



## 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

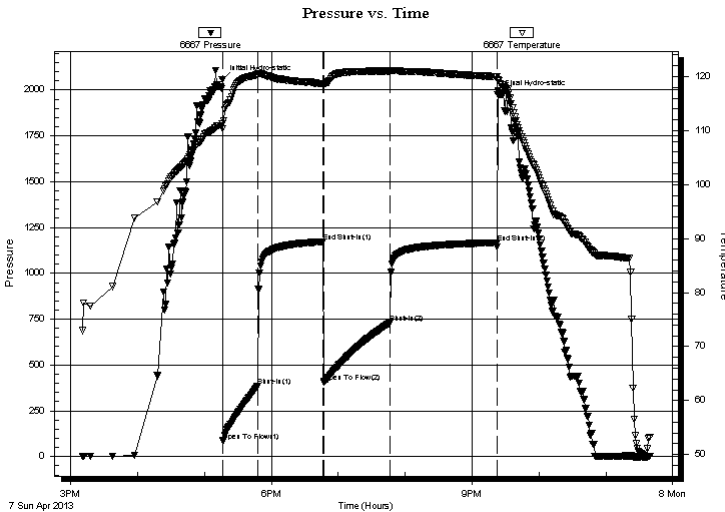
## Serial #: 6667

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

Murfin Drill 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

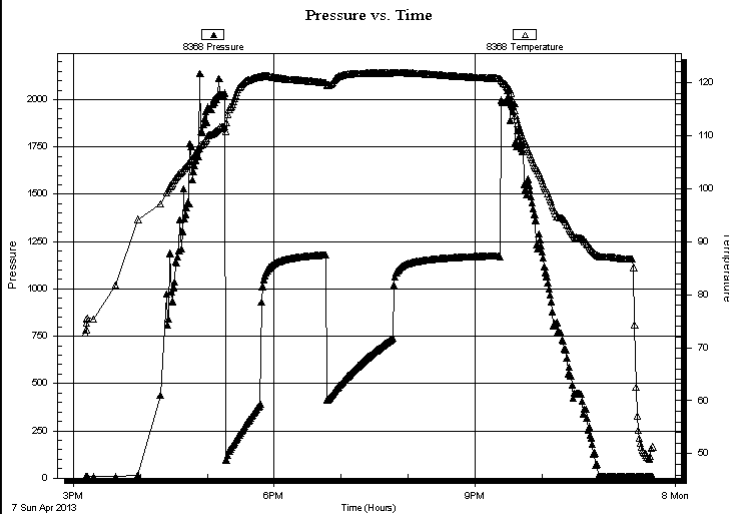
### GENERAL INFORMATION:

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 #: 8368** **Outside**  
Press @ Run Depth: **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: **15:10:48** End Time: **23:39:27** Time On Btm:  
Time Off Btm:

