



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1209061  
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: \_\_\_\_\_

1209061

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> _____ <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	STEC 1-23
Doc ID	1209061

All Electric Logs Run

Dual Induction
Dual Compensated
Microresistivity
Borehole Compensated





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS. 67202

ATTN: Steve Miller

### **Stec #1-23**

#### **23 1s 37w Cheyenne KS**

Start Date: 2014.04.10 @ 15:40:00

End Date: 2014.04.11 @ 00:48:30

Job Ticket #: 55985                      DST #: 1

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

Printed: 2014.04.16 @ 10:08:22



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water STE 300  
 Wichita KS. 67202  
 ATTN: Steve Miller

**23 1s 37w Cheyenne KS**

**Stec #1-23**

Job Ticket: 55985      **DST#: 1**  
 Test Start: 2014.04.10 @ 15:40:00

## GENERAL INFORMATION:

Formation: **Oread**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:08:45  
 Time Test Ended: 00:48:30  
 Interval: **4026.00 ft (KB) To 4074.00 ft (KB) (TVD)**  
 Total Depth: 4074.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Robert Zodrow  
 Unit No: 54  
 Reference Elevations: 3174.00 ft (KB)  
 3163.00 ft (CF)  
 KB to GR/CF: 11.00 ft

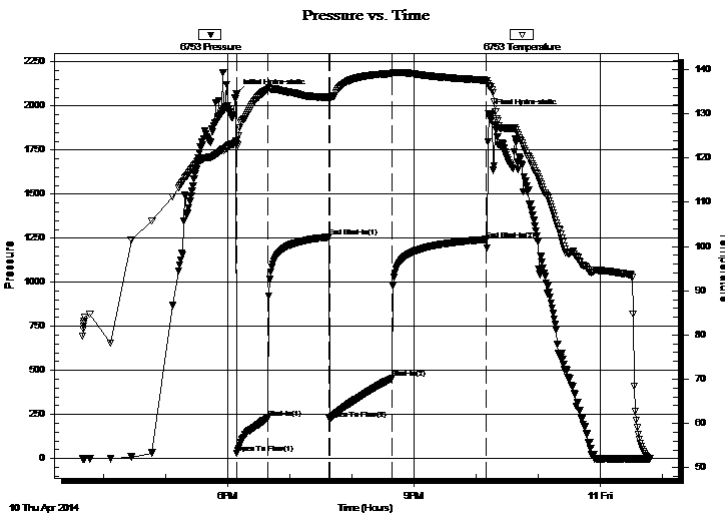
## Serial #: 6753

Inside

Press@RunDepth: 455.42 psig @ 4027.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2014.04.10      End Date: 2014.04.11      Last Calib.: 2014.04.11  
 Start Time: 15:40:05      End Time: 00:48:30      Time On Btm: 2014.04.10 @ 18:08:30  
 Time Off Btm: 2014.04.10 @ 22:12:30

TEST COMMENT: 30-IF- Bob In 9 Mins  
 60-ISI- No Return  
 60-FF- Bob In 11 Mins  
 90-FSI- No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2068.40	123.85	Initial Hydro-static
1	29.69	123.13	Open To Flow (1)
31	231.01	135.52	Shut-In(1)
90	1257.00	133.71	End Shut-In(1)
90	225.65	133.14	Open To Flow (2)
151	455.42	139.09	Shut-In(2)
242	1243.03	137.56	End Shut-In(2)
244	1958.60	136.26	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
675.00	m w 20% m 80% w	8.13
278.00	w m 30% w 70% m	4.07

## Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55985

**DST#: 1**

ATTN: Steve Miller

Test Start: 2014.04.10 @ 15:40:00

## GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:08:45

Time Test Ended: 00:48:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Robert Zodrow

Unit No: 54

**Interval: 4026.00 ft (KB) To 4074.00 ft (KB) (TVD)**

Total Depth: 4074.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3174.00 ft (KB)

3163.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8368**

**Inside**

Press@RunDepth: psig @ 4027.00 ft (KB)

Start Date: 2014.04.10

End Date:

2014.04.11

Capacity: 8000.00 psig

Last Calib.:

2014.04.11

Start Time: 15:40:05

End Time:

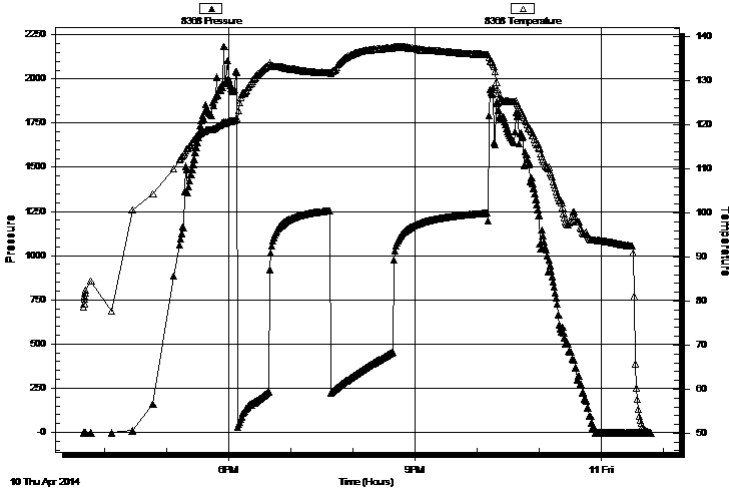
00:48:30

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30-IF- Bob In 9 Mins  
60-ISI- No Return  
60-FF- Bob In 11 Mins  
90-FSI- No Return

Pressure vs. Time



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
675.00	mw 20%w 80%w	8.13
278.00	w m 30%w 70%m	4.07

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55985

**DST#: 1**

ATTN: Steve Miller

Test Start: 2014.04.10 @ 15:40:00

## Tool Information

Drill Pipe:	Length: 3826.00 ft	Diameter: 3.88 inches	Volume: 55.95 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: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 84000.00 lb
			<u>Total Volume: 56.83 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4026.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	48.00 ft			
Tool Length:	75.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4004.00	
Hydraulic tool	5.00			4009.00	
Jars	5.00			4014.00	
Safety Joint	3.00			4017.00	
Packer	4.00			4021.00	27.00 Bottom Of Top Packer
Packer	5.00			4026.00	
Stubb	1.00			4027.00	
Recorder	0.00	8368	Inside	4027.00	
Recorder	0.00	6753	Inside	4027.00	
Perforations	10.00			4037.00	
Change Over Sub	1.00			4038.00	
Drill Pipe	31.00			4069.00	
Change Over Sub	1.00			4070.00	
Bullnose	4.00			4074.00	48.00 Bottom Packers & Anchor

**Total Tool Length: 75.00**





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55985

**DST#: 1**

ATTN: Steve Miller

Test Start: 2014.04.10 @ 15:40:00

## 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:

65000 ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 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
675.00	mw 20%m 80%w	8.134
278.00	w m 30%w 70%m	4.066

Total Length: 953.00 ft      Total Volume: 12.200 bbl

Num Fluid Samples: 0

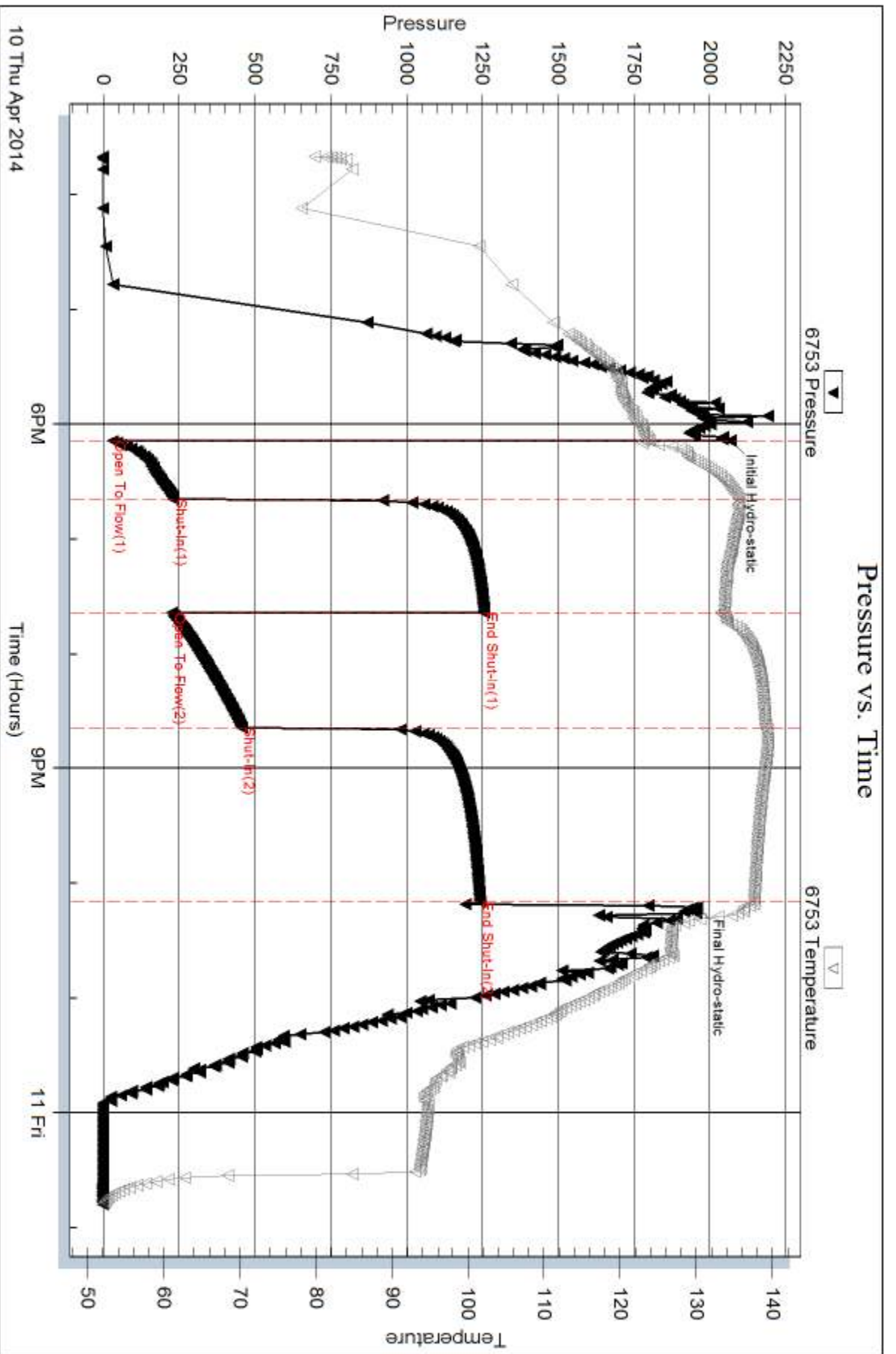
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .175@54deg F= 65000



