



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1153298  
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: \_\_\_\_\_



1153298

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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Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



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

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

Sam Brownback, Governor

July 29, 2013

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

Re: ACO1  
API 15-109-21167-00-00  
WWWM 2-4  
SE/4 Sec.04-13S-32W  
Logan County, Kansas

Dear Production Department:

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

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

Respectfully,  
Leon Rodak

WWWM #2-4 1735' FSL 660' FEL Sec. 4-T13S-R32W 3051' KB							WWWM #1-4 1800' FSL 1950' FWL Sec. 4-T13S-R32W 3055' KB	
Formation	sample tops	Datum	Ref	Log Tops	Datum	Ref	Log Tops	Datum
Anhydrite	2534	+517	-3	2534	+517	-3	2536	+520
B/Anhydrite	2552	+499	+3	2557	+494	-2	2560	+496
Topeka	3772	-721	-3	3772	-721	-3	3774	-718
Heebner	3996	-945	-2	3994	-943	Flat	3999	-943
Toronto	4020	-969	-3	4017	-966	Flat	4022	-966
Lansing	4039	-988	-3	4039	-988	-3	4041	-985
Stark	4269	-1218	-2	4273	-1222	-6	4272	-1216
Pawnee	4470	-1419	-3	4473	-1422	-6	4472	-1416
Fort Scott	4526	-1475	-2	4528	-1477	-4	4529	-1473
Cherokee	4555	-1504	-4	4555	-1504	-4	4556	-1500
Johnson	4596	-1545	-1	4597	-1546	-2	4600	-1544
Mississippi	4680	-1629	-3	4650	-1599	+27	4682	-1626
RTD	4780	-1729					4745	
LTD				4782	-1731		4744	

# GEOLOGISTS' REPORT

OPERATOR **MURFIN DRILLING CO INC.**

LEASE **#2-4 WWWW**

LOCATION **1735' FSL 660' FEL**

SEC. **4** TWPSP **13S** RGE **32W**

COUNTY **LOGAN** STATE **KANSAS**

FIELD **High Hat**

CONTRACTOR **MURFIN DRILLING CO** FIG NO **20**

COMMENCED **APRIL 3, 2013** COMPLETED **APRIL 15, 2013**

MUD DISPLACED **3220'** MUD TYPE **CHEMICAL**

DRILLING TIME KEPT FROM **3970'** TO **4790'**

SAMPLES SAVED FROM **3970'** TO **4790'**

SAMPLES EXAMINED FROM **3970'** TO **4790'**

GEOLOGIST ON WELL **STEPHEN J MILLER**

GEOLOGICAL SUPERVISION FROM **3975'** TO **4780'**

FORMATION **LOG** SAMPLER **DUAL INDUCTION**

NAME **TOP DATUM TOP DATUM**

ANHYDRITE **2534 +517 2534 +517**

TOPEKA **3772 -721 3772 -721**

HEEBNER **3995 -944 3996 -945**

LANSING **4040 -989 4039 -988**

STARK SHALE **4273 -1122 4269 -1118**

B/ KANSAS CITY **4532 -1281 4530 -1279**

CHEROKEE **4555 -1504 4555 -1504**

MISSISSIPPIAN **4693 -1632 4680 -1629**

TOTAL DEPTH **4793 -1732 4790 -1729**

ELEVATIONS  
KB **3051'**

GL **3040'**

ALL MEASUREMENTS FROM KEA

CASING RECORD  
Conductor \_\_\_\_\_  
Surface **85'8" @ 12'**  
Production **512' @ 178'**

PIIONEER  
DUAL INDUCTION  
COMP NEUDENS  
SONIC  
MICROLOG

FORMATION LOG SAMPLER  
NAME TOP DATUM TOP DATUM  
ANHYDRITE 2534 +517 2534 +517  
TOPEKA 3772 -721 3772 -721  
HEEBNER 3995 -944 3996 -945  
LANSING 4040 -989 4039 -988  
STARK SHALE 4273 -1122 4269 -1118  
B/ KANSAS CITY 4532 -1281 4530 -1279  
CHEROKEE 4555 -1504 4555 -1504  
MISSISSIPPIAN 4693 -1632 4680 -1629  
TOTAL DEPTH 4793 -1732 4790 -1729

REMARKS  
API 15-109-21167  
Drilling Fluids: MORGAN MUD  
Drill Stem Testing: TRILOBITE  
Gas Trailer: NONE  
Reserve Pit Chlorides: 1600 ppm

DEPTH	DRILL TIME (MIN/FT)	SAMPLE DESCRIPTIONS	REMARKS
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2534		Shale dk gray fis limy	<b>ANHYDRITE 2534 +517</b>
2556		Limestone crm lt gray f-xin v fos chalky	<b>B/ ANHYDRITE 2556 +495</b>
3772		Shale dk gray grm brn soft Shale brn sandy mica	<b>TOPEKA LIME 3772 -945</b>
3995		Shale gray sandy sli mica Limestone tan crm f-xin fos chalky p int-fos por NS Shale brn red soft silty	
4039		Limestone crm f-xin fos scat fos-cast por NS Limestone tan f-xin fos dense Limestone gray f-xin fos sli chalky	
4273		Shale dk gray carb Limestone crm tan f-xin fos chalky dense Limestone dk gray f-xin fos mottled sli chalky NS Shale brown soft silty	
4532		Limestone crm f-xin v fos gd int-fos por sli chalky NS Limestone crm f-xin fos chalky scat int-xin por NS Sandstone gray vf grain sub rounded shaly soft	
4555		Shale brn gray sandy Limestone crm tan f-xin sli fos sil chalky scat fos-cast por NS Shale grn brn gray sli sandy Limestone tan crm f-xin fos chalky dense Shale dk gray sli fis Limestone crm f-xin fos chalky	
4693		Limestone gray f-xin sli fos dense w/chert gray white fresh fos Shale gray grn brn silty Limestone tan crm f-xin fos chalky	<b>HEEBNER SHALE 3996 -945</b>
4790		Shale black carb Shale dk gray brn grm grn gray sli sandy pyritic Limestone crm tan f-xin sli fos chalky scat int-fos por NS Shale brn grm sandy soft Limestone crm tan f-xin sli fos sil chalky dense Limestone gray f-xin sli fos gray rare ppt por rare SFO Limestone gray f-xin fos ool gd int-ool& int-fos por GSFO (gassy) fair odor spotted brn stain Limestone gray f-xin fos ool gd int-ool&int-fos por GSFO (gassy) fair odor spotted brn stain Shale grn brn red silty pyritic Limestone crm f-xin sli fos chalky dense	<b>LANSING LIME 4039 -988</b>  DST #1 4031-4085 30-60-60-90 80B 4" 80B 7" REC 248' MCW 372' SMCW 992' SW (62,000 CI) FP 85-383# 409-731# SIP 1172-1167#  DST #2 4108-4145 30-60-60-90 80B 1.5" 80B 1" Rec 372' GIP 2236' G60 80%oil 30 6rev 120' GOCM 35%oil FP 285-434# 724-887# SIP 1195-1194#
4790		Shale black carb Limestone tan f-xin sli fos dense Shale grm gray brn sandy silty Shale grm brn gray silty Limestone gray f-lg xlin sucrosic p-f int-xin por SSFO fair odor on break spotted brn stain Limestone tan f-xin chalky sli fos dense Limestone crm f-xin sli fos sli chalk sli pyritic dense Shale black carb Limestone tan f-xin sli fos dense Shale grm gray brn sandy silty Limestone crm f-xin sli fos scat fos-cast por VSSFO(flaky) no odor spotted lt brn stain Limestone lt gray f-xin sli chalky dense Shale dk gray brn grm gray silty soft sli pyritic Limestone crm f-xin sli fos sli fos-cast por SSFO(waxy) no odor scat lt brn stain Limestone tan f-xin fos dense Shale brn grm maroon silty sandy soft Limestone gray f-xin fos sli ool sli chalky p int-fos& int-ool por SSFO no odor spot lt brn stain Shale black carb blocky Shale brn grm gray sli pyritic Limestone tan f-xin v fos sli ool p int-fos por SSFO(gassy) fair odor on break spotted brn stain Limestone gray f-xin fos ool mottled chalky dense w/chert gray wht fresh fos	<b>STARK SHALE 4269 -1218</b>
4790		Shale black carb Limestone lt gray f-xin ool sli chalky p int-ool por NSFO scat dk stain no odor Limestone gray brn f-xin ool sli chalky dense Shale dk gray grm Limestone lt brn f-xin sucrosic dense Shale brn gray grn red sandy silty sli pyritic Shale brn sandy soft sli pyritic Limestone tan f-xin sli chalky sli pyritic scat ppt por NSFO no odor scat asphaltic stain Shale aqua silty Shale gray brn grm silty sli sandy sli pyritic Limestone gray f-xin sli fos sli chalky no vis por NS Shale gray grm maroon silty sandy Limestone crm f-xin chalky w/ chert wht tan fresh Limestone tan f-xin sli fos sli ool p fos-cast por sli chalky SSFO(waxy) no odor scat brn stain Shale gray brn grm sandy Limestone crm f-xin ool f inter-ool por SSFO faint odor sat lt brn stain Limestone gray f-xin sli fos sli chalky dense Shale black carb Limestone crm md-xin sli chalky/ int-xin por FSFO(gassy) fair odor sat lt brn stain w/ abundant chert, lt gray fresh Limestone brn f-xin sli fos sli sucrosic dense Shale black carb Shale gray grm brn sandy Limestone lt gray md-xin sli chalky sli fos p int-xin por VSSFO(gassy) fair odor spotted lt brn stain	<b>B/ KANSAS CITY 4330-1279</b>  DST #3 4383-4460 30-60-60-90 80B 11" 80B 4" Rec 930' GIP 124' G60 85% oil 28 6rev 248' GOCM 35%oil FP 43-144# 127-182# SIP 381-379#  DST #4 4466-4488 30-60-30-60 SURF BLOW/SURF BLOW REC 15 S0CM 4%OIL FP 19-28# 70-37# SIP 934-917#
4790		Shale black carb Limestone lt gray tan f-xin sli fos p ppt por gl int-fos & fos-cast por CSFO(gassy) fair odor sat dk brn stain @ por Limestone lt gray wht f-xin chalky Shale gray grm brn sandy sli mica Limestone lt gray f-xin sli chalky sli pyritic dense Limestone lt gray tan f-xin sli fos v gd pyggy por GSFO strong odor sat dk brn stain Limestone tan f-xin sli fos scat ppt por SSFO spotted brn stain Shale dk gray brn grm sandy Limestone lt gray f-xin sli fos sli sandy sli chalky Shale gray brn aqua sandy Shale yellow aqua sandy soft Sandstone white tan f-lg grain sub-ang limy no vis por NS Sandstone lt gray f-lg grain angular limy no vis por NS Limestone crm lt gray f-xin sli ool sli chalky no vis por NS Limestone tan f-xin fos ool sli sandy sli chalky Limestone crm f-xin ool sli pyritic sli chalky Shale gray grm orange sandy sli pyritic Limestone tan md-lg xlin fos sli ool Limestone brn f-xin fos ool pyritic scat int-fos por NS	<b>PAWNEE LIME 4470 -1419</b>  DST #5 4497-4548 30-60-60-90 5.5" blow/ 80B 37" REC 403' GIP 120' G60 95%OIL 30' GOCM 35%OIL FP 26-48# 50-84# SIP 1100-1081#  <b>FORT SCOTT 4526 -1475</b>  <b>CHEROKEE SHALE 4555 -1504</b>  DST #6 4553-4574 30-60-30-60 SURF BLOW 22"/NO BLOW REC 5' MUD W/OILSPOTS FP 18-22# 23-22# SIP 211-78#  <b>JOHNSON ZONE 4596-1545</b>  DST #7 4577-4616 30-60-60-90 80B 3.5"/80B 1" REC 1950' GIP 403' G60 80 %OIL 30 GRAV 217' GAC0 45%OIL 373' SGMAOCW 80% WATER FP 70-278# 281-444# SIP 943-788#  <b>MORROW SAND 4650 -1599</b>  <b>MISSISSIPPIAN 4680 -1629</b>
4790			<b>RTD 4780</b>

Operator: **MURFIN DRILLING CO INC.**

Lease: **#2-4 WWWW**

Location: **1735' FSL 660' FEL** SEC. **4** TWPSP **13S** RGE **32W**

County: **LOGAN** State: **KANSAS**



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilg Comp Inc**

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Steve Miller

**WWWM #2-4**

**4-13s-34w Logan,KS**

Start Date: 2013.04.07 @ 15:10:45

End Date: 2013.04.07 @ 23:39:15

Job Ticket #: 49186                      DST #: 1

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

Printed: 2013.04.22 @ 11:41:47



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilg Comp Inc  
 250 N Water Ste 300  
 Wichita, KS 67202  
 ATTN: Steve Miller

**4-13s-34w Logan, KS**

**WWWM #2-4**

Job Ticket: 49186

**DST#: 1**

Test Start: 2013.04.07 @ 15:10:45

## GENERAL INFORMATION:

Formation: **A-C**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 17:16:15  
 Tester: Shane McBride  
 Time Test Ended: 23:39:15  
 Unit No: 55  
 Interval: **4031.00 ft (KB) To 4085.00 ft (KB) (TVD)**  
 Reference Elevations: 3051.00 ft (KB)  
 Total Depth: 4085.00 ft (KB) (TVD)  
 3040.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Fair  
 KB to GR/CF: 11.00 ft

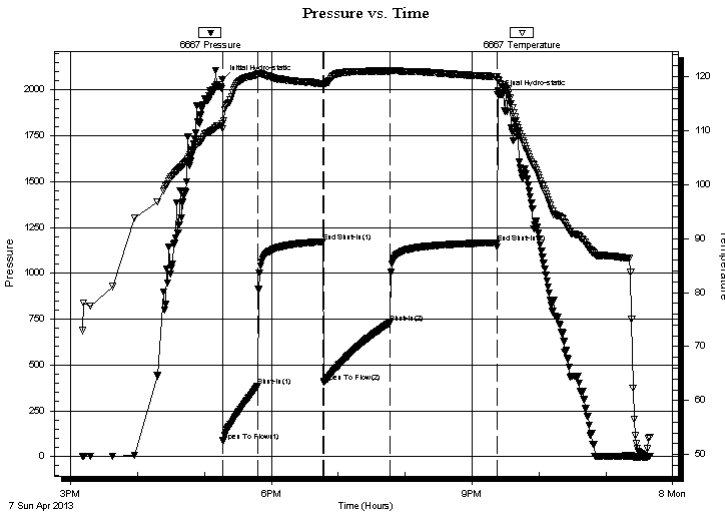
## Serial #: 6667

Inside

Press @ Run Depth: 731.45 psig @ 4032.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.07 End Date: 2013.04.07 Last Calib.: 2013.04.07  
 Start Time: 15:10:45 End Time: 23:39:15 Time On Btm: 2013.04.07 @ 17:16:00  
 Time Off Btm: 2013.04.07 @ 21:23:00

TEST COMMENT: B.O.B. in 4 1/2 min.  
 No return  
 B.O.B. in 7 1/2 min  
 No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2055.69	111.21	Initial Hydro-static
1	85.97	110.34	Open To Flow (1)
32	383.32	120.32	Shut-In(1)
91	1172.60	118.68	End Shut-In(1)
91	409.07	118.53	Open To Flow (2)
151	731.45	121.02	Shut-In(2)
246	1167.69	119.99	End Shut-In(2)
247	1974.49	119.38	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
992.00	water 100%w	12.29
372.00	s m c w 10%m 90%w	5.22
248.00	m c w 35%m 65%w	3.48

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49186 **DST#: 1**  
Test Start: 2013.04.07 @ 15:10:45

**Tool Information**

Drill Pipe:	Length: 3854.00 ft	Diameter: 3.80 inches	Volume: 54.06 bbl	Tool Weight: 1500.00 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 54.94 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4031.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	54.00 ft			
Tool Length:	81.00 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			4005.00	
Shut In Tool	5.00			4010.00	
Hydraulic tool	5.00			4015.00	
Jars	5.00			4020.00	
Safety Joint	2.00			4022.00	
Packer	5.00			4027.00	27.00 Bottom Of Top Packer
Packer	4.00			4031.00	
Stubb	1.00			4032.00	
Recorder	0.00	6667	Inside	4032.00	
Recorder	0.00	8368	Outside	4032.00	
Perforations	14.00			4046.00	
Change Over Sub	1.00			4047.00	
Drill Pipe	32.00			4079.00	
Change Over Sub	1.00			4080.00	
Bullnose	5.00			4085.00	54.00 Bottom Packers & Anchor

**Total Tool Length: 81.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49186      **DST#: 1**  
Test Start: 2013.04.07 @ 15:10:45

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 62000 ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.95 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 5100.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
992.00	water 100%w	12.294
372.00	s m c w 10%m 90%w	5.218
248.00	m c w 35%m 65%w	3.479

Total Length: 1612.00 ft      Total Volume: 20.991 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: rw .150 @ 55\*f = 62,000 chlor

