147	-17	4424	-1130
BKC	4466	-1194	-12	4469	-1197	-15	4476	-1182
Pawnee	4594	-1322	-11	4597	-1325	-14	4605	-1311
Cherokee	4665	-1393	-14	4667	-1395	-16	4673	-1379
Mississippi	4876	-1604	-23	4862	-1590	-9	4875	-1581
RTD	4960	-1688					4980	
LTD				4963			4977	



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co. Inc.**

250 N. Water STE 300  
Wichita KS 67206

ATTN: Rocky Milford

### **CFT #1-23**

#### **23-2s-6w Rawlins KS**

Start Date: 2014.02.22 @ 08:54:00

End Date: 2014.02.22 @ 15:54:30

Job Ticket #: 55969                      DST #: 1

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

Printed: 2014.03.03 @ 16:28:10



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
 250 N. Water STE 300  
 Wichita KS 67206  
 ATTN: Rocky Milford

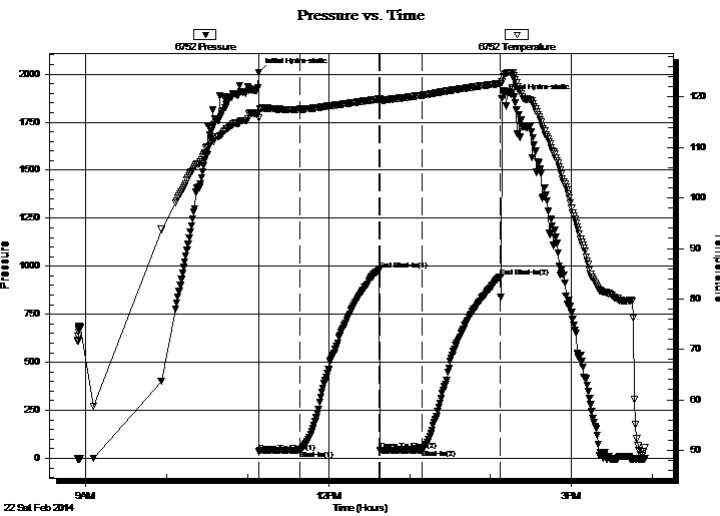
**23-2s-6w Rawlins KS**  
**CFT #1-23**  
 Job Ticket: 55969 **DST#: 1**  
 Test Start: 2014.02.22 @ 08:54:00

## GENERAL INFORMATION:

Formation: **Topeka**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 11:08:20  
 Time Test Ended: 15:54:30  
 Interval: **3974.00 ft (KB) To 4015.00 ft (KB) (TVD)**  
 Total Depth: 4015.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ryan Nichols  
 Unit No: 58  
 Reference Elevations: 3272.00 ft (KB)  
 3267.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 6752 Inside**  
 Press@RunDepth: 49.10 psig @ 3975.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.02.22 End Date: 2014.02.22 Last Calib.: 2014.02.22  
 Start Time: 08:54:01 End Time: 15:54:30 Time On Btm: 2014.02.22 @ 11:08:10  
 Time Off Btm: 2014.02.22 @ 14:08:20

**TEST COMMENT:** 30 IF - Tool opened on bridge and slid 13' to bottom, 1/4" blow built to 1"  
 60 ISI - No return  
 30 FF - No blow  
 60 FSI - No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2009.32	116.93	Initial Hydro-static
1	33.70	115.79	Open To Flow (1)
31	41.23	117.56	Shut-In(1)
90	983.05	119.59	End Shut-In(1)
90	41.92	119.36	Open To Flow (2)
122	49.10	120.34	Shut-In(2)
180	942.85	122.68	End Shut-In(2)
181	1871.41	122.95	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
55.00	Mud w/oil spots 100%M	0.27

## 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 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55969      **DST#: 1**  
Test Start: 2014.02.22 @ 08:54:00

**Tool Information**

Drill Pipe:	Length: 3784.00 ft	Diameter: 3.80 inches	Volume: 53.08 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 53.99 bbl</u>	Tool Chased 13.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3974.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	41.00 ft			
Tool Length:	68.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			3948.00	
Shut In Tool	5.00			3953.00	
Hydraulic tool	5.00			3958.00	
Jars	5.00			3963.00	
Safety Joint	2.00			3965.00	
Packer	5.00			3970.00	27.00      Bottom Of Top Packer
Packer	4.00			3974.00	
Packer - Shale	0.00			3974.00	
Stubb	1.00			3975.00	
Recorder	0.00	6752	Inside	3975.00	
Recorder	0.00	8322	Outside	3975.00	
Perforations	4.00			3979.00	
Blank Spacing	33.00			4012.00	
Bullnose	3.00			4015.00	41.00      Bottom Packers & Anchor

**Total Tool Length: 68.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**23-2s-6w Rawlins KS**

250 N. Water STE 300  
Wichita KS 67206

**CFT #1-23**

Job Ticket: 55969

**DST#: 1**

ATTN: Rocky Milford

Test Start: 2014.02.22 @ 08:54:00

### 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: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.37 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
55.00	Mud w /oil spots 100%M	0.270

Total Length: 55.00 ft      Total Volume: 0.270 bbl

Num Fluid Samples: 0

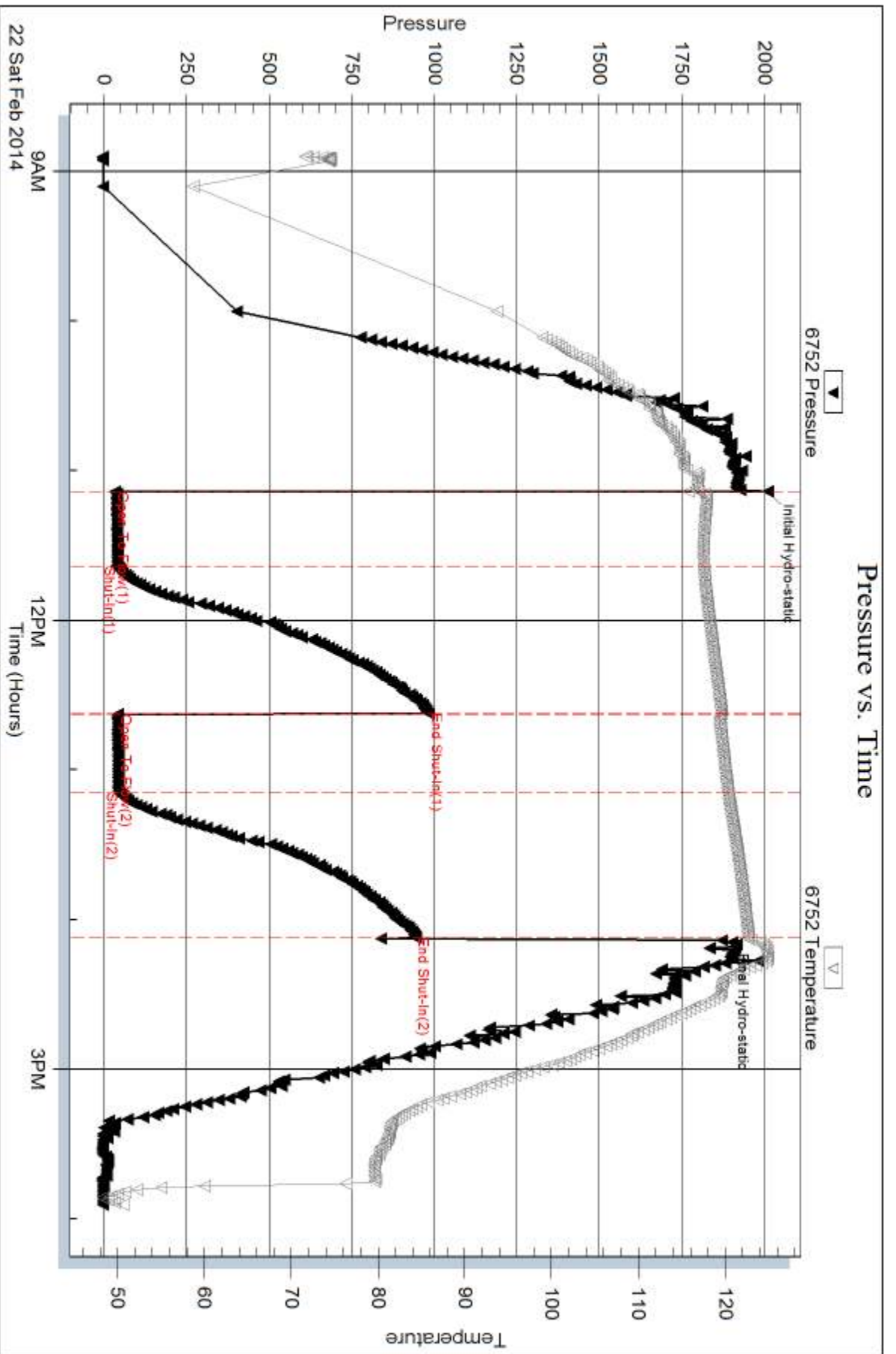
Num Gas Bombs: 0

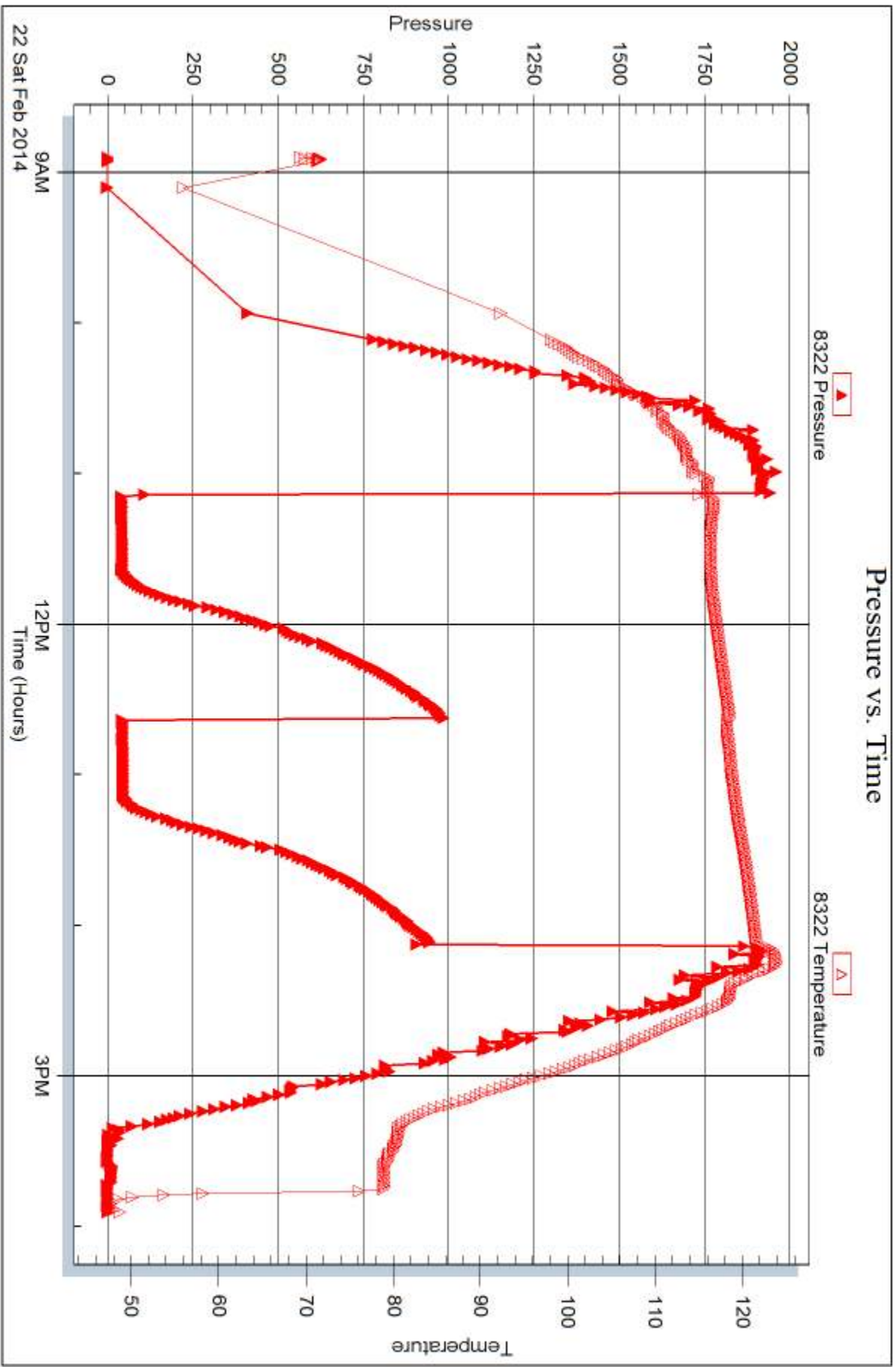
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:









## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co. Inc.**

250 N. Water STE 300  
Wichita KS 67206

ATTN: Rocky Milford

### **CFT #1-23**

#### **23-2s-6w Rawlins KS**

Start Date: 2014.02.23 @ 04:07:00

End Date: 2014.02.23 @ 12:40:40

Job Ticket #: 55970                      DST #: 2

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

Printed: 2014.03.03 @ 16:27:19



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
 250 N. Water STE 300  
 Wichita KS 67206  
 ATTN: Rocky Milford