**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

### 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  
Test Start: 2013.04.07 @ 15:10:45

**DST#: 1**

## 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:

## Tool Description

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

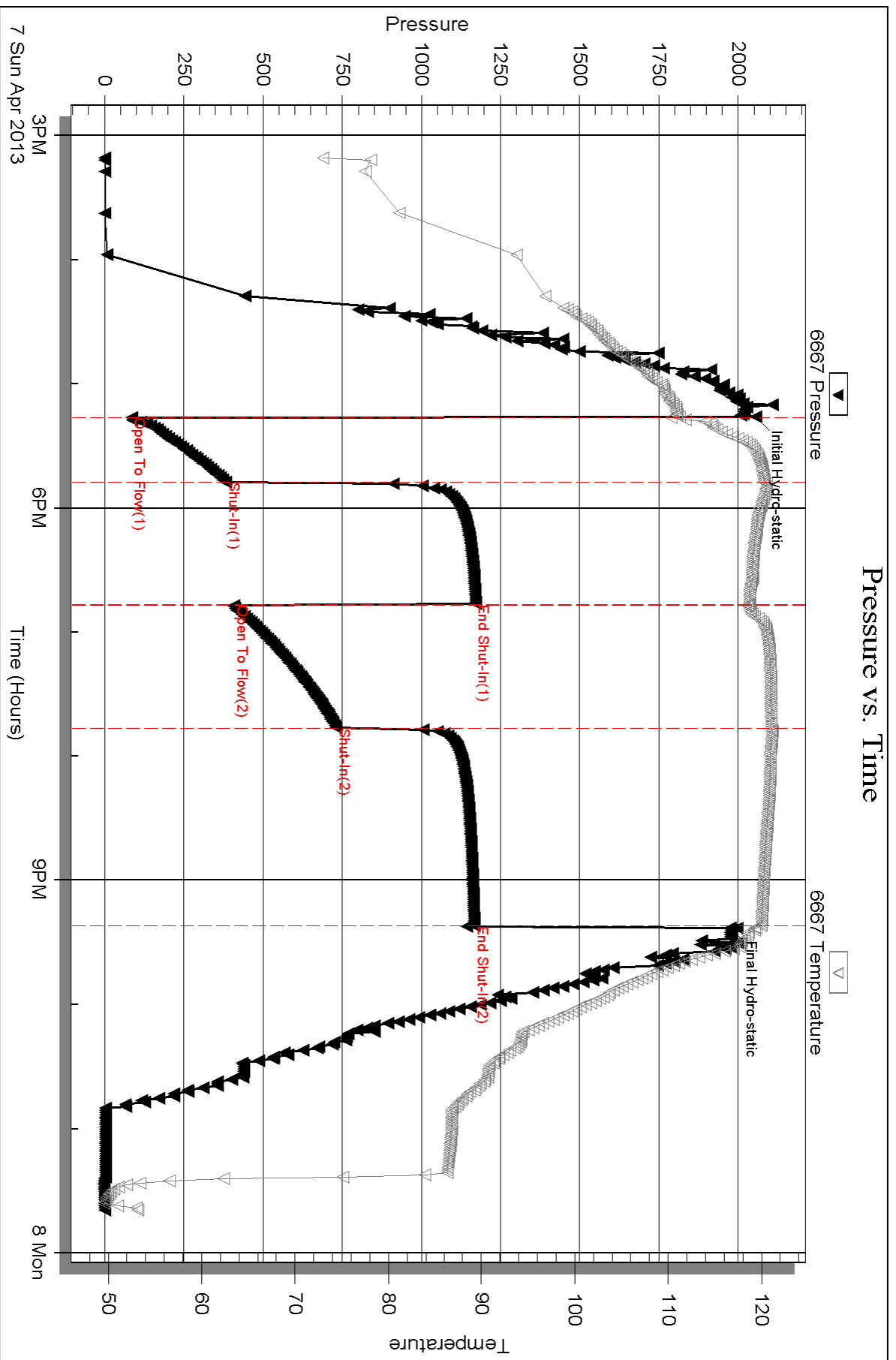
Inside

Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 1

# Pressure vs. Time

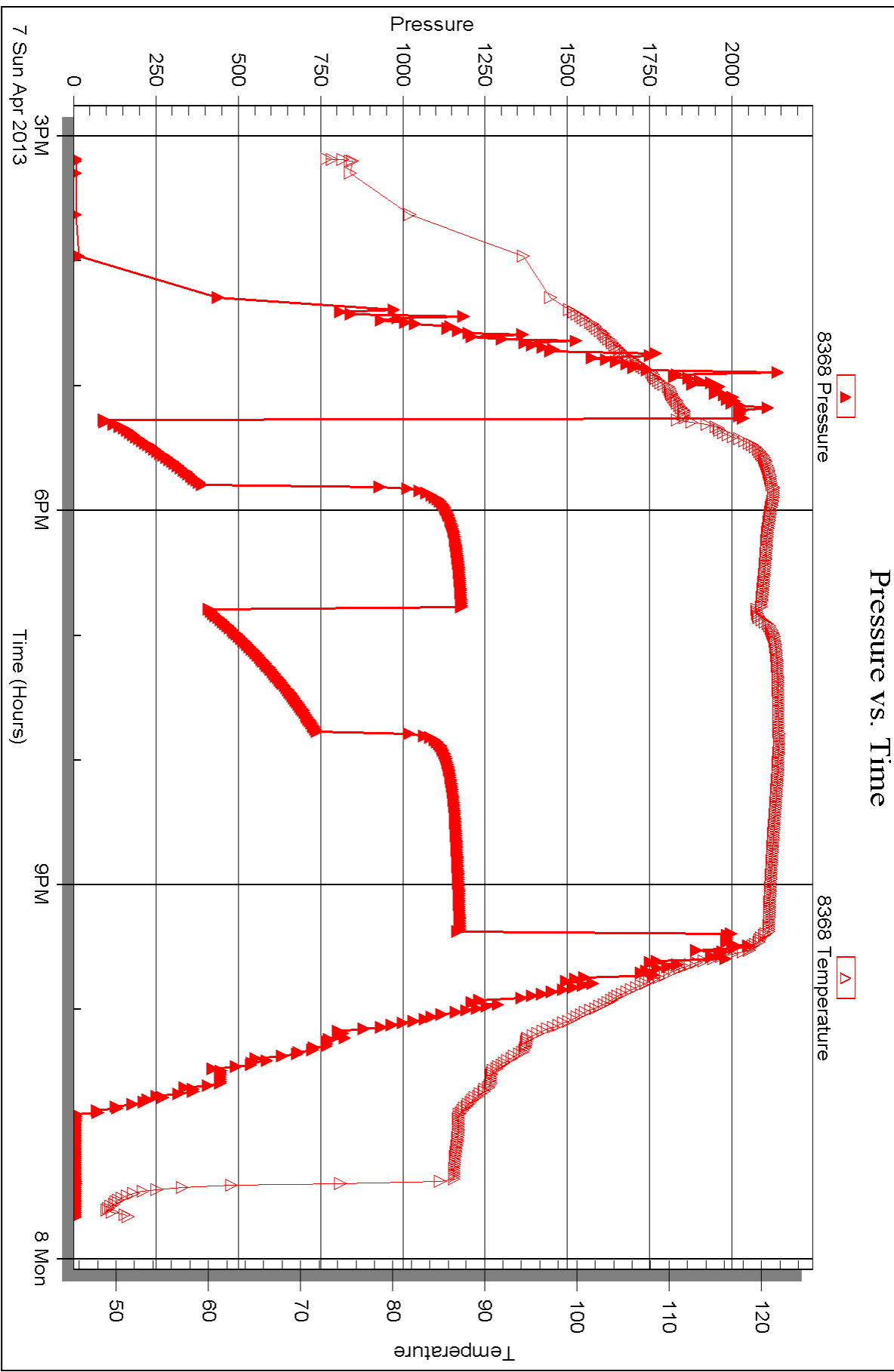


Serial #: 8368

Outside Murfin Drilling Comp Inc

WWMM#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

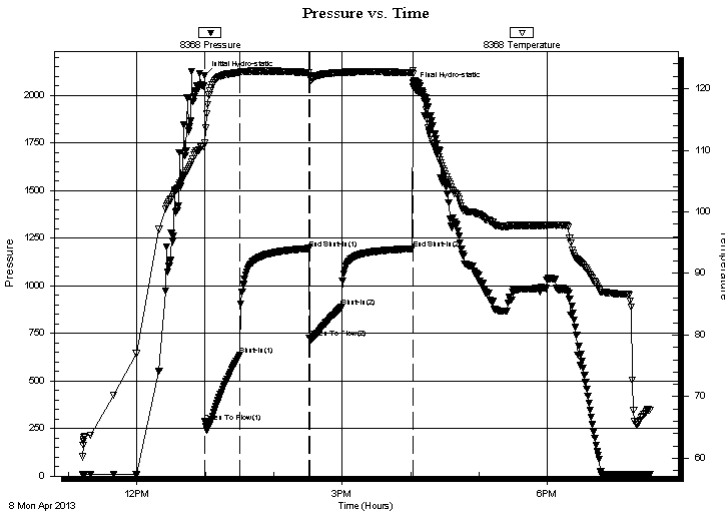
## Serial #: 8368

**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

**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  
Test Start: 2013.04.08 @ 11:12:41

**DST#: 2**

## 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:					

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

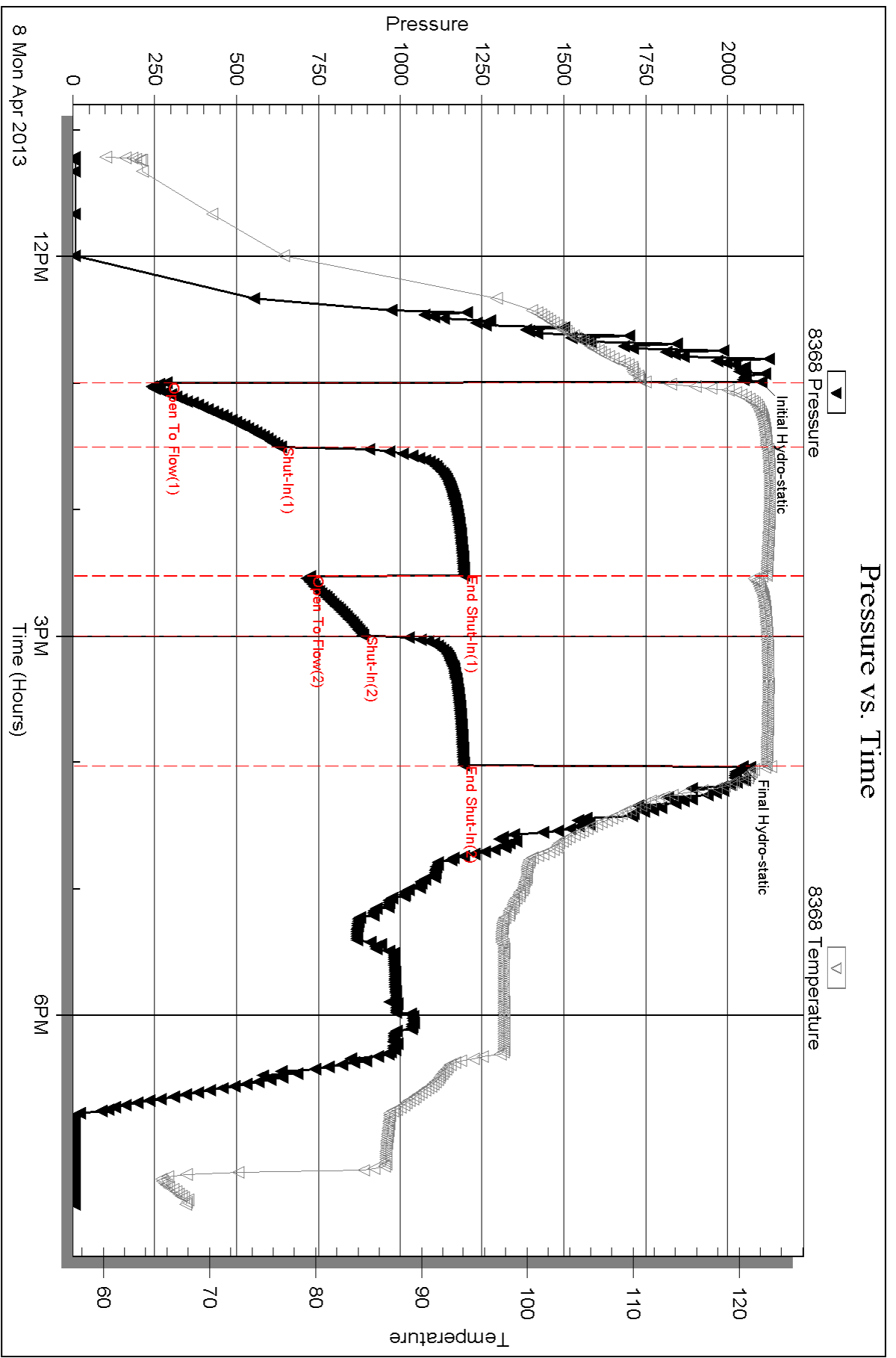
Mud Type: Gel Chem	Cushion Type:	Oil API: 30 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 0 ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.15 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2500.00 ppm		
Filter Cake: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