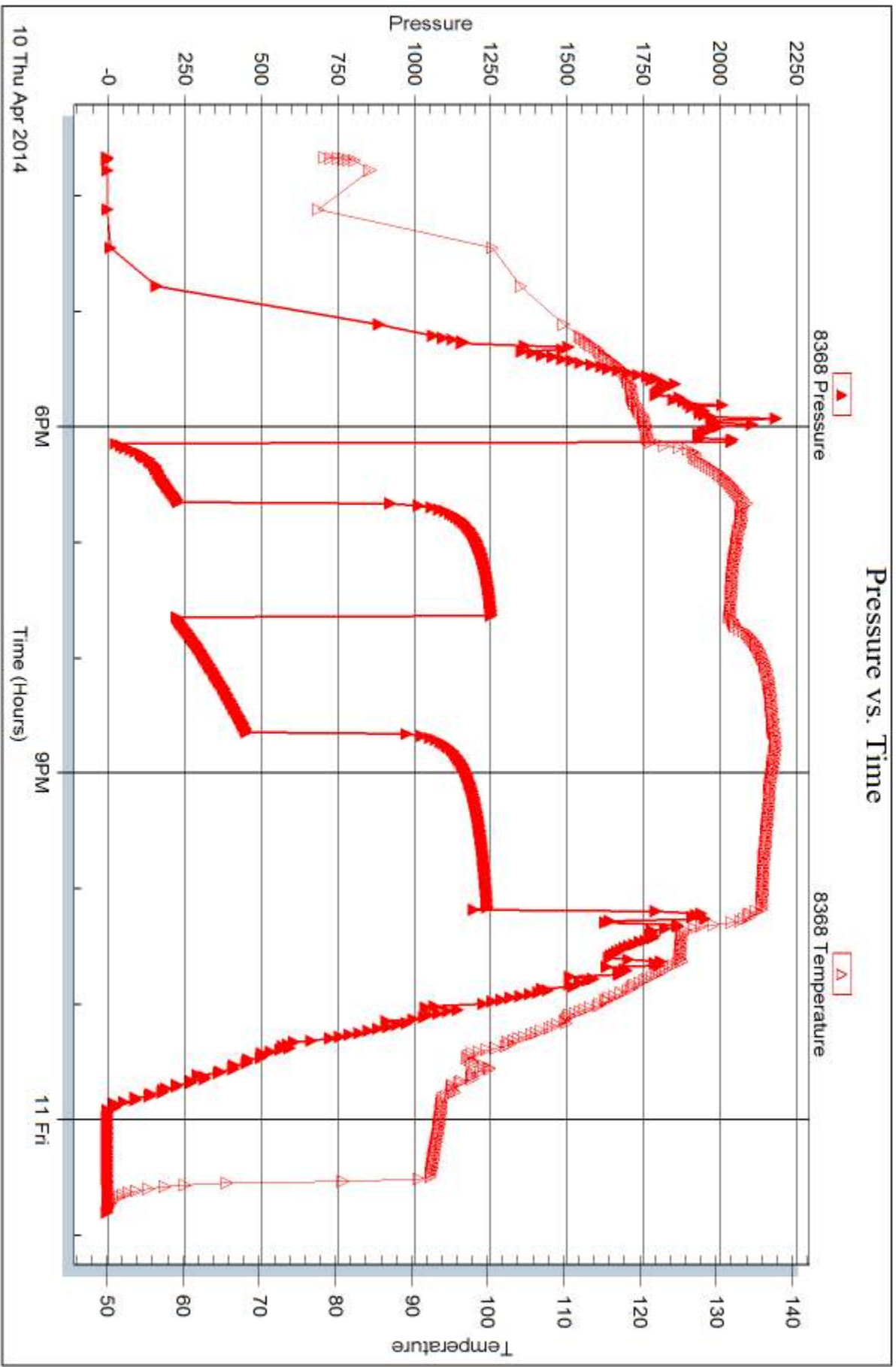
Serial #: 8368

Inside

Murfin Drilling Co

Sec #1-23

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 55985

Printed: 2014.04.16 @ 10:08:24



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS. 67202

ATTN: Steve Miller

### **Stec #1-23**

#### **23 1s 37w Cheyenne KS**

Start Date: 2014.04.11 @ 17:00:00

End Date: 2014.04.12 @ 00:00:00

Job Ticket #: 55207                      DST #: 2

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

Printed: 2014.04.16 @ 10:07:29



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS. 67202  
ATTN: Steve Miller

**23 1s 37w Cheyenne KS**

**Stec #1-23**

Job Ticket: 55207

**DST#: 2**

Test Start: 2014.04.11 @ 17:00:00

## GENERAL INFORMATION:

Formation: **LKC 'D'**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:42:30  
 Time Test Ended: 00:00:00  
 Interval: **4154.00 ft (KB) To 4206.00 ft (KB) (TVD)**  
 Total Depth: 4206.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Royal Fisher  
 Unit No: #54  
 Reference Elevations: 3174.00 ft (KB)  
 3163.00 ft (CF)  
 KB to GR/CF: 11.00 ft

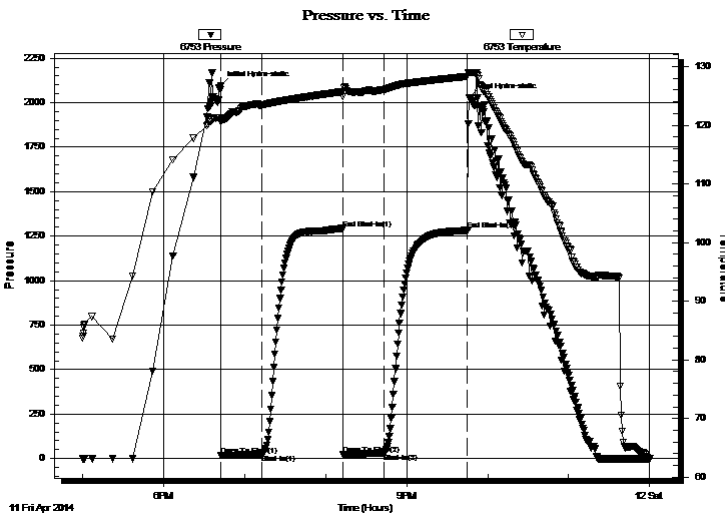
## Serial #: 6753

Inside

Press@RunDepth: 29.42 psig @ 4155.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.11 End Date: 2014.04.11 Last Calib.: 2014.04.12  
 Start Time: 17:00:05 End Time: 23:59:59 Time On Btm: 2014.04.11 @ 18:42:15  
 Time Off Btm: 2014.04.11 @ 21:46:30

TEST COMMENT: 30 - IF - Surface blow started around 3 mins. in and stayed at a weak surface  
 60 - ISI - No Return  
 30 - FF - No Surface blow  
 60 - FSI - No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2093.93	121.23	Initial Hydro-static
1	16.97	120.52	Open To Flow (1)
31	22.74	123.36	Shut-In(1)
91	1293.59	125.72	End Shut-In(1)
91	24.91	124.86	Open To Flow (2)
122	29.42	126.07	Shut-In(2)
183	1282.95	128.31	End Shut-In(2)
185	2028.02	129.00	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
6.00	OSM - 100M - Oil Spots	0.03

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS. 67202  
ATTN: Steve Miller

**23 1s 37w Cheyenne KS**

**Stec #1-23**

Job Ticket: 55207

**DST#: 2**

Test Start: 2014.04.11 @ 17:00:00

## GENERAL INFORMATION:

Formation: **LKC 'D'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:42:30

Time Test Ended: 00:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: #54

**Interval: 4154.00 ft (KB) To 4206.00 ft (KB) (TVD)**

Reference Elevations: 3174.00 ft (KB)

Total Depth: 4206.00 ft (KB) (TVD)

3163.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8368**

**Inside**

Press@RunDepth: psig @ 4155.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.11

End Date:

2014.04.11

Last Calib.:

2014.04.12

Start Time: 17:00:05

End Time:

23:59:44

Time On Btm:

Time Off Btm:

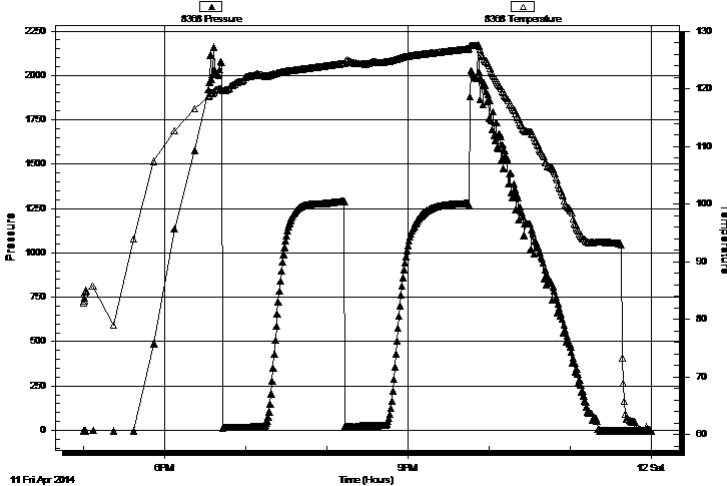
**TEST COMMENT:** 30 - IF - Surface blow started around 3 mins. in and stayed at a weak surface