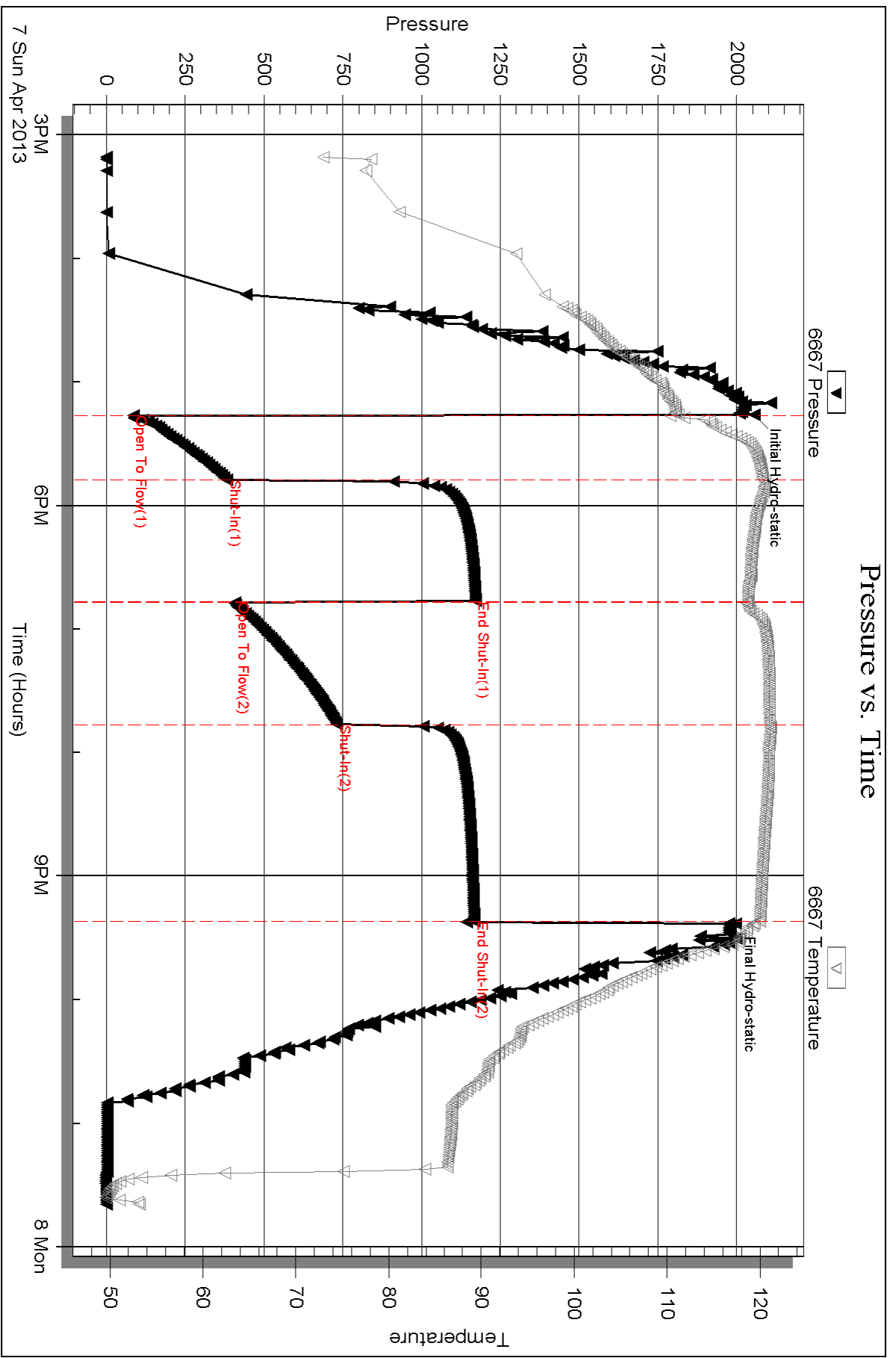
Serial #: 6667

Inside

Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 49186

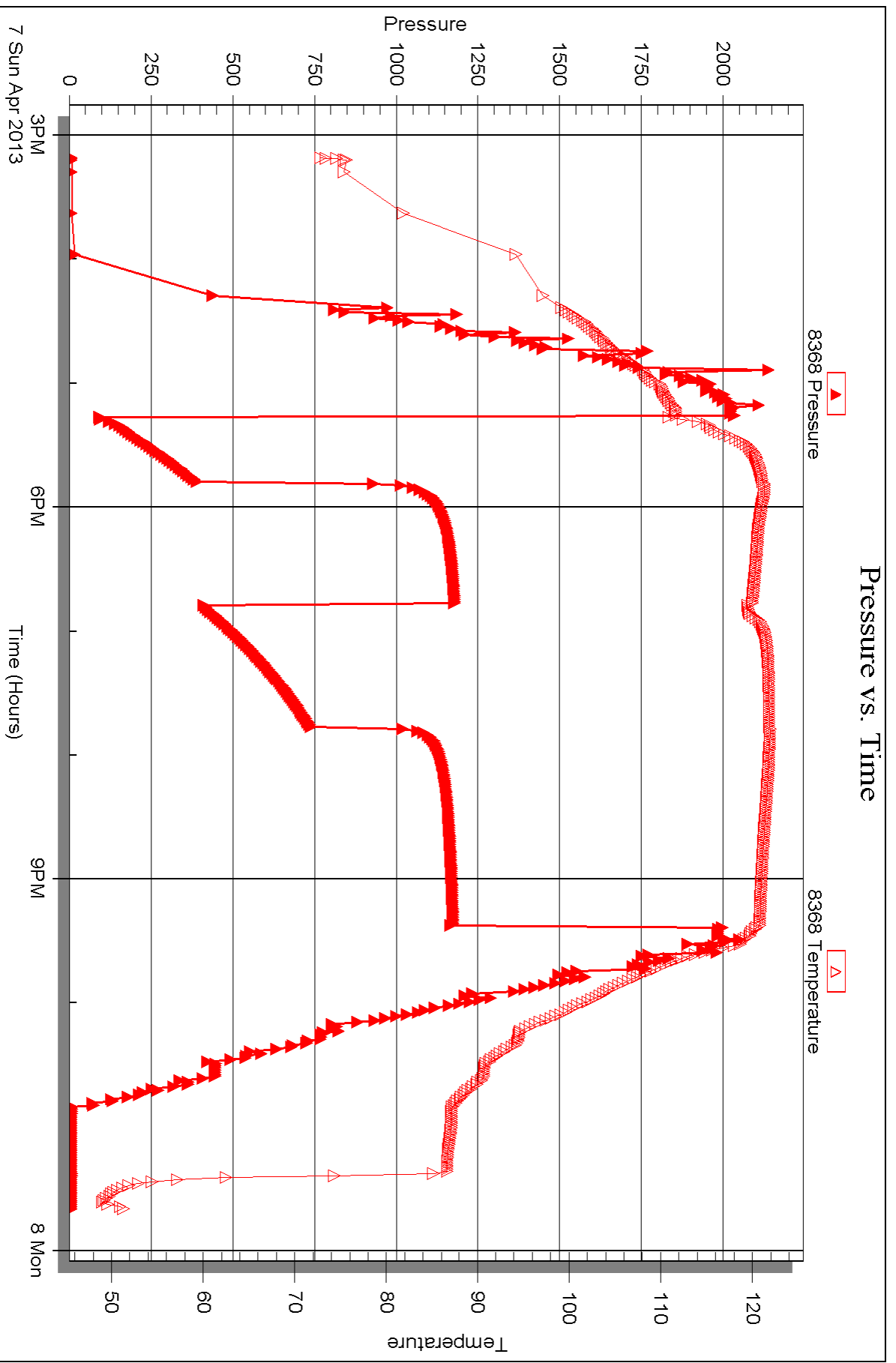
Printed: 2013.04.22 @ 11:41:51

Serial #: 8368

Outside Murfin Drilling Comp Inc

WMMMM#2-4

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilg Comp Inc**

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Steve Miller

**WWWM #2-4**

**4-13s-34w Logan,KS**

Start Date: 2013.04.08 @ 11:12:41

End Date: 2013.04.08 @ 19:30:05

Job Ticket #: 49187                      DST #: 2

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

Printed: 2013.04.22 @ 11:40:50



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilg Comp Inc  
 250 N Water Ste 300  
 Wichita, KS 67202  
 ATTN: Steve Miller

**4-13s-34w Logan, KS**

**WWWM #2-4**

Job Ticket: 49187

**DST#: 2**

Test Start: 2013.04.08 @ 11:12:41

## GENERAL INFORMATION:

Formation: **KC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:59:51  
 Time Test Ended: 19:30:05  
 Interval: **4108.00 ft (KB) To 4145.00 ft (KB) (TVD)**  
 Total Depth: 4145.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

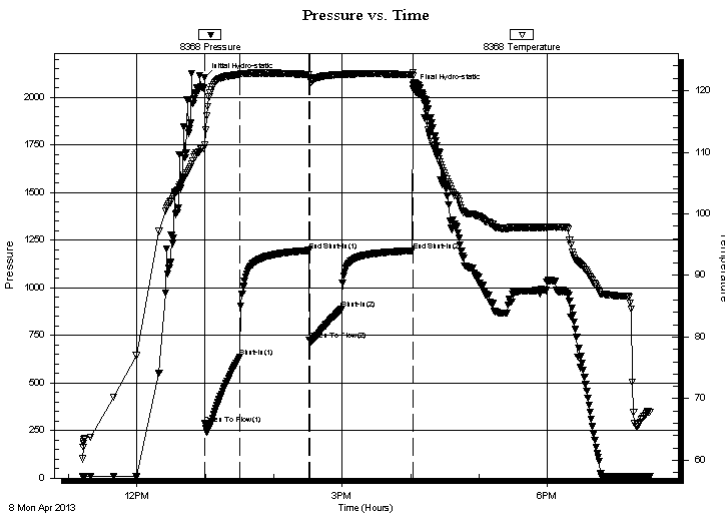
## Serial #: 8368

**Outside**

Press @ Run Depth: 887.28 psig @ 4109.00 ft (KB)  
 Start Date: 2013.04.08 End Date: 2013.04.08  
 Start Time: 11:12:41 End Time: 19:30:05  
 Capacity: 8000.00 psig  
 Last Calib.: 2013.04.08  
 Time On Btm: 2013.04.08 @ 12:59:21  
 Time Off Btm: 2013.04.08 @ 16:01:51

**TEST COMMENT:** B.O.B. in 1 1/2 min  
 8" in return blow  
 8" in @ open built to B.O.B. in 1 min  
 1/2" in return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2102.79	111.13	Initial Hydro-static
1	285.30	111.11	Open To Flow (1)
31	634.01	122.58	Shut-In(1)
92	1195.92	122.59	End Shut-In(1)
92	724.24	122.12	Open To Flow (2)
121	887.28	122.61	Shut-In(2)
183	1194.60	122.58	End Shut-In(2)
183	2044.60	122.96	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	under circ sub g o c m 25%g 35%o 40%r	0.59
1802.00	c g o reversed out 20%g 80%o	24.75
434.00	c g o 20%g 80%o	6.09
0.00	372' gas in pipe	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilg Comp Inc  
 250 N Water Ste 300  
 Wichita, KS 67202  
 ATTN: Steve Miller

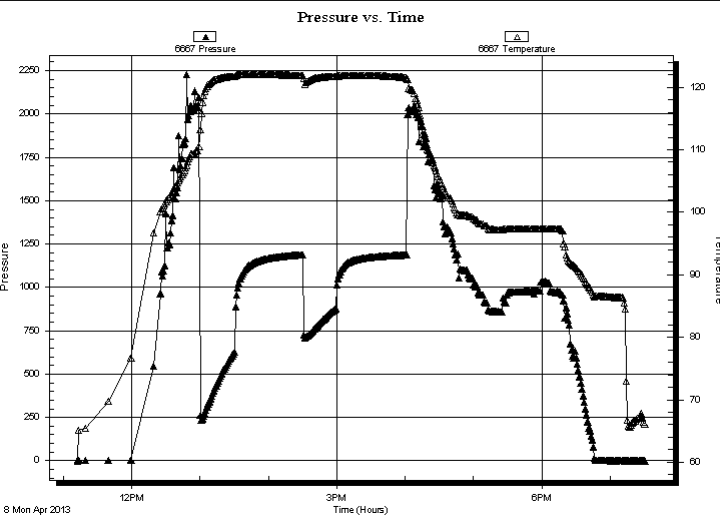
**4-13s-34w Logan,KS**  
**WWWM #2-4**  
 Job Ticket: 49187 **DST#: 2**  
 Test Start: 2013.04.08 @ 11:12:41

## GENERAL INFORMATION:

Formation: **KC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:59:51  
 Time Test Ended: 19:30:05  
**Interval: 4108.00 ft (KB) To 4145.00 ft (KB) (TVD)**  
 Total Depth: 4145.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 6667 Inside**  
 Press @ Run Depth: psig @ 4109.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.08 End Date: 2013.04.08 Last Calib.: 2013.04.08  
 Start Time: 11:12:38 End Time: 19:30:08 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** B.O.B. in 1 1/2 min  
 8" in return blow  
 8" in @ open built to B.O.B. in 1 min  
 1/2" in return blow



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

Recovery		
Length (ft)	Description	Volume (bbl)
120.00	under circ sub g o c m 25%g 35%o 40%r	0.59
1802.00	c g o reversed out 20%g 80%o	24.75
434.00	c g o 20%g 80%o	6.09
0.00	372' gas in pipe	0.00

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49187      **DST#: 2**  
Test Start: 2013.04.08 @ 11:12:41

**Tool Information**

Drill Pipe:	Length: 3915.00 ft	Diameter: 3.80 inches	Volume: 54.92 bbl	Tool Weight: 1500.00 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 55.80 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4108.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	64.00 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			4082.00	
Shut In Tool	5.00			4087.00	
Hydraulic tool	5.00			4092.00	
Jars	5.00			4097.00	
Safety Joint	2.00			4099.00	
Packer	5.00			4104.00	27.00      Bottom Of Top Packer
Packer	4.00			4108.00	
Stubb	1.00			4109.00	
Recorder	0.00	6667	Inside	4109.00	
Recorder	0.00	8368	Outside	4109.00	
Perforations	31.00			4140.00	
Bullnose	5.00			4145.00	37.00      Bottom Packers & Anchor

**Total Tool Length: 64.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49187      **DST#: 2**  
Test Start: 2013.04.08 @ 11:12:41

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 30 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 0 ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.15 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2500.00 ppm		
Filter Cake: 2.00 inches		

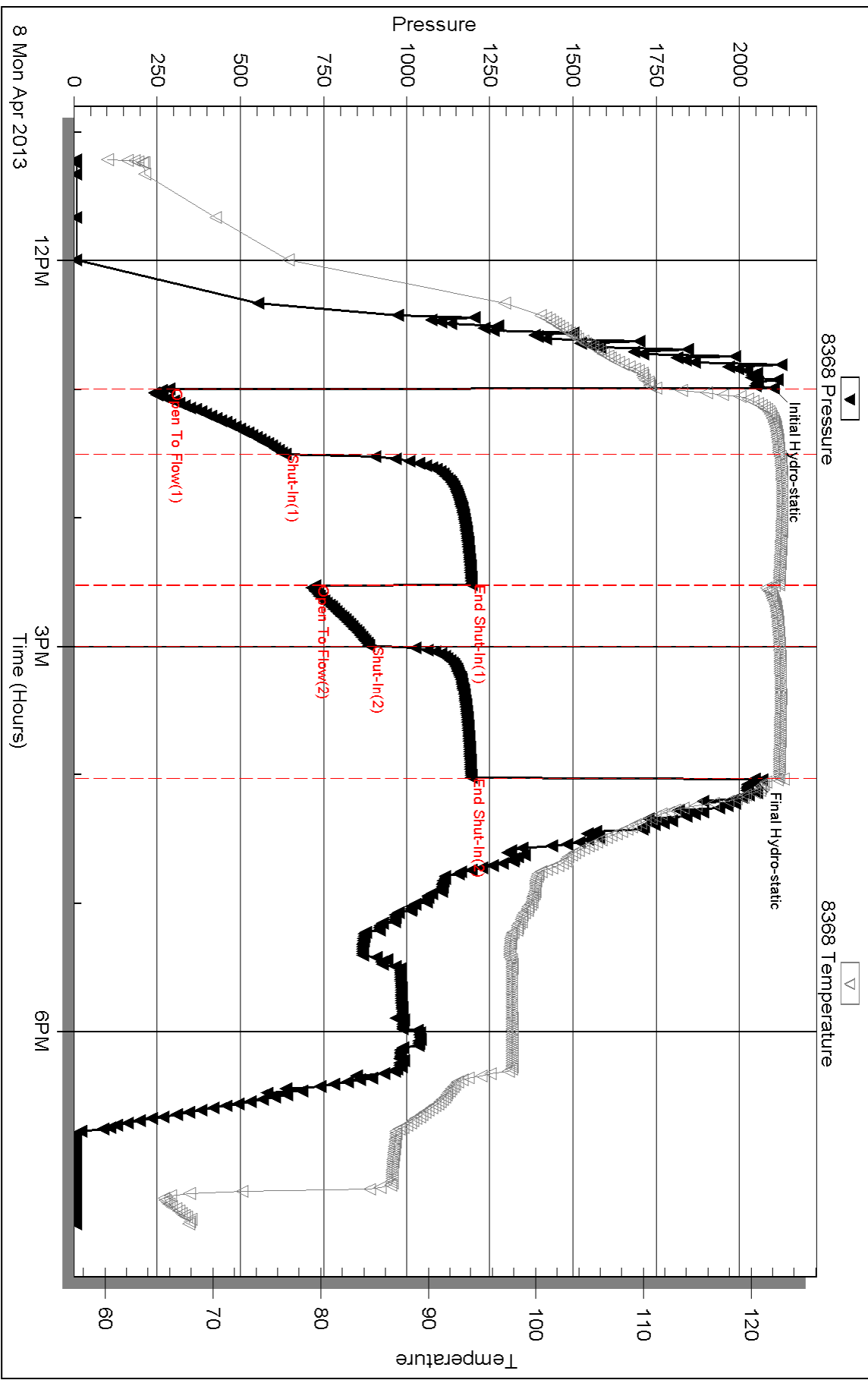
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	under circ sub g o c m 25%g 35%o 40%m	0.590
1802.00	c g o reversed out 20%g 80%o	24.749
434.00	c g o 20%g 80%o	6.088
0.00	372' gas in pipe	0.000