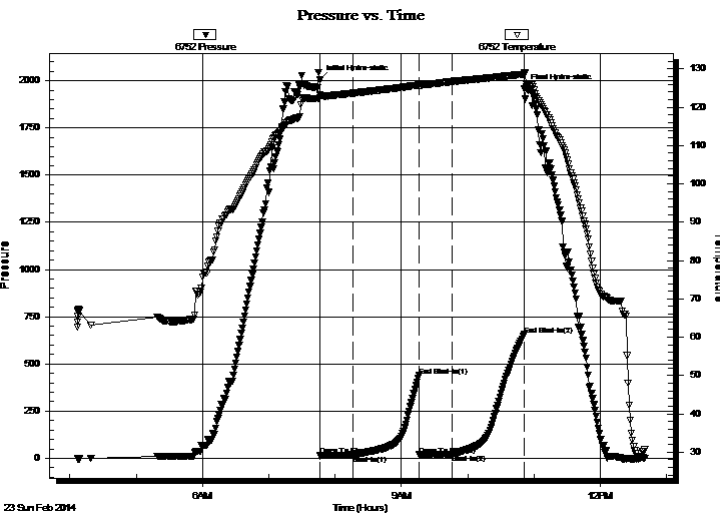
**23-2s-6w Rawlins KS**  
**CFT #1-23**  
 Job Ticket: 55970 **DST#: 2**  
 Test Start: 2014.02.23 @ 04:07:00

## GENERAL INFORMATION:

Formation: **Oread**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 07:46:10  
 Time Test Ended: 12:40:40  
 Interval: **4058.00 ft (KB) To 4124.00 ft (KB) (TVD)**  
 Total Depth: 4124.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ryan Nichols  
 Unit No: 58  
 Reference Elevations: 3272.00 ft (KB)  
 3267.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 6752 Inside**  
 Press@RunDepth: 20.49 psig @ 4059.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.02.23 End Date: 2014.02.23 Last Calib.: 2014.02.23  
 Start Time: 04:07:01 End Time: 12:40:40 Time On Btm: 2014.02.23 @ 07:46:00  
 Time Off Btm: 2014.02.23 @ 10:51:20

TEST COMMENT: 30 IF - 1/4" blow built to 1"  
 60 ISI - No return  
 30 FF - No blow  
 60 FSI - No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2003.86	123.21	Initial Hydro-static
1	13.42	122.48	Open To Flow (1)
31	17.64	123.65	Shut-In(1)
90	437.60	125.76	End Shut-In(1)
90	17.66	125.59	Open To Flow (2)
120	20.49	126.69	Shut-In(2)
185	654.87	128.59	End Shut-In(2)
186	1957.08	129.07	Final Hydro-static

## Recovery

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

\* 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 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55970      **DST#: 2**  
Test Start: 2014.02.23 @ 04:07:00

**Tool Information**

Drill Pipe:	Length: 3876.00 ft	Diameter: 3.80 inches	Volume: 54.37 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 55.28 bbl</u>	Tool Chased	5.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4058.00 ft			Final	60000.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4032.00	
Shut In Tool	5.00			4037.00	
Hydraulic tool	5.00			4042.00	
Jars	5.00			4047.00	
Safety Joint	2.00			4049.00	
Packer	5.00			4054.00	27.00      Bottom Of Top Packer
Packer	4.00			4058.00	
Stubb	1.00			4059.00	
Recorder	0.00	6752	Inside	4059.00	
Recorder	0.00	8322	Outside	4059.00	
Perforations	29.00			4088.00	
Blank Spacing	33.00			4121.00	
Bullnose	3.00			4124.00	66.00      Bottom Packers & Anchor

**Total Tool Length: 93.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**23-2s-6w Rawlins KS**

250 N. Water STE 300  
Wichita KS 67206

**CFT #1-23**

Job Ticket: 55970

**DST#: 2**

ATTN: Rocky Milford

Test Start: 2014.02.23 @ 04:07:00

### 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: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud - 100%M	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

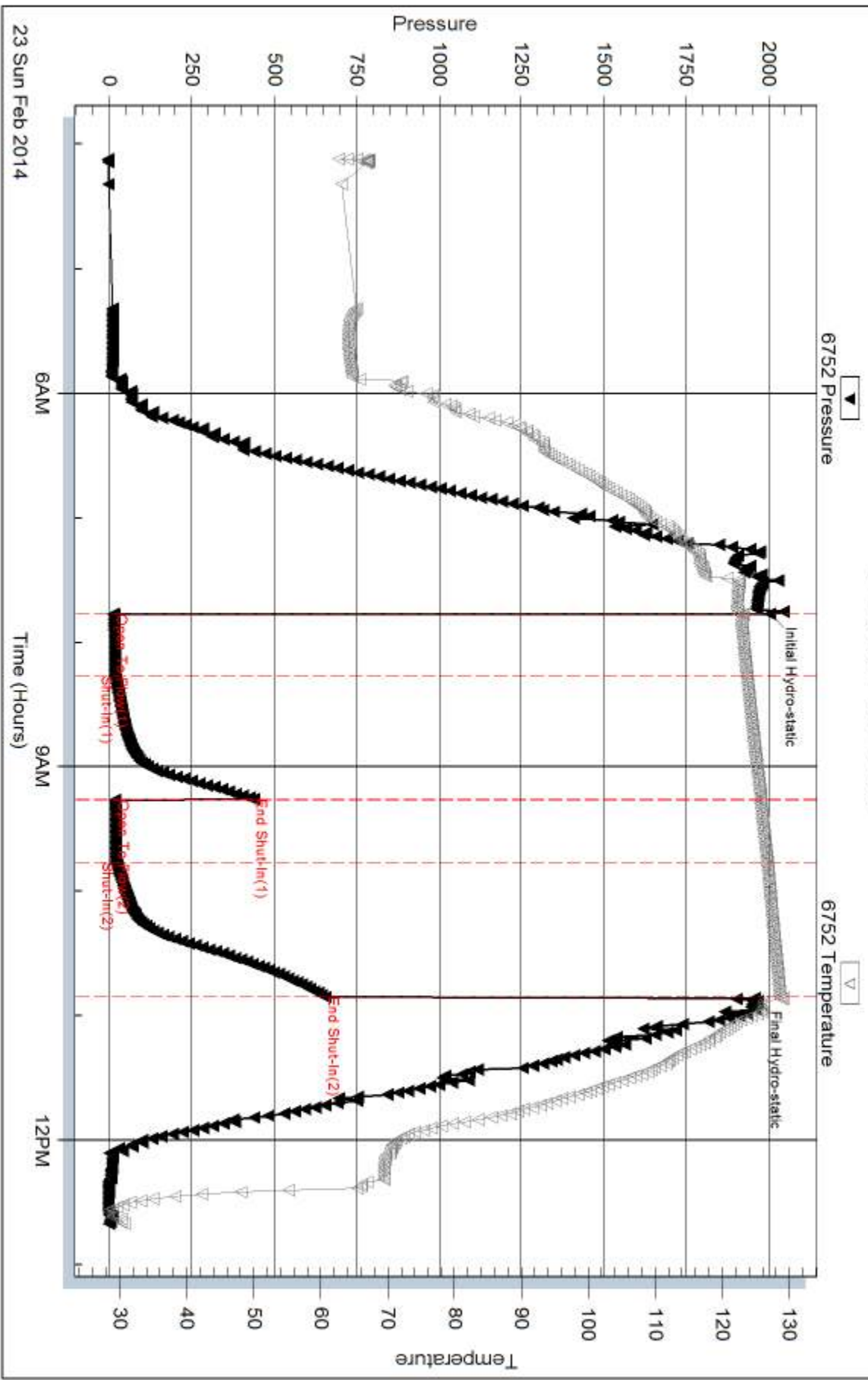
Serial #:

Laboratory Name:

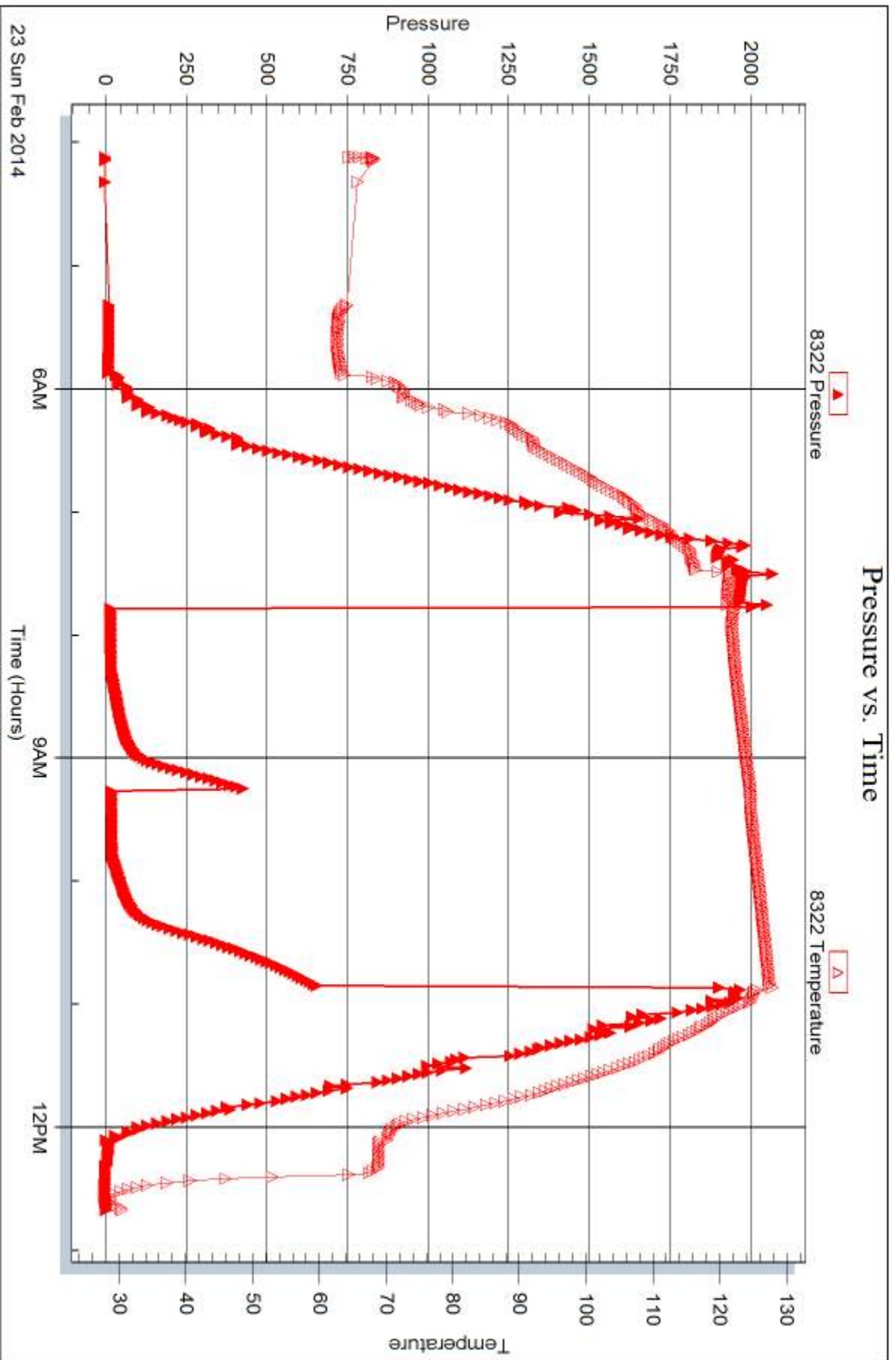
Laboratory Location:

Recovery Comments:

### Pressure vs. Time



23 Sun Feb 2014





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co. Inc.**

250 N. Water STE 300  
Wichita KS 67206

ATTN: Rocky Milford

### **CFT #1-23**

#### **23-2s-6w Rawlins KS**

Start Date: 2014.02.24 @ 00:00:00

End Date: 2014.02.24 @ 08:45:40

Job Ticket #: 55971                      DST #: 3

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

Printed: 2014.03.03 @ 16:26:36





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
250 N. Water STE 300  
Wichita KS 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55971      **DST#: 3**  
Test Start: 2014.02.24 @ 00:00:00

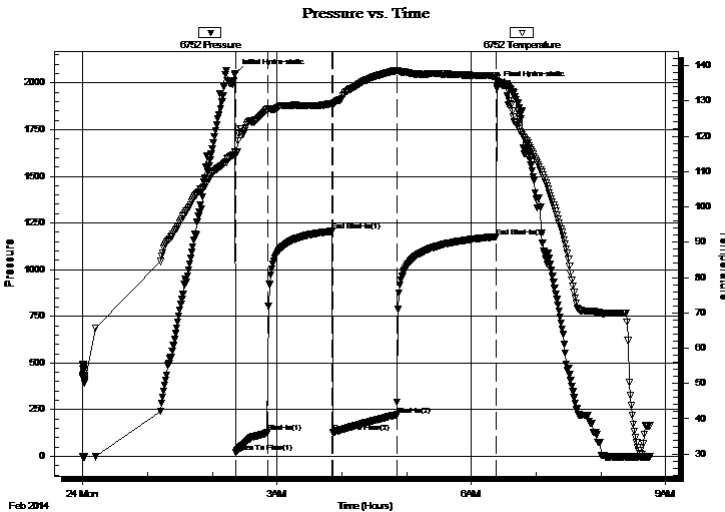
## GENERAL INFORMATION:

Formation: **Leavenworth - LKC "**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 02:21:40      Tester: Ryan Nichols  
Time Test Ended: 08:45:40      Unit No: 58  
**Interval: 4140.00 ft (KB) To 4219.00 ft (KB) (TVD)**      Reference Elevations: 3272.00 ft (KB)  
Total Depth: 4219.00 ft (KB) (TVD)      3267.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Good      KB to GR/CF: 5.00 ft

**Serial #: 6752      Inside**  
Press@RunDepth: 222.40 psig @ 4141.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2014.02.24      End Date: 2014.02.24      Last Calib.: 2014.02.24  
Start Time: 00:00:01      End Time: 08:45:40      Time On Btm: 2014.02.24 @ 02:21:20  
Time Off Btm: 2014.02.24 @ 06:23:30

**TEST COMMENT:** 30 IF - 1" blow built to BoB @ 20 mins (in diesel)  
60 ISI - No return  
60 FF - Surface blow built to BoB @ 24 mins  
90 FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2052.34	115.60	Initial Hydro-static
1	19.84	115.22	Open To Flow (1)
30	127.37	127.59	Shut-In(1)
90	1206.05	129.16	End Shut-In(1)
91	127.83	128.90	Open To Flow (2)
150	222.40	138.59	Shut-In(2)
242	1177.37	137.02	End Shut-In(2)
243	1984.29	136.57	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
309.00	MCW - 10%M - 90%W	2.64
126.00	WCM - 25%W - 75%M	1.77
20.00	Mud - 100%m	0.28

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.  
250 N. Water STE 300  
Wichita KS 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55971      **DST#: 3**  
Test Start: 2014.02.24 @ 00:00:00

**Tool Information**

Drill Pipe:	Length: 3943.00 ft	Diameter: 3.80 inches	Volume: 55.31 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 66000.00 lb
			<u>Total Volume: 56.22 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4140.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	79.00 ft			
Tool Length:	106.00 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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Change Over Sub	1.00			4114.00	
Shut In Tool	5.00			4119.00	
Hydraulic tool	5.00			4124.00	
Jars	5.00			4129.00	
Safety Joint	2.00			4131.00	
Packer	5.00			4136.00	27.00      Bottom Of Top Packer
Packer	4.00			4140.00	
Stubb	1.00			4141.00	
Recorder	0.00	6752	Inside	4141.00	
Recorder	0.00	8322	Outside	4141.00	
Perforations	10.00			4151.00	
Blank Spacing	65.00			4216.00	
Bullnose	3.00			4219.00	79.00      Bottom Packers & Anchor

**Total Tool Length: 106.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.  
250 N. Water STE 300  
Wichita KS 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55971      **DST#: 3**  
Test Start: 2014.02.24 @ 00:00:00

### 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:	35000 ppm
Viscosity: 67.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.38 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 600.00 ppm			
Filter Cake: 2.00 inches			

### Recovery Information

Recovery Table

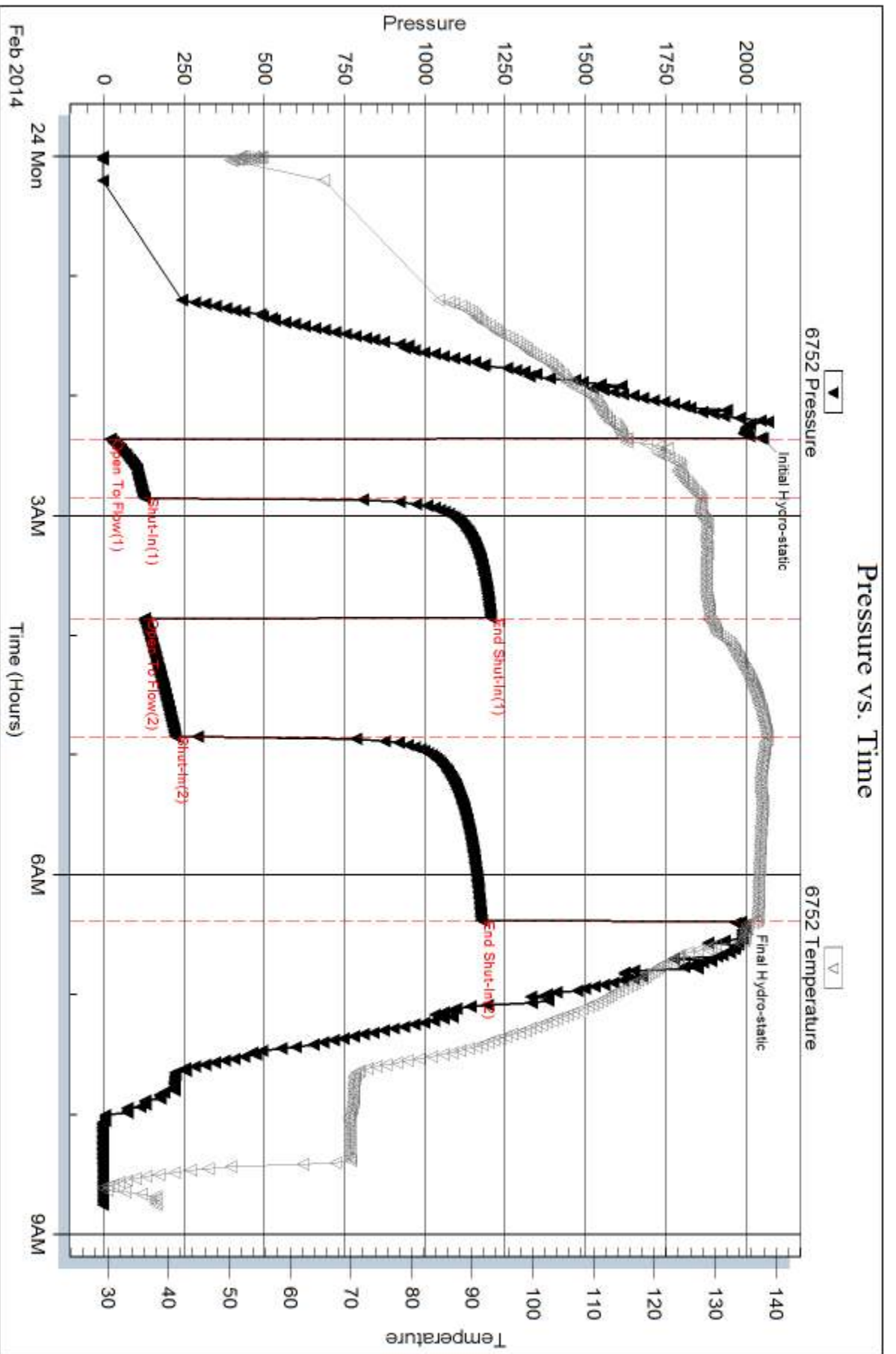
Length ft	Description	Volume bbl
309.00	MCW - 10%M - 90%W	2.640
126.00	WCM - 25%W - 75%M	1.767
20.00	Mud - 100%m	0.281

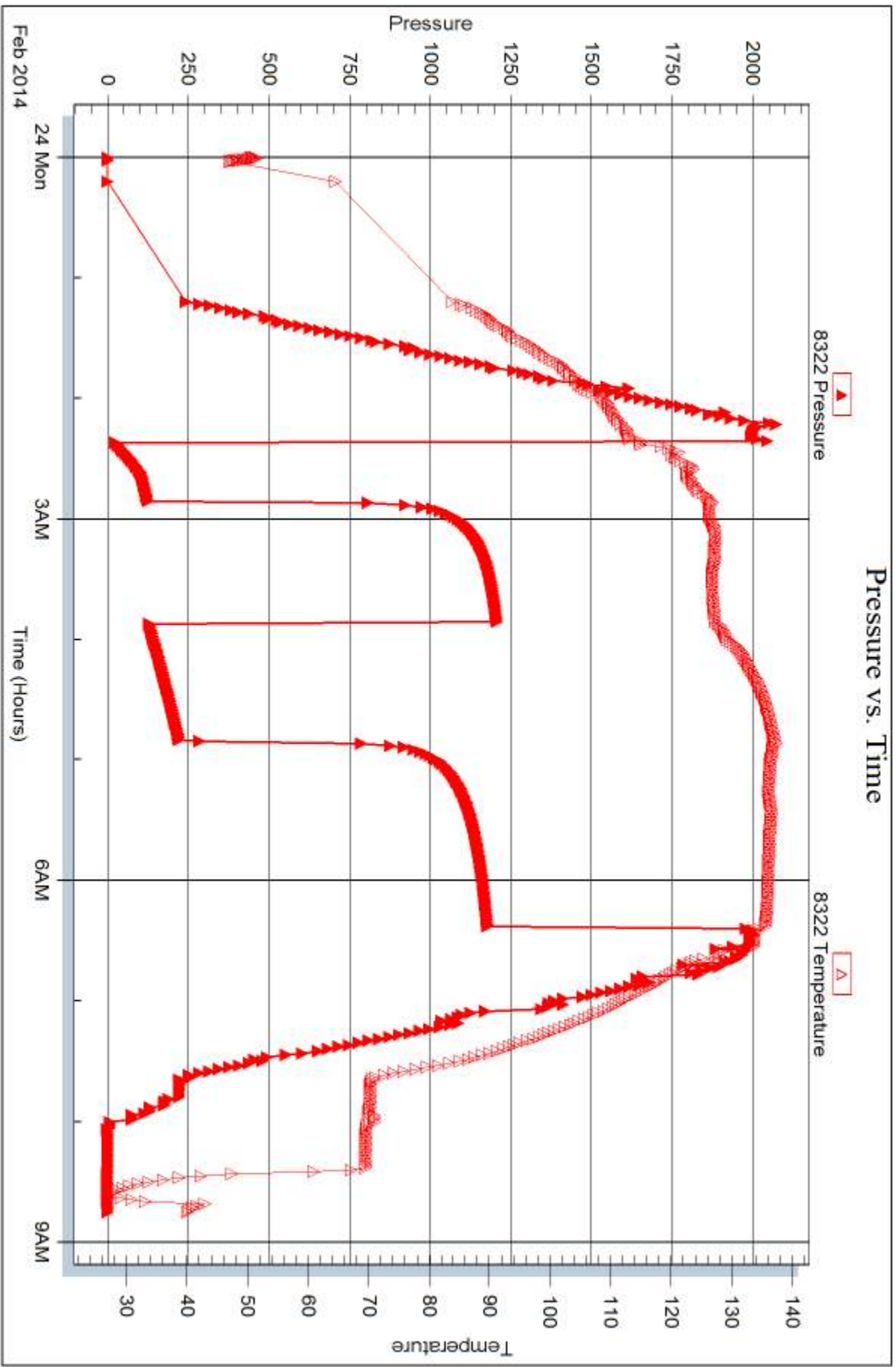
Total Length: 455.00 ft      Total Volume: 4.688 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments: RW = .314 @ 46 DEG F







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co. Inc.**

250 N. Water STE 300  
Wichita KS 67206

ATTN: Rocky Milford

### **CFT #1-23**

### **23-2s-6w Rawlins KS**

Start Date: 2014.02.24 @ 18:53:00

End Date: 2014.02.25 @ 02:48:50

Job Ticket #: 55972                      DST #: 4

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

Printed: 2014.03.03 @ 16:25:09



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
 250 N. Water STE 300  
 Wichita KS 67206  
 ATTN: Rocky Milford

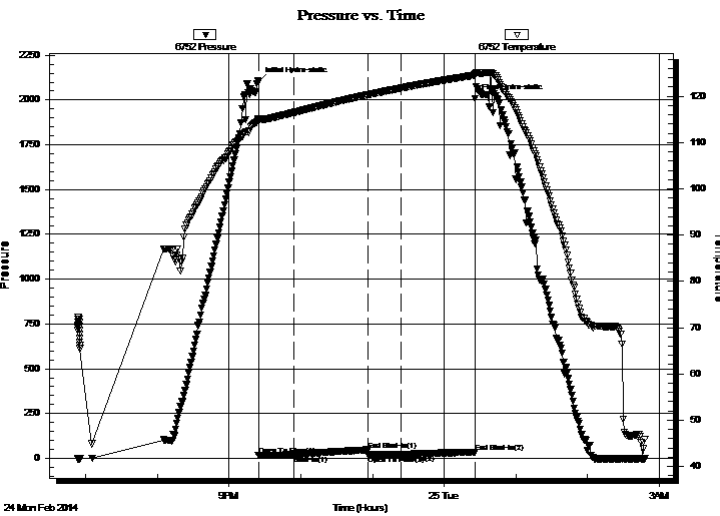
**23-2s-6w Rawlins KS**  
**CFT #1-23**  
 Job Ticket: 55972      **DST#: 4**  
 Test Start: 2014.02.24 @ 18:53:00