60 - ISI - No Return

30 - FF - No Surface blow

60 - FSI - No Return

Pressure vs. Time



## PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
6.00	OSM - 100M - Oil Spots	0.03

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55207

**DST#: 2**

ATTN: Steve Miller

Test Start: 2014.04.11 @ 17:00:00

## Tool Information

Drill Pipe:	Length: 3949.40 ft	Diameter: 3.80 inches	Volume: 55.40 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: 182.60 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose:	71000.00 lb
			<u>Total Volume: 56.30 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	68000.00 lb
Depth to Top Packer:	4154.00 ft			Final	68000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	52.00 ft				
Tool Length:	79.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4132.00	
Hydraulic tool	5.00			4137.00	
Jars	5.00			4142.00	
Safety Joint	3.00			4145.00	
Packer	4.00			4149.00	27.00 Bottom Of Top Packer
Packer	5.00			4154.00	
Stubb	1.00			4155.00	
Recorder	0.00	8368	Inside	4155.00	
Recorder	0.00	6753	Inside	4155.00	
Perforations	14.00			4169.00	
Change Over Sub	1.00			4170.00	
Drill Pipe	31.00			4201.00	
Change Over Sub	1.00			4202.00	
Bullnose	4.00			4206.00	52.00 Bottom Packers & Anchor

**Total Tool Length: 79.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55207

**DST#: 2**

ATTN: Steve Miller

Test Start: 2014.04.11 @ 17:00:00

## 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:

ppm

Viscosity: 75.00 sec/qt

Cushion Volume:

bbl

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

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
6.00	OSM - 100M - Oil Spots	0.030

Total Length: 6.00 ft      Total Volume: 0.030 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

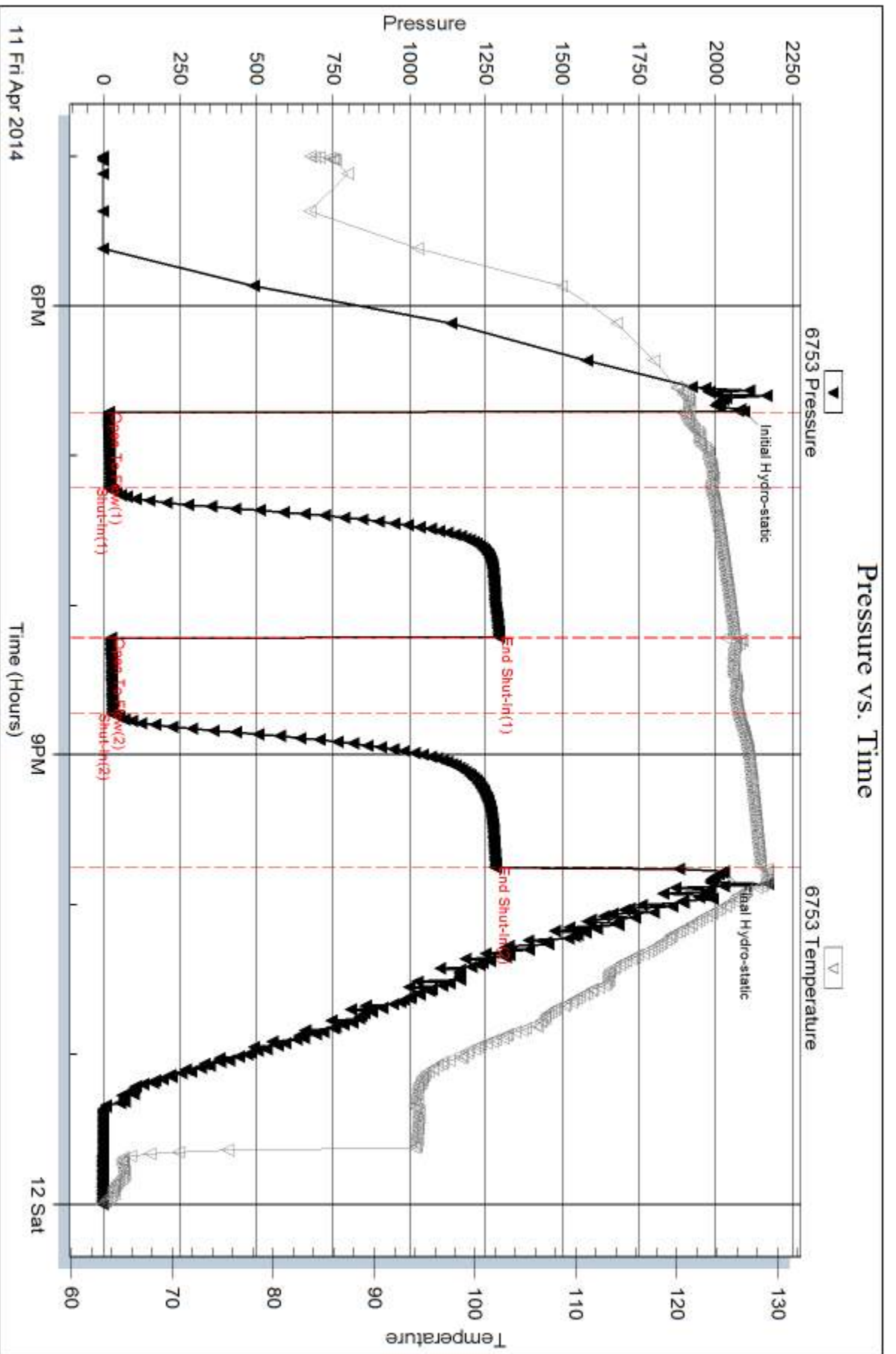
Serial #:

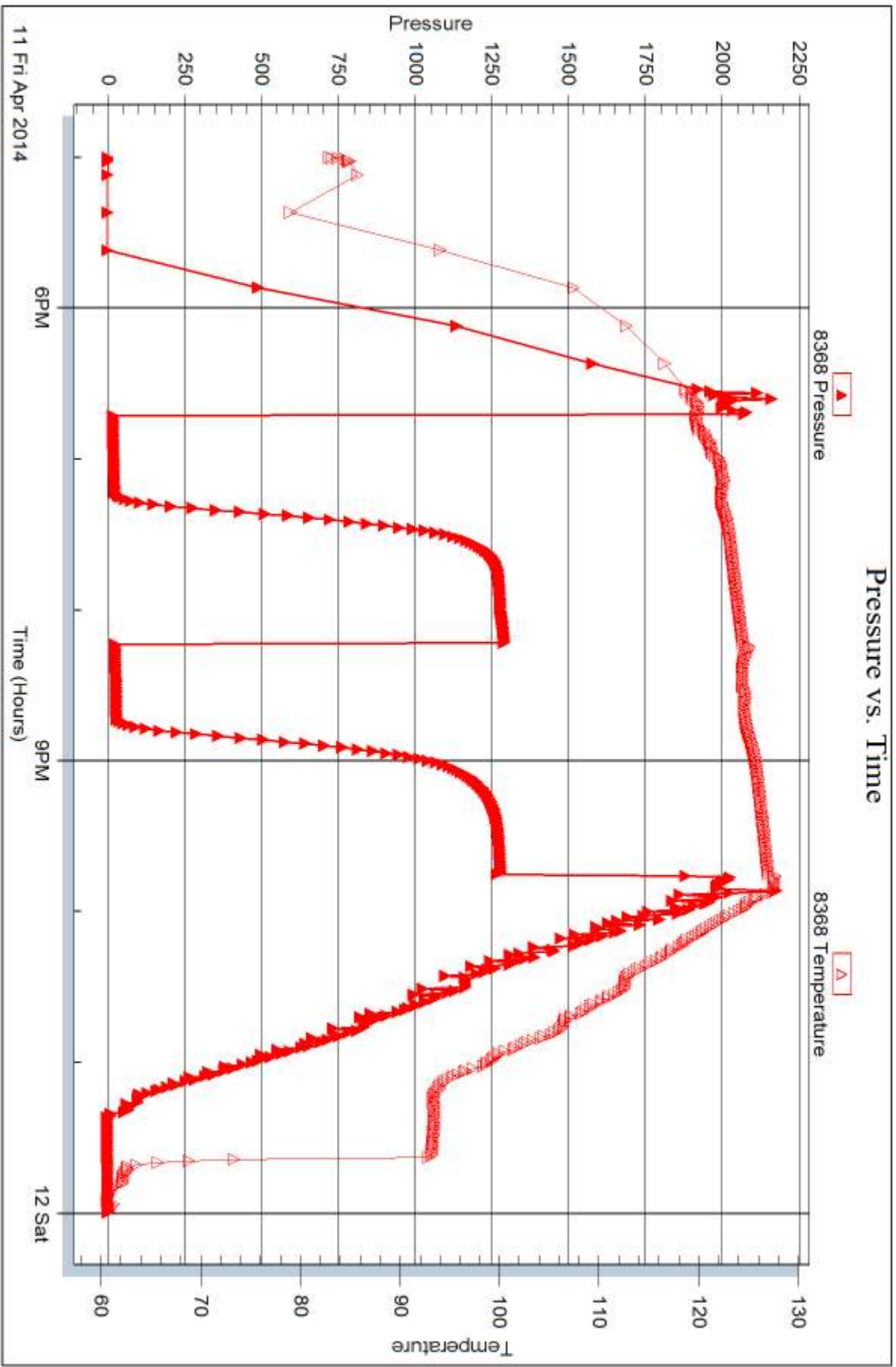
Laboratory Name:

Laboratory Location:

Recovery Comments:









## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS. 67202

ATTN: Steve Miller

### **Stec #1-23**

#### **23 1s 37w Cheyenne KS**

Start Date: 2014.04.12 @ 11:18:00

End Date: 2014.04.12 @ 18:18:00

Job Ticket #: 55208                      DST #: 3

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

Printed: 2014.04.16 @ 10:06:45

Murfin Drilling Co  
23 1s 37w Cheyenne KS  
Stec #1-23  
DST # 3  
LKC G  
2014.04.12



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water STE 300  
 Wichita KS. 67202  
 ATTN: Steve Miller