Total Length: 2356.00 ft      Total Volume: 31.427 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

### Pressure vs. Time



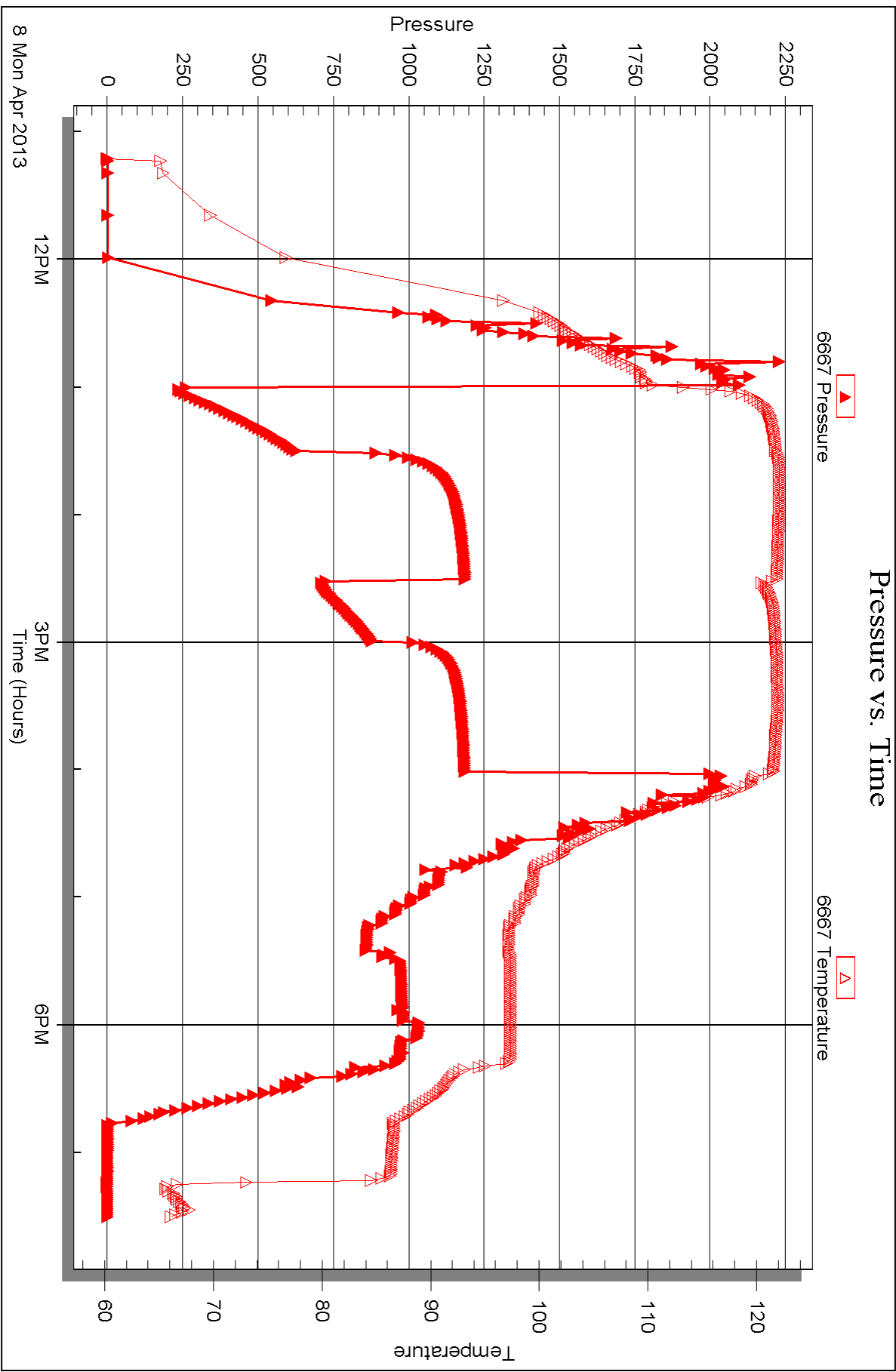
Serial #: 6667

Inside

Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 2





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilg Comp Inc**

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Steve Miller

**WWWM #2-4**

**4-13s-34w Logan,KS**

Start Date: 2013.04.10 @ 07:45:26

End Date: 2013.04.10 @ 17:02:36

Job Ticket #: 49188                      DST #: 3

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

Printed: 2013.04.22 @ 11:40:05



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilg Comp Inc  
 250 N Water Ste 300  
 Wichita, KS 67202  
 ATTN: Steve Miller

**4-13s-34w Logan,KS**

**WWWM #2-4**

Job Ticket: 49188

**DST#: 3**

Test Start: 2013.04.10 @ 07:45:26

## GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:01:21

Time Test Ended: 17:02:36

Test Type: Conventional Bottom Hole (Reset)

Tester: Shane McBride

Unit No: 55

**Interval: 4383.00 ft (KB) To 4460.00 ft (KB) (TVD)**

Reference Elevations: 3051.00 ft (KB)

Total Depth: 4460.00 ft (KB) (TVD)

3040.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8368 Outside**

Press @ RunDepth: 182.96 psig @ 4384.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.10

End Date:

2013.04.10

Last Calib.:

2013.04.10

Start Time: 07:45:26

End Time:

17:02:36

Time On Btm:

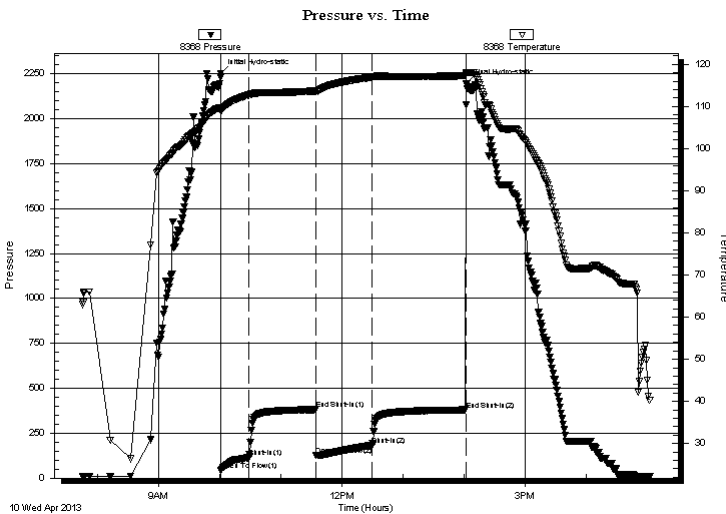
2013.04.10 @ 10:00:51

Time Off Btm:

2013.04.10 @ 14:02:21

**TEST COMMENT:** B.O.B. in 11 min  
 4" return blow  
 4" @ open built to B.O.B. in 10 min  
 5" return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2252.19	109.77	Initial Hydro-static
1	43.94	108.90	Open To Flow (1)
28	114.42	112.73	Shut-In(1)
94	381.60	113.67	End Shut-In(1)
94	127.80	113.57	Open To Flow (2)
149	182.96	116.99	Shut-In(2)
241	379.94	117.31	End Shut-In(2)
242	2193.77	118.07	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
248.00	g o c m 20%g 35%o 45%m	1.86
124.00	c g o 15%g 85%o	1.74
0.00	930' weak gas in pipe	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Murfin Drilg Comp Inc  
 250 N Water Ste 300  
 Wichita, KS 67202  
 ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
 Job Ticket: 49188 **DST#: 3**  
 Test Start: 2013.04.10 @ 07:45:26

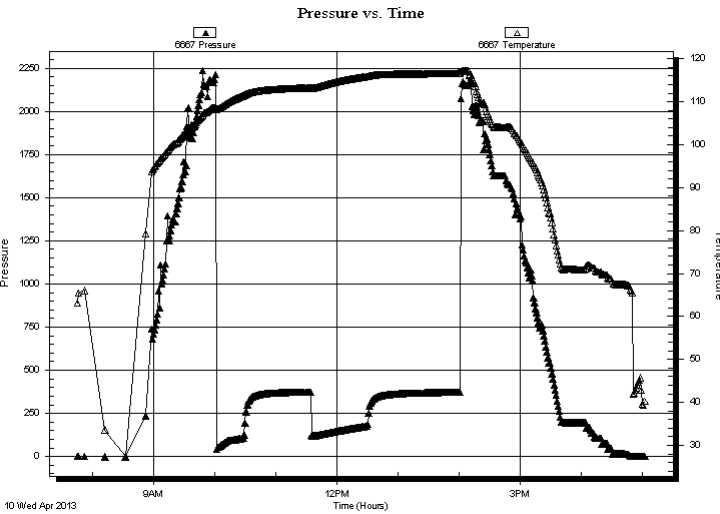
**GENERAL INFORMATION:**

Formation: **Marmaton**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:01:21  
 Time Test Ended: 17:02:36  
 Interval: **4383.00 ft (KB) To 4460.00 ft (KB) (TVD)**  
 Total Depth: 4460.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 6667 Inside**

Press @ Run Depth: psig @ 4384.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.10 End Date: 2013.04.10 Last Calib.: 2013.04.10  
 Start Time: 07:45:36 End Time: 17:02:36 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** B.O.B. in 11 min  
 4" return blow  
 4" @ open built to B.O.B. in 10 min  
 5" return blow



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
248.00	g o c m 20%g 35%o 45%m	1.86
124.00	c g o 15%g 85%o	1.74
0.00	930' weak gas in pipe	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 Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49188  
Test Start: 2013.04.10 @ 07:45:26

**DST#: 3**

## Tool Information

Drill Pipe:	Length: 4198.00 ft	Diameter: 3.80 inches	Volume: 58.89 bbl	Tool Weight:	1500.00 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	90000.00 lb
			<u>Total Volume: 59.77 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4383.00 ft			Final	61000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	77.00 ft				
Tool Length:	104.00 ft				
Number of Packers:	2	Diameter:	6.75 inches		
Tool Comments:					

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

Change Over Sub	1.00			4357.00	
Shut In Tool	5.00			4362.00	
Hydraulic tool	5.00			4367.00	
Jars	5.00			4372.00	
Safety Joint	2.00			4374.00	
Packer	5.00			4379.00	27.00 Bottom Of Top Packer
Packer	4.00			4383.00	
Stubb	1.00			4384.00	
Recorder	0.00	6667	Inside	4384.00	
Recorder	0.00	8368	Outside	4384.00	
Perforations	5.00			4389.00	
Change Over Sub	1.00			4390.00	
Drill Pipe	64.00			4454.00	
Change Over Sub	1.00			4455.00	
Bullnose	5.00			4460.00	77.00 Bottom Packers & Anchor

**Total Tool Length: 104.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49188      **DST#: 3**  
Test Start: 2013.04.10 @ 07:45:26

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 28 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 0 ppm
Viscosity: 45.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.17 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2500.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
248.00	g o c m 20%g 35%o 45%m	1.857
124.00	c g o 15%g 85%o	1.739
0.00	930' weak gas in pipe	0.000

Total Length: 372.00 ft      Total Volume: 3.596 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