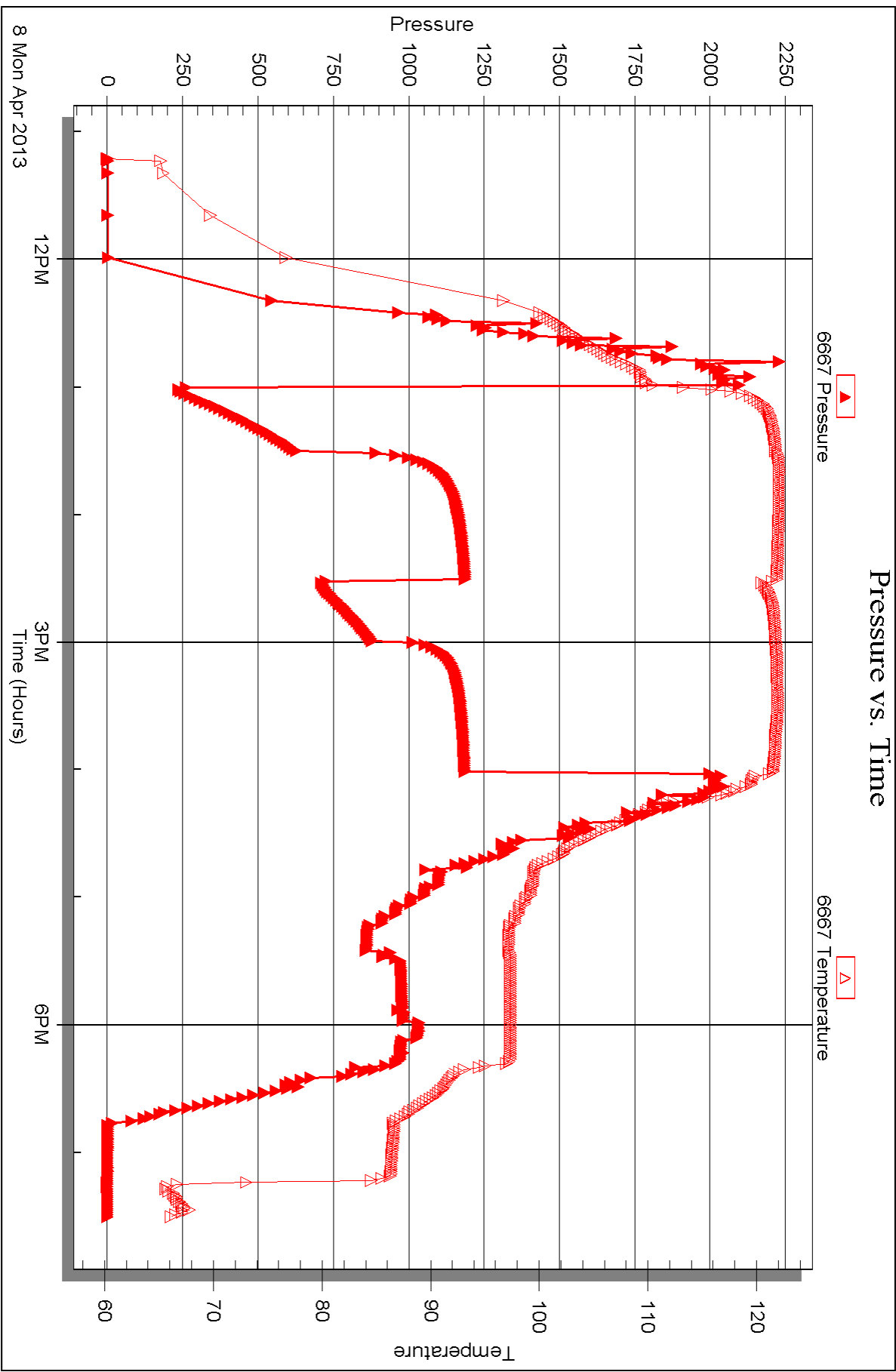
Serial #: 6667

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:

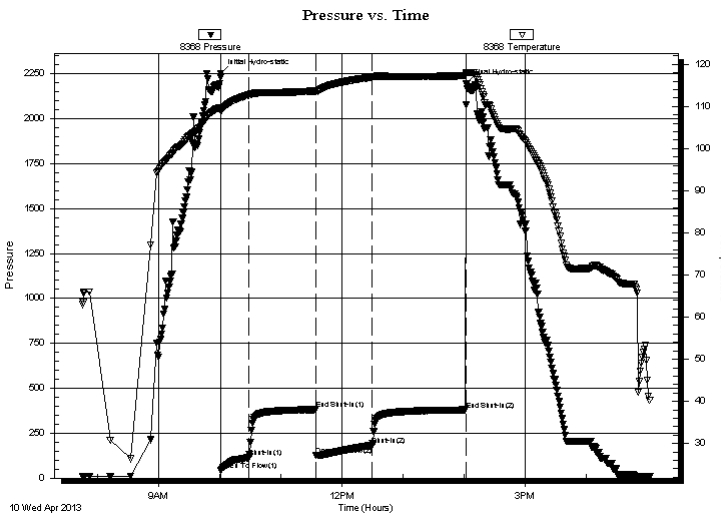
2013.04.10 @ 10:00:51

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

**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      **DST#: 3**  
Test Start: 2013.04.10 @ 07:45:26

**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:

<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			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

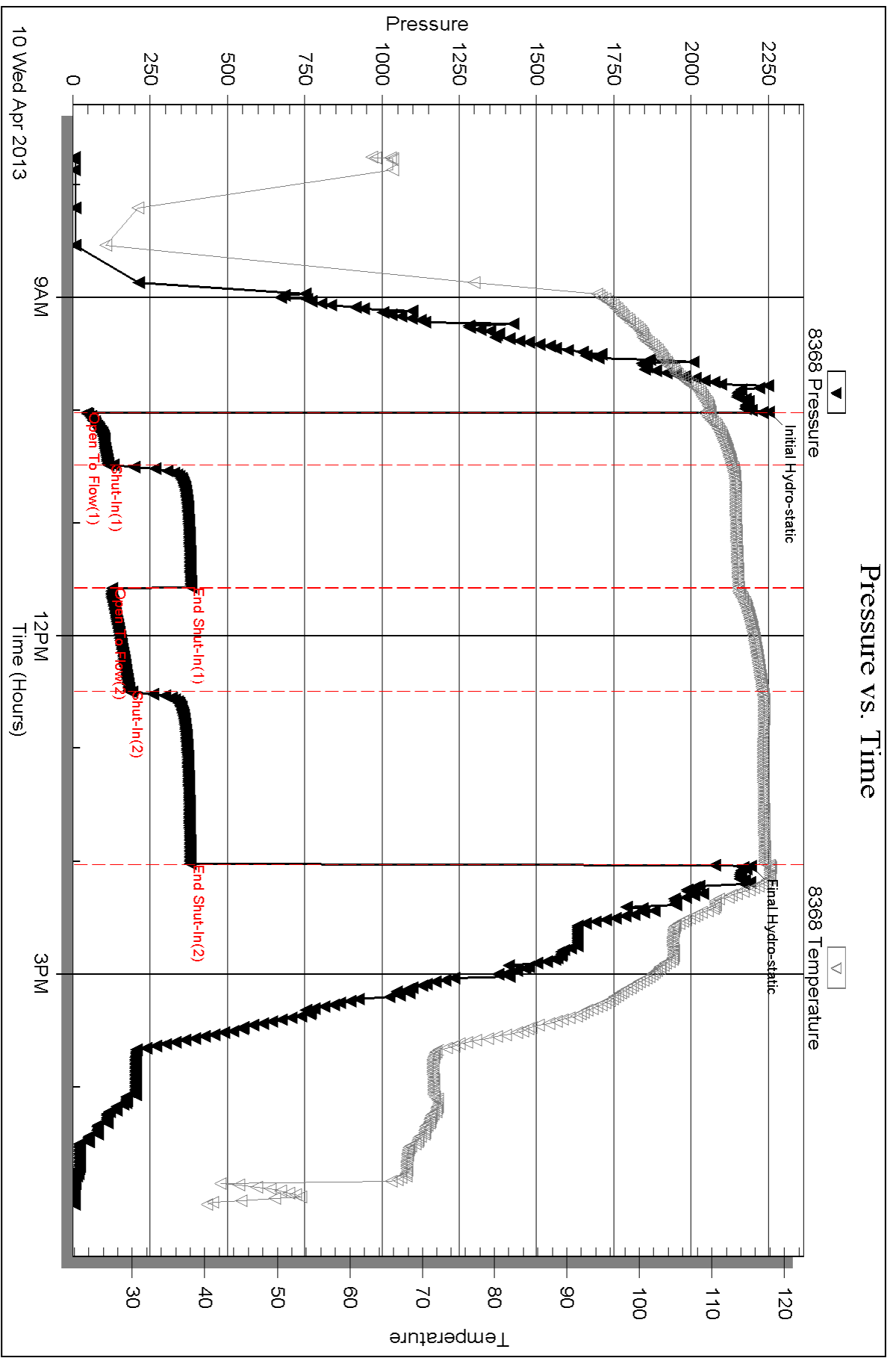
Total Length: 372.00 ft      Total Volume: 3.596 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