## GENERAL INFORMATION:

Formation: **LKC " A sand - D pri**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:24:30  
 Time Test Ended: 02:48:50  
**Interval: 4214.00 ft (KB) To 4297.00 ft (KB) (TVD)**  
 Total Depth: 4297.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ryan Nichols  
 Unit No: 58  
 Reference Elevations: 3272.00 ft (KB)  
 3267.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 6752      Inside**  
 Press@RunDepth: 20.20 psig @ 4215.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2014.02.24      End Date: 2014.02.25      Last Calib.: 2014.02.25  
 Start Time: 18:53:01      End Time: 02:48:50      Time On Btm: 2014.02.24 @ 21:24:20  
 Time Off Btm: 2014.02.25 @ 00:26:00

**TEST COMMENT:** 30 IF - 1" blow built to 2" died back to 1 1/2" (in diesel)  
 60 ISI - No return  
 30 FF - No blow  
 60 FSI - No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2102.32	115.19	Initial Hydro-static
1	16.37	114.74	Open To Flow (1)
30	18.19	116.48	Shut-In(1)
92	47.45	120.33	End Shut-In(1)
92	19.11	120.33	Open To Flow (2)
120	20.20	121.76	Shut-In(2)
182	34.29	124.57	End Shut-In(2)
182	2007.05	124.97	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
3.00	Mud - 100%	0.01

\* 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 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55972      **DST#: 4**  
Test Start: 2014.02.24 @ 18:53:00

**Tool Information**

Drill Pipe:	Length: 4006.00 ft	Diameter: 3.80 inches	Volume: 56.19 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 64000.00 lb
			<u>Total Volume: 57.10 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4214.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	83.00 ft			
Tool Length:	110.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4188.00	
Shut In Tool	5.00			4193.00	
Hydraulic tool	5.00			4198.00	
Jars	5.00			4203.00	
Safety Joint	2.00			4205.00	
Packer	5.00			4210.00	27.00      Bottom Of Top Packer
Packer	4.00			4214.00	
Stubb	1.00			4215.00	
Recorder	0.00	6752	Inside	4215.00	
Recorder	0.00	8322	Outside	4215.00	
Perforations	14.00			4229.00	
Blank Spacing	65.00			4294.00	
Bullnose	3.00			4297.00	83.00      Bottom Packers & Anchor

**Total Tool Length: 110.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.  
250 N. Water STE 300  
Wichita KS 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55972      **DST#: 4**  
Test Start: 2014.02.24 @ 18:53:00

### Mud and Cushion Information

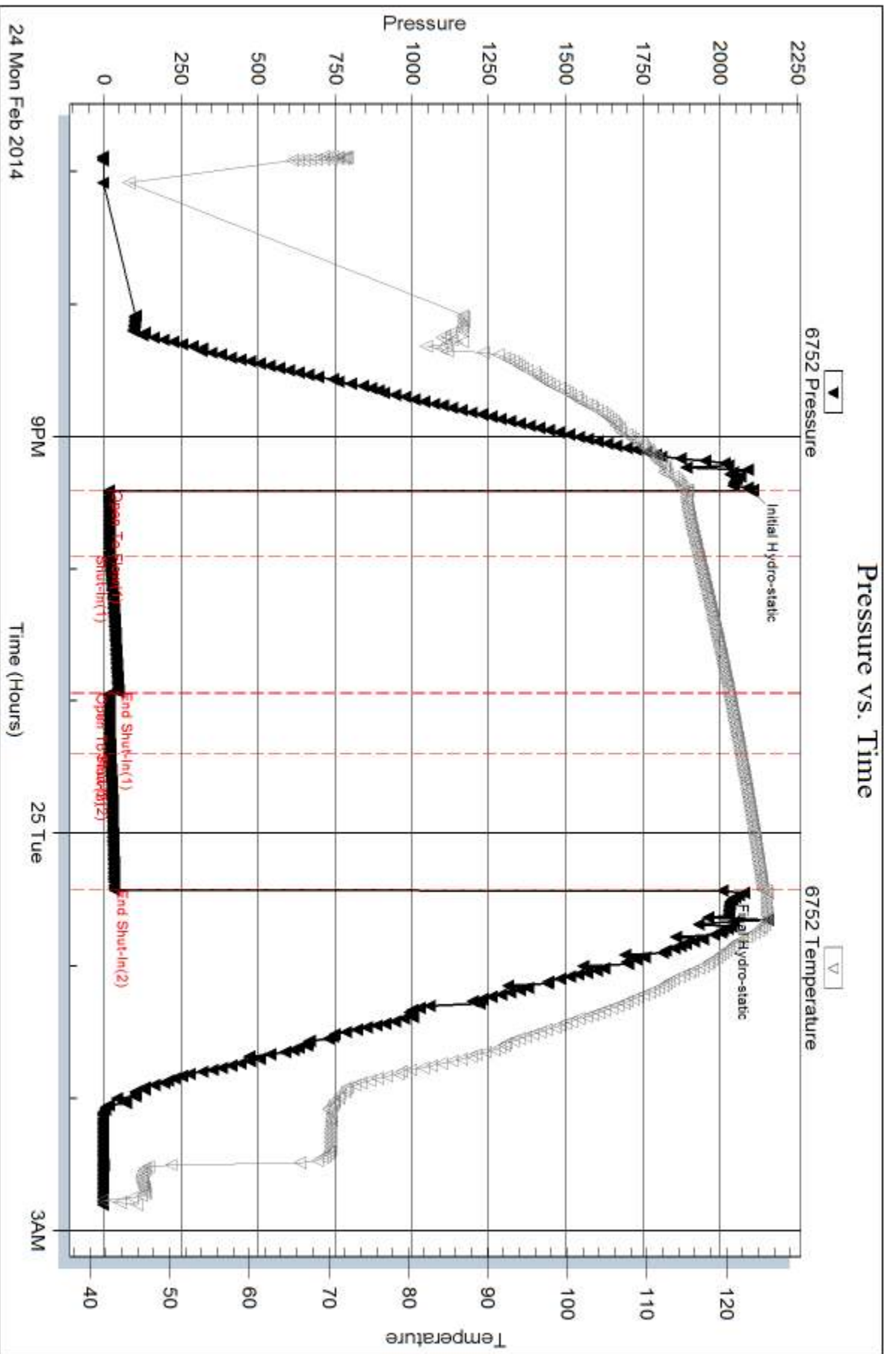
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.58 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 600.00 ppm			
Filter Cake: 2.00 inches			

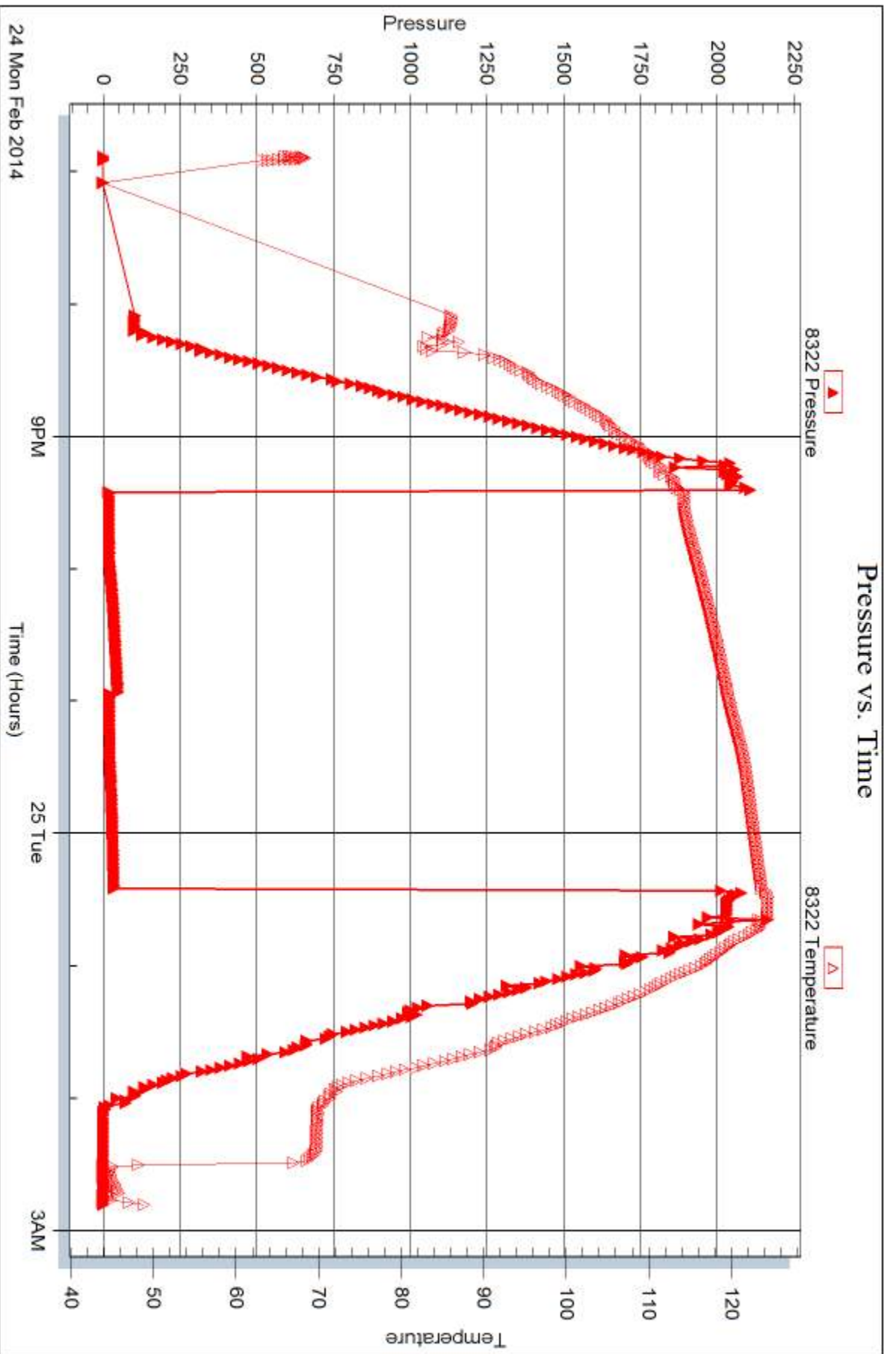
### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	Mud - 100%	0.015

Total Length: 3.00 ft      Total Volume: 0.015 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 67206

ATTN: Rocky Milford

### **CFT #1-23**

### **23-2s-6w Rawlins KS**

Start Date: 2014.02.25 @ 11:58:00

End Date: 2014.02.25 @ 19:31:50

Job Ticket #: 55973                      DST #: 5

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

Printed: 2014.03.03 @ 16:24:37



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
 250 N. Water STE 300  
 Wichita KS 67206  
 ATTN: Rocky Milford

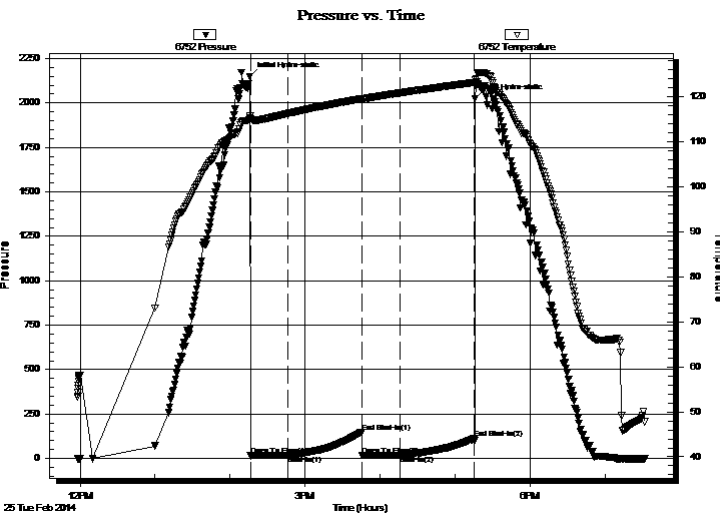
**23-2s-6w Rawlins KS**  
**CFT #1-23**  
 Job Ticket: 55973 **DST#: 5**  
 Test Start: 2014.02.25 @ 11:58:00

## GENERAL INFORMATION:

Formation: **LKC " G "**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 14:16:10  
 Time Test Ended: 19:31:50  
 Interval: **4275.00 ft (KB) To 4335.00 ft (KB) (TVD)**  
 Total Depth: 4335.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ryan Nichols  
 Unit No: 58  
 Reference Elevations: 3272.00 ft (KB)  
 3267.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 6752 Inside**  
 Press@RunDepth: 19.00 psig @ 4276.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.02.25 End Date: 2014.02.25 Last Calib.: 2014.02.25  
 Start Time: 11:58:01 End Time: 19:31:50 Time On Btm: 2014.02.25 @ 14:16:00  
 Time Off Btm: 2014.02.25 @ 17:16:00

TEST COMMENT: 30 IF - 1/4" blow built to 1 3/4"  
 60 ISI - No return  
 30 FF - No blow  
 60 FSI - No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2146.50	115.67	Initial Hydro-static
1	14.97	115.21	Open To Flow (1)
30	16.74	116.26	Shut-In(1)
90	148.48	119.56	End Shut-In(1)
90	18.02	119.53	Open To Flow (2)
120	19.00	120.85	Shut-In(2)
180	111.61	123.17	End Shut-In(2)
180	2025.48	123.68	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
3.00	OCM - 30%o - 70%M	0.01