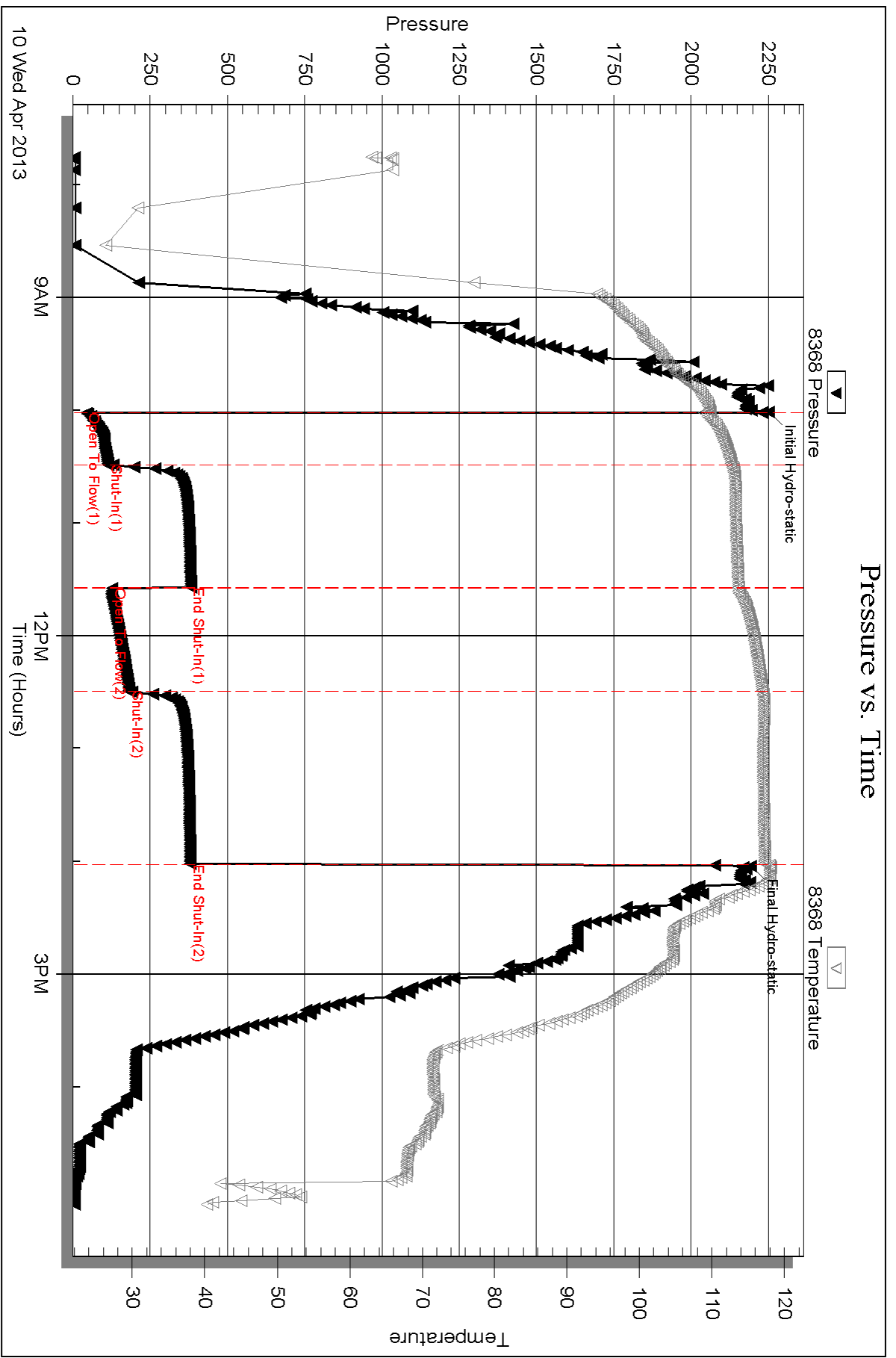


Serial #: 8368

Outside Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 3



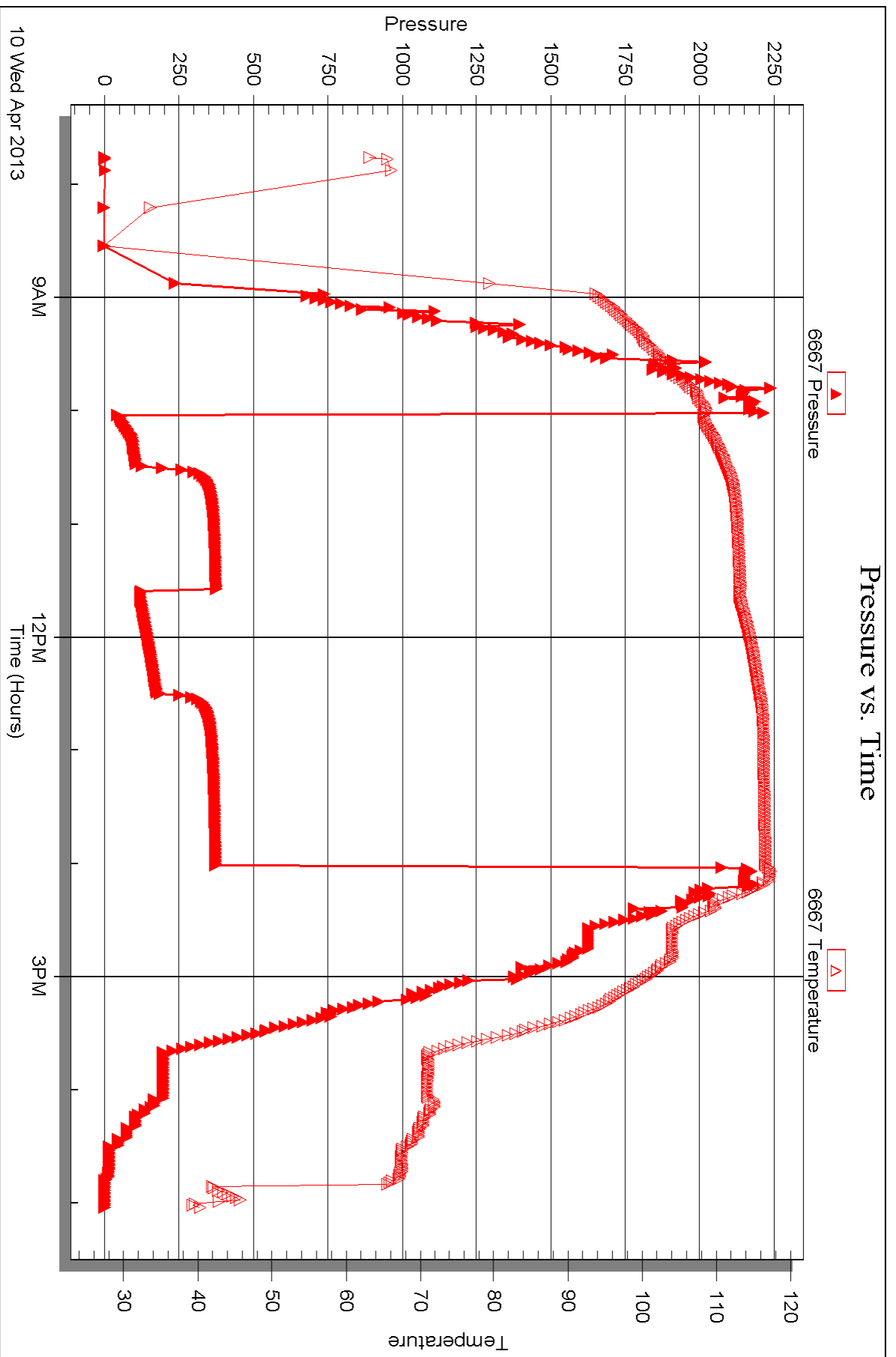
Serial #: 6667

Inside

Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 3





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilg Comp Inc**

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Steve Miller

**WWWM #2-4**

**4-13s-34w Logan,KS**

Start Date: 2013.04.11 @ 02:26:12

End Date: 2013.04.11 @ 09:25:42

Job Ticket #: 49189                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.22 @ 11:39:22

Murfin Drilg Comp Inc  
4-13s-34w Logan,KS  
WWWM #2-4  
DST # 4  
Pawnee  
2013.04.11



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilg Comp Inc  
 250 N Water Ste 300  
 Wichita, KS 67202  
 ATTN: Steve Miller

**4-13s-34w Logan,KS**

**WWWM #2-4**

Job Ticket: 49189

**DST#: 4**

Test Start: 2013.04.11 @ 02:26:12

## GENERAL INFORMATION:

Formation: **Pawnee**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:30:27  
 Time Test Ended: 09:25:42  
 Interval: **4466.00 ft (KB) To 4488.00 ft (KB) (TVD)**  
 Total Depth: 4488.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

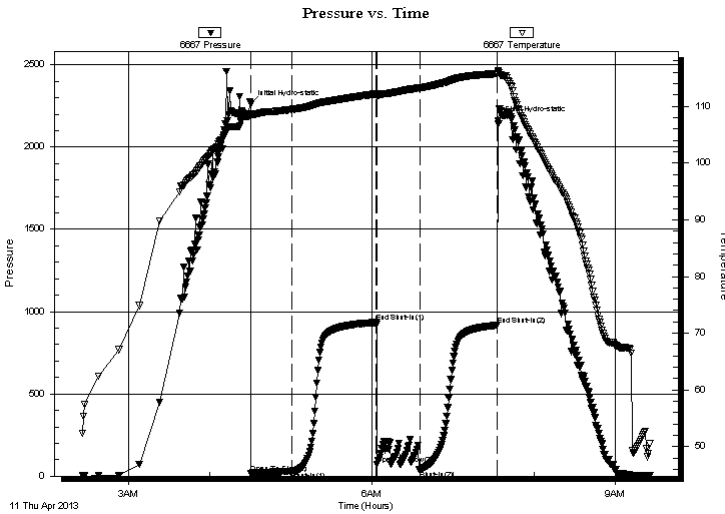
## Serial #: 6667

Inside

Press @ Run Depth: 37.07 psig @ 4467.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.11 End Date: 2013.04.11 Last Calib.: 2013.04.11  
 Start Time: 02:26:12 End Time: 09:25:42 Time On Btm: 2013.04.11 @ 04:30:12  
 Time Off Btm: 2013.04.11 @ 07:33:12

TEST COMMENT: Surface blow  
 No return  
 Surface blow  
 No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2260.53	108.65	Initial Hydro-static
1	19.00	108.29	Open To Flow (1)
31	28.96	109.45	Shut-In(1)
93	934.14	112.22	End Shut-In(1)
94	70.30	111.87	Open To Flow (2)
125	37.07	113.22	Shut-In(2)
183	917.53	115.78	End Shut-In(2)
183	2160.70	116.35	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	s o c m 4%o 96%m	0.07

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilg Comp Inc  
 250 N Water Ste 300  
 Wichita, KS 67202  
 ATTN: Steve Miller

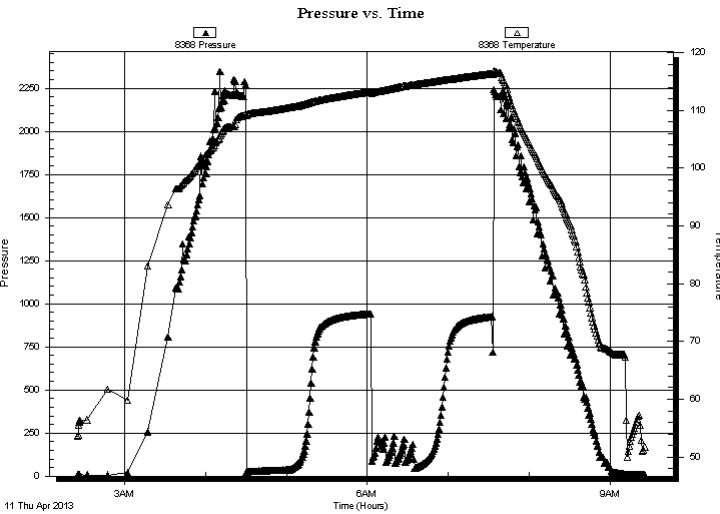
**4-13s-34w Logan, KS**  
**WWWM #2-4**  
 Job Ticket: 49189 **DST#: 4**  
 Test Start: 2013.04.11 @ 02:26:12

**GENERAL INFORMATION:**

Formation: **Pawnee**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:30:27  
 Time Test Ended: 09:25:42  
**Interval: 4466.00 ft (KB) To 4488.00 ft (KB) (TVD)**  
 Total Depth: 4488.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 8368 Outside**  
 Press @ Run Depth: psig @ 4467.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.11 End Date: 2013.04.11 Last Calib.: 2013.04.11  
 Start Time: 02:25:33 End Time: 09:25:12 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** Surface blow  
 No return  
 Surface blow  
 No return



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
15.00	s o c m 4%o 96%m	0.07

\* Recovery from multiple tests

**Gas Rates**

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49189  
Test Start: 2013.04.11 @ 02:26:12

**DST#: 4**

## Tool Information

Drill Pipe:	Length: 4265.00 ft	Diameter: 3.80 inches	Volume: 59.83 bbl	Tool Weight: 1500.00 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 60.71 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4466.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	49.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Change Over Sub	1.00			4440.00	
Shut In Tool	5.00			4445.00	
Hydraulic tool	5.00			4450.00	
Jars	5.00			4455.00	
Safety Joint	2.00			4457.00	
Packer	5.00			4462.00	27.00 Bottom Of Top Packer
Packer	4.00			4466.00	
Stubb	1.00			4467.00	
Recorder	0.00	6667	Inside	4467.00	
Recorder	0.00	8368	Outside	4467.00	
Perforations	16.00			4483.00	
Bullnose	5.00			4488.00	22.00 Bottom Packers & Anchor

**Total Tool Length: 49.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49189      **DST#: 4**  
Test Start: 2013.04.11 @ 02:26:12

## Mud and Cushion Information

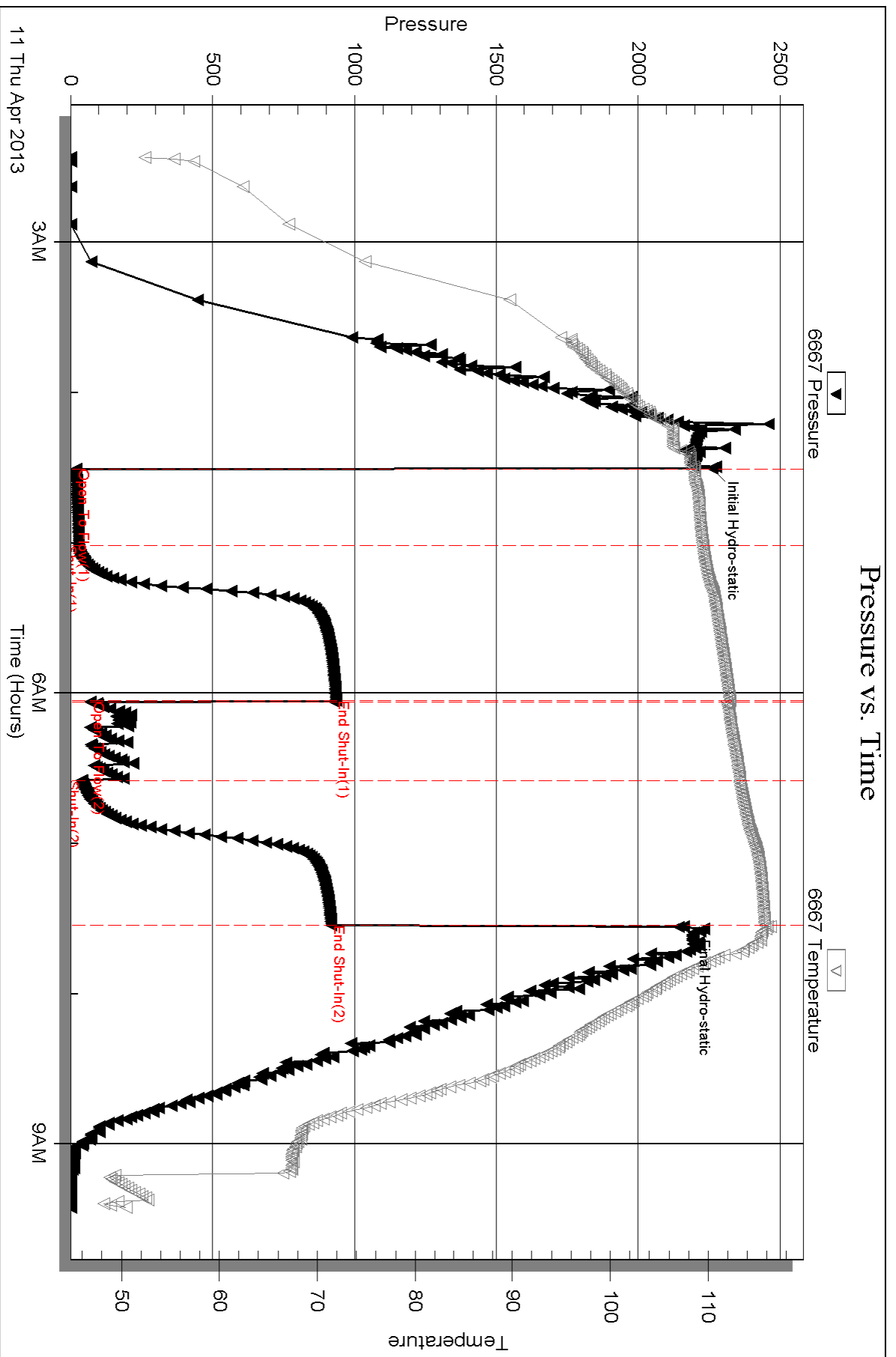
Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 45.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.58 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2000.00 ppm			
Filter Cake: 2.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	s o c m 4%o 96%m	0.074

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



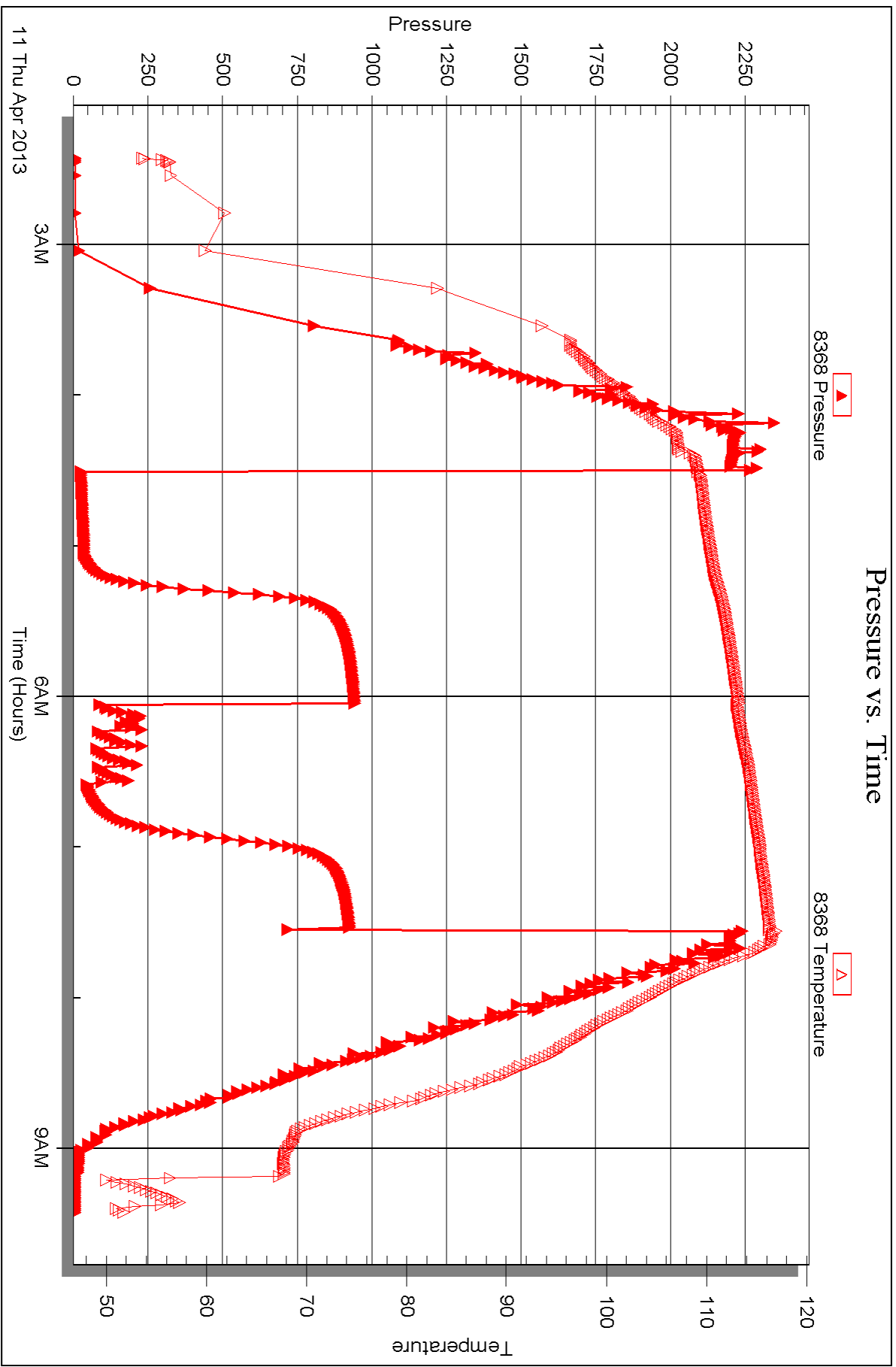


Serial #: 8368

Outside Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 4





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilg Comp Inc**

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Steve Miller

**WWWM #2-4**

**4-13s-34w Logan,KS**

Start Date: 2013.04.11 @ 23:15:59

End Date: 2013.04.12 @ 08:29:24

Job Ticket #: 49190                      DST #: 5

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

Printed: 2013.04.22 @ 11:38:35



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**

**WWWM #2-4**

Job Ticket: 49190

**DST#: 5**

Test Start: 2013.04.11 @ 23:15:59

## GENERAL INFORMATION:

Formation: **Ft Scott**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 01:42:24  
 Time Test Ended: 08:29:24  
 Interval: **4497.00 ft (KB) To 4548.00 ft (KB) (TVD)**  
 Total Depth: 4548.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