Serial #: 8368

Outside Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 3



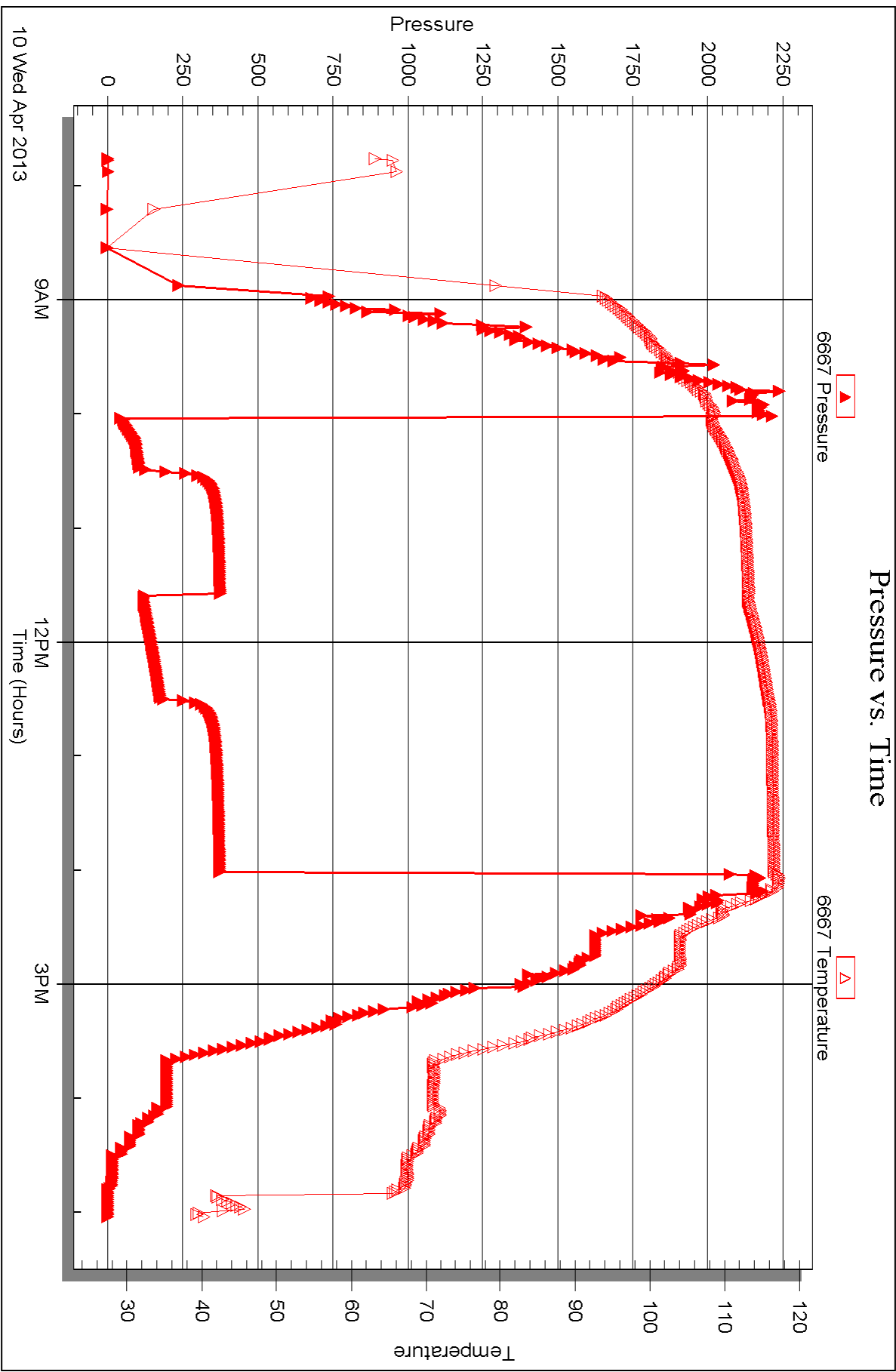
Serial #: 6667

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:

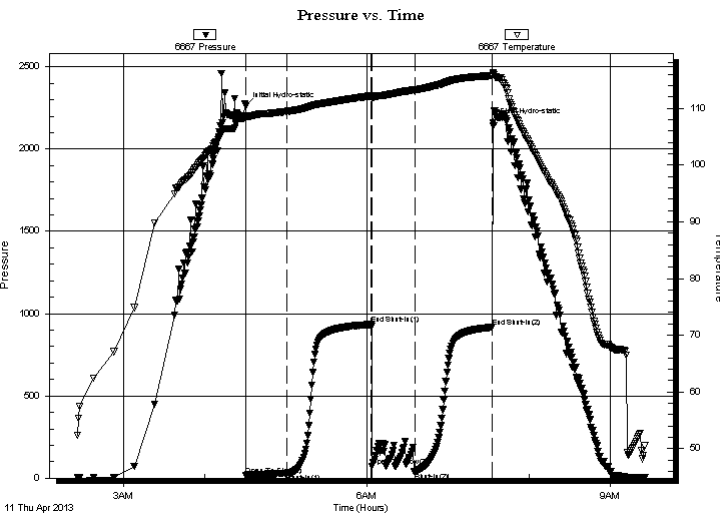
Formation: **Pawnee**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:30:27  
 Time Test Ended: 09:25:42  
 Interval: **4466.00 ft (KB) To 4488.00 ft (KB) (TVD)**  
 Total Depth: 4488.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (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

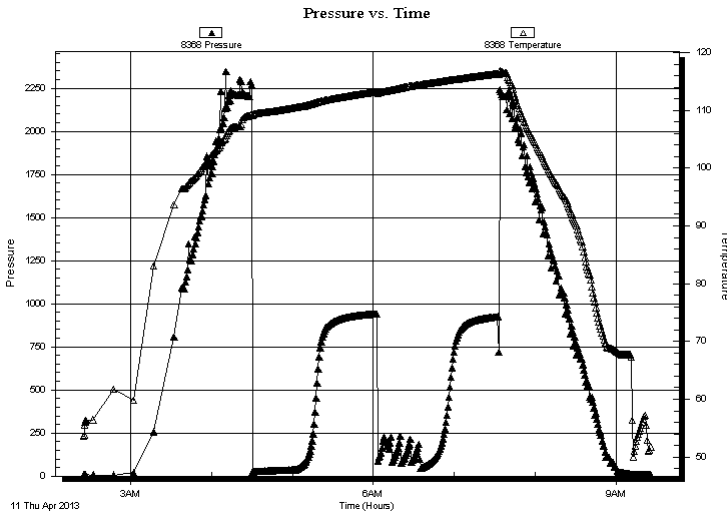
### Serial #: 8368

**Outside**

Press @ RunDepth: 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

### 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: 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

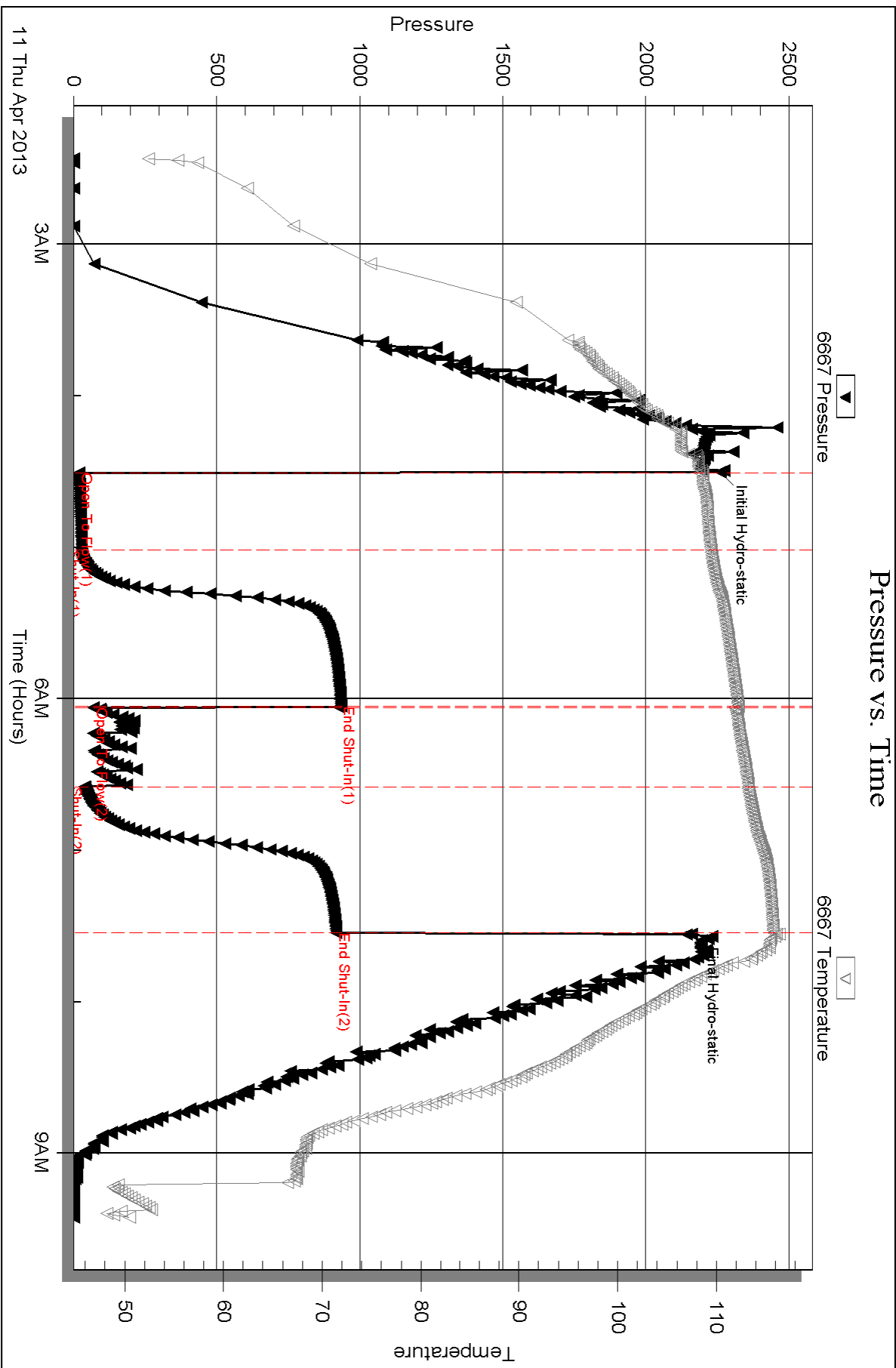
Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 45.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.58 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2000.00 ppm			
Filter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