\* 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 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55973 **DST#: 5**  
Test Start: 2014.02.25 @ 11:58:00

## Tool Information

Drill Pipe:	Length: 4068.00 ft	Diameter: 3.80 inches	Volume: 57.06 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 57.97 bbl</u>	Tool Chased	3.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4275.00 ft			Final	62000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	60.00 ft				
Tool Length:	87.00 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			4249.00	
Shut In Tool	5.00			4254.00	
Hydraulic tool	5.00			4259.00	
Jars	5.00			4264.00	
Safety Joint	2.00			4266.00	
Packer	5.00			4271.00	27.00 Bottom Of Top Packer
Packer	4.00			4275.00	
Packer - Shale	0.00			4275.00	
Stubb	1.00			4276.00	
Recorder	0.00	6752	Inside	4276.00	
Recorder	0.00	8322	Outside	4276.00	
Perforations	23.00			4299.00	
Blank Spacing	33.00			4332.00	
Bullnose	3.00			4335.00	60.00 Bottom Packers & Anchor

**Total Tool Length: 87.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**23-2s-6w Rawlins KS**

250 N. Water STE 300  
Wichita KS 67206

**CFT #1-23**

Job Ticket: 55973

**DST#: 5**

ATTN: Rocky Milford

Test Start: 2014.02.25 @ 11:58:00

### 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: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	OCM - 30%o - 70%M	0.015

Total Length: 3.00 ft      Total Volume: 0.015 bbl

Num Fluid Samples: 0

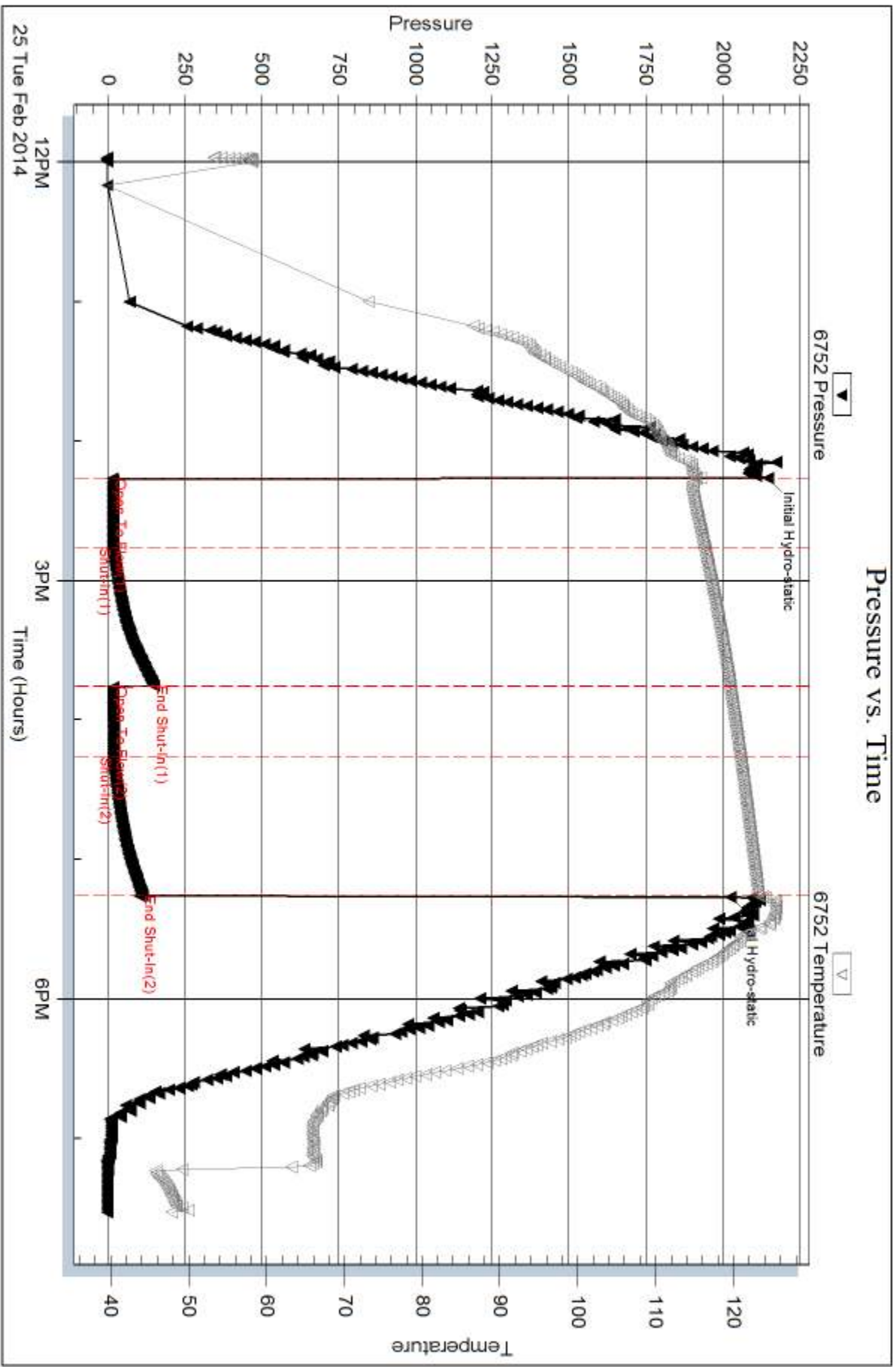
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

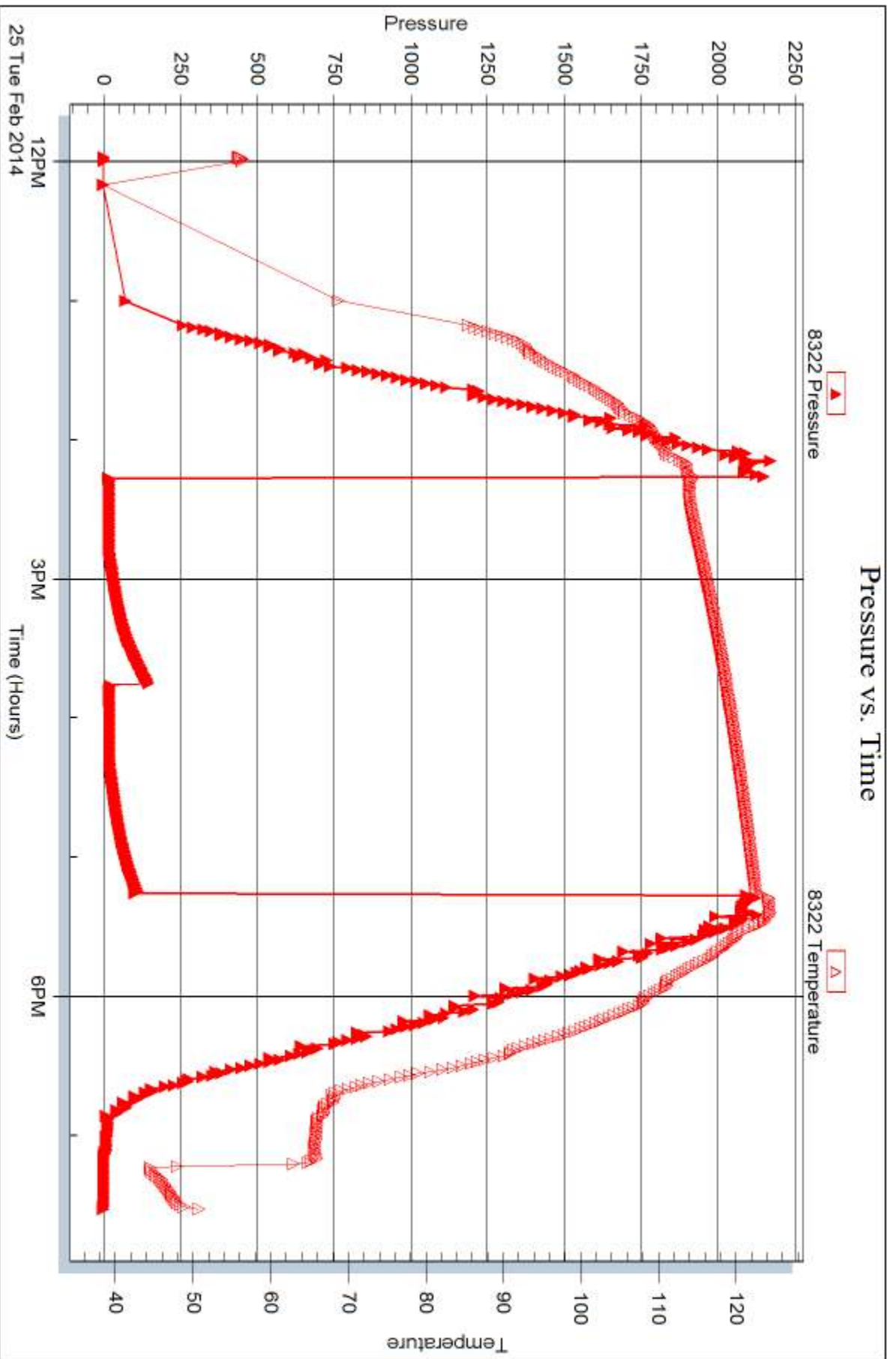


Serial #: 8322

Outside Murfin Drilling Co. Inc.

CFT #1-23

DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 55973

Printed: 2014.03.03 @ 16:24:40



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co. Inc.**

250 N. Water STE 300  
Wichita KS 67206

ATTN: Rocky Milford

### **CFT #1-23**

### **23-2s-6w Rawlins KS**

Start Date: 2014.02.26 @ 07:30:00

End Date: 2014.02.26 @ 16:37:30

Job Ticket #: 55974                      DST #: 6

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

Printed: 2014.03.03 @ 16:24:07



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
 250 N. Water STE 300  
 Wichita KS 67206  
 ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
 Job Ticket: 55974      **DST#: 6**  
 Test Start: 2014.02.26 @ 07:30:00

## GENERAL INFORMATION:

Formation: **LKC " G' - J "**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:25:50  
 Time Test Ended: 16:37:30  
 Interval: **4330.00 ft (KB) To 4418.00 ft (KB) (TVD)**  
 Total Depth: 4418.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ryan Nichols  
 Unit No: 58  
 Reference Elevations: 3272.00 ft (KB)  
 3267.00 ft (CF)  
 KB to GR/CF: 5.00 ft

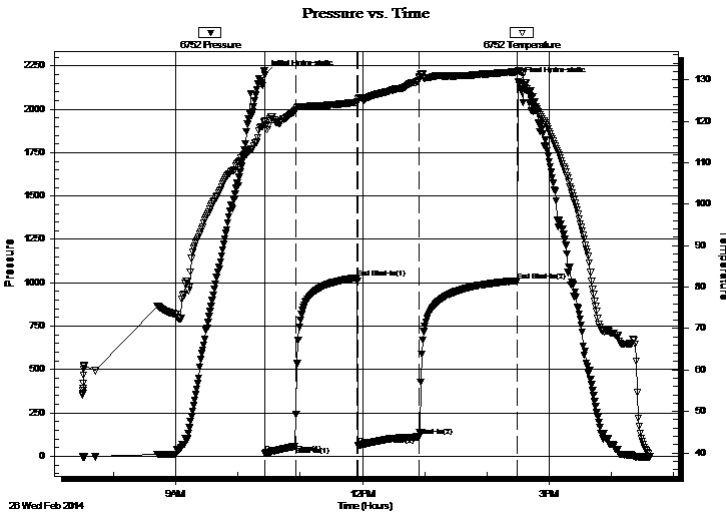
## Serial #: 6752

Inside

Press@RunDepth: 112.86 psig @ 4331.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2014.02.26      End Date: 2014.02.26      Last Calib.: 2014.02.26  
 Start Time: 07:30:01      End Time: 16:37:30      Time On Btm: 2014.02.26 @ 10:25:40  
 Time Off Btm: 2014.02.26 @ 14:30:00

TEST COMMENT: 30 IF - 3/4" blow built to 5" (in diesel)  
 60 ISI - No return  
 60 FF - Surface blow built to 6"  
 90 ISI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2197.63	120.12	Initial Hydro-static
1	16.34	119.11	Open To Flow (1)
30	58.46	122.56	Shut-In(1)
89	1029.55	124.58	End Shut-In(1)
90	62.29	124.76	Open To Flow (2)
149	112.86	130.50	Shut-In(2)
244	1012.53	131.92	End Shut-In(2)
245	2157.19	132.26	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
208.00	Mud w /skim of oil - 100%M	1.22

\* 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 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55974      **DST#: 6**  
Test Start: 2014.02.26 @ 07:30:00

**Tool Information**

Drill Pipe:	Length: 4132.00 ft	Diameter: 3.80 inches	Volume: 57.96 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.87 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 63000.00 lb
Depth to Top Packer:	4330.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	88.00 ft			
Tool Length:	115.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4304.00	
Shut In Tool	5.00			4309.00	
Hydraulic tool	5.00			4314.00	
Jars	5.00			4319.00	
Safety Joint	2.00			4321.00	
Packer	5.00			4326.00	27.00      Bottom Of Top Packer
Packer	4.00			4330.00	
Stubb	1.00			4331.00	
Recorder	0.00	6752	Inside	4331.00	
Recorder	0.00	8322	Outside	4331.00	
Perforations	21.00			4352.00	
Blank Spacing	63.00			4415.00	
Bullnose	3.00			4418.00	88.00      Bottom Packers & Anchor