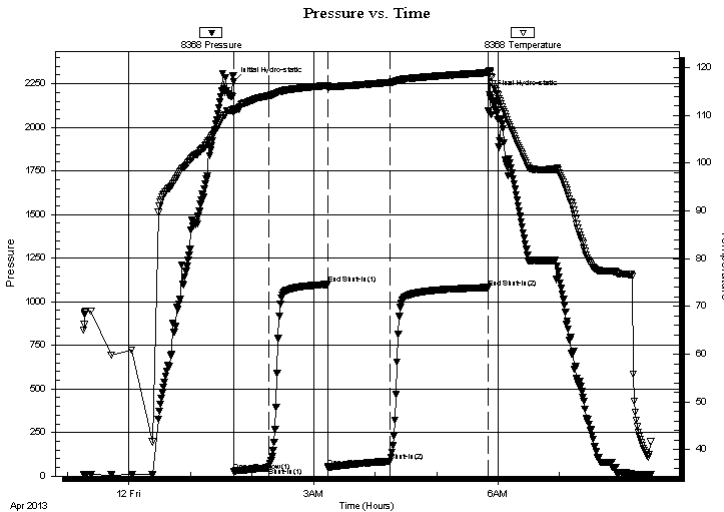
## Serial #: 8368

**Outside**

Press @ Run Depth: 84.35 psig @ 4498.00 ft (KB)  
 Start Date: 2013.04.11 End Date: 2013.04.12  
 Start Time: 23:15:59 End Time: 08:29:24  
 Capacity: 8000.00 psig  
 Last Calib.: 2013.04.12  
 Time On Btm: 2013.04.12 @ 01:42:09  
 Time Off Btm: 2013.04.12 @ 05:51:54

**TEST COMMENT:** 5 1/2" blow  
 No return  
 B.O.B. in 37 min.  
 1/2" return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2262.10	111.43	Initial Hydro-static
1	26.27	110.59	Open To Flow (1)
34	48.45	114.10	Shut-In(1)
92	1100.09	116.26	End Shut-In(1)
93	50.99	115.83	Open To Flow (2)
153	84.35	116.90	Shut-In(2)
248	1081.30	118.95	End Shut-In(2)
250	2189.44	118.87	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	g o c m 10%g 35%o 55%m	0.15
120.00	c g o 5%g 95%o	0.59
0.00	403' gas in pipe	0.00

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49190      **DST#: 5**  
Test Start: 2013.04.11 @ 23:15:59

**Tool Information**

Drill Pipe:	Length: 4296.00 ft	Diameter: 3.80 inches	Volume: 60.26 bbl	Tool Weight: 1500.00 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 61.14 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4497.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	51.00 ft			
Tool Length:	78.00 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			4471.00	
Shut In Tool	5.00			4476.00	
Hydraulic tool	5.00			4481.00	
Jars	5.00			4486.00	
Safety Joint	2.00			4488.00	
Packer	5.00			4493.00	27.00      Bottom Of Top Packer
Packer	4.00			4497.00	
Stubb	1.00			4498.00	
Recorder	0.00	6667	Inside	4498.00	
Recorder	0.00	8368	Outside	4498.00	
Perforations	11.00			4509.00	
Change Over Sub	1.00			4510.00	
Drill Pipe	32.00			4542.00	
Change Over Sub	1.00			4543.00	
Bullnose	5.00			4548.00	51.00      Bottom Packers & Anchor

**Total Tool Length: 78.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49190      **DST#: 5**  
Test Start: 2013.04.11 @ 23:15:59

### Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 30 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 0 ppm
Viscosity: 51.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.38 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2200.00 ppm		
Filter Cake: 2.00 inches		

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	g o c m 10%g 35%o 55%m	0.148
120.00	c g o 5%g 95%o	0.590
0.00	403' gas in pipe	0.000

Total Length: 150.00 ft      Total Volume: 0.738 bbl

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

Laboratory Name:      Laboratory Location:

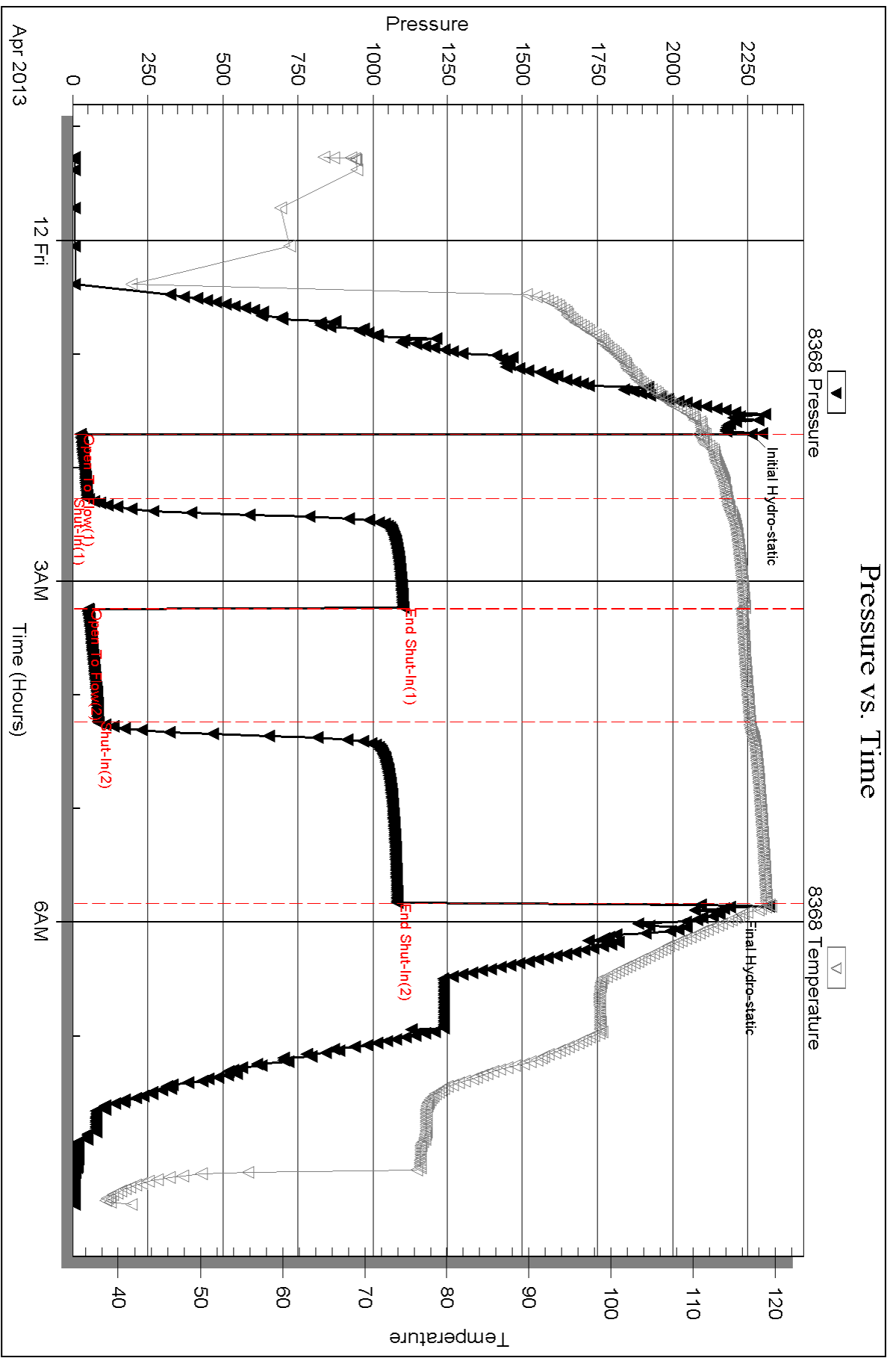
Recovery Comments:

Serial #: 8368

Outside Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 5



Triobite Testing, Inc

Ref. No: 49190

Printed: 2013.04.22 @ 11:38:38

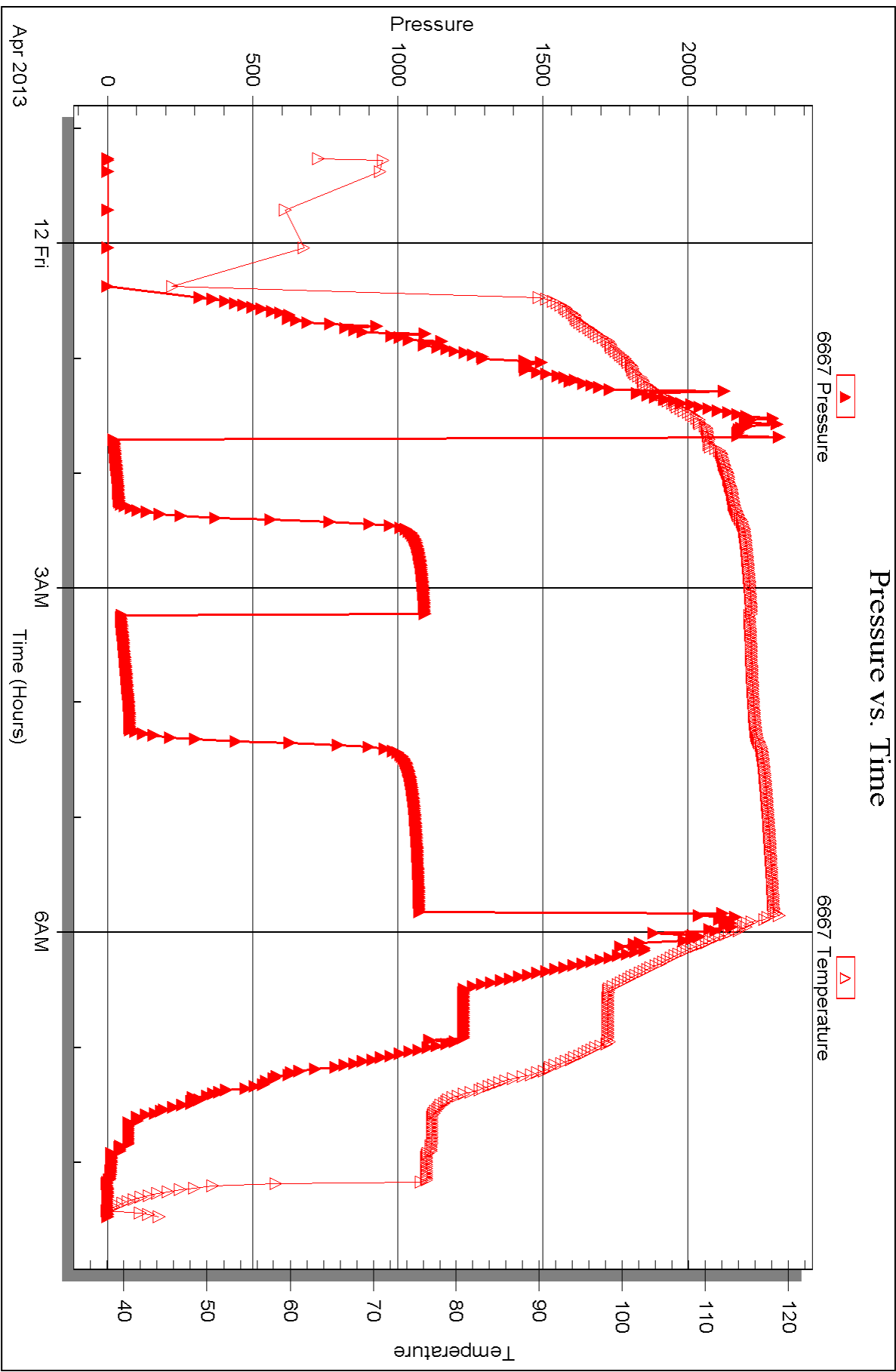
Serial #: 6667

Inside

Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 5







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilg Comp Inc**

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Steve Miller

**WWWM #2-4**

**4-13s-34w Logan,KS**

Start Date: 2013.04.12 @ 17:50:56

End Date: 2013.04.13 @ 01:02:56

Job Ticket #: 49191                      DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.22 @ 11:37:08



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilg Comp Inc  
 250 N Water Ste 300  
 Wichita, KS 67202  
 ATTN: Steve Miller

**4-13s-34w Logan,KS**

**WWWM #2-4**

Job Ticket: 49191

**DST#: 6**

Test Start: 2013.04.12 @ 17:50:56

## GENERAL INFORMATION:

Formation: **Cherokee**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 20:01:56  
 Time Test Ended: 01:02:56  
 Interval: **4553.00 ft (KB) To 4574.00 ft (KB) (TVD)**  
 Total Depth: 4574.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

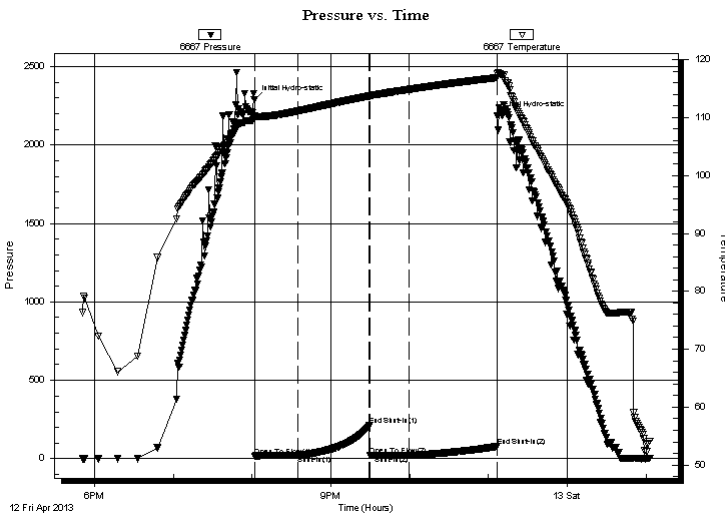
## Serial #: 6667

Inside

Press @ RunDepth: 22.98 psig @ 4554.00 ft (KB)  
 Start Date: 2013.04.12 End Date: 2013.04.13  
 Start Time: 17:50:56 End Time: 01:02:56  
 Capacity: 8000.00 psig  
 Last Calib.: 2013.04.13  
 Time On Btm: 2013.04.12 @ 20:01:41  
 Time Off Btm: 2013.04.12 @ 23:06:41

TEST COMMENT: Weak surface blow died in 22 min.  
 No return  
 No blow  
 No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2287.73	110.25	Initial Hydro-static
1	18.15	109.95	Open To Flow (1)
34	22.24	111.15	Shut-In(1)
88	211.04	113.74	End Shut-In(1)
88	23.94	113.66	Open To Flow (2)
118	22.98	114.86	Shut-In(2)
185	78.64	116.90	End Shut-In(2)
185	2184.25	117.57	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud w oil spots 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

Murfin Drilg Comp Inc  
 250 N Water Ste 300  
 Wichita, KS 67202  
 ATTN: Steve Miller

**4-13s-34w Logan, KS**

**WWWM #2-4**

Job Ticket: 49191

**DST#: 6**

Test Start: 2013.04.12 @ 17:50:56

## GENERAL INFORMATION:

Formation: **Cherokee**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 20:01:56  
 Time Test Ended: 01:02:56  
 Interval: **4553.00 ft (KB) To 4574.00 ft (KB) (TVD)**  
 Total Depth: 4574.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

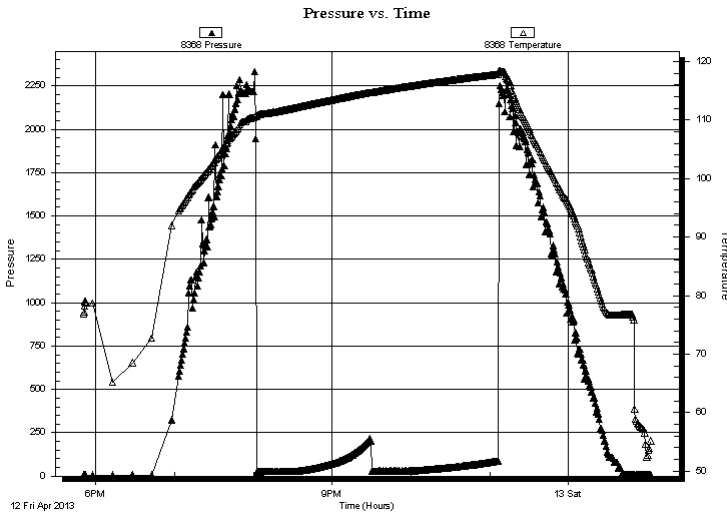
**Serial #: 8368**

**Outside**

Press @ RunDepth: psig @ 4554.00 ft (KB)  
 Start Date: 2013.04.12 End Date: 2013.04.13  
 Start Time: 17:50:46 End Time: 01:02:55  
 Capacity: 8000.00 psig  
 Last Calib.: 2013.04.13  
 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** Weak surface blow died in 22 min.  
 No return  
 No blow  
 No return