**23 1s 37w Cheyenne KS**

**Stec #1-23**

Job Ticket: 55208

**DST#: 3**

Test Start: 2014.04.12 @ 11:18:00

## GENERAL INFORMATION:

Formation: **LKC G**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 13:13:30  
 Time Test Ended: 18:18:00  
 Interval: **4209.00 ft (KB) To 4264.00 ft (KB) (TVD)**  
 Total Depth: 4264.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Royal Fisher  
 Unit No: #54  
 Reference Elevations: 3174.00 ft (KB)  
 3163.00 ft (CF)  
 KB to GR/CF: 11.00 ft

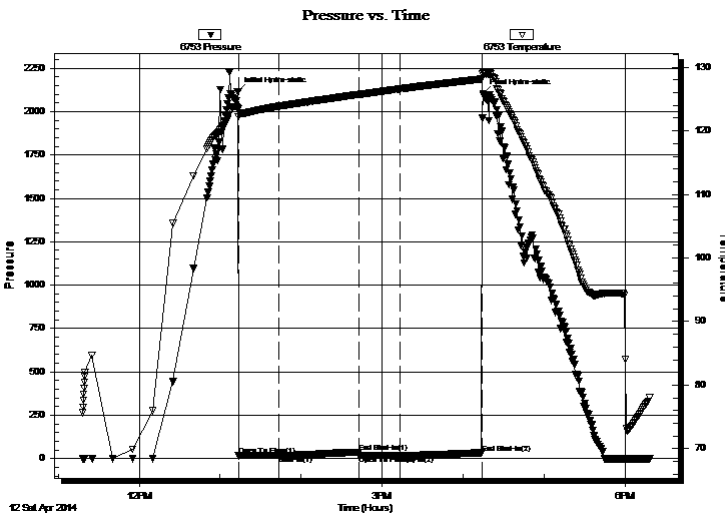
## Serial #: 6753

Inside

Press@RunDepth: 18.79 psig @ 4210.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.12 End Date: 2014.04.12 Last Calib.: 2014.04.12  
 Start Time: 11:18:05 End Time: 18:17:59 Time On Btm: 2014.04.12 @ 13:13:15  
 Time Off Btm: 2014.04.12 @ 16:14:45

TEST COMMENT: 30 - IF - Surface blow stayed at a weak blow  
 60 - ISI - No Return  
 30 - FF - No Surface blow  
 60 - FSI - No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2116.57	123.49	Initial Hydro-static
1	16.51	122.22	Open To Flow (1)
30	17.77	123.84	Shut-In(1)
90	36.86	125.72	End Shut-In(1)
90	18.04	125.71	Open To Flow (2)
120	18.79	126.58	Shut-In(2)
181	33.00	128.14	End Shut-In(2)
182	2102.71	129.18	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	OSM - 100M - Oil spots	0.01

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55208

**DST#: 3**

ATTN: Steve Miller

Test Start: 2014.04.12 @ 11:18:00

### GENERAL INFORMATION:

Formation: **LKC G**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:13:30

Time Test Ended: 18:18:00

**Interval: 4209.00 ft (KB) To 4264.00 ft (KB) (TVD)**

Total Depth: 4264.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: #54

Reference Elevations: 3174.00 ft (KB)

3163.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8368** **Inside**

Press@RunDepth: psig @ 4210.00 ft (KB)

Start Date: 2014.04.12

End Date: 2014.04.12

Start Time: 11:18:05

End Time: 18:17:59

Capacity: 8000.00 psig

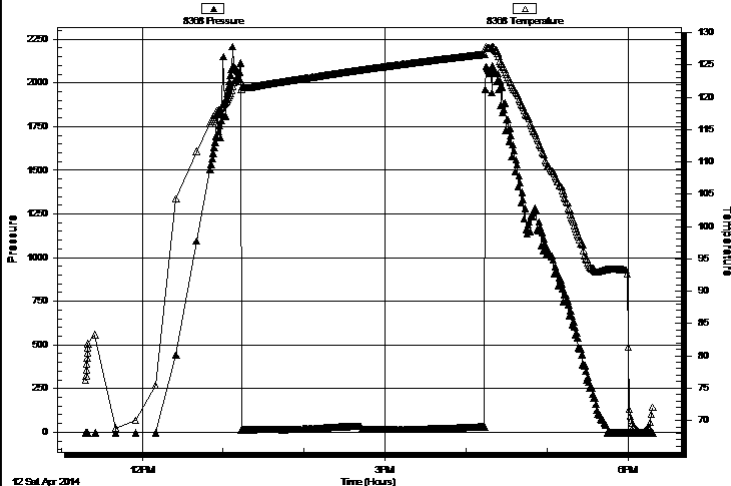
Last Calib.: 2014.04.12

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30 - IF - Surface blow stayed at a weak blow  
60 - ISI - No Return  
30 - FF - No Surface blow  
60 - FSI - No Return

Pressure vs. Time



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
2.00	OSM - 100M - Oil spots	0.01

### Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55208

**DST#: 3**

ATTN: Steve Miller

Test Start: 2014.04.12 @ 11:18:00

## Tool Information

Drill Pipe:	Length: 4011.05 ft	Diameter: 3.80 inches	Volume: 56.26 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: 182.60 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 78000.00 lb
			<u>Total Volume: 57.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	11.65 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4209.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.00 ft			
Tool Length:	82.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4187.00	
Hydraulic tool	5.00			4192.00	
Jars	5.00			4197.00	
Safety Joint	3.00			4200.00	
Packer	4.00			4204.00	27.00 Bottom Of Top Packer
Packer	5.00			4209.00	
Stubb	1.00			4210.00	
Recorder	0.00	8368	Inside	4210.00	
Recorder	0.00	6753	Inside	4210.00	
Perforations	17.00			4227.00	
Change Over Sub	1.00			4228.00	
Drill Pipe	31.00			4259.00	
Change Over Sub	1.00			4260.00	
Bullnose	4.00			4264.00	55.00 Bottom Packers & Anchor

**Total Tool Length: 82.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55208

**DST#: 3**

ATTN: Steve Miller

Test Start: 2014.04.12 @ 11:18:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	OSM - 100M - Oil spots	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

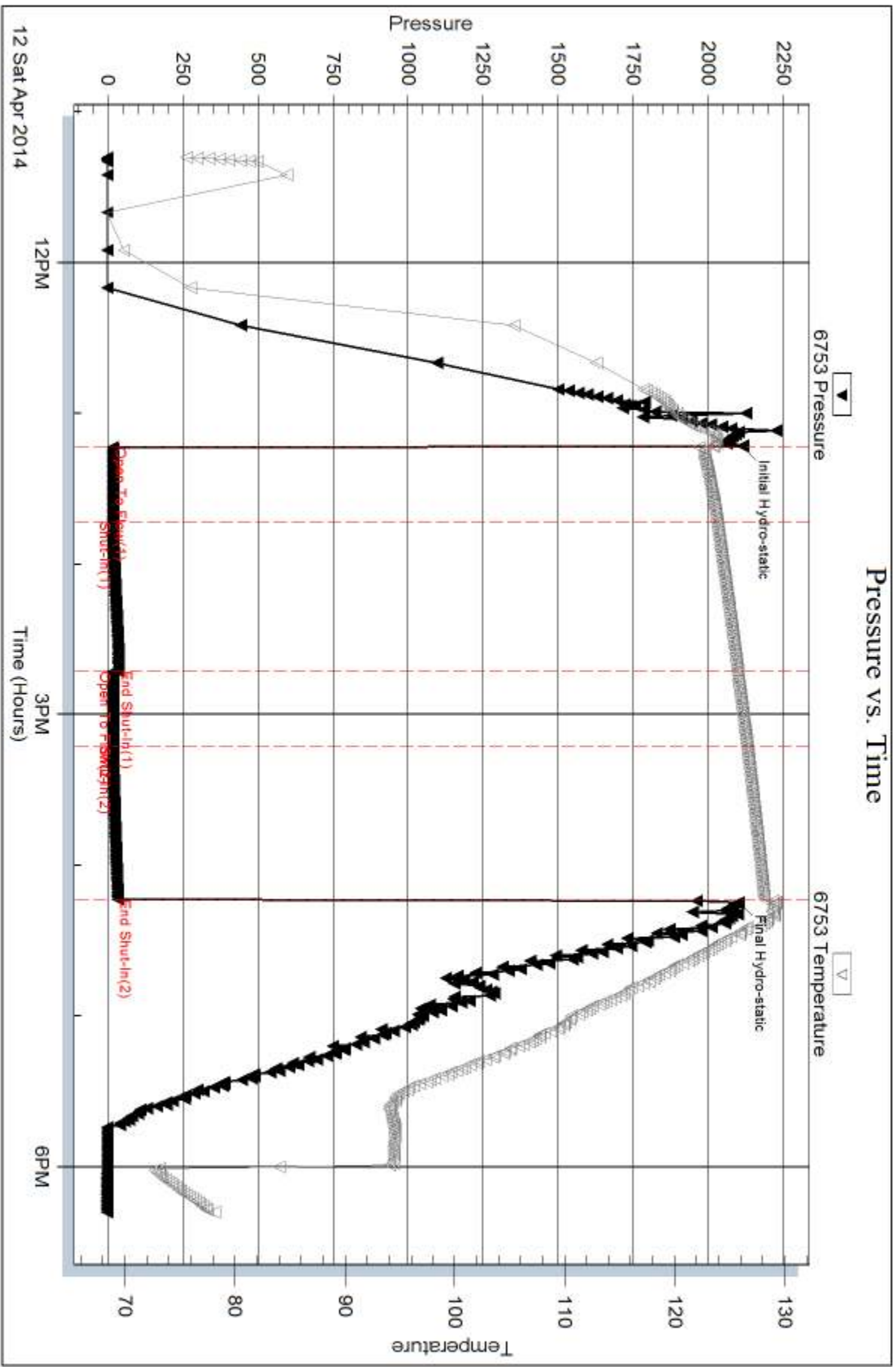
Num Gas Bombs: 0

Serial #:

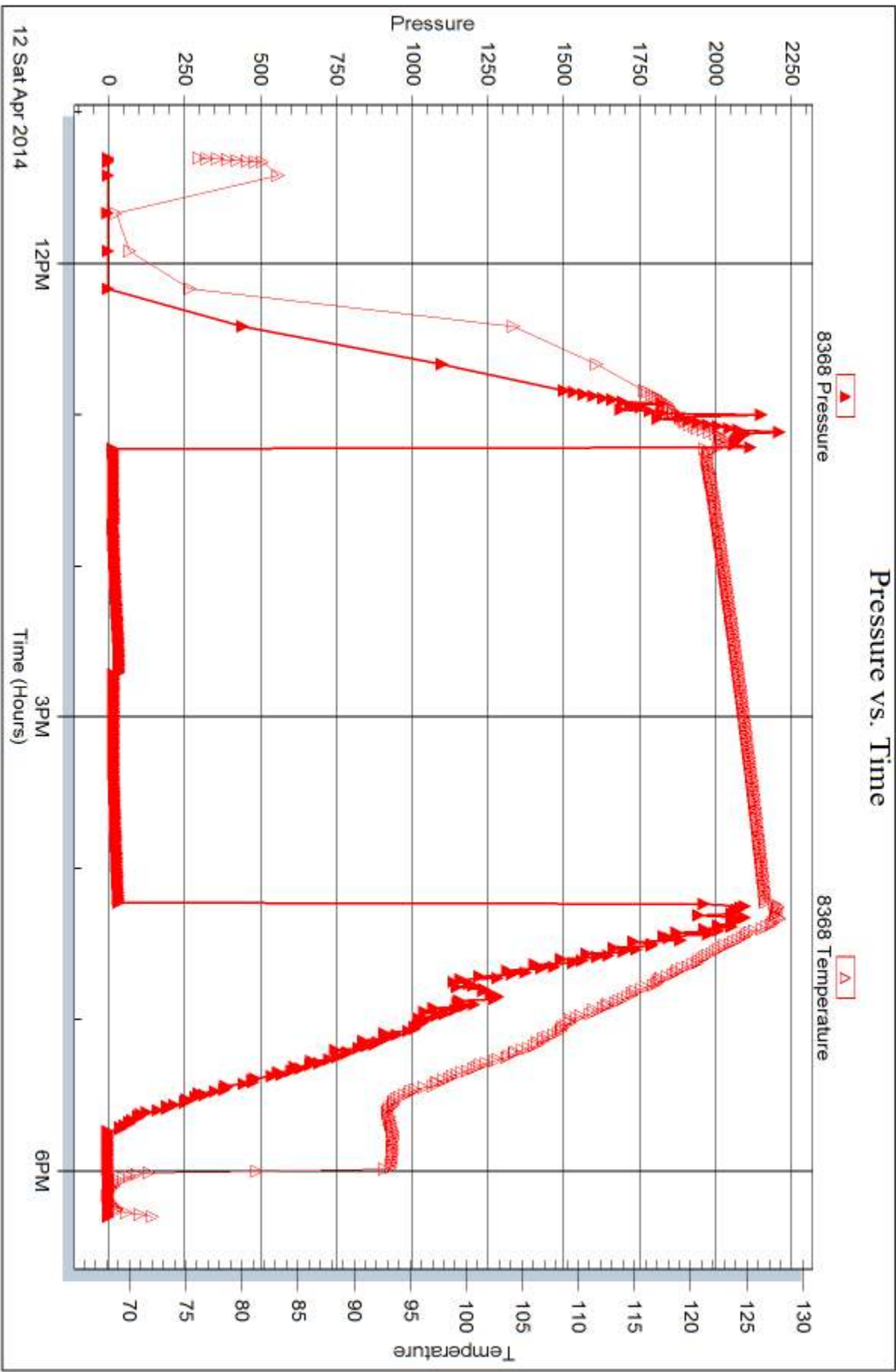
Laboratory Name:

Laboratory Location:

Recovery Comments:









## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS. 67202

ATTN: Steve Miller

### **Stec #1-23**

#### **23 1s 37w Cheyenne KS**

Start Date: 2014.04.13 @ 08:13:00

End Date: 2014.04.13 @ 16:24:15

Job Ticket #: 55209                      DST #: 4

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

Printed: 2014.04.16 @ 10:05:48



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water STE 300  
 Wichita KS. 67202  
 ATTN: Steve Miller

**23 1s 37w Cheyenne KS**

**Stec #1-23**

Job Ticket: 55209

**DST#: 4**

Test Start: 2014.04.13 @ 08:13:00

## GENERAL INFORMATION:

Formation: **LKC 'J'**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:48:00  
 Time Test Ended: 16:24:15  
 Interval: **4262.00 ft (KB) To 4345.00 ft (KB) (TVD)**  
 Total Depth: 4345.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Royal Fisher  
 Unit No: #54  
 Reference Elevations: 3174.00 ft (KB)  
 3163.00 ft (CF)  
 KB to GR/CF: 11.00 ft

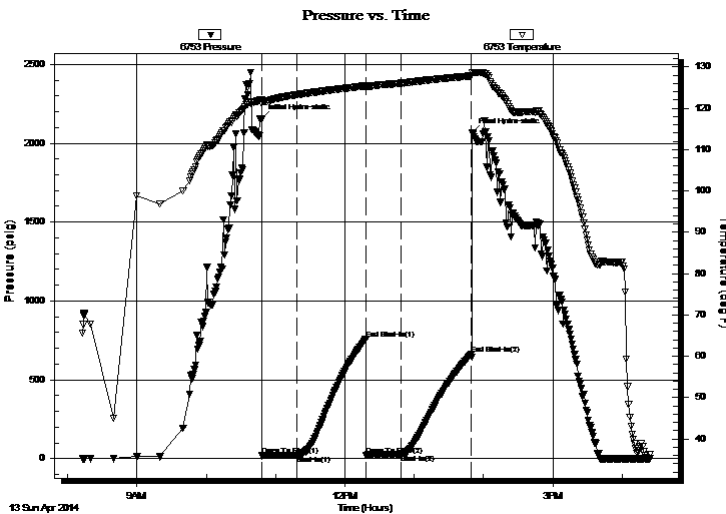
## Serial #: 6753

Inside

Press@RunDepth: 25.61 psig @ 4263.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.13 End Date: 2014.04.13 Last Calib.: 2014.04.13  
 Start Time: 08:13:05 End Time: 16:24:14 Time On Btm: 2014.04.13 @ 10:47:45  
 Time Off Btm: 2014.04.13 @ 13:50:30

TEST COMMENT: 30 - IF - Surface blow built to 1/4" then died to a faint blow  
 60 - ISI - No Return  
 30 - FF - No Surface blow  
 60 - FSI - No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2153.86	122.03	Initial Hydro-static
1	17.90	121.03	Open To Flow (1)
31	20.96	123.23	Shut-In(1)
91	755.97	125.40	End Shut-In(1)
91	22.30	125.03	Open To Flow (2)
121	25.61	126.05	Shut-In(2)
182	661.81	127.82	End Shut-In(2)
183	2065.83	128.54	Final Hydro-static

## Recovery

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

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55209

**DST#: 4**

ATTN: Steve Miller

Test Start: 2014.04.13 @ 08:13:00

## Tool Information

Drill Pipe:	Length: 4073.85 ft	Diameter: 3.80 inches	Volume: 57.15 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: 182.60 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.05 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.45 ft			String Weight: Initial 66000.00 lb
Depth to Top Packer:	4262.00 ft			Final 66000.00 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:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4240.00	
Hydraulic tool	5.00			4245.00	
Jars	5.00			4250.00	
Safety Joint	3.00			4253.00	
Packer	4.00			4257.00	27.00 Bottom Of Top Packer
Packer	5.00			4262.00	
Stubb	1.00			4263.00	
Recorder	0.00	8368	Inside	4263.00	
Recorder	0.00	6753	Inside	4263.00	
Perforations	13.00			4276.00	
Change Over Sub	1.00			4277.00	
Drill Pipe	63.00			4340.00	
Change Over Sub	1.00			4341.00	
Bullnose	4.00			4345.00	83.00 Bottom Packers & Anchor

**Total Tool Length: 110.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co

**23 1s 37w Cheyenne KS**

250 N Water STE 300  
Wichita KS. 67202

**Stec #1-23**

Job Ticket: 55209

**DST#: 4**

ATTN: Steve Miller

Test Start: 2014.04.13 @ 08:13:00

### 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: 95.00 sec/qt

Cushion Volume:

bbf

Water Loss: 6.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbf
3.00	Mud - 100M	0.015