**Total Tool Length: 115.00**





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**23-2s-6w Rawlins KS**

250 N. Water STE 300  
Wichita KS 67206

**CFT #1-23**

Job Ticket: 55974

**DST#: 6**

ATTN: Rocky Milford

Test Start: 2014.02.26 @ 07:30:00

### 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: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
208.00	Mud w /skim of oil - 100%M	1.223

Total Length: 208.00 ft      Total Volume: 1.223 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

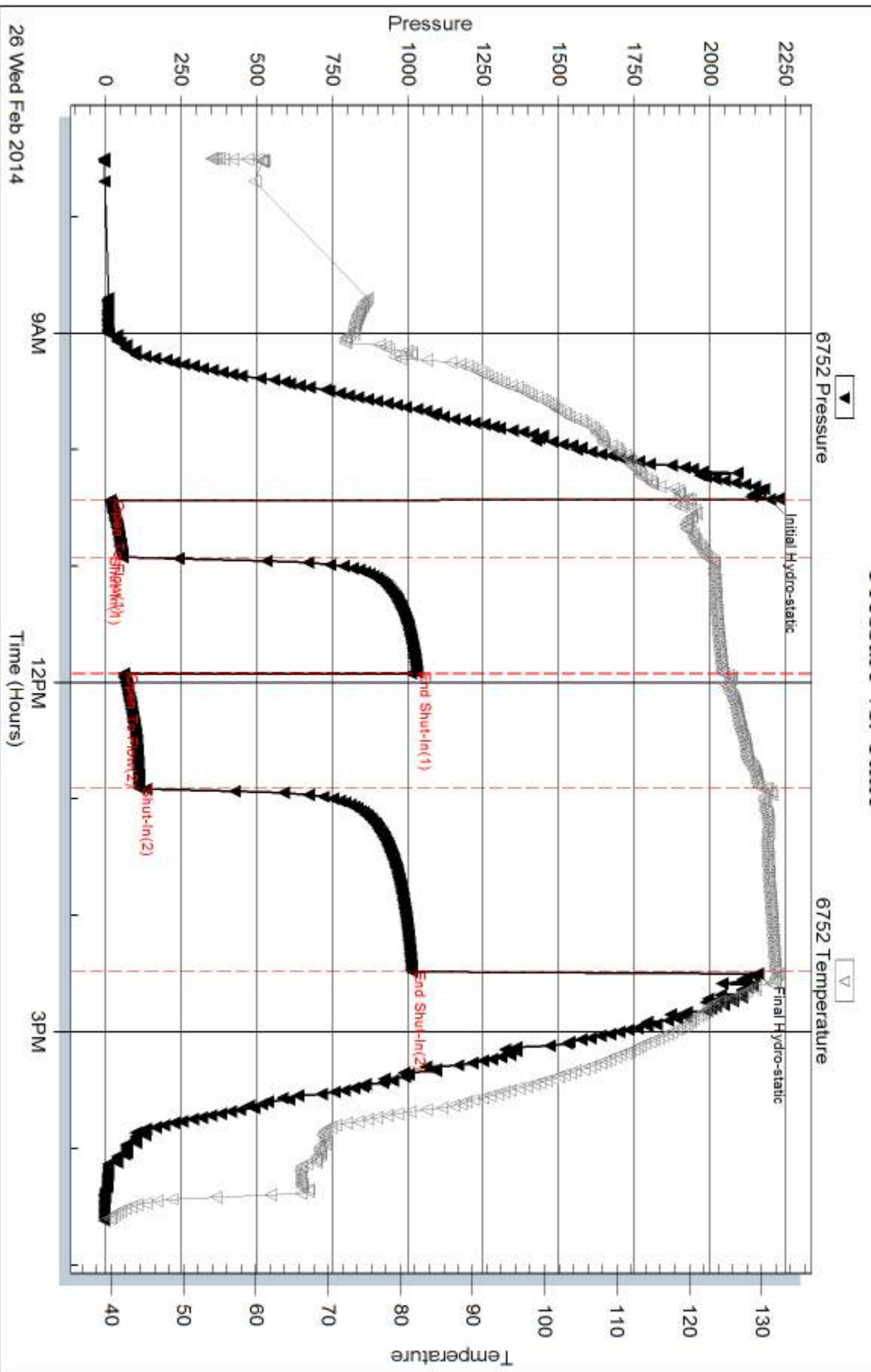
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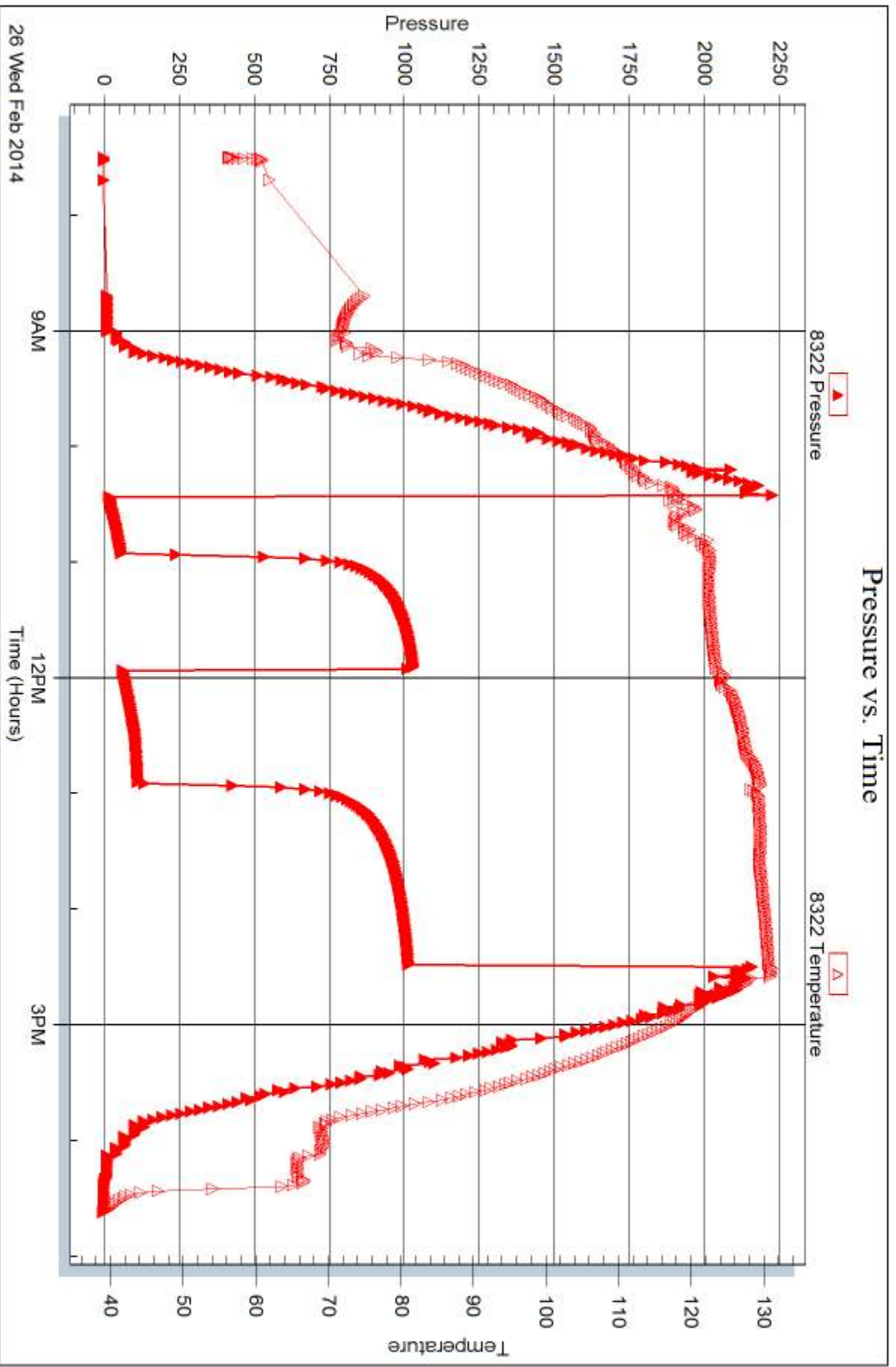
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co. Inc.**

250 N. Water STE 300  
Wichita KS 67206

ATTN: Rocky Milford

### **CFT #1-23**

#### **23-2s-6w Rawlins KS**

Start Date: 2014.02.27 @ 16:03:00

End Date: 2014.02.28 @ 00:39:49

Job Ticket #: 55975                      DST #: 7

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

Printed: 2014.03.03 @ 16:23:21



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
 250 N. Water STE 300  
 Wichita KS 67206  
 ATTN: Rocky Milford

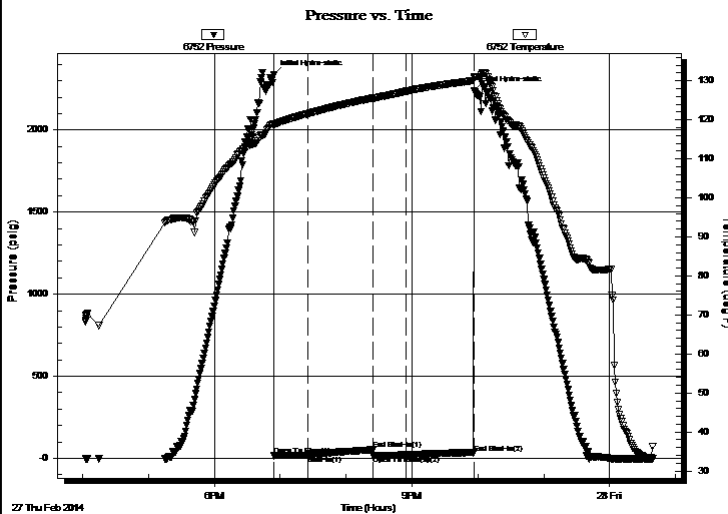
**23-2s-6w Rawlins KS**  
**CFT #1-23**  
 Job Ticket: 55975 **DST#: 7**  
 Test Start: 2014.02.27 @ 16:03:00

## GENERAL INFORMATION:

Formation: **Pawnee**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:54:20  
 Time Test Ended: 00:39:49  
 Interval: **4564.00 ft (KB) To 4645.00 ft (KB) (TVD)**  
 Total Depth: 4645.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ryan Nichols  
 Unit No: 58  
 Reference Elevations: 3272.00 ft (KB)  
 3267.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 6752 Inside**  
 Press@RunDepth: 20.65 psig @ 4565.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.02.27 End Date: 2014.02.28 Last Calib.: 2014.02.28  
 Start Time: 16:03:01 End Time: 00:39:49 Time On Btm: 2014.02.27 @ 18:54:00  
 Time Off Btm: 2014.02.27 @ 21:56:30

TEST COMMENT: 30 IF - 1/2" blow built to 1 1/4"  
 60 ISI - No return  
 30 FF - No blow  
 60 FSI - No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2336.00	118.94	Initial Hydro-static
1	15.88	118.72	Open To Flow (1)
31	18.75	121.53	Shut-In(1)
90	52.68	125.53	End Shut-In(1)
91	18.95	125.52	Open To Flow (2)
121	20.65	127.27	Shut-In(2)
183	32.65	130.06	End Shut-In(2)
183	2239.84	130.71	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1.00	Mud - 100%M	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 67206  
ATTN: Rocky Milford

**23-2s-6w Rawlins KS**  
**CFT #1-23**  
Job Ticket: 55975      **DST#: 7**  
Test Start: 2014.02.27 @ 16:03:00

**Tool Information**

Drill Pipe:	Length: 4383.00 ft	Diameter: 3.80 inches	Volume: 61.48 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 73000.00 lb
			<u>Total Volume: 62.39 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4564.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	81.00 ft			
Tool Length:	108.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4538.00	
Shut In Tool	5.00			4543.00	
Hydraulic tool	5.00			4548.00	
Jars	5.00			4553.00	
Safety Joint	2.00			4555.00	
Packer	5.00			4560.00	27.00      Bottom Of Top Packer
Packer	4.00			4564.00	
Packer - Shale	0.00			4564.00	
Stubb	1.00			4565.00	
Recorder	0.00	6752	Inside	4565.00	
Recorder	0.00	8322	Outside	4565.00	
Perforations	13.00			4578.00	
Blank Spacing	64.00			4642.00	
Bullnose	3.00			4645.00	81.00      Bottom Packers & Anchor

**Total Tool Length: 108.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**23-2s-6w Rawlins KS**

250 N. Water STE 300  
Wichita KS 67206

**CFT #1-23**

Job Ticket: 55975

**DST#: 7**

ATTN: Rocky Milford

Test Start: 2014.02.27 @ 16:03:00

### 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: 75.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	Mud - 100%M	0.005

Total Length: 1.00 ft      Total Volume: 0.005 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