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud w oil spots 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 Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49191  
Test Start: 2013.04.12 @ 17:50:56

**DST#: 6**

## Tool Information

Drill Pipe:	Length: 4358.00 ft	Diameter: 3.80 inches	Volume: 61.13 bbl	Tool Weight: 1500.00 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 62.01 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4553.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	21.00 ft			
Tool Length:	48.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4527.00	
Shut In Tool	5.00			4532.00	
Hydraulic tool	5.00			4537.00	
Jars	5.00			4542.00	
Safety Joint	2.00			4544.00	
Packer	5.00			4549.00	27.00 Bottom Of Top Packer
Packer	4.00			4553.00	
Stubb	1.00			4554.00	
Recorder	0.00	6667	Inside	4554.00	
Recorder	0.00	8368	Outside	4554.00	
Perforations	15.00			4569.00	
Bullnose	5.00			4574.00	21.00 Bottom Packers & Anchor

**Total Tool Length: 48.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49191  
Test Start: 2013.04.12 @ 17:50:56

**DST#: 6**

### Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 51.00 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: 2200.00 ppm			
Filter Cake: 2.00 inches			

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud w oil spots 100%m	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments:

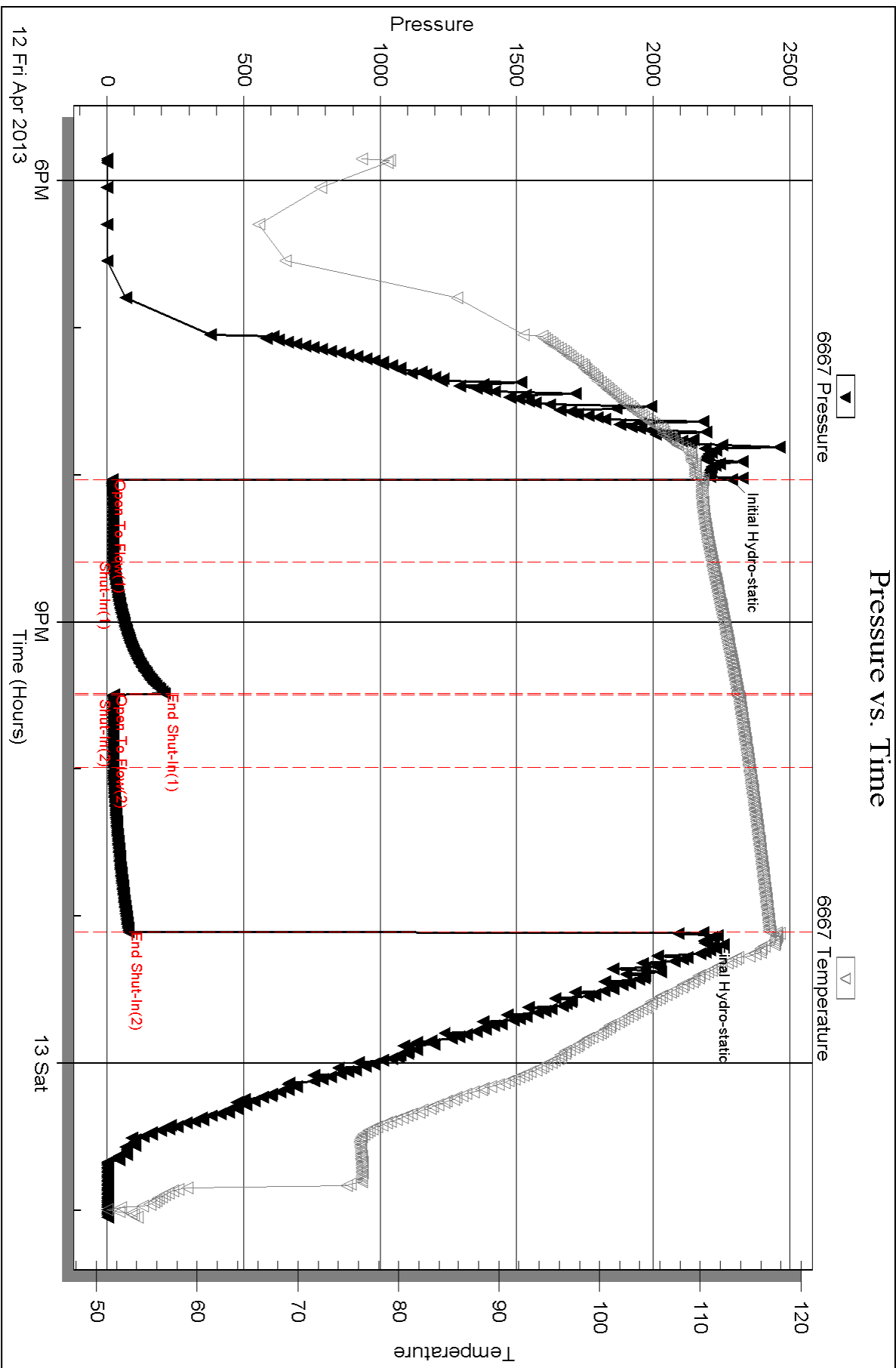
Serial #: 6667

Inside

Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 6

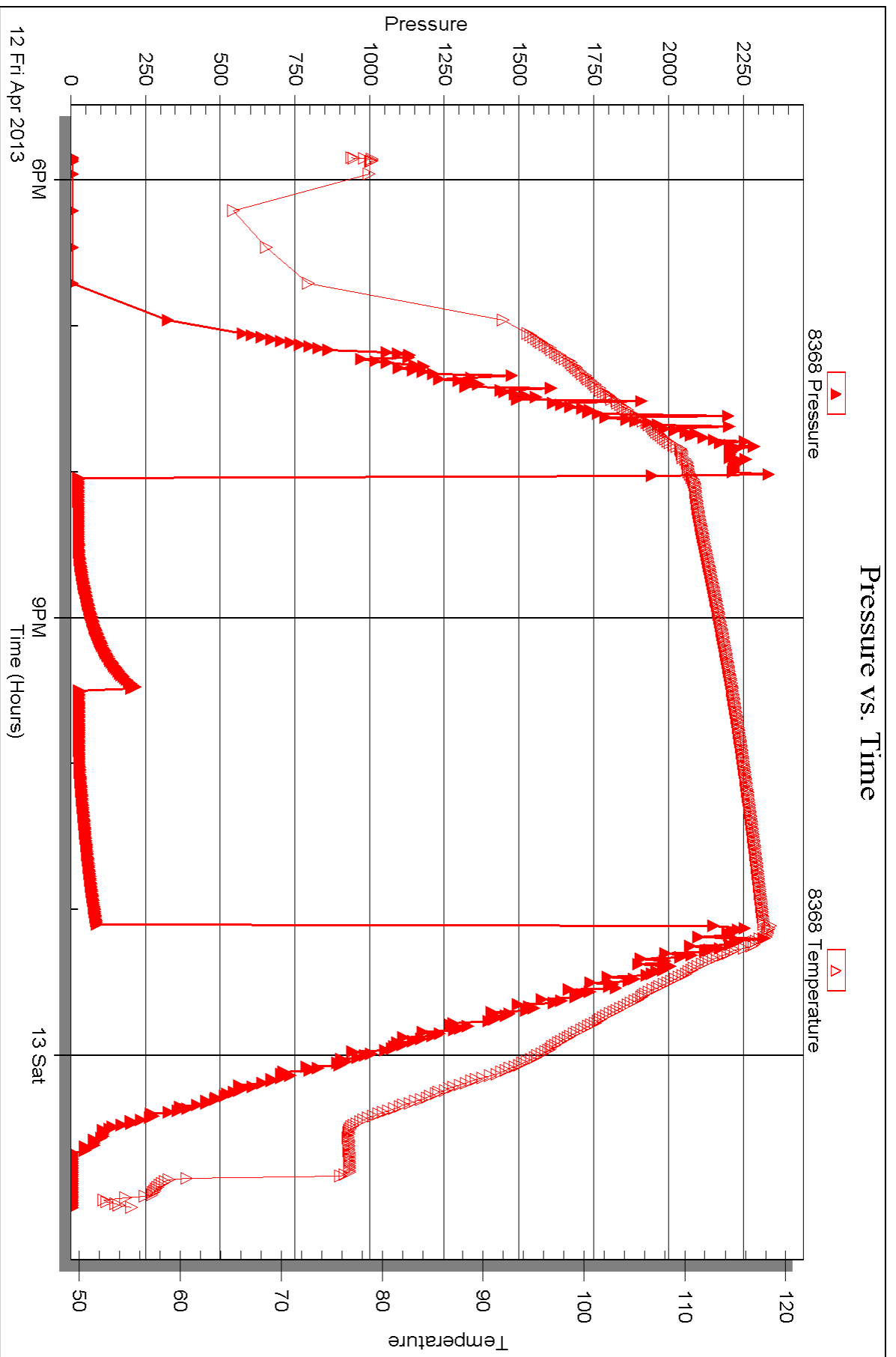


Serial #: 8368

Outside Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 6





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilg Comp Inc**

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Steve Miller

**WWWM #2-4**

**4-13s-34w Logan,KS**

Start Date: 2013.04.13 @ 12:25:35

End Date: 2013.04.13 @ 21:01:00

Job Ticket #: 49192                      DST #: 7

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

Printed: 2013.04.22 @ 11:36:07





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan, KS**

**WWWM #2-4**

Job Ticket: 49192

**DST#: 7**

Test Start: 2013.04.13 @ 12:25:35

## GENERAL INFORMATION:

Formation: **Johnson**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 14:08:45  
 Time Test Ended: 21:01:00  
 Interval: **4577.00 ft (KB) To 4616.00 ft (KB) (TVD)**  
 Total Depth: 4616.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

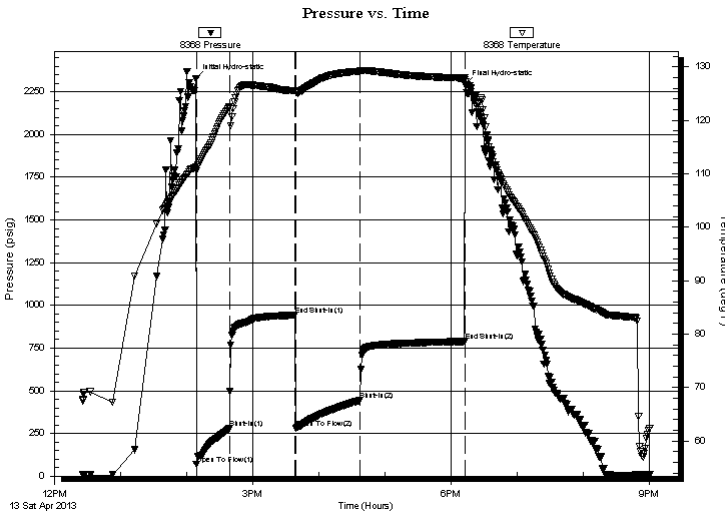
## Serial #: 8368

**Outside**

Press @ Run Depth: 444.80 psig @ 4578.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.13 End Date: 2013.04.13 Last Calib.: 2013.04.13  
 Start Time: 12:25:35 End Time: 21:01:00 Time On Btm: 2013.04.13 @ 14:08:30  
 Time Off Btm: 2013.04.13 @ 18:13:00

TEST COMMENT: B.O.B. in 3 1/2 min.  
 B.O.B. return blow in 40 min  
 B.O.B. @ open  
 9" in return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2329.00	111.37	Initial Hydro-static
1	70.15	110.53	Open To Flow (1)
31	278.54	122.50	Shut-In(1)
90	943.07	125.53	End Shut-In(1)
91	281.30	125.27	Open To Flow (2)
149	444.80	129.20	Shut-In(2)
244	788.56	127.88	End Shut-In(2)
245	2294.07	127.66	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
372.00	sgmocw 10g 3o 80w 7m	3.60
217.00	g m c o 20g 35m 45o	3.04
403.00	c g o 20g 80o	5.65
0.00	1550' GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49192  
Test Start: 2013.04.13 @ 12:25:35

**DST#: 7**

## Tool Information

Drill Pipe:	Length: 4392.00 ft	Diameter: 3.80 inches	Volume: 61.61 bbl	Tool Weight:	1500.00 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	95000.00 lb
			<u>Total Volume: 62.49 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	61000.00 lb
Depth to Top Packer:	4577.00 ft			Final	68000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	39.00 ft				
Tool Length:	66.00 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			4551.00	
Shut In Tool	5.00			4556.00	
Hydraulic tool	5.00			4561.00	
Jars	5.00			4566.00	
Safety Joint	2.00			4568.00	
Packer	5.00			4573.00	27.00 Bottom Of Top Packer
Packer	4.00			4577.00	
Stubb	1.00			4578.00	
Recorder	0.00	6667	Inside	4578.00	
Recorder	0.00	8368	Outside	4578.00	
Perforations	33.00			4611.00	
Bullnose	5.00			4616.00	39.00 Bottom Packers & Anchor

**Total Tool Length: 66.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilg Comp Inc  
250 N Water Ste 300  
Wichita, KS 67202  
ATTN: Steve Miller

**4-13s-34w Logan,KS**  
**WWWM #2-4**  
Job Ticket: 49192      **DST#: 7**  
Test Start: 2013.04.13 @ 12:25:35

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 30 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 33000 ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.80 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2000.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
372.00	sgmocw 10g 3o 80w 7m	3.597
217.00	g m c o 20g 35m 45o	3.044
403.00	c g o 20g 80o	5.653
0.00	1550' GIP	0.000

Total Length: 992.00 ft      Total Volume: 12.294 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: rw .188 @ 78\*f = 33,000 chlor