Total Length: 3.00 ft      Total Volume: 0.015 bbf

Num Fluid Samples: 0

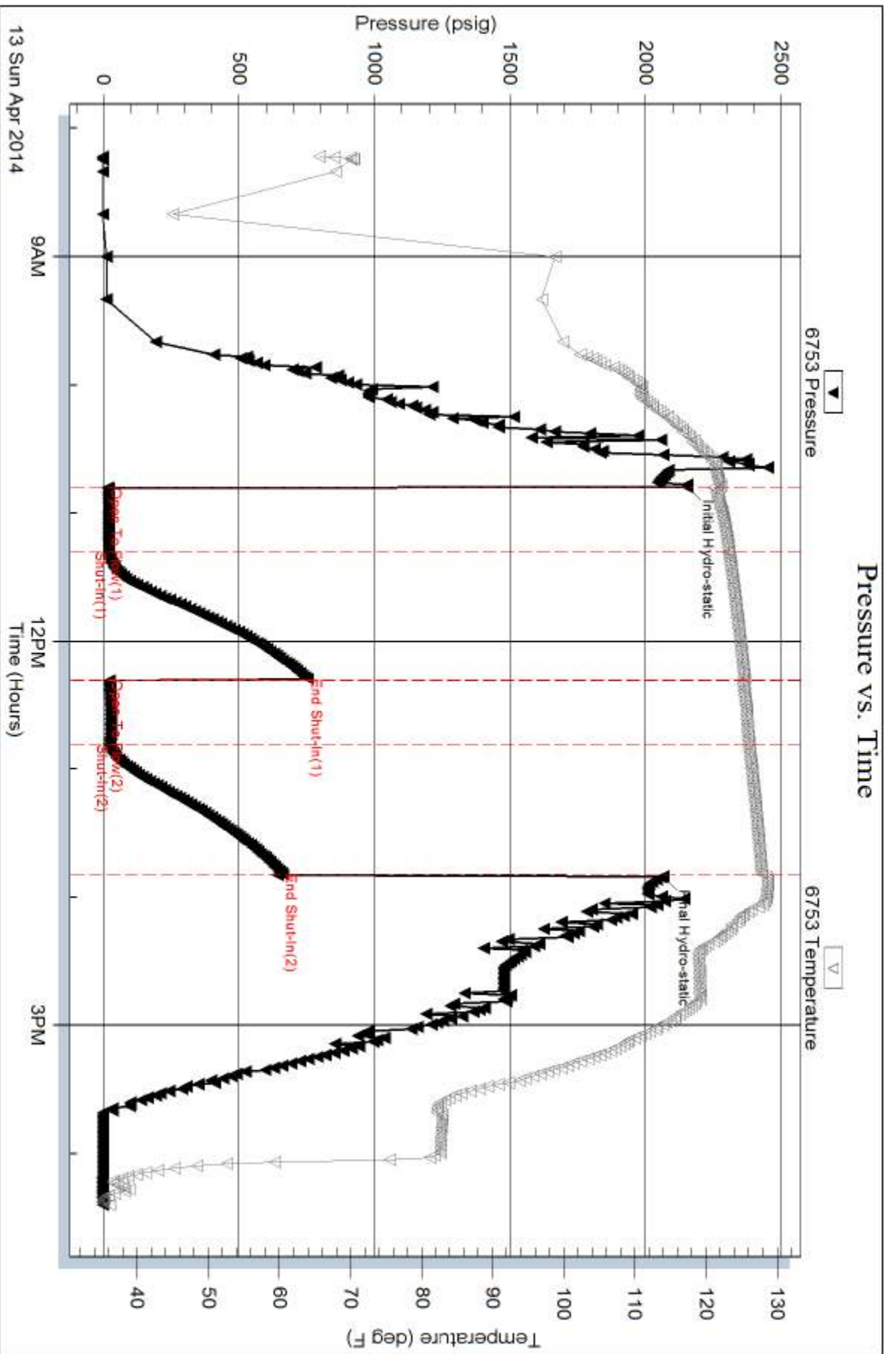
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



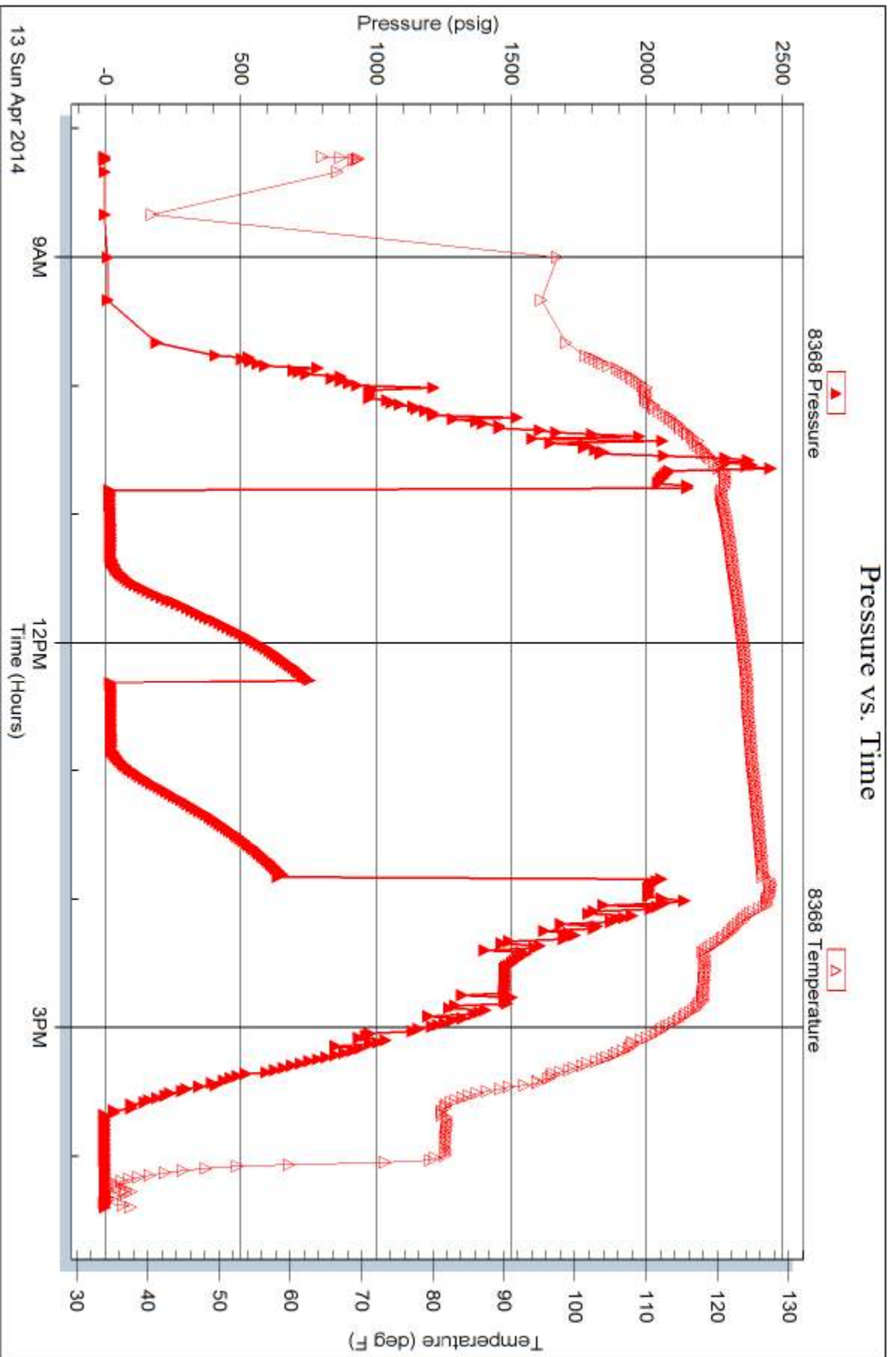
Serial #: 8368

Inside

Murfin Drilling Co

Sec #1-23

DST Test Number: 4

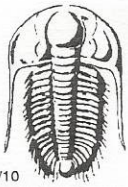


Trilobite Testing, Inc

Ref. No: 55209

Printed: 2014.04.16 @ 10:05:50





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 55985

Well Name & No. STEC #1-23 Test No. 1 Date \_\_\_\_\_  
 Company Murfin Drilling CO. Elevation 3171 KB 316.3 GL \_\_\_\_\_  
 Address 250 N Water STE 300 Wichita KS, 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin #20  
 Location: Sec. 23 Twp. 1 S Rge. 37 W Co. cheyenne State KS

Interval Tested 4026 - 4074 Zone Tested ORead  
 Anchor Length 48 Drill Pipe Run 3826 Mud Wt. 9.3  
 Top Packer Depth 4021 Drill Collars Run 179 Vis 61  
 Bottom Packer Depth 4026 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4074 Chlorides 500 ppm System LCM 8.0

Blow Description IF - Bob In 9mins  
ISE - NO Return  
FF - Bob In 11mins  
FSI - NO Return

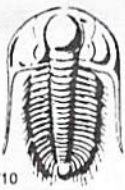
Rec	Feet of	%gas	%oil	%water	%mud
<u>278</u>	<u>wm</u>		<u>30</u>	<u>70</u>	
<u>675</u>	<u>mw</u>		<u>80</u>	<u>20</u>	
Rec _____	Feet of _____	%gas	%oil	%water	%mud
Rec _____	Feet of _____	%gas	%oil	%water	%mud
Rec _____	Feet of _____	%gas	%oil	%water	%mud

Rec Total 953 BHT 138 Gravity \_\_\_\_\_ API RW .125 @ 54 °F Chlorides 65,000 ppm

(A) Initial Hydrostatic <u>2068</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>2:30 PM 4-10</u>
(B) First Initial Flow <u>30</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>3:40 PM 4-10</u>
(C) First Final Flow <u>231</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>6:08 PM 4-10</u>
(D) Initial Shut-In <u>1257</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>10:08 PM 4-10</u>
(E) Second Initial Flow <u>226</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>12:48 AM 4-11</u>
(F) Second Final Flow <u>455</u>	<input checked="" type="checkbox"/> Mileage <u>170 RT</u> <u>192.20</u>	Comments _____
(G) Final Shut-In <u>1243</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1959</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>1767.20</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____

Approved By [Signature] Sub Total 1767.20 Our Representative Robert Zochow

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. **55207**

Well Name & No. STEC #1-23 Test No. 2 Date 4-11-14  
 Company Murfin Drilling Co., Inc. Elevation 3174 KB 3163 GL  
 Address 250 N. Water St 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin #20  
 Location: Sec. 23 Twp. 1S Rge. 37 W Co. Cheyenne State KS

Interval Tested 4154 - 4206 Zone Tested Lansing D'  
 Anchor Length ~~4154~~ 52' Drill Pipe Run 3949.40 Mud Wt. 9.2  
 Top Packer Depth 4149 Drill Collars Run 182.60' Vis 75  
 Bottom Packer Depth 4154 Wt. Pipe Run 0 WL 6.4  
 Total Depth 4206 Chlorides 600 ppm System LCM 8#

Blow Description IF - Surface blow started around 3mins. into and stayed at a weak surface  
ISI - No Return  
FF - No Surface blow  
FST - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>6'</u>	<u>OSM</u>	<u>spots</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 6' BHT 128°F Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2093  Test 1250 T-On Location 4:40 pm  
 (B) First Initial Flow 16  Jars 250 T-Started 5:00 pm  
 (C) First Final Flow 22  Safety Joint 75 T-Open 6:42 pm  
 (D) Initial Shut-In 1293  Circ Sub N/C T-Pulled 9:42 pm  
 (E) Second Initial Flow 24  Hourly Standby \_\_\_\_\_ T-Out 12:00 am  
 (F) Second Final Flow 29  Mileage ~~124~~ 124 R/T Comments \_\_\_\_\_  
 (G) Final Shut-In 1282  Sampler 192.20 \_\_\_\_\_  
 (H) Final Hydrostatic 2028  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_