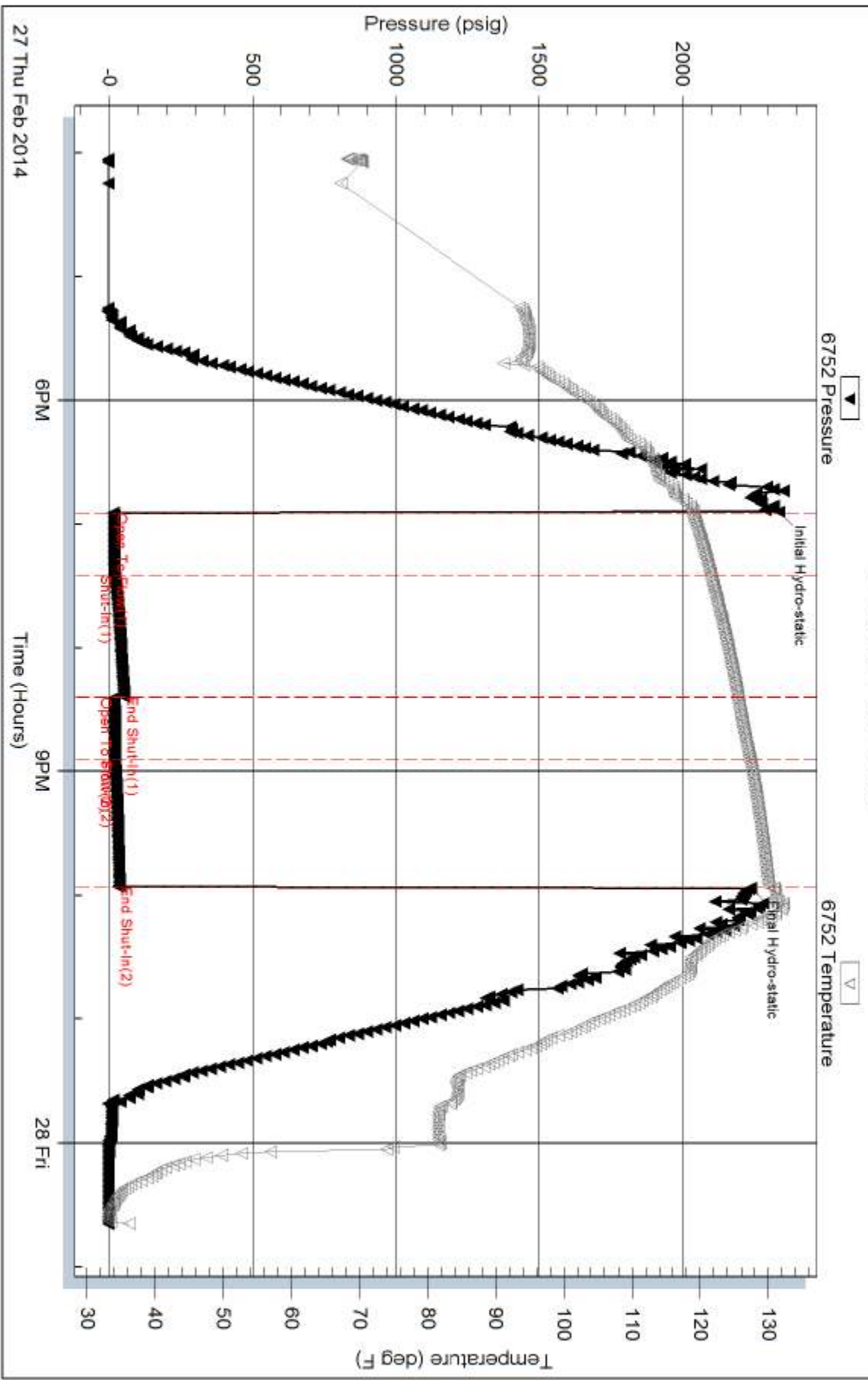
Laboratory Name:

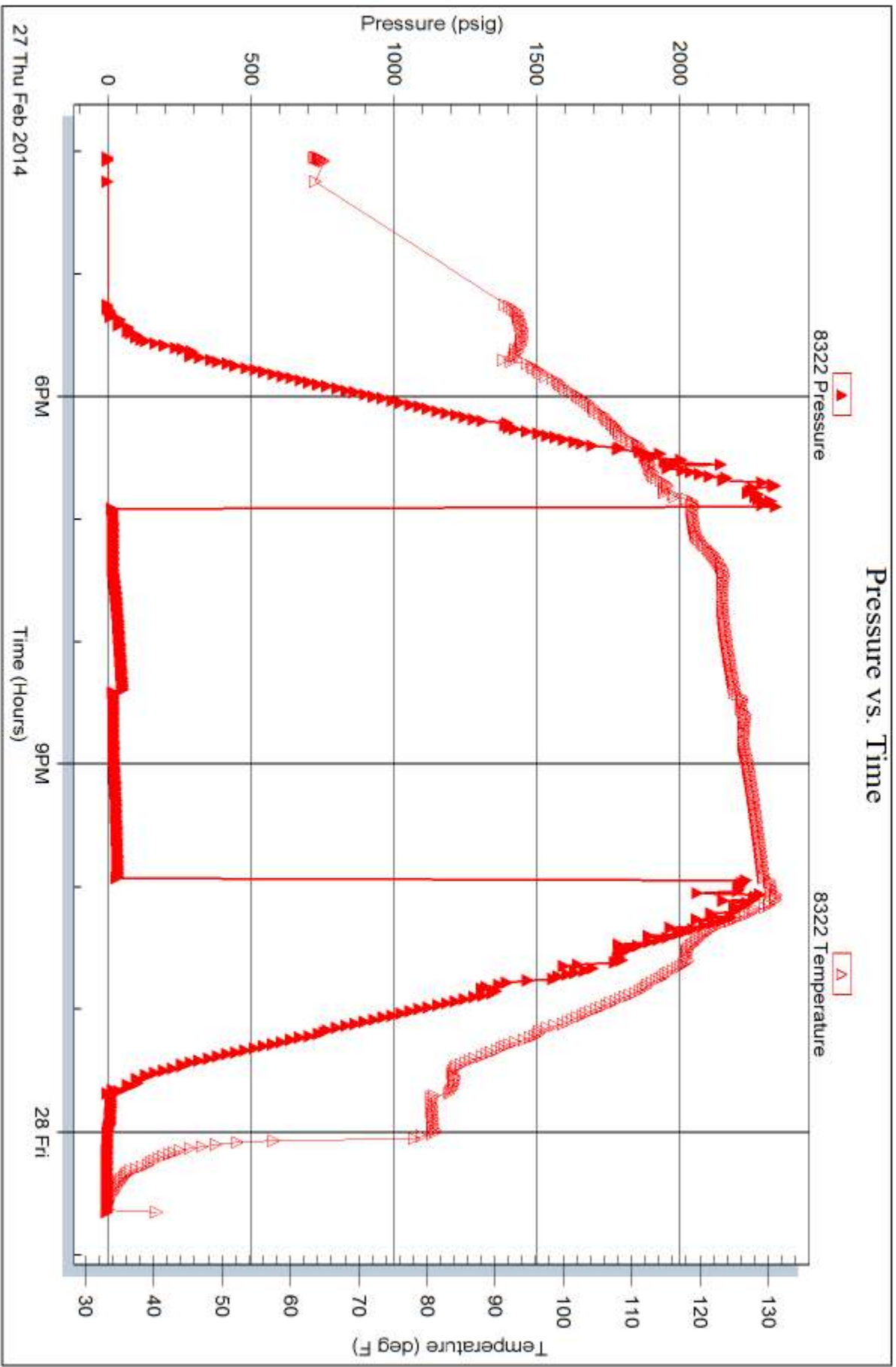
Laboratory Location:

Recovery Comments:



### Pressure vs. Time







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 55969

Well Name & No. CFT # 1-23 Test No. 1 Date 2/20/14  
 Company Murfin Drilling Co. Inc Elevation 3272 KB 3267 GL  
 Address 250 N. Water STE 300 Wichita KS 67206  
 Co. Rep / Geo. Rocky Milford Rig Murfin # 8  
 Location: Sec. 23 Twp. 25 Rge. 36W Co. Rawlins State KS

Interval Tested 3974 - 4015 Zone Tested Topeka  
 Anchor Length 41' Drill Pipe Run 3784' Mud Wt. 9.0  
 Top Packer Depth 3969 Drill Collars Run 186' Vis 65  
 Bottom Packer Depth 3974 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4015 Chlorides 500 ppm System LCM 2  
 Blow Description IF - Tool opened on bridge & slid to Bottom 13; 1/4" blow  
built to 1" ISI - No return  
FF - No blow  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
55'	Mud w/oil spots				

Rec Total 55 BHT 122° Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2009</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>08:00</u>
(B) First Initial Flow <u>34</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>08:54</u>
(C) First Final Flow <u>41</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>11:08</u>
(D) Initial Shut-In <u>983</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>14:08</u>
(E) Second Initial Flow <u>42</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>15:54</u>
(F) Second Final Flow <u>49</u>	<input checked="" type="checkbox"/> Mileage <u>100 RT</u> 155	Comments
(G) Final Shut-In <u>943</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1871</u>	<input type="checkbox"/> Straddle	
	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1980</u>
Final Flow <u>30</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
Final Shut-In <u>60</u>	Sub Total <u>1980</u>	

Approved By \_\_\_\_\_ Our Representative Rocky Milford

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 55970

Well Name & No. CFT #1-23 Test No. 2 Date 2/23/14  
 Company Martin Drilling Co Inc. Elevation 3272 KB 3267 GL  
 Address 250 N. Water STE 300 Wichita KS 67206  
 Co. Rep / Geo. Rocky Milford Rig Martin #8  
 Location: Sec. 23 Twp. 25 Rge. 36W Co. Kawlin State KS

Interval Tested 4058 - 4124 Zone Tested Oread  
 Anchor Length 66' Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.0  
 Top Packer Depth 4053 Drill Collars Run 186' Vis 51  
 Bottom Packer Depth 4058 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4124 Chlorides 400 ppm System LCM 2  
 Blow Description IF - 1/4" blow built to 1" (in diesel)  
ISI - No return  
FF - No blow  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>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 5' BHT 128° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2004</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>04:00</u>
(B) First Initial Flow <u>13</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>04:07</u>
(C) First Final Flow <u>18</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>07:46</u>
(D) Initial Shut-In <u>438</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>10:46</u>
(E) Second Initial Flow <u>18</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>12:40</u>
(F) Second Final Flow <u>21</u>	<input checked="" type="checkbox"/> Mileage <u>100 RT</u> <u>155</u>	Comments _____
(G) Final Shut-In <u>655</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1957</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____

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

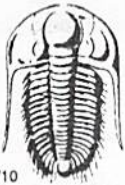
Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Sub Total 1730

Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1730  
 MP/DST Disc't \_\_\_\_\_

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 55971

Well Name & No. CFT # 1-23 Test No. 3 Date 2/23/14  
 Company Martin Drilling Co. Inc. Elevation 3272 KB 3267 GL  
 Address 250 N. Water STE 300 Wichita KS 67206  
 Co. Rep / Geo. Rocky Milford Rig Martin # 8  
 Location: Sec. 23 Twp. 2S Rge. 36W Co. Rawlins State KS

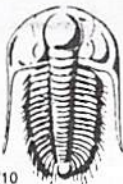
Interval Tested 4140-4219 Zone Tested Leavenworth - LKC "A"  
 Anchor Length 79' Drill Pipe Run 3943' Mud Wt. 8.9  
 Top Packer Depth 4135 Drill Collars Run 186' Vis 67  
 Bottom Packer Depth 4140 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4219 Chlorides 600 ppm System LCM 4  
 Blow Description IF - 1" blow built to Bob @ 20 mins (in diesel)  
ISI - No return  
FF - Surface blow built to Bob @ 24 mins  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>20'</u>	<u>Mud</u>			<u>100</u>	
<u>126'</u>	<u>WCM</u>			<u>25</u>	<u>75</u>
<u>309'</u>	<u>MCW</u>			<u>90</u>	<u>10</u>

Rec Total 455 BHT 137° Gravity ✓ API RW .314 @ 46 °F Chlorides 35,000 ppm

(A) Initial Hydrostatic <u>2052</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>23:00</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>00:00</u>
(C) First Final Flow <u>127</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>02:21</u>
(D) Initial Shut-In <u>1206</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>06:21</u>
(E) Second Initial Flow <u>128</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>08:45</u>
(F) Second Final Flow <u>222</u>	<input checked="" type="checkbox"/> Mileage <u>100 RT</u> 155	Comments _____
(G) Final Shut-In <u>1177</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>1984</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1730</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1730</u>	

Approved By \_\_\_\_\_ Our Representative Rocky Milford  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 55972

Well Name & No. CFT # 1-23 Test No. 4 Date 2/24/14  
 Company Murfin Drilling Co. Inc Elevation 3272 KB 3267 GL  
 Address 250 N. Water STE 300 Wichita KS 67206  
 Co. Rep / Geo. Rocky Milford Rig Murfin # 8  
 Location: Sec. 23 Twp. 25 Rge. 36 W Co. Rawlins State KS

Interval Tested 4214 - 4297 Zone Tested LKC "A Sand" - "D prime"  
 Anchor Length 83' Drill Pipe Run 4006' Mud Wt. 9.3  
 Top Packer Depth 4209 Drill Collars Run 186' Vis 55  
 Bottom Packer Depth 4214 Wt. Pipe Run 0' WL 5.6  
 Total Depth 4297 Chlorides 200 ppm System LCM 4