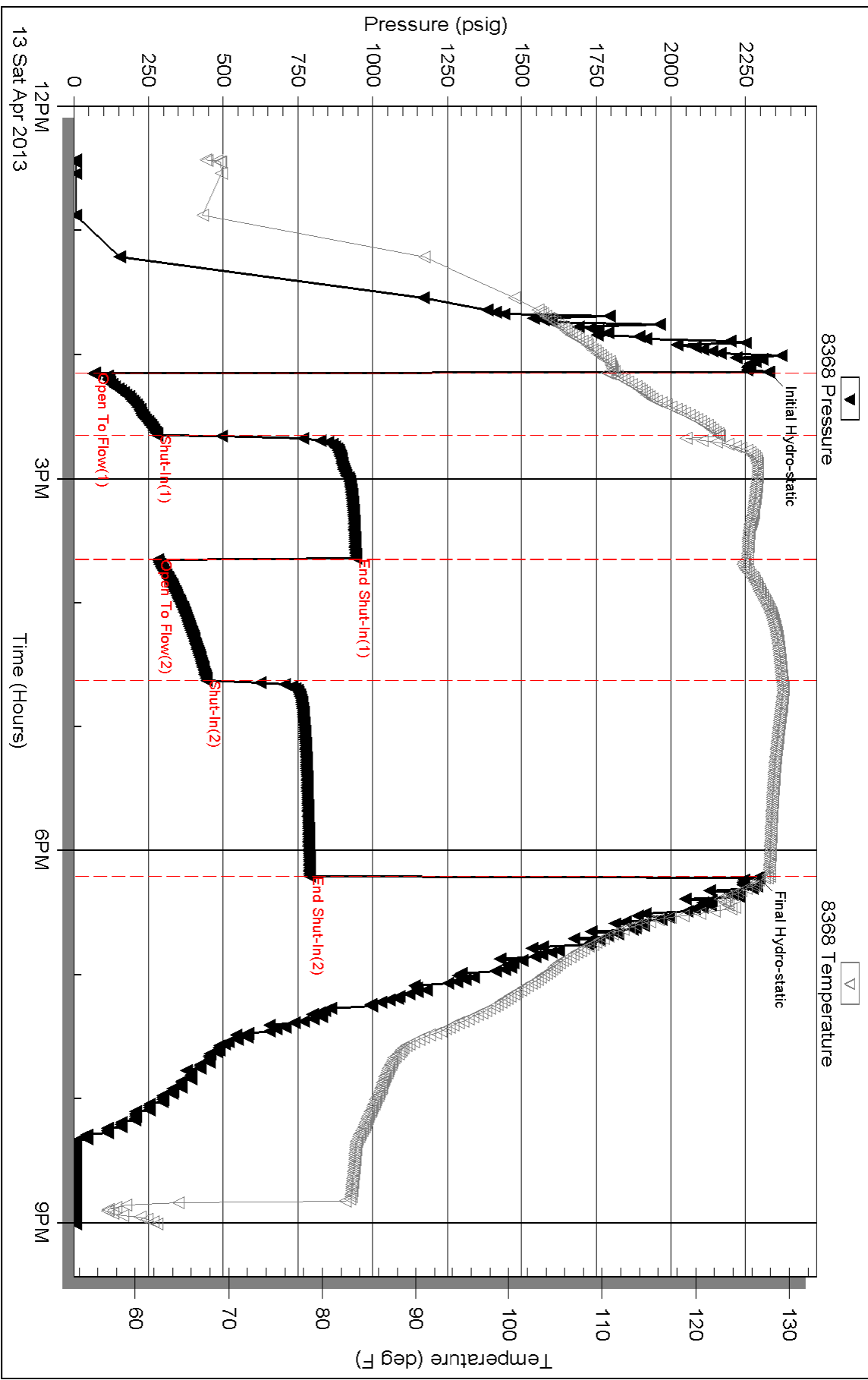
Serial #: 8368

Outside Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 7

### Pressure vs. Time



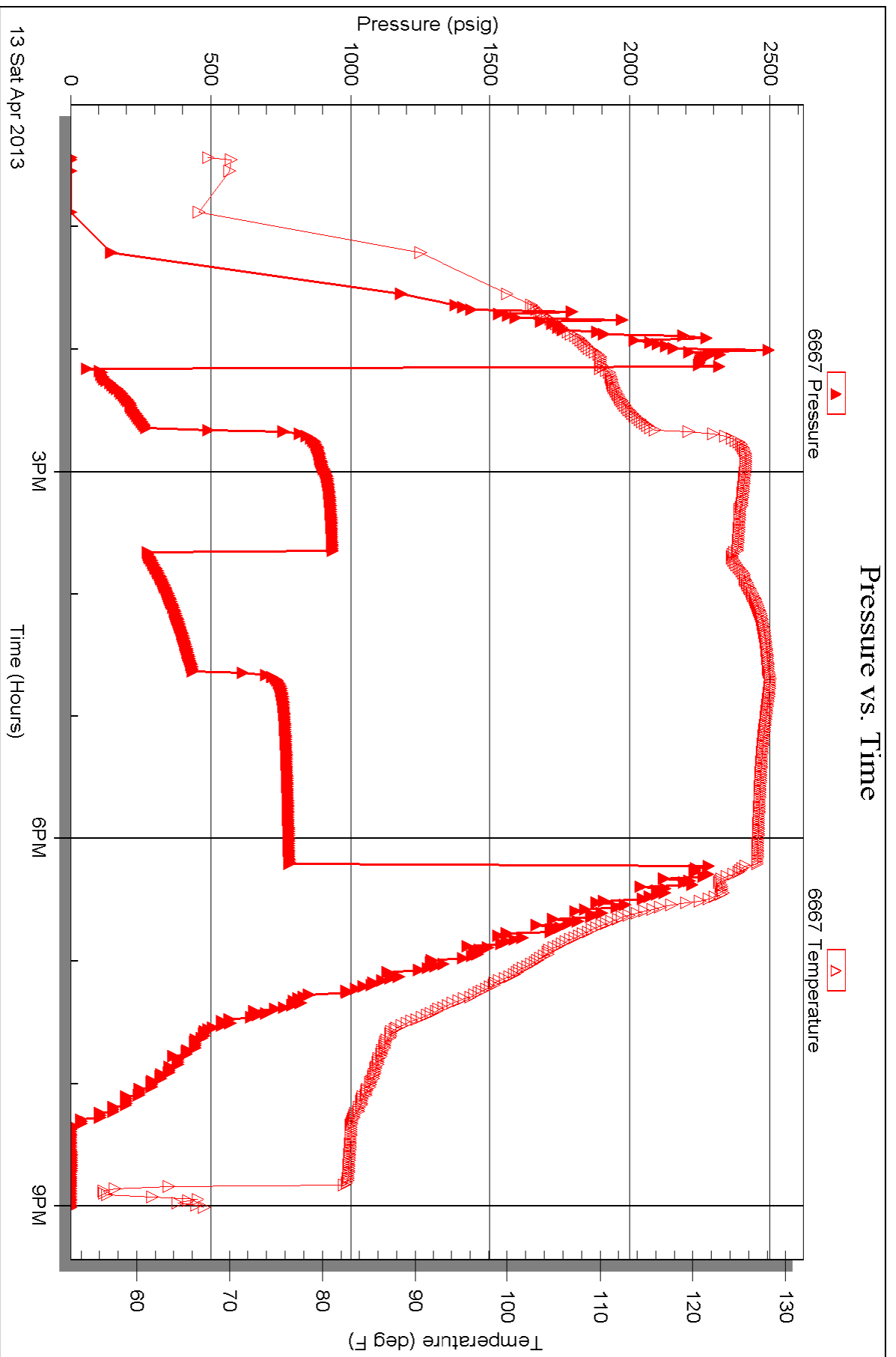
Serial #: 6667

Inside

Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 7





# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 49186

Well Name & No. Wwwm # 2-4 Test No. #1 Date 4/7/13  
 Company Murfin Daily Comp Inc. Elevation 3051 KB 3040 GL  
 Address 250 W. Water St # 300 Wichita, Ks 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin # 20  
 Location: Sec. 4 Twp. 135 Rge. 34w Co. Jogan State Ks

Interval Tested 4031 4085 Zone Tested A-C  
 Anchor Length 54 Drill Pipe Run 3854 Mud Wt. 8.6  
 Top Packer Depth 4026 Drill Collars Run 178' Vis 55  
 Bottom Packer Depth 4031 Wt. Pipe Run --- WL 6.0  
 Total Depth 4085 Chlorides 5100 ppm System LCM # 6  
 Blow Description B.O.B. in 4 1/2 min.  
No return  
B.O.B. in 7 1/2 min.  
No return

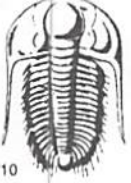
Rec	Feet of	%gas	%oil	%water	%mud
<u>248</u>	<u>Feet of mcw</u>			<u>65%</u>	<u>35%</u>
<u>372</u>	<u>Feet of smcw</u>			<u>90%</u>	<u>10%</u>
<u>992</u>	<u>Feet of water</u>			<u>100%</u>	

Rec Total 1612' BHT 121° Gravity --- API RW .150 @ 55 ° F Chlorides 62000 ppm

(A) Initial Hydrostatic <u>2055</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>13:45</u>
(B) First Initial Flow <u>85</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>15:10</u>
(C) First Final Flow <u>383</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>17:16</u>
(D) Initial Shut-In <u>1172</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>21:16</u>
(E) Second Initial Flow <u>409</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>23:50</u>
(F) Second Final Flow <u>731</u>	<input checked="" type="checkbox"/> Mileage <u>74 RT</u> 114.70	Comments _____
(G) Final Shut-In <u>1167</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>1974</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 <u>1</u>
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>1689.70</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1689.70</u>	

Approved By [Signature] 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.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 49187

4/10

Well Name & No. wwwm # 2-4 Test No. #2 Date 4/8/13  
 Company Martin Drilg Comp Inc. Elevation 3051 KB 3040 GL  
 Address 250 N. Water St #300 Wichita, Ks 67202  
 Co. Rep / Geo. Steve Miller Rig Martin #20  
 Location: Sec. 4 Twp. 13S Rge. 34W Co. Logan State Ks

Interval Tested 4108 4145 Zone Tested KC  
 Anchor Length 37 Drill Pipe Run 3915' Mud Wt. 9.2  
 Top Packer Depth 4103 Drill Collars Run 178' Vis 52  
 Bottom Packer Depth 4108 Wt. Pipe Run --- WL 7.2  
 Total Depth 4145 Chlorides 2500 ppm System LCM #7

Blow Description B.O.B. in 1 1/2 min.  
8" in Return blow  
8" @ open built to B.O.B. in 1 min.  
1/2" in Return blow

Sec	Feet of	%gas	%oil	%water	%mud
<u>434</u>	Feet of <u>C90</u>	<u>20</u>	<u>80</u>		
<u>1802</u>	Feet of <u>C90 Reversed out</u>	<u>20</u>	<u>80</u>		
<u>120'</u>	Feet of <u>gocm</u>	<u>35</u>	<u>35</u>		<u>40</u>
	Feet of <u>372' GAS in pipe</u>				

ec Total 2356 BHT 123° Gravity 30 API RW --- @ --- °F Chlorides --- ppm

a) Initial Hydrostatic 2102  Test 1250 T-On Location 10:20  
 b) First Initial Flow 285  Jars 250 T-Started 11:12  
 c) First Final Flow 6034  Safety Joint 75 T-Open 13:00  
 d) Initial Shut-In 1195  Circ Sub #5000 T-Pulled 16:00  
 e) Second Initial Flow 724  Hourly Standby \_\_\_\_\_ T-Out \_\_\_\_\_  
 f) Second Final Flow 887  Mileage 74RT 114.70 Comments \_\_\_\_\_  
 g) Final Shut-In 1194  Sampler \_\_\_\_\_  
 h) Final Hydrostatic 2044  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1739.70 MP/DST Disc't \_\_\_\_\_

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

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## Test Ticket

NO. 49188

Well Name & No. Wichita # 2-4 Test No. #3 Date 4/10/13  
 Company Muskogee Drilling Comp Inc. Elevation 3051 KB 3040 GL  
 Address 30 N. Water St #300 Wichita, KS 67202  
 Co. Rep / Geol Steve Miller Rig Muskogee #20  
 Location: Sec. 4 Twp. 13S Rge. 34W Co. Logan State Ks

Interval Tested 4383 - 4460 Zone Tested Marmaton  
 Anchor Length 77 Drill Pipe Run 4198 Mud Wt. 9.3  
 Top Packer Depth 4378 Drill Collars Run 178 Vis 45  
 Bottom Packer Depth 4383 Wt. Pipe Run --- WL 7.2  
 Total Depth 4460 Chlorides 2500 ppm System LCM #7

Blow Description B.O.B. in 11 min  
4" in Return blow  
4" in @ open, B.O.B. in 10 min.  
5" in Return blow

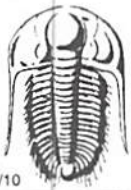
Rec	Feet of	%gas	%oil	%water	%mud
<u>124</u>	<u>90</u>	<u>15</u>	<u>85</u>		
<u>248</u>	<u>90cm</u>	<u>20</u>	<u>35</u>		<u>45</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 372' BHT 118° Gravity 28 API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic 2252  Test 1250 T-On Location 06:45  
 (B) First Initial Flow 43  Jars T-Started 07:45  
 (C) First Final Flow 114  Safety Joint T-Open 10:00  
 (D) Initial Shut-In 381  Circ Sub N/C T-Pulled 14:00  
 (E) Second Initial Flow 127  Hourly Standby T-Out 17:05  
 (F) Second Final Flow 182  Mileage 74.05 114.70 Comments \_\_\_\_\_  
 (G) Final Shut-In 379  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2193  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1364.70  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1364.70

Initial Open 30  
 Initial Shut-In 600  
 Final Flow 600  
 Final Shut-In 90  
 Approved By [Signature] Our Representative \_\_\_\_\_

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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 49189

Well Name & No. WYWM # 2-4 Test No. #4 Date 4-11-13  
 Company Martin Drilling Corp Inc Elevation 3051 KB 3040 GL  
 Address 250 N. Water St # 300 Wch. Jay, KS 67202  
 Co. Rep / Geo Steve Miller Rig Murphy #20  
 Location: Sec. 4 Twp. 13S Rge. 34W Co. Logan State Ks

Interval Tested 4466 4488 Zone Tested Fawnee  
 Anchor Length 22 Drill Pipe Run 4265 Mud Wt. 9.2  
 Top Packer Depth 4461 Drill Collars Run 178 Vis 45  
 Bottom Packer Depth 4466 Wt. Pipe Run          WL 5.6  
 Total Depth 4488 Chlorides 2000 ppm System LCM #7  
 Blow Description Surface blow  
No return  
Surface blow  
No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>15'</u>	<u>SOCM</u>		<u>4</u>		<u>96</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 15' BHT 116° Gravity          API RW          @          F Chlorides          ppm

(A) Initial Hydrostatic <u>2260</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>02:00</u>
(B) First Initial Flow <u>19</u>	<input type="checkbox"/> Jars	T-Started <u>02:25</u>
(C) First Final Flow <u>28</u>	<input type="checkbox"/> Safety Joint	T-Open <u>04:30</u>
(D) Initial Shut-In <u>934</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>07:30</u>
(E) Second Initial Flow <u>70</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>09:30</u>
(F) Second Final Flow <u>37</u>	<input checked="" type="checkbox"/> Mileage <u>74.15</u> 114.70	Comments <u>        </u>
(G) Final Shut-In <u>917</u>	<input type="checkbox"/> Sampler	<u>        </u>
(H) Final Hydrostatic <u>2160</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>1364.70</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't <u>        </u>
	Sub Total <u>1364.70</u>	

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 49190

Well Name & No. Wwwm # 2-4 Test No. #5 Date 4/12/13  
 Company Murfin Drilling Comp Inc. Elevation 3051 KB 3040 GL  
 Address 250 N. Water St #300 Wichita, KS 67202  
 Co. Rep / Geo Steve Miller Rig Murfin #20  
 Location: Sec. 4 Twp. 13S Rge. 34W Co. Logan State Ks

Interval Tested 4497 4548 Zone Tested Ft. Scott  
 Anchor Length 51 Drill Pipe Run 4296 Mud Wt. 9.4  
 Top Packer Depth 4482 Drill Collars Run 178' Vis 51  
 Bottom Packer Depth 4497 Wt. Pipe Run --- WL 6.4  
 Total Depth 4548 Chlorides 2200 ppm System LCM #8  
 Blow Description 5 1/2" in blow  
No return  
B.O.B in 37 min.  
1/2" in Return blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>120'</u>	<u>C90</u>	<u>5</u>	<u>95</u>		
<u>30</u>	<u>gocm</u>	<u>10</u>	<u>55</u>		<u>55</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>150'</u>	BHT <u>119°</u>	Gravity <u>30</u>	API RW <u>---</u>	@ <u>---</u> ° F Chlorides <u>---</u> ppm

(A) Initial Hydrostatic 2262  Test 1250 T-On Location 22:45  
 (B) First Initial Flow 26  Jars T-Started 23:15  
 (C) First Final Flow 48  Safety Joint T-Open 01:45  
 (D) Initial Shut-In 1100  Circ Sub N/C T-Pulled 05:45  
 (E) Second Initial Flow 50  Hourly Standby T-Out 08:45  
 (F) Second Final Flow 84  Mileage 7485 114.70 Comments \_\_\_\_\_  
 (G) Final Shut-In 1081  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2189  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1364.70

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90  
 Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 49191

Well Name & No. Wwwm #2-4 Test No. #16 Date 4/12/13  
 Company Markid Drilling Comp Inc. Elevation 3051 KB 3040 GL  
 Address 250 N. Water St #300 Wichita, KS 67202  
 Co. Rep / Geo Steve Miller Rig Markid #20  
 Location: Sec. 4 Twp. 135 Rge. 34w Co. Jagan State Ks

Interval Tested 4553 4574 Zone Tested Cherokee  
 Anchor Length 21 Drill Pipe Run 4358 Mud Wt. 9.4  
 Top Packer Depth 4348 Drill Collars Run 178 Vis 51  
 Bottom Packer Depth 4553 Wt. Pipe Run          WL 6.4  
 Total Depth 4574 Chlorides 2200 ppm System LCM #8

Blow Description Weak Surface blow died in 22 min  
4 1/2 return  
No blow  
No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>Mud w/oil spots</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

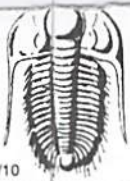
Rec Total 5' BHT 118° Gravity          API RW          @          ° F Chlorides          ppm

(A) Initial Hydrostatic 2287  Test 1250 T-On Location 17:00  
 (B) First Initial Flow 18  Jars T-Started 17:50  
 (C) First Final Flow 22  Safety Joint T-Open 20:00  
 (D) Initial Shut-In 211  Circ Sub w/c T-Pulled 23:00  
 (E) Second Initial Flow 23  Hourly Standby T-Out 01:05  
 (F) Second Final Flow 22  Mileage 74 RT 114.70 Comments           
 (G) Final Shut-In 78  Sampler           
 (H) Final Hydrostatic 2184  Straddle           
 Shale Packer           
 Ruined Shale Packer           
 Ruined Packer           
 Extra Packer           
 Extra Copies         

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 30  
 Final Shut-In 60  
 Day Standby           
 Accessibility           
 Sub Total 1364.70  
 Total           
 MP/DST Disc't         

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 49192

Well Name & No. UWVW #2-4 Test No. #7 Date 4/13/13  
 Company Mudwin Drilling Corp Inc. Elevation 3051 KB 3040 GL  
 Address 250 N. Water St #300 Wichita, KS 67202  
 Co. Rep / Geo. Steve Miller Rig Mudwin #20  
 Location: Sec. 4 Twp. 135 Rge. 34W Co. Logan State Ks