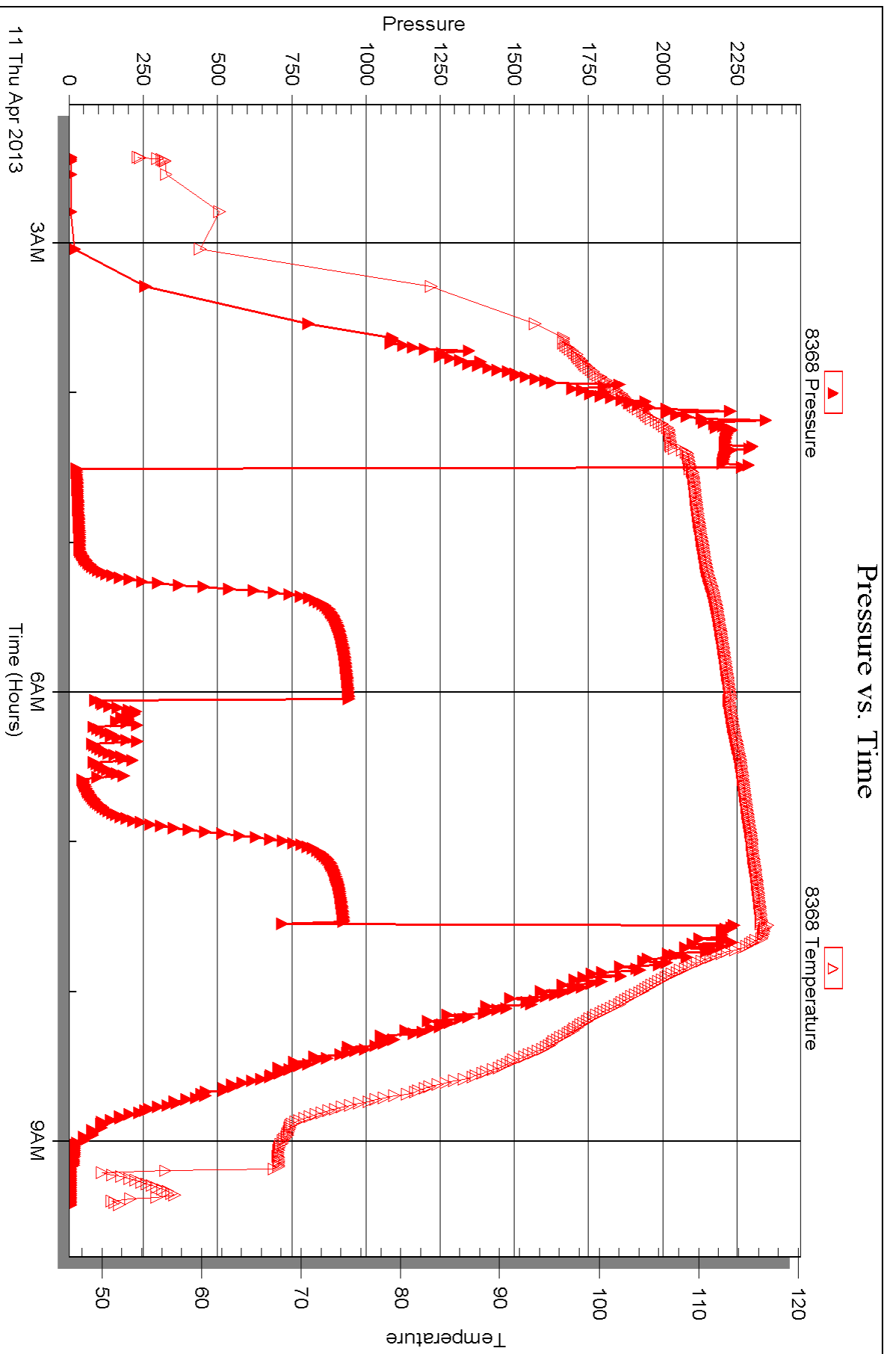


Serial #: 8368

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

Test Type: Conventional Bottom Hole (Reset)

Tester: Shane McBride

Unit No: 55

**Interval: 4497.00 ft (KB) To 4548.00 ft (KB) (TVD)**

Reference Elevations: 3051.00 ft (KB)

Total Depth: 4548.00 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 @ Run Depth: 84.35 psig @ 4498.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.11

End Date:

2013.04.12

Last Calib.:

2013.04.12

Start Time: 23:15:59

End Time:

08:29:24

Time On Btm:

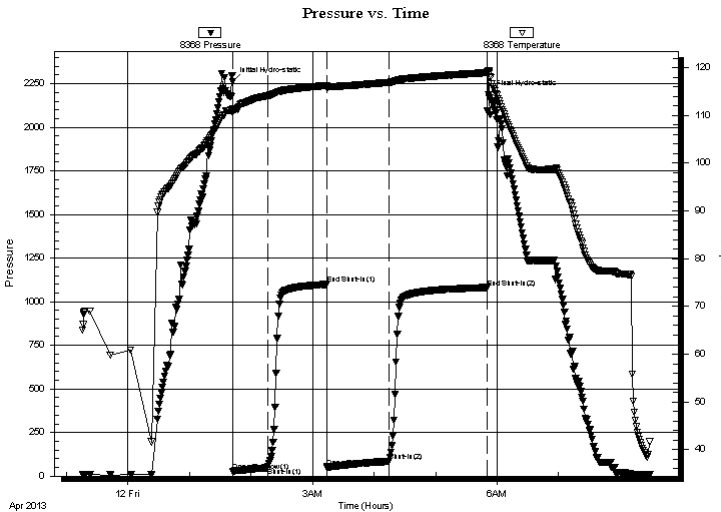
2013.04.12 @ 01:42:09

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

Murfin Drill 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 #: 6667**

**Inside**

Press @ Run Depth: psig @ 4498.00 ft (KB)

Start Date: 2013.04.11

End Date:

2013.04.12

Start Time: 23:15:45

End Time:

08:29:00

Capacity: 8000.00 psig

Last Calib.:

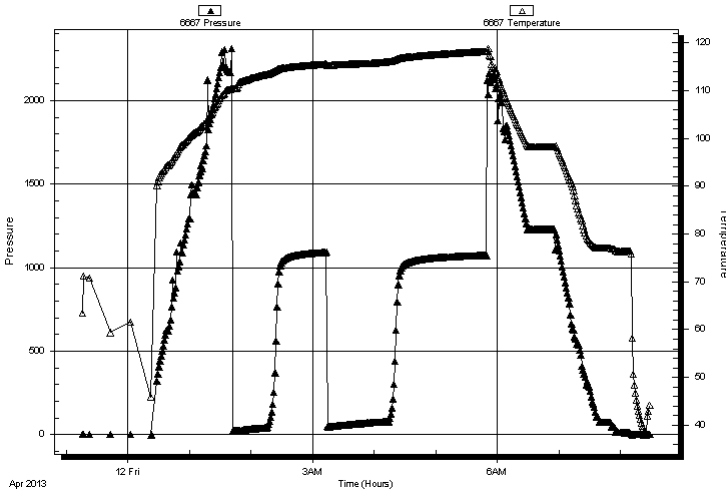
2013.04.12

Time On Btm:

Time Off Btm:

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

Pressure vs. Time



### PRESSURE SUMMARY

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

### 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  
Test Start: 2013.04.11 @ 23:15:59

**DST#: 5**

## 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:					

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

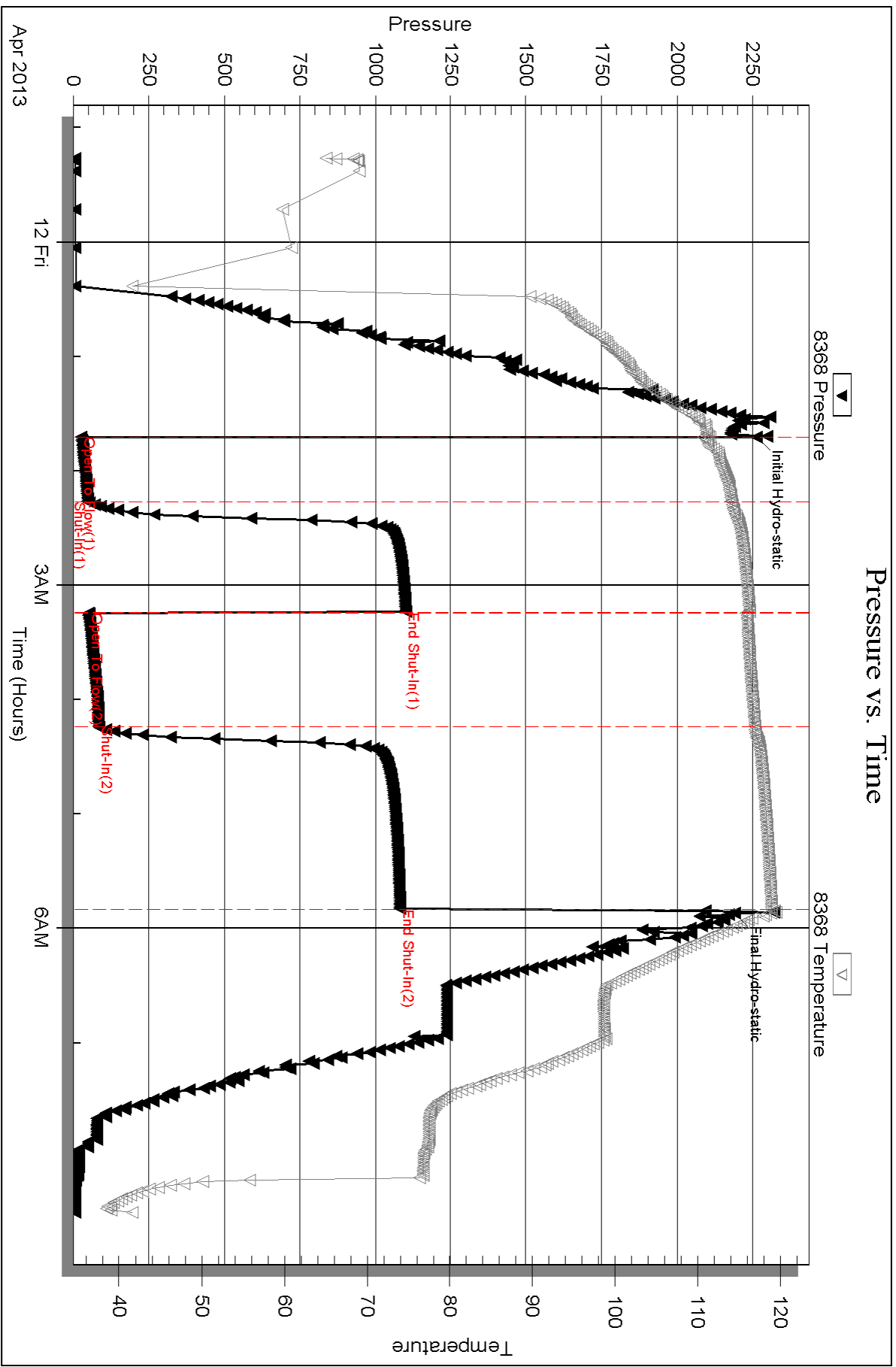
Total Length: 150.00 ft      Total Volume: 0.738 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