Blow Description IF - 7" blow built to 2" @ 25 mins died back to 1 1/2"  
(in diesel) ISI - No return  
FF - No blow  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
3'	Mud			100	

Rec Total 3' BHT 125° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2102</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>18:30</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>18:53</u>
(C) First Final Flow <u>18</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>21:24</u>
(D) Initial Shut-In <u>47</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>00:24</u>
(E) Second Initial Flow <u>19</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>02:48</u>
(F) Second Final Flow <u>20</u>	<input checked="" type="checkbox"/> Mileage <u>100 RT</u> <u>155</u>	Comments _____
(G) Final Shut-In <u>35</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2007</u>	<input type="checkbox"/> Straddle _____	

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

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1730  
 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. 55973

Well Name & No. CFT # 1-23 Test No. 5 Date 2/25/14  
 Company Martin Drilling Co. Inc. Elevation 3272 KB 3267 GL  
 Address 250 N. Water STE 300 Wichita KS 67206  
 Co. Rep / Geo. Ricky Milford Rig Martin # 3  
 Location: Sec. 23 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4275-4335 Zone Tested LKC "G"  
 Anchor Length 60' Drill Pipe Run 4068' Mud Wt. 9.4  
 Top Packer Depth 4270 Drill Collars Run 186' Vis 62  
 Bottom Packer Depth 4275 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4335 Chlorides 700 ppm System LCM 2  
 Blow Description IF - 1/4" blow built to 1 3/4" (in diesel)  
ISI - No return  
FF - No blow  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
3'	OCM	30		70	

Rec Total 3' BHT 123° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2147</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>11:30</u>
(B) First Initial Flow <u>15</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>11:58</u>
(C) First Final Flow <u>17</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>14:16</u>
(D) Initial Shut-In <u>148</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>17:16</u>
(E) Second Initial Flow <u>18</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>19:31</u>
(F) Second Final Flow <u>19</u>	<input checked="" type="checkbox"/> Mileage <u>100 RT</u> <u>155</u>	Comments
(G) Final Shut-In <u>112</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2025</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1730</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1730</u>	

Approved By \_\_\_\_\_ Our Representative Ricky Milford

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. 55974

Well Name & No. OCFT # 1-23 Test No. 06 Date 2/26/14  
 Company Martin Drilling Co. Inc. Elevation 3272 KB 3267 GL  
 Address 250 N. Water STE 300 Wichita KS 67206  
 Co. Rep / Geo. Rocky Milford Rig Martin #8  
 Location: Sec. 33 Twp. 25 Rge. 36W Co. Rawlins State KS

Interval Tested 4330 - 4418 Zone Tested LKC @ "G" - J"  
 Anchor Length 88' Drill Pipe Run 4132' Mud Wt. 9.1  
 Top Packer Depth 4325 Drill Collars Run 186' Vis 47  
 Bottom Packer Depth 4330 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4418 Chlorides 1000 ppm System LCM 2  
 Blow Description IF - 3/4" blow built to 5" (in diesel)  
ISI - No return  
FF - Surface blow built to 6"  
ISI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>208'</u>	<u>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 208' BHT 132° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2198</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>07:00</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>07:30</u>
(C) First Final Flow <u>58</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>10:26</u>
(D) Initial Shut-In <u>1030</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>14:26</u>
(E) Second Initial Flow <u>62</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>16:37</u>
(F) Second Final Flow <u>113</u>	<input checked="" type="checkbox"/> Mileage <u>100 RT</u> 155	Comments _____
(G) Final Shut-In <u>1013</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2157</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	Total <u>1730</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1730</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. **55975**

Well Name & No. ~~000~~ CFT # 1-23 Test No. 7 Date 2/27/14  
 Company Martin Drilling Co. Inc. Elevation 3272 KB 3267 GL  
 Address 250 N. Water STE 300 Wichita KS 67206  
 Co. Rep / Geo. Rocky Milford Rig Martin # 8  
 Location: Sec. 23 Twp. 25 Rge. 36W Co. Rawlins State KS

Interval Tested 4564 - 4645 Zone Tested Pawnee  
 Anchor Length 81' Drill Pipe Run 4383' Mud Wt. 9.4  
 Top Packer Depth 4559 Drill Collars Run 186' Vis 75  
 Bottom Packer Depth 4564 Wt. Pipe Run 0' WL 5.6  
 Total Depth 4645 Chlorides 800 ppm System LCM 2  
 Blow Description IF - 1/2" blow built to 1 1/4"  
ISI - No return  
FF - No blow  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>1'</u>	<u>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 1' BHT 130° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2336</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>15:30</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>16:03</u>
(C) First Final Flow <u>19</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>18:55</u>
(D) Initial Shut-In <u>53</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>21:55</u>
(E) Second Initial Flow <u>19</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>00:39</u>
(F) Second Final Flow <u>21</u>	<input checked="" type="checkbox"/> Mileage <u>100 RT 155</u>	Comments _____
(G) Final Shut-In <u>33</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2340</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1980</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1980</u>	

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

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# Robert L. Milford

PETROLEUM GEOLOGIST  
Wichita, Kansas

## GEOLOGISTS' REPORT

DRILLING TIME AND SAMPLE LOGS

OPERATOR  
Murfin Drilling Company, Inc.

LEASE  
CFT #1-23

LOC. SPOT  
165 W of C N2 N2 SE

LOC. FOOTAGE  
2,310' FSL 1,485' FEL

SEC  
23 TWP# 25 RNG 36W

COUNTY  
Rawlins STATE  
Kansas

APR  
15-153-20996-00-00

CONTRACTOR  
Murfin Drilling Co., Inc.

DRILLING STARTED  
2-18-2014 COMPLETED  
2-28-2014

DRILLING DATED  
3368' MUD TYPE  
GUMMAY

DRILLING TIME FROM  
3:53 TO  
R/D

STAMPED EXAMINED FROM  
3:53 TO  
R/D

STAMPED EXAMINED FROM  
3:53 TO  
R/D

STAMPED EXAMINED FROM  
3:53 TO  
R/D

ELEVATIONS  
KB 3,272'  
GL 3,267'

FORMATION NAME	LOG	DATUM	TOP	DATUM
Stone Corral	3130'	+42'	3,130'	+42'
Neva	3637'	-365'	3,638'	-365'
Opreda	3987'	-715'	3,986'	-714'
Oread	4103'	-831'	4,102'	-830'
Lansing	4469'	-1197'	4,200'	-928'
B/KC	4668'	-1324'	4,467'	-1195'
Cherokee	4996'	-1396'	4,594'	-1322'
Mississippi	4870'	-1598'	4,666'	-1394'
Total Depth	4,963'	-1691'	4,960'	-1688'

DATE	7:00 AM DEPTH	REMARKS
2-18-14	0'	Spud @ 1:00 pm. Plug down @ 11:45 pm. Dev: 1' @ 308'
2-19-14	308'	Cut 308' in last 24 hrs. Drilled out plug @ 7:45 am w/ PDC bit
2-20-14	2,860'	Cut 2,552' in last 24 hrs; 21.5 hrs drlg. Bit trip @ 3518' (ran button bit)
2-21-14	3,570'	Cut 710' in last 24 hrs; 13.5 hrs drlg. DST #1 @ 4015'
2-22-14	4,015'	Cut 445' in last 24 hrs; 18.75 hrs drlg. DST #2 @ 4124'
2-23-14	4,124'	Cut 109' in last 24 hrs; 4.75 hrs drlg. DST #3 @ 4219'
2-24-14	4,219'	Cut 95' in last 24 hrs; 4 hrs drlg. DST #4 @ 4297'
2-25-14	4,305'	Cut 86' in last 24 hrs; 4 hrs drlg. DST #5 @ 4335', DST#6 @ 4418'
2-26-14	4,418'	Cut 113' in last 24 hrs; 6 hrs drlg.
2-27-14	4,575'	Cut 157' in last 24 hrs; 9.25 hrs drlg. DST #7 @ 4645'
2-28-14	4,695'	Cut 120' in last 24 hrs; 6.5 hrs drlg. R/D 4960' @ 6:14 pm
3-1-14	4,960'	Cut 265' in last 24 hrs; 10.25 hrs drlg. P&A

Remarks

The electric log measurements correlate from 1' higher to 2' lower to the drilling measurements.

Formation tops and lithology on this report have been connected to the electric log.

The drilling samples were deposited at the Kansas Geological Survey office in Wichita.

Respectfully submitted,

Robert L. Milford



LITH	DRILL TIME (MIN/FT)	DEPTH	SAMPLE DESCRIPTIONS	REMARKS
		3100		Stone Corral 3130' (+142) EL
		3150		B/Stone Corral 3168' (+104) EL
		3200		
		3500		Call depth 3230' @ 2:02 pm on 2-20-14 Mud displaced from 3368' to 3400' Bit trip at 3518'. Replaced PDC bit with button bit. Down 3 hrs for rig repair. Pipe Strap @ 3518': Strap short 0.10' Straight Hole Survey @ 3518': 1" Dev. Samples start 3530' @ 5:33 am on 2-21-14
		3550	Sdy Sh: red-brn, some soft & gummy, w/ some Sd: lt gry, fn-vry fn grain, sli calc, semi fri-brittle, pr vis por, NS	
		3600	Sdy Sh: A.A. w/ incrs amt of soft & gummy, and dcrs amt of Sd: A.A., pr vis por, NS	Morgan Mud check @ 3615': 73 Vis, 8.6 Wt, 5.6 WL, 500 ppm Chl, 2# LCM
		3650	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry-lt grn, fn-vry fn grain, some sli shly, sli calc, soft-semi brittle, pr vis por, NS	
		3700	Sdy Sh: A.A. w/ tr Sd: A.A., pr vis por, NS	Red Eagle 3702' (-430) EL
		3750	Sdy Sh: red-brn, soft & gummy in prt, w/ tr Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Foraker 3757' (-485) EL
		3800	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	
		3850	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	
		3900	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Stotler 3912' (-640) EL
		3950	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	
		4000	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Topeka 3987' (-715) EL DST #1 3974'-4015' Topeka IF: blow built to 1" FF: no blow Rec: 5' Mud ISIP: 983#/60' IFP: 16-18#/30' FSIP: 438#/60' NFP: 18-21#/30' FSIP: 658#/60'
		4050	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Ran 20 stand short trip prior to DST #1 Morgan Mud check @ 4011': 65 Vis, 9.0 Wt, 6.4 WL, 500 ppm Chl, 2# LCM
		4100	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Caught sample @ 4066'. No Circ. sample
		4150	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Oread 4103' (-831) EL DST #2 4058'-4124' Oread IF: blow built to 1.25" FF: no blow Rec: 5' Mud ISIP: 983#/60' IFP: 13-18#/30' FSIP: 438#/60' NFP: 18-21#/30' FSIP: 658#/60'
		4200	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Morgan Mud check @ 4124': 51 Vis, 9.0 Wt, 6.4 WL, 500 ppm Chl, 2# LCM
		4250	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Heebner 4150' (-878) EL DST #3 4140'-4219' Heebner IF: blow built to 2" FF: no blow back Rec: 5' Mud ISIP: 1000% M) 20' Mud (100% M) 126' WGM (25% W, 75% M) 309' MCW (90% W, 10% M) Chl ppm: 35,000 DST: 600 Mud IFP: 20-127#/30' ISIP: 1206#/60' IFP: 128-222#/60' FSIP: 1177#/90'
		4300	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Lansing 4200' (-928) EL Morgan Mud check @ 4219': 55 Vis, 9.4 Wt, 5.6 WL, 600 ppm Chl, 2# LCM
		4350	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	
		4400	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	
		4450	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	DST #4 4214'-4297' L/KC A sd - D' IF: blow built to 1.75" FF: no blow Rec: 3' Mud ISIP: 538#/60' IFP: 19-20#/30' FSIP: 358#/60'
		4500	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	
		4550	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	DST #5 4275'-4335' L/KC G' zn IF: blow built to 1.75" FF: no blow Rec: 3' OCM (30% O, 70% M) IFP: 15-17#/30' ISIP: 148#/60' IFP: 18-19#/30' FSIP: 112#/60'
		4600	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Morgan Mud check @ 4335': 62 Vis, 9.4 Wt, 5.6 WL, 700 ppm Chl, 2# LCM
		4650	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Pawnee 4596' (-1324) EL DST #7 4564'-4645' Pawnee IF: blow built to 1.25" FF: no blow Rec: 1' Mud ISIP: 538#/60' IFP: 19-21#/30' FSIP: 338#/60'
		4700	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Ran 5 stand short trip prior to DST #7
		4750	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Cherokee 4668' (-1396) EL
		4800	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	
		4850	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Morgan Mud check @ 4719': 84 Vis, 9.2 Wt, 6.0 WL, 1,000 ppm Chl, 2# LCM
		4900	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	
		4950	Sdy Sh: red-brn, soft & gummy in prt, w/ some Sd: lt gry, fn-vry fn grain, sli calc, soft-semi brittle, pr vis por, NS	Ran 10 stand short trip @ 4960' after CFS
				R.T.D. 4960' (-1688) L.T.D. 4963' (-1691) Straight Hole Survey @ 4960': 1" Dev.