Interval Tested 4577 4600 Zone Tested Johnson  
 Anchor Length 39 40 Drill Pipe Run 4392' Mud Wt. 9.3  
 Top Packer Depth 4572 Drill Collars Run 170' Vis 60  
 Bottom Packer Depth 4577 Wt. Pipe Run          WL 6.8  
 Total Depth 4600 Chlorides 200 ppm System LCM #6  
 Blow Description B.O.B. in 3 1/2 min  
Return to B.O.B. in 40 min.  
B.O.B @ open  
9' in Return blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>403</u>	<u>CGO</u>	<u>20</u>	<u>80</u>		
<u>217</u>	<u>gmco</u>	<u>20</u>	<u>45</u>		<u>35</u>
<u>372</u>	<u>sgm30cw</u>	<u>10</u>	<u>3</u>	<u>80</u>	<u>7</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of <u>(1550' GAS. N P. Pe)</u>	%gas	%oil	%water	%mud

Rec Total 992 BHT Gravity 30 API RW .188 @ 78 ° F Chlorides 33000 ppm

(A) Initial Hydrostatic 2329  Test 1250 T-On Location 11:45  
 (B) First Initial Flow 70  Jars T-Started 12:25  
 (C) First Final Flow 278  Safety Joint T-Open 14:23  
 (D) Initial Shut-In 943  Circ Sub N/C T-Pulled 18:23  
 (E) Second Initial Flow 281  Hourly Standby T-Out 21:25  
 (F) Second Final Flow 444  Mileage 74 RT 229.40 Comments  
loaded tools 4/14 @ 16:45  
 (G) Final Shut-In 788  Sampler  Ruined Shale Packer  
 (H) Final Hydrostatic 2294  Straddle  Ruined Packer  
 Shale Packer  Extra Copies  
 Extra Packer  Extra Recorder Sub Total 0  
 Extra Recorder  Day Standby Total 1479.40  
 Accessibility MP/DST Disc't  
 Sub Total 1479.40

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90

Approved By [Signature] Our Representative [Signature]

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Prod- Ltl

# INVOICE

PO Box 93999  
Southlake, TX 76092

Invoice Number: 135585

Invoice Date: Apr 3, 2013

Page: 1

Voice: (817) 546-7282

Fax: (817) 246-3361

Now Includes:



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

Customer ID	Field Ticket #	Payment Terms	
Murfin	60150	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	Apr 3, 2013	5/3/13

Quantity	Item	Description	Unit Price	Amount
		WWWM #2-4		
185.00	MAT	Class A Common	17.90	3,311.50
7.00	MAT	Chloride	64.00	448.00
194.25	SER	Cubic Feet	2.48	481.74
116.48	SER	Ton Mileage	2.60	302.85
1.00	SER	Surface	1,512.25	1,512.25
13.00	SER	Pump Truck Mileage	7.70	100.10
1.00	SER	Manifold Rental	275.00	275.00
13.00	SER	Light Vehicle Mileage	4.40	57.20
1.00	EQP	8.5/8 Wooden Plug	107.64	107.64
1.00	CEMENTER	Alan Ryan		
1.00	EQUIP OPER	Wayne McGhghy		
1.00	OPER ASSIST	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

*35086*

\$ 2,308.69

ONLY IF PAID ON OR BEFORE

Apr 28, 2013

Subtotal	6,596.28
Sales Tax	301.64
Total Invoice Amount	6,897.92
Payment/Credit Applied	
<b>TOTAL</b>	<b>6,897.92</b>

*DD*

- 2308.69

---

4589.23

# ALLIED OIL & GAS SERVICES, LLC 060150

Federal Tax I.D. # 20-8851475

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

SERVICE POINT: Oakley, KS

DATE <u>4/2/13</u>	SEC <u>4</u>	TWP <u>13</u>	RANGE <u>32</u>	CALLED OUT	ON LOCATION <u>9:00am</u>	JOB START <u>10:30am</u>	JOB FINISH <u>11:30am</u>
LEASE <u>WWW M</u>	WELL # <u>2-4</u>	LOCATION <u>Oakley 11.5 W 1/2 S</u>			COUNTY <u>Wagon</u>	STATE <u>KS</u>	
OLD OR NEW (Circle one)							

CONTRACTOR Murfin 20

TYPE OF JOB Surf Ace

HOLE SIZE 12 1/4 T.D. 226

CASING SIZE 8 5/8 DEPTH 226

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG. 15'

PERFS.

DISPLACEMENT 13,9407

EQUIPMENT

PUMP TRUCK CEMENTER Alan

# 422 HELPER Wayne

BULK TRUCK

# 347 DRIVER Kevin

BULK TRUCK

# DRIVER

OWNER Same

CEMENT AMOUNT ORDBRED 185cm 390cc

COMMON 185 @ 17.20 3311.50

POZMIX @

GEL @

CHLORIDE 7 @ 64.00 448.00

ASC @

HANDLING 194.25 @ 2.40 481.20

MILEAGE 220 @ 7.96 1751.20

TOTAL 4544.90

REMARKS:

Run Casing Circulate mix cement

Displace Plug

Shut in

Cement Disl

Circulate

Frank Kim

Alan, Wayne, Kevin

SERVICE

DEPTH OF JOB

PUMP TRUCK CHARGE 15.22 25

EXTRA FOOTAGE @

MILEAGE 13 @ 7.36 100.68

MANIFOLD 13 @ 4.40 57.20

TOTAL 1944.55

PLUG & FLOAT EQUIPMENT

8 5/8 Woodr Plug @ 107.64

TOTAL 107.64

SALES TAX (If Any)

TOTAL CHARGES 6,597.09

DISCOUNT 2,308.98 IF PAID IN 30 DAYS

4,288.10 Net.

CHARGE TO: Murfin Drilling

STREET

CITY STATE ZIP

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 BREB ANDREW

SIGNATURE Breb Andrew



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



# Invoice

DATE	INVOICE #
4/24/2013	24323

BILL TO
Murfin Drilling Co Inc PO Box 661 Colby, KS 67701-0661

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#2-4	WWWM	Logan		Oil	Development	Cement Port Collar	Don

PRICE REF.	DESCRIPTION	QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way	80	Miles	6.00	480.00
576D-D	Pump Charge - Port Collar - 2557 Feet	1	Job	1,250.00	1,250.00
290	D-Air	2	Gallon(s)	35.00	70.00T
330	Swift Multi-Density Standard (MIDCON II)	175	Sacks	16.50	2,887.50T
276	Flocele	44	Lb(s)	2.00	88.00T
581D	Service Charge Cement	350	Sacks	2.00	700.00
583D	Drayage	1,393.16	Ton Miles	1.00	1,393.16
	Subtotal				6,868.66
	Sales Tax Logan County			7.80%	237.55

USED FOR IC 103  
 APPROVED JTK

**We Appreciate Your Business!**

**Total** \$7,106.21





Services, Inc.

CHARGE TO: Mountain Dye Co  
 ADDRESS: \_\_\_\_\_  
 CITY, STATE, ZIP CODE: \_\_\_\_\_

TICKET No 24323

PAGE 1 OF 1

SERVICE LOCATIONS  
 1. Haysville WELLS/PROJECT NO. \_\_\_\_\_ LEASE \_\_\_\_\_ COUNTY/PARISH \_\_\_\_\_ STATE \_\_\_\_\_ CITY \_\_\_\_\_ DATE \_\_\_\_\_ OWNER \_\_\_\_\_  
 2. Ness City, KS TICKET TYPE 2-4 CONTRACTOR Winters M Logan RIG NAME/NO. \_\_\_\_\_ ORDER NO. 4-24-13  
 SERVICE  SALES  
 3. WELLS TYPE \_\_\_\_\_ WELLS CATEGORY \_\_\_\_\_ JOB PURPOSE \_\_\_\_\_ DELIVERED TO S. Walker  
 4. REFERRAL LOCATION \_\_\_\_\_ INVOICE INSTRUCTIONS 1 in field WELLS PERMIT NO. \_\_\_\_\_ WELLS LOCATION \_\_\_\_\_

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575		1			MILEAGE #113	20	mi			6.00	1200.00
576 D		1			Dump Charge - Curt Bt Giller	1	ea	2557.18		1250.00	1250.00
290		1			D-Air	2	gal			350.00	700.00
330		2			SUD Renewal	175	sts	1750	lbs	16.52	2889.50
276		2			Flocele	44	lbs			8.00	352.00
581		2			Service Charge - Curt					2.00	2.00
583		2			Drayage					120.00	1393.16

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY provisions.  
 MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

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

X DATE SIGNED 4-24-13 TIME SIGNED 0808  P.M.  P.M.  
 SIGNATURE: [Signature]

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

SURVEY  
 OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?  
 WE UNDERSTOOD AND MET YOUR NEEDS?  
 OUR SERVICE WAS PERFORMED WITHOUT DELAY?  
 WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?  
 ARE YOU SATISFIED WITH OUR SERVICE?  YES  NO  
 CUSTOMER DID NOT WISH TO RESPOND

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.  
 SWIFT OPERATOR: [Signature] APPROVAL: \_\_\_\_\_  
 Thank You!

**JOB LOG**

**SWIFT Services, Inc.**

DATE 7-24-13 PAGE NO. 1

CUSTOMER Martin Drilling Co. WELL NO. 2-4 LEASE WWD in JOB TYPE Cement Port Collar TICKET NO. 24223

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS	
				T	C	TUBING	CASING		
	0845							On location	
								Set up truck Ann 79 89 BBL	
								Port Collar @ 2557 = TB, 10 (160 SKS?)	
	0930					C	1200	Tst P.C. closed - 1200	
		3	3			C	600	Open P.C. - inj rate 3 BPM @ 600	
						C		Hook to TB 3+2=5	
		3	5			600	C	Start HD - Have CIR in 9 BBL TOTAL	
		3	<del>40</del>			600	C	Start SMD cut @ 11.2 #/gal	
		3	85			600	C	cut CIR @ 155 SKS - Tail in	
		3	95			600	C	with 20 SKS @ 13.5 #/gal	
		3				600	700	C	Displ 9 BBL HD
			9			C	C	Fin Displ - Close P.C	
						C	1000	Tst P.C closed - OK	
								RIS run 6 sta.	
		2 1/2	<del>12</del> 17			~	450	Re-out - 2 Pass - clean	
	11:00		30					Fin re-out	
								Jobs Complete	
								Wash up & Reel up	
								Thanks Don, Jon & Rob	
								155 SKS SMD @ 11.2 #/gal - CIR	
								20 SKS SMD @ 13-13.5 #/gal - Tail	
								175 SKS SMD Total used	



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



# Invoice

DATE	INVOICE #
4/15/2013	24045

BILL TO
Murfin Drilling Co Inc PO Box 661 Colby, KS 67701-0661

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#2-4	WWWM	Logan	Murfin Drilling	Oil	Development	5-1/2" LongString	Josh
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				80	Miles	6.00	480.00
578D-L	Pump Charge - Long String				1	Job	1,500.00	1,500.00
221	Liquid KCL (Clayfix)				4	Gallon(s)	25.00	100.00T
280	Flocheck 21				500	Gallon(s)	2.50	1,250.00T
403-5	5 1/2" Cement Basket				2	Each	250.00	500.00T
404-5	5 1/2" Port Collar				1	Each	2,400.00	2,400.00T
406-5	5 1/2" Latch Down Plug & Baffle				1	Each	250.00	250.00T
407-5	5 1/2" Insert Float Shoe With Auto Fill				1	Each	350.00	350.00T
409-5	5 1/2" Turbolizer				15	Each	90.00	1,350.00T
413-5	5 1/2" Roto Wall Scratcher				20	Each	40.00	800.00T
419-5	5 1/2" Rotating Head Rental				1	Each	200.00	200.00T
290	D-Air				2	Gallon(s)	35.00	70.00T
325	Standard Cement				225	Sacks	13.50	3,037.50T
276	Flocele				50	Lb(s)	2.00	100.00T
283	Salt				1,150	Lb(s)	0.20	230.00T
284	Calseal				11	Sack(s)	35.00	385.00T
285	CFR-1				160	Lb(s)	4.00	640.00T
581D	Service Charge Cement				225	Sacks	2.00	450.00
583D	Drayage				944.5	Ton Miles	1.00	944.50
	Subtotal							15,037.00
	Sales Tax Logan County						7.80%	909.68
USED FOR <u>IC 103</u>								
APPROVED <u>JT</u>								
<b>We Appreciate Your Business!</b>							<b>Total</b>	<b>\$15,946.68</b>



CHARGE TO: Murfen  
 ADDRESS  
 CITY, STATE, ZIP CODE

TICKET No 24045

PAGE 1 OF 2

1. SERVICE LOCATIONS	WELL/PROJECT NO. <u>24</u>	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
<u>Hays 15</u>		<u>W W W M</u>	<u>Logan</u>	<u>KS</u>		<u>4-15-13</u>	
2. <u>Ness City, KS</u>	TICKET TYPE <input checked="" type="checkbox"/> SERVICE <input type="checkbox"/> SALES	CONTRACTOR	RIG NAME/NO.	SHIPPED VIA CT	DELIVERED TO	ORDER NO.	
	<u>Murfen Bldg</u>		<u>20</u>	<u>KS</u>	<u>Logan</u>		
3. REFERRAL LOCATION	WELL TYPE	WELL CATEGORY	JOB PURPOSE		WELL PERMIT NO.	WELL LOCATION	
	<u>D-1</u>	<u>Develop</u>	<u>5 1/2 Long string</u>			<u>Sec 4, Twp 13S, R. 32 W</u>	
4. REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	LOC	ACCOUNTING		DESCRIPTION	MILEAGE #	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
			ACCT	DF								
575		1			MILEAGE # 112	80	mi				6.10	480.00
578		1			Pump Charge	1	ea				1500.00	1500.00
221		1			Loguid KLL	4	gal				25.00	100.00
280		1			Flu Check 21	500	gal				2.50	1250.00
403		1			Lement Basket	2	ea				250.00	500.00
404		1			Port Collet	1	ea				2400.00	2400.00
406		1			Letter Down Plug + Bldg	1	ea				250.00	250.00
407		1			Insert Post Shoe w/ Auto Fill	1	ea				350.00	350.00
409		1			Turbolifters	15	ea				90.00	1350.00
413		1			Auto walk Scrubbers	20	ea				40.00	800.00
419		1			Rotating Head Rental	1	ea				200.00	200.00
290		1			D Air	2	gal				35.00	70.00

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

DATE SIGNED 4-15-13 TIME SIGNED 12:00  A.M.  P.M.

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

**SURVEY**  
 OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?  
 WE UNDERSTOOD AND MET YOUR NEEDS?  
 OUR SERVICE WAS PERFORMED WITHOUT DELAY?  
 WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?  
 ARE YOU SATISFIED WITH OUR SERVICE?  
 CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL 4250.00  
 PAGE TOTAL 5787.00  
 SUBTOTAL 15,037.00  
 Log 211 Tax 90 909.68  
 TOTAL 15,946.68

SWIFT OPERATOR J.A. All APPROVAL \_\_\_\_\_

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

Thank You!



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

TICKET CONTINUATION

TICKET No. 24045

CUSTOMER  
Murkin

WELL  
w w w m 2-4

DATE  
4-15-13

PAGE 2 OF 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			TIME	DESCRIPTION	WELL				UNIT PRICE	AMOUNT		
		LOC	ACCT	DE			QTY	QTY	QTY	QTY				
325						Standard cement EA-2	225	SKS				13.50	3037.50	
276						Flu cele	50	Lbs				2.00	100.00	
283						Salt	150	Lbs				1.50	230.00	
284						Cal seal	11	SKS				35.00	385.00	
285						CFR-1	160	Lbs				4.25	640.00	
581						SERVICE CHARGE						2.00	4.00	
583						MILEAGE CHANGE						1.00	1.00	
TOTAL WEIGHT							23610	LOADED MILES		80	CUBIC FEET		225 SKS	
TOTAL MILES							944.50	TON MILES			CONTINUATION TOTAL		5787.00	

**JOB LOG**

**SWIFT Services, Inc.**

DATE 4-15-13 PAGE NO.

CUSTOMER *Murfin* WELL NO. *24* LEASE *www m* JOB TYPE *5 1/2 LongString* TICKET NO. *24045*

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL/GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	0700							One off FE
								TD 4780 SS 21
								TP 4775 Insert 4754
								PL top 53 2563' 5 1/2 x 15.5
								Start casing
	1230							Circulate Half way in hole
	1300							Finish Running casing
	1400							Drop Ball Break Circulation Rotate
	1510	5	15				300	Start KCL Flush
		5	12				300	Start Flocheck 21
		5	5				300	Start KCL Flush
	1515	5	43.0				200	start cement 175 SKS FAZ
	1532							Drop Plug wash out Pump + Lines
	1533	6						Start 0.3 placement w 20 bbl KCL water
	1550		113.1				1500	land Plug
	1552							Release Dry
	1555		7/5					Plug RH 30 SKS MH 20 SKS
	1615							wash up truck Back up
	1700							Job complete Thank You Josh, Brian, Flint