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

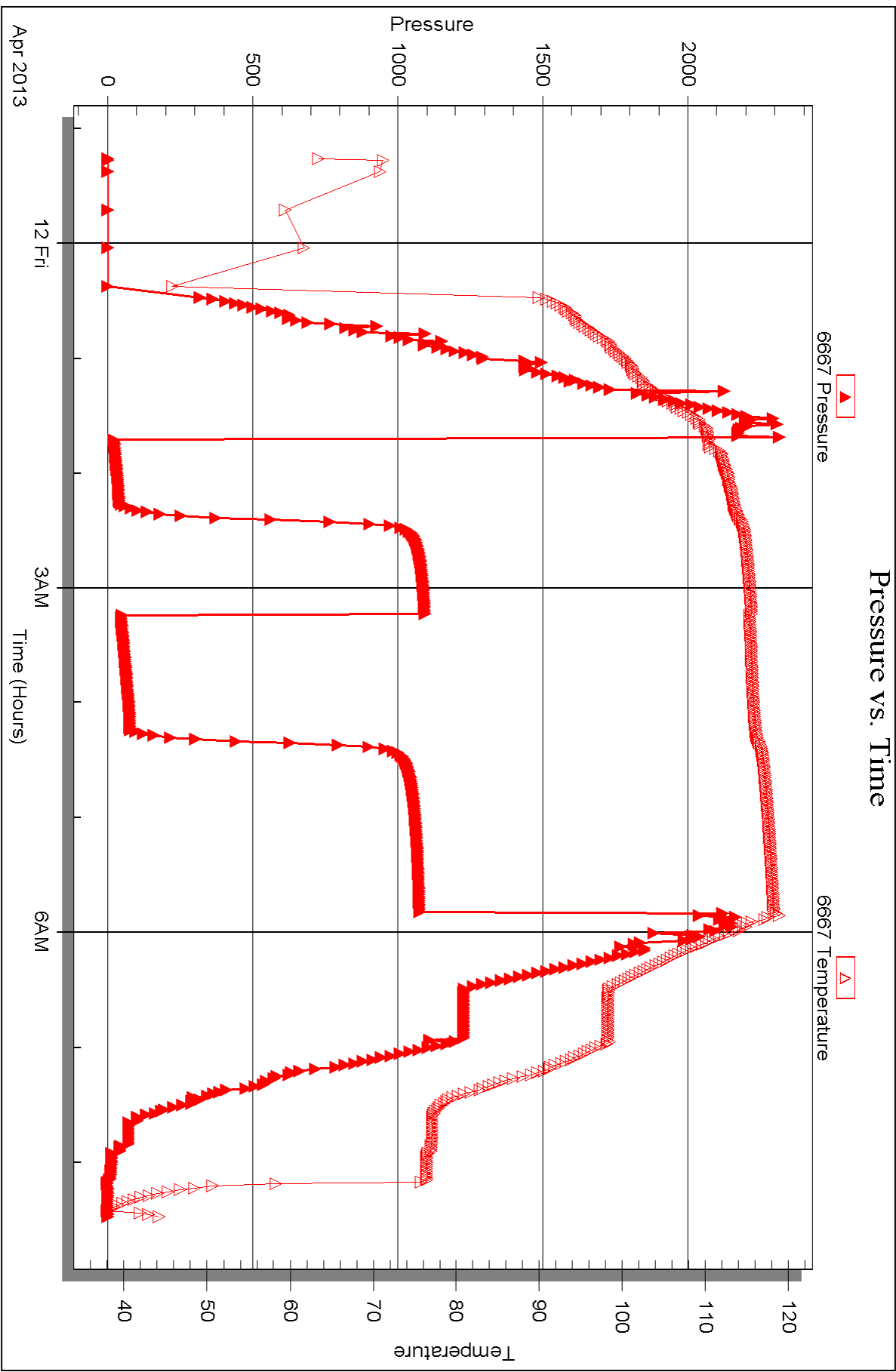
Serial #: 6667

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

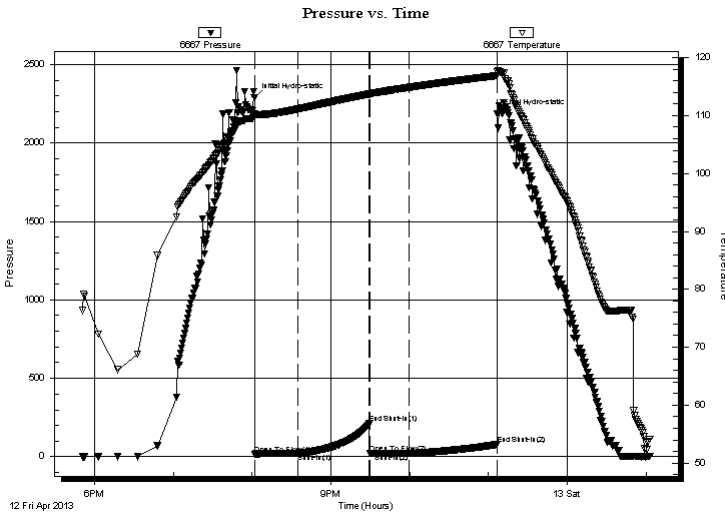
## Serial #: 6667

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

Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55

**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

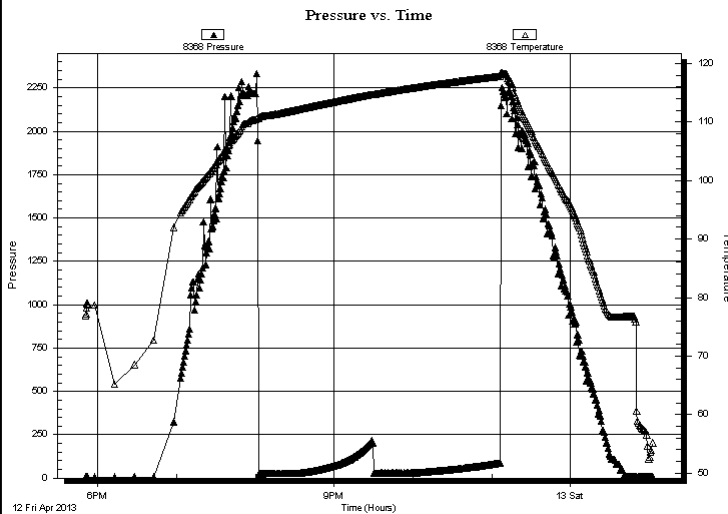
Reference Elevations: 3051.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 8368 Outside**