Initial Open 30  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Shut-In 60  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Flow 30  Day Standby \_\_\_\_\_ Total 1767.20  
 Final Shut-In 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1767.20

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.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **55208**

Well Name & No. Stec #1-23 Test No. 3 Date 4-12-14  
 Company Murfin Drilling Co, Inc. Elevation 3174 KB 3163 GL  
 Address 250 N. Water, Ste. 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin #20  
 Location: Sec. 23 Twp. 1S Rge. 37W Co. Cheyenne State KS

Interval Tested 4209-4264 Zone Tested Lansing-G  
 Anchor Length 55' Drill Pipe Run 4011.05 Mud Wt. 9.4  
 Top Packer Depth 4204 Drill Collars Run 182.60' Vis 53  
 Bottom Packer Depth 4209 Wt. Pipe Run 0 WL 7.6  
 Total Depth 4264 Chlorides 700 ppm System LCM 8#

Blow Description IF-Surface blow stayed at a weak blow  
ISI-No Return  
FF-No Surface blow  
FSI-No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>2'</u>	<u>asm</u>	<u>spots</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 2' BHT 128°F Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2116  Test 1250 T-On Location 10:30 am  
 (B) First Initial Flow 16  Jars 250 T-Started 11:18 am  
 (C) First Final Flow 17  Safety Joint 75 T-Open 1:13 pm  
 (D) Initial Shut-In 36  Circ Sub N/C T-Pulled 4:13 pm  
 (E) Second Initial Flow 18  Hourly Standby \_\_\_\_\_ T-Out 6:18 pm  
 (F) Second Final Flow 18  Mileage 124 R/T 192.20 Comments \_\_\_\_\_  
 (G) Final Shut-In 33  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2102  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1767.20  
 Final Flow 30  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 60 Sub Total 1767.20

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.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 55209

Well Name & No. Stec #1-23 Test No. 4 Date 4-13-14  
 Company Murfin Drilling Co., Inc. Elevation 3174 KB 3163 GL  
 Address 250 N. Water, Ste 300 Wichita Ks 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin #20  
 Location: Sec. 23 Twp. 1S Rge. 37W Co. Cheyenne State Ks

Interval Tested 4262-4345 Zone Tested J  
 Anchor Length 83' Drill Pipe Run 4073.85 Mud Wt. 9.4  
 Top Packer Depth 4257 Drill Collars Run 182.60' Vis 95  
 Bottom Packer Depth 4262 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4345 Chlorides 600 ppm System LCM 6#  
 Blow Description IF - Surface blow built to 1/4" then died to a faint blow  
ISZ - No Return  
FF - No Surface blow  
FSZ - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>3'</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	<u>3'</u>	BHT <u>127°F</u>	Gravity	API RW	@ ° F Chlorides ppm

(A) Initial Hydrostatic 2153  Test 1250 T-On Location 7:45am  
 (B) First Initial Flow 17  Jars 250 T-Started 8:13am  
 (C) First Final Flow 20  Safety Joint 75 T-Open 10:48am  
 (D) Initial Shut-In 755  Circ Sub N/C T-Pulled 1:48pm  
 (E) Second Initial Flow 22  Hourly Standby \_\_\_\_\_ T-Out 4:24pm  
 (F) Second Final Flow 25  Mileage 124 R/T 384.40 Comments Picked up tool 4-15-14  
 (G) Final Shut-In 661  Sampler \_\_\_\_\_ on location 300pm left at 3:45  
 (H) Final Hydrostatic 2065  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 800  
 Day Standby 1d 22.5h Total 2759.40  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1959.40

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.

# GEOLOGISTS' REPORT

OPERATOR **MURFIN DRILLING COMP. INC.**  
 LEASE **STEC #1-23**  
 WELL **660' FNL 660' FWL**

LOCATION **660' FNL 660' FWL**  
 SEC. **23** TWPSP. **1S** RGE. **37W**  
 COUNTY **CHEYENNE** STATE **KANSAS**

FIELD **WILDCAT**  
 CONTRACTOR **MURFIN DRILLING CO. INC**  
 COMMENCED **APRIL 5, 2014** COMPLETED **APRIL 16, 2014**  
 MUD DISPLACED **3400** MUD TYPE **CHEMICAL**  
 DRILLING TIME KEPT FROM **3470** TO **4720**  
 SAMPLES SAVED FROM **3470** TO **4720**  
 SAMPLES EXAMINED FROM **3470** TO **4720**

CONDUCTOR \_\_\_\_\_  
 SURFACE **8 5/8" @ 225'**  
 PRODUCTION \_\_\_\_\_

GEOLOGICAL SUPERVISION FROM **3550** TO **4720**  
 GEOLOGIST ON WELL **STEPHEN J MILLER**

FORMATION NAME	LOG TOP	LOG DATUM	TOP DATUM	SAMPLE COMP NEU-DEN SONIC LOG	MICRO LOG
ANHYDRITE	3121	+53	3125	+49	
NEVA	3148	+26	3150	+24	
TOPEKA	3966	-412	3988	-414	
LANSING	3919	-745	3924	-750	
STARBUCK	3130	-956	4135	-961	
STARBUCK SHALE	4348	-1174	4354	-1180	
B/ KANSAS CITY	4406	-1232	4407	-1233	
PAWNEE LIME	4533	-1357	4532	-1358	
CHEROKEE SHALE	4613	-1439	4616	-1442	
CHEROKEE SHALE	4718	-1544	4720	-1546	

ELEVATIONS  
 KB **3174'**  
 GL **3163'**

CASING RECORD  
 ALL MEASUREMENTS FROM KE.

ELECTRICAL SURVEYS:  
 DUAL INDUCTION  
 PIONEER LOGGING

REMARKS

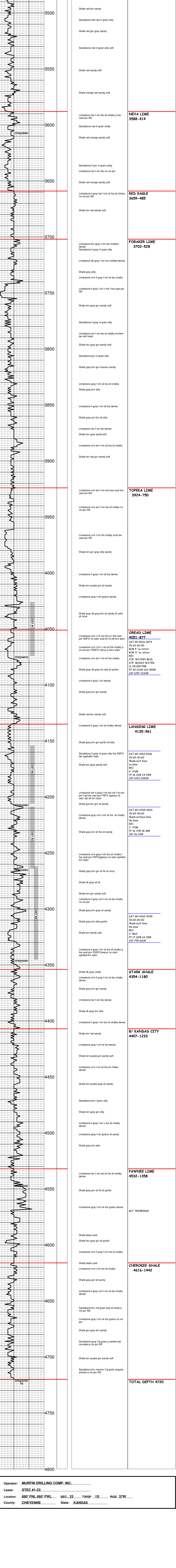
API 15-023-21388

Drilling Fluids: MORGAN MUD

Drill Stem Testing: TRILOBITE TESTERS

Gas Trailer: NONE

Reserve Pit Chlorides: 700 PPM



Operator: **MURFIN DRILLING COMP. INC.**

Lease: **STEC #1-23**

Location: **660' FNL 660' FWL** SEC. **23** TWPSP. **1S** RGE. **37W**

County: **CHEYENNE** State: **KANSAS**



*Prod-106*

# INVOICE

PO Box 93999  
Southlake, TX 76092

Invoice Number: 142369  
Invoice Date: Apr 5, 2014  
Page: 1

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

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

Customer ID	Field Ticket #	Payment Terms	
Murfin	62083	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	Apr 5, 2014	5/5/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	STEC #1-23		
215.00	CEMENT MATERIALS	Class A Common	17.90	3,848.50
8.00	CEMENT MATERIALS	Chloride	64.00	512.00
225.75	CEMENT SERVICE	Cubic Feet Charge	2.48	559.86
780.75	CEMENT SERVICE	Ton Mileage Charge	2.60	2,029.95
1.00	CEMENT SERVICE	Surface	1,512.25	1,512.25
75.00	CEMENT SERVICE	Pump Truck Mileage	7.70	577.50
1.00	CEMENT SERVICE	Manifold Rental	275.00	275.00
75.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	330.00
1.00	CEMENT SUPERVISOR	LaRene Wentz		
1.00	EQUIPMENT OPERATOR	Kevin Ryan		

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

\$ 3,375.77 ✓

ONLY IF PAID ON OR BEFORE

**Apr 30, 2014**

Subtotal	9,645.06
Sales Tax	355.38
Total Invoice Amount	10,000.44
Payment/Credit Applied	
<b>TOTAL</b>	<b>10,000.44</b>

*al*  
*RR*

- 3375.77

6624.67

# ALLIED OIL & GAS SERVICES, LLC 062083

Federal Tax I.D. # 20-8651475

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

SERVICE POINT:  
*Dakota, KS*

DATE <i>4-5-14</i>	SEC. <i>23</i>	TWP. <i>1</i>	RANGE <i>37</i>	CALLED OUT	ON LOCATION <i>5:00 pm</i>	JOB START <i>9:30 pm</i>	JOB FINISH <i>10:00 pm</i>
LEASE: <i>STEC</i>	WELL # <i>1-23</i>	LOCATION <i>McDonald N to Rd 2, W to Rd 1, N to Rd 2, 1 E W, 2 W into</i>	COUNTY <i>Cherokee</i>	STATE <i>KS</i>			

CONTRACTOR <i>Murfin 22</i>	OWNER <i>same</i>	
TYPE OF JOB <i>Surface</i>	CEMENT	
HOLE SIZE <i>12 1/4</i>	T.D. <i>227'</i>	AMOUNT ORDERED <i>215 sk cement 325.00</i>
CASING SIZE <i>8 7/8</i>	DEPTH <i>227'</i>	
TUBING SIZE	DEPTH	
DRILL PIPE	DEPTH	
TOOL	DEPTH	
PRES. MAX	MINIMUM	
MEAS. LINE	SHOE JOINT	
CEMENT LEFT IN CSG. <i>151</i>		
PERFS.		
DISPLACEMENT <i>13.57661</i>		
EQUIPMENT		
PUMP TRUCK CEMENTER <i>Lakone Edwards</i>		
# <i>429/281</i> HELPER <i>Kevin Ryan</i>		
BULK TRUCK		
# <i>818/287</i> DRIVER <i>Alex Ochanc (TW)</i>		
BULK TRUCK		
#	DRIVER	
REMARKS:		
<i>Mix 215 sk cement</i>		
<i>Displace with water</i>		
<i>Cement did circulate</i>		
<i>2.5 sk to pit</i>		
<i>Frank Jones</i>		
TOTAL <i>6950.81</i>		