Press @ Run Depth: 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

## 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: 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:



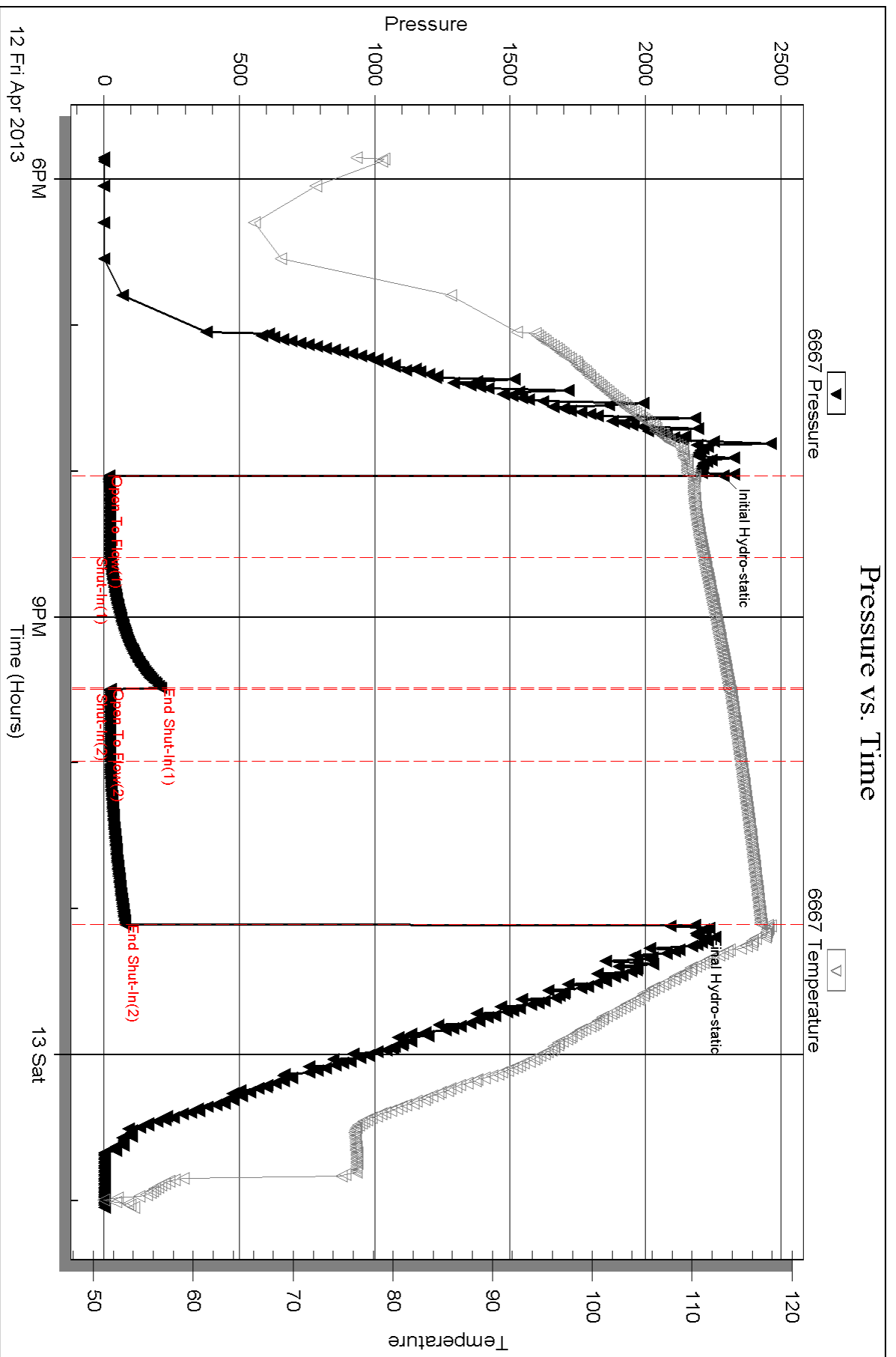
Serial #: 6667

Inside

Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 6

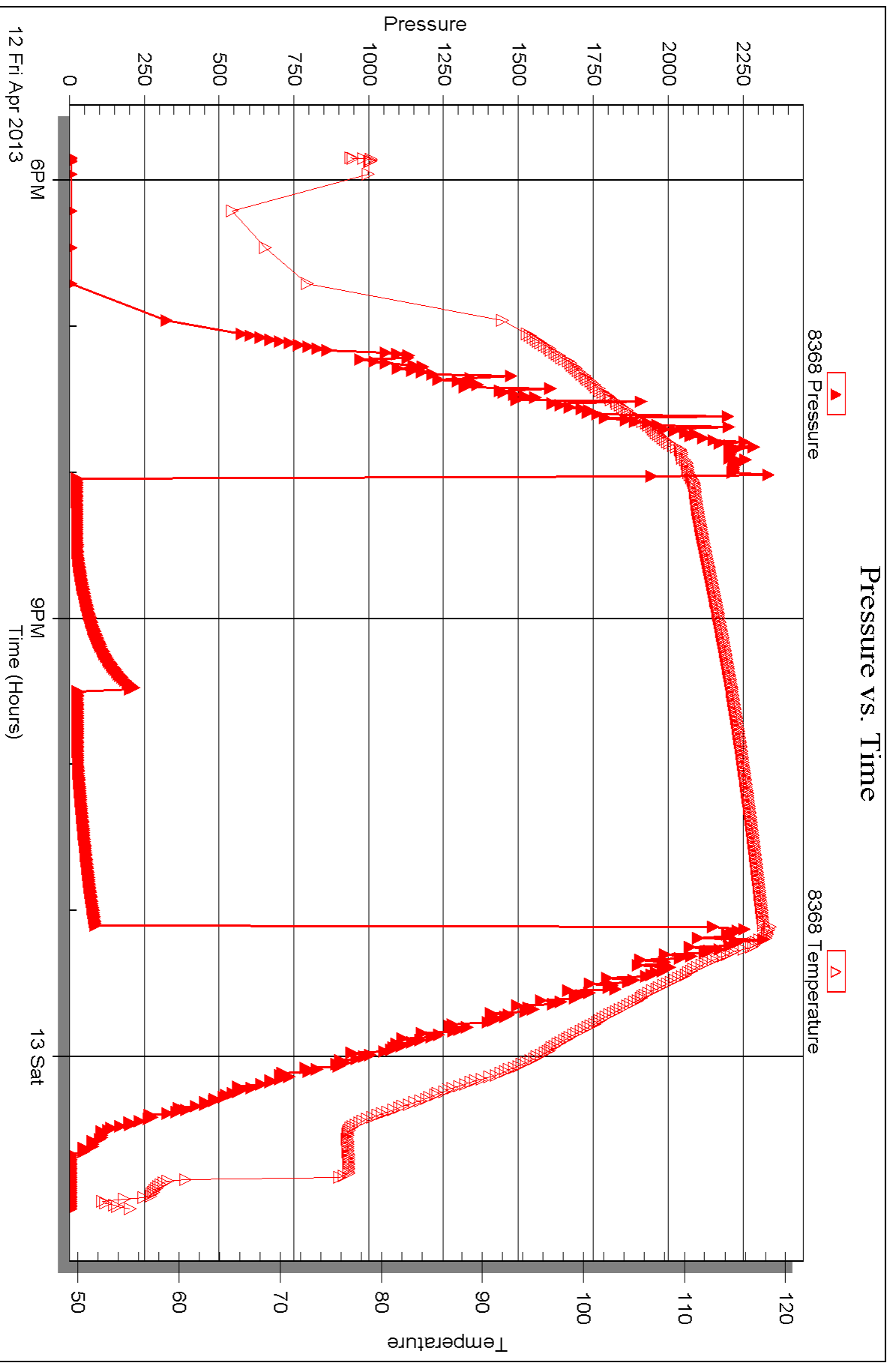


Serial #: 8368

Outside Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 6



Triobite Testing, Inc

Ref. No: 49191

Printed: 2013.04.22 @ 11:37:12



## 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

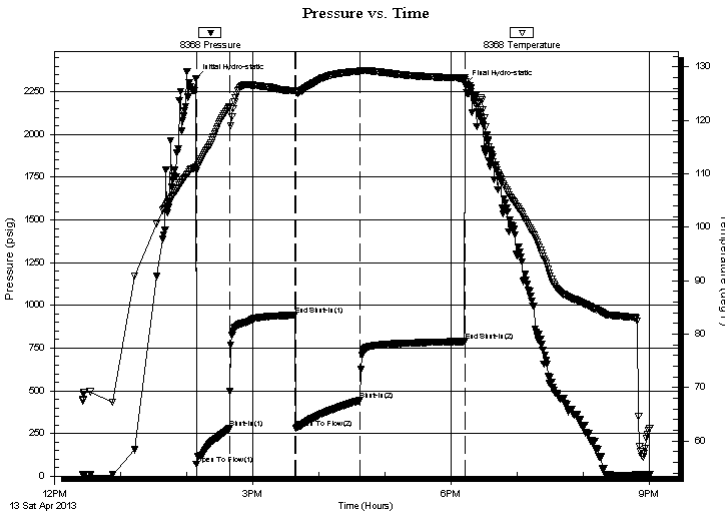
## Serial #: 8368

**Outside**

Press @ Run Depth: 444.80 psig @ 4578.00 ft (KB)  
 Start Date: 2013.04.13 End Date: 2013.04.13  
 Start Time: 12:25:35 End Time: 21:01:00  
 Capacity: 8000.00 psig  
 Last Calib.: 2013.04.13  
 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	sgmow 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	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

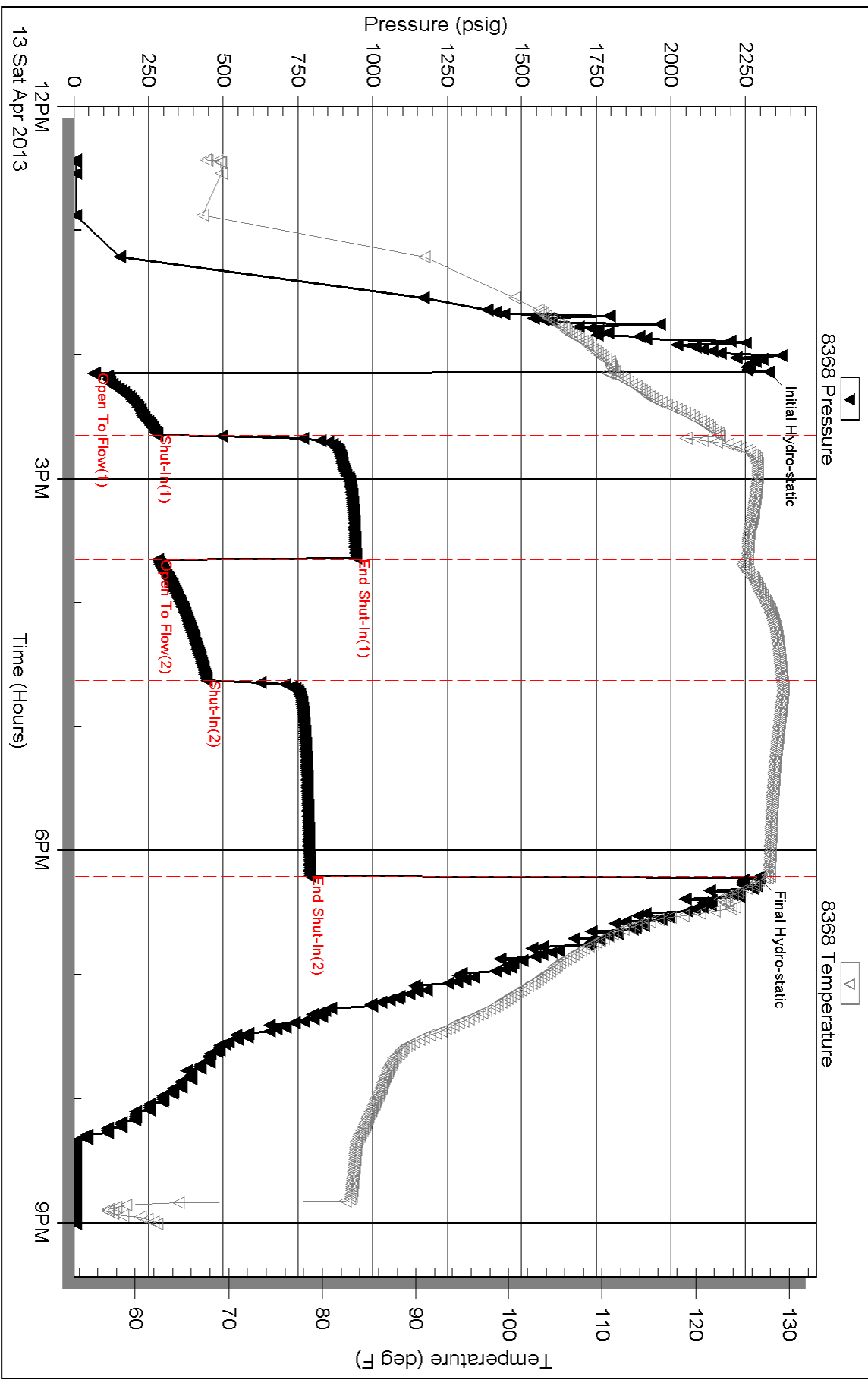
Serial #: 8368

Outside Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 7

### Pressure vs. Time





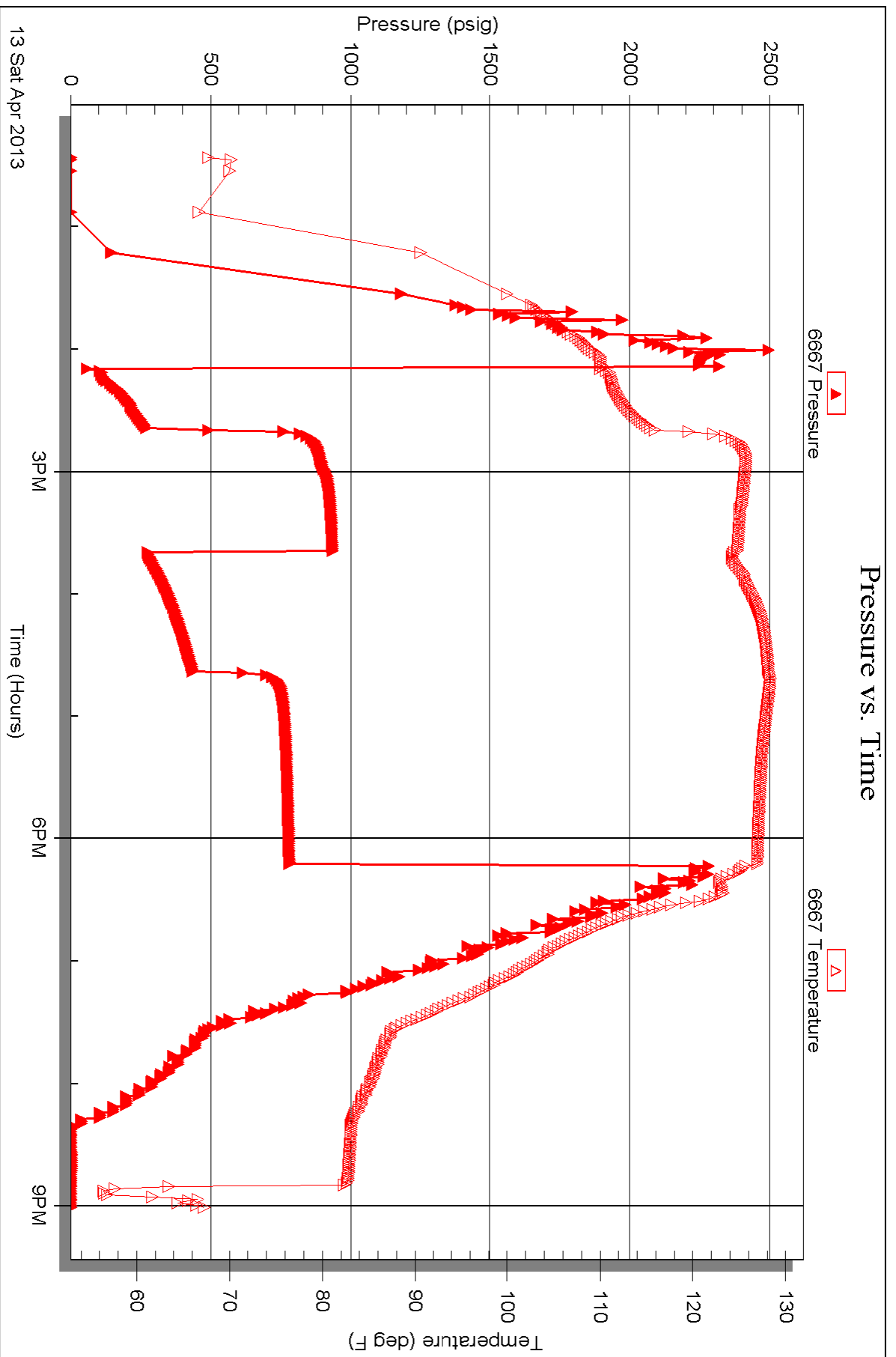
Serial #: 6667

Inside

Murfin Drilling Comp Inc

WWMM#2-4

DST Test Number: 7



Triobite Testing, Inc

Ref. No: 49192

Printed: 2013.04.22 @ 11:36:14



# 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

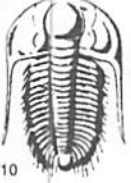
Rec	Feet of	%gas	%oil	%water	%mud
<u>248</u>	<u>Feet of mcw</u>			<u>65%</u>	<u>35%</u>
<u>372</u>	<u>Feet of smcw</u>			<u>90%</u>	<u>10%</u>
<u>992</u>	<u>Feet of water</u>			<u>100%</u>	

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]

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# 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 \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Sub Total 0  
 Day Standby \_\_\_\_\_  
 Total 1739.70  
 Accessibility \_\_\_\_\_  
 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1739.70

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## 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

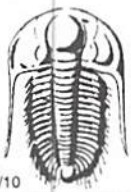
Rec	Feet of	%gas	%oil	%water	%mud
<u>124</u>	<u>90</u>	<u>15</u>	<u>85</u>		
<u>248</u>	<u>90cm</u>	<u>20</u>	<u>35</u>		<u>45</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of <u>(930' wear gas pipe)</u>	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

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

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. Fa, KS 67202  
 Co. Rep / Geo Steve Miller Rig Murphy #20  
 Location: Sec. 4 Twp. 13S Rge. 34W Co. Jogon 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 2260  Test 1250 T-On Location 02:00  
 (B) First Initial Flow 19  Jars T-Started 02:25  
 (C) First Final Flow 28  Safety Joint T-Open 04:30  
 (D) Initial Shut-In 934  Circ Sub N/C T-Pulled 07:30  
 (E) Second Initial Flow 70  Hourly Standby T-Out 09:30  
 (F) Second Final Flow 37  Mileage 74.15 114.70 Comments \_\_\_\_\_  
 (G) Final Shut-In 917  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2160  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  
 Sub Total 0  
 Total 1364.70  
 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. 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. WOWWM #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. 13S Rge. 34W Co. Pogon 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

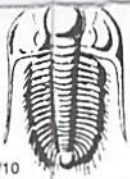
Rec Total 5' BHT 118° Gravity          API RW          @          ° F Chlorides          ppm

(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           Ruined Shale Packer           
 Shale Packer           Ruined Packer         

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

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. 49192

Well Name & No. UWVW #2-4 Test No. #7 Date 4/13/13  
 Company Marked Drilling Camp Inc. Elevation 3051 KB 3040 GL  
 Address 250 N. Water St #300 Wichita, KS 67202  
 Co. Rep / Geo. Steve Miller Rig Y/Mud #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>ago</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	%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  
 (G) Final Shut-In 788  Sampler loaded tools 4/14 @ 16:45  
 (H) Final Hydrostatic 2294  Straddle  Ruined Shale Packer  
 Shale Packer  Ruined Packer  
 Extra Packer  Extra Copies  
 Extra Recorder Sub Total 0  
 Day Standby Total 1479.40  
 Accessibility MP/DST Disc't

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90  
 Sub Total 1479.40

Approved By [Signature] Our Representative [Signature]

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