COMMON <i>215 sk</i>	@ <i>12.90</i>	<i>2784.50</i>
POZMIX	@	
GEL	@	
CHLORIDE <i>8 sk</i>	@ <i>64.00</i>	<i>512.00</i>
ASC	@	
	@	
	@	
	@	
	@	
	@	
	@	
	@	
	@	
HANDLING <i>225.75 sk</i>	@ <i>2.48</i>	<i>559.86</i>
MILEAGE <i>10.91 hrs x 75x</i>	<i>2.60</i>	<i>2827.75</i>
TOTAL <i>6950.81</i>		

CHARGE TO: *Murfin*

STREET \_\_\_\_\_

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

SERVICE		
DEPTH OF JOB		
PUMP TRUCK CHARGE		<i>1512.25</i>
EXTRA FOOTAGE	@	
MILEAGE <i>MI</i>	<i>75 @ 2.90</i>	<i>2175.00</i>
MANIFOLD	@	<i>225.00</i>
<i>MI</i>	<i>75 @ 4.80</i>	<i>3600.00</i>
	@	
TOTAL <i>2694.75</i>		

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.

PLUG & FLOAT EQUIPMENT		
	@	
	@	
	@	
	@	
	@	
TOTAL _____		

PRINTED NAME *Greg Condren*

SIGNATURE *Greg Condren*

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

TOTAL CHARGES *9,645.06*

DISCOUNT *3,375.77 (35%)* IF PAID IN 30 DAYS

*6,269.28 Net*



PO Box 93999  
Southlake, TX 76092

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

# INVOICE

*acct.  
Prod-MG*

Invoice Number: 142671  
Invoice Date: Apr 16, 2014  
Page: 1

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

Customer ID	Field Ticket #	Payment Terms	
Murfin	62059	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-03	Oakley	Apr 16, 2014	5/16/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	STEC #1-23		
130.00	CEMENT MATERIALS	Class A Common	17.90	2,327.00
90.00	CEMENT MATERIALS	Pozmix	9.35	841.50
8.00	CEMENT MATERIALS	Gel	23.40	187.20
25.00	CEMENT MATERIALS	Flo Seal	2.97	74.25
234.26	CEMENT SERVICE	Cubic Feet Charge	2.48	580.96
709.50	CEMENT SERVICE	Ton Mileage Charge	2.60	1,844.70
1.00	CEMENT SERVICE	Plug to Abandon	1,250.00	1,250.00
75.00	CEMENT SERVICE	Pump Truck Mileage	7.70	577.50
75.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	330.00
1.00	EQUIPMENT SALES	8 5/8 Wiper Plug	110.00	110.00
1.00	EQUIPMENT OPERATOR	Talon Jones		
1.00	CEMENT SUPERVISOR	Kelly Gabel		

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

\$ 2,804.58 ✓

ONLY IF PAID ON OR BEFORE

May 11, 2014

Subtotal	8,123.11
Sales Tax	662.03
Total Invoice Amount	8,785.14
Payment/Credit Applied	
<b>TOTAL</b>	<b>8,785.14</b>

*OK JR*

$2804.58$   
 $5980.56$



# ALLIED OIL & GAS SERVICES, LLC 062059

Federal Tax I.D. # 20-8651475

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

SERVICE POINT:  
Oakley, Tex

DATE <u>4-16-14</u>	SEC. <u>23</u>	TWP. <u>1</u>	RANGE <u>37</u>	CALLED OUT	ON LOCATION	JOB START <u>4am</u>	JOB FINISH <u>5am</u>
LEASE <u>STEC</u>		WELL # <u>1-23</u>		LOCATION <u>McDonnell Les M to Rod</u>		COUNTY <u>Cheyenne</u>	STATE <u>Tex</u>
OLD OR <u>(NEW)</u> (Circle one)		LOCATION <u>West to Rd 35 N to Rd 2 west to hse 21</u>					

CONTRACTOR Murbine #20 OWNER Same

TYPE OF JOB <u>PT#</u>	
HOLE SIZE <u>7 7/8</u>	T.D. <u>4720</u>
CASING SIZE	DEPTH
TUBING SIZE	DEPTH
DRILL PIPE	DEPTH
TOOL	DEPTH
PRES. MAX	MINIMUM
MEAS. LINE	SHOE JOINT
CEMENT LEFT IN CSG.	
PERFS.	
DISPLACEMENT	

CEMENT  
AMOUNT ORDERED 220 sks 4040 per 2  
2 Gal 24.16 Flo seal

COMMON	<u>120 sks</u>	@	<u>17.90</u>	<u>2,148.00</u>
POZMIX	<u>90 sks</u>	@	<u>9.35</u>	<u>841.50</u>
GEL	<u>8 sks</u>	@	<u>23.40</u>	<u>187.20</u>
CHLORIDE		@		
ASC		@		
	<u>570-5 seal 1 sks</u>	@	<u>2.92</u>	<u>74.25</u>
		@		
		@		
		@		
		@		
		@		
		@		
HANDLING	<u>239.26 cu ft</u>	@	<u>2.48</u>	<u>580.96</u>
MILEAGE	<u>7.96 x 75 mi</u>	@	<u>26.0</u>	<u>1844.70</u>
				( <u>2,049.46/35%</u> ) TOTAL <u>5855.67</u>

EQUIPMENT

PUMP TRUCK	CEMENTER <u>Talon Jones</u>
# <u>481</u>	HELPER <u>Kelley Gabel</u>
BULK TRUCK	
# <u>816/287</u>	DRIVER <u>Juan #2 (TWS)</u>
BULK TRUCK	
#	DRIVER

REMARKS:

255 sks @ 3130 ft

100 sks @ 2365 ft

40 sks @ 275 ft

60 sks @ 40 ft wiper plug

30 sks Ret hole

15 sks mouse hole

Thank you!

SERVICE

DEPTH OF JOB	<u>3130</u>
PUMP TRUCK CHARGE	<u>1250.00</u>
EXTRA FOOTAGE	@
MILEAGE H.D. 75 mi	@ <u>2.70</u> <u>577.5</u>
MANIFOLD	@
<u>big rd dent 75 mi</u>	@ <u>4.40</u> <u>330.00</u>
	@
(755.12/35%) TOTAL <u>2152.50</u>	

CHARGE TO: Murbine

STREET \_\_\_\_\_

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

PLUG & FLOAT EQUIPMENT

<u>wiper plug</u>	
<u>wiper plug</u>	@ <u>110.00</u> <u>110.00</u>
	@
	@
	@
	@
<u>070</u>	TOTAL <u>110.00</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.

PRINTED NAME GREG CONDREN

SIGNATURE Greg Condren

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

TOTAL CHARGES 8,123.11

DISCOUNT 2,804.58 (35%) IF PAID IN 30 DAYS

5,318.52 Net

STEC #1-23  
 Daily Drilling Report  
 Page Two

4/14/14 Depth 4475'. Cut 130'. DT: None. CT: 12¼ hrs. Dev.: None.

4/15/14 Depth 4660'. Cut 185'. DT: 4 ½ hrs. (bit trip). CT: 2 hrs. (circ). Dev.: none. Will TD at 4740' this afternoon.

4/16/14 RTD: 4720'. Cut 60'. DT: None. CT: 17½ hrs. Dev.: 1° @ 4720'. TD @ 11:30AM 4/15. Pioneer logged 4:00PM – 9:45PM 4/15. LTD: 4718'. Allied plugged 2:00AM – 5:00AM 4/16, using 60/40Poz, 4%Gel, ¼# Floseal as follows, 25sxs @ 3130', 100sxs @ 2365', 40sxs @ 275', 10sxs @ 40', 30sxs RH, 15sxs MH. Orders: Richard Williams KCC Hays.

4/17/14 RTD: 4720'. CT: 2hrs. RR @ 9:00AM 4/16/14. FINAL REPORT

Formation	MDCI STEC #1-23 600' FNL 660' FWL Sec. 23-T1S-R37W 3174' KB								MDCI Culwell 'A' #1-27 1850'FNL 2000'FEL Sec. 27-1S-R37W 3304' KB		MDCI Culwell 'B' #1-11 850' FSL 700' FWL Sec. 11-T1S-R37W 3146' KB	
	Sample top	Datum	Ref	Ref	Log Top	Datum	Ref	Ref	Log Top	Datum	Log Top	Datum
Anhydrite	3125	+49	-16	-15	3121	+53	-12	-11	3239	+65	3082	+64
B/Anhydrite	3151	+23	-8	-8	3148	+26	-5	-5	3273	+31	3115	+31
Neva	3588	-414	-16	-21	3585	-411	-13	-18	3702	-398	3539	-393
Red Eagle	3659	-485	-20	-25	3651	-477	-12	-12	3769	-465	3606	-460
Foraker	3702	-528	-18	-23	3698	-524	-14	-19	3814	-510	3651	-505
Topeka	3924	-750	-13	-23	3919	-745	-8	-18	4041	-737	3873	-727
Oread	4051	-877	-6	-17	4048	-874	-3	-14	4175	-871	4006	-860
Lansing	4135	-961	-12	-19	4130	-956	-7	-14	4253	-949	4088	-942
Stark	4354	-1180	-12	-22	4349	-1175	-7	-17	4472	-1168	4304	-1158
BKC	4407	-1233	-12	-23	4400	-1226	-5	-16	4525	-1221	4356	-1210
Pawnee	4532	-1358	-12	-25	4533	-1359	-13	-26	4650	-1346	4479	-1333
Cherokee	4616	-1442	-14	-20	4614	-1440	-12	-18	4732	-1428	4568	-1422
RTD	4720	-1546							4840	-1536	4900	-1754
LTD					4718	-1544			4842	-1538	4902	-1756