



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300  
Wichita KS 67202

ATTN: Paul Gunzelman

**Gly #1-27**

**27-4s-31w Rawlins,KS**

Start Date: 2013.04.02 @ 07:45:00

End Date: 2013.04.02 @ 18:31:15

Job Ticket #: 50641                      DST #: 1

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

Printed: 2013.04.10 @ 16:32:22



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co.

**27-4s-31w Rawlins, KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50641

**DST#: 1**

ATTN: Paul Gunzelman

Test Start: 2013.04.02 @ 07:45:00

## GENERAL INFORMATION:

Formation: **Tor-LKC A&B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:43:45

Time Test Ended: 18:31:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Wilbur Steinbeck

Unit No: 39

**Interval: 3920.00 ft (KB) To 4007.00 ft (KB) (TVD)**

Reference Elevations: 2937.00 ft (KB)

Total Depth: 4007.00 ft (KB) (TVD)

2927.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

**Serial #: 8353 Outside**

Press @ Run Depth: 821.48 psig @ 3921.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.02

End Date: 2013.04.02

Last Calib.: 2013.04.03

Start Time: 07:45:15

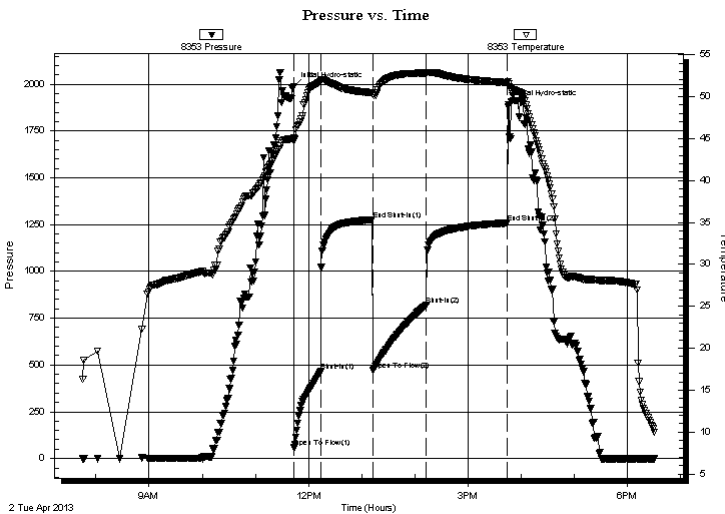
End Time: 18:31:15

Time On Btm: 2013.04.02 @ 11:43:00

Time Off Btm: 2013.04.02 @ 15:46:00

**TEST COMMENT:** 30 IF; BOB in 3 min  
60 IS; Built to 3/8" in 40 min died back to Surface blow  
60 FF; BOB in 3 min  
90 FS; No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg C)	Annotation
0	1989.14	45.06	Initial Hydro-static
1	58.25	44.81	Open To Flow (1)
31	464.52	51.81	Shut-In(1)
90	1276.72	50.43	End Shut-In(1)
90	473.44	50.25	Open To Flow (2)
150	821.48	52.82	Shut-In(2)
242	1258.60	51.66	End Shut-In(2)
243	1890.03	51.56	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
960.00	MW 75%W 25%M	8.60
676.00	MW 60%W 40%M	9.48
125.00	OSM 100%M	1.75

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.

**27-4s-31w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50641

**DST#: 1**

ATTN: Paul Gunzelman

Test Start: 2013.04.02 @ 07:45:00

## Tool Information

Drill Pipe:	Length: 3393.00 ft	Diameter: 3.80 inches	Volume: 47.59 bbl	Tool Weight: 25000.00 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: 534.00 ft	Diameter: 2.25 inches	Volume: 2.63 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 50.22 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	3920.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	87.00 ft			
Tool Length:	114.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3898.00	
Hydraulic tool jars	5.00			3903.00	
safety Joint	3.00			3908.00	
Packer	5.00			3911.00	
Packer	5.00			3916.00	27.00 Bottom Of Top Packer
Packer	4.00			3920.00	
Stubb	1.00			3921.00	
Recorder	0.00	8360	Inside	3921.00	
Recorder	0.00	8353	Outside	3921.00	
Perforations	17.00			3938.00	
Change Over Sub	1.00			3939.00	
Blank Spacing	64.00			4003.00	
Change Over Sub	1.00			4004.00	
Bullnose	3.00			4007.00	87.00 Bottom Packers & Anchor

**Total Tool Length: 114.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**27-4s-31w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50641

**DST#: 1**

ATTN: Paul Gunzelman

Test Start: 2013.04.02 @ 07:45:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
960.00	MW 75%W 25%M	8.602
676.00	MW 60%W 40%M	9.483
125.00	OSM 100%M	1.753

Total Length: 1761.00 ft      Total Volume: 19.838 bbl

Num Fluid Samples: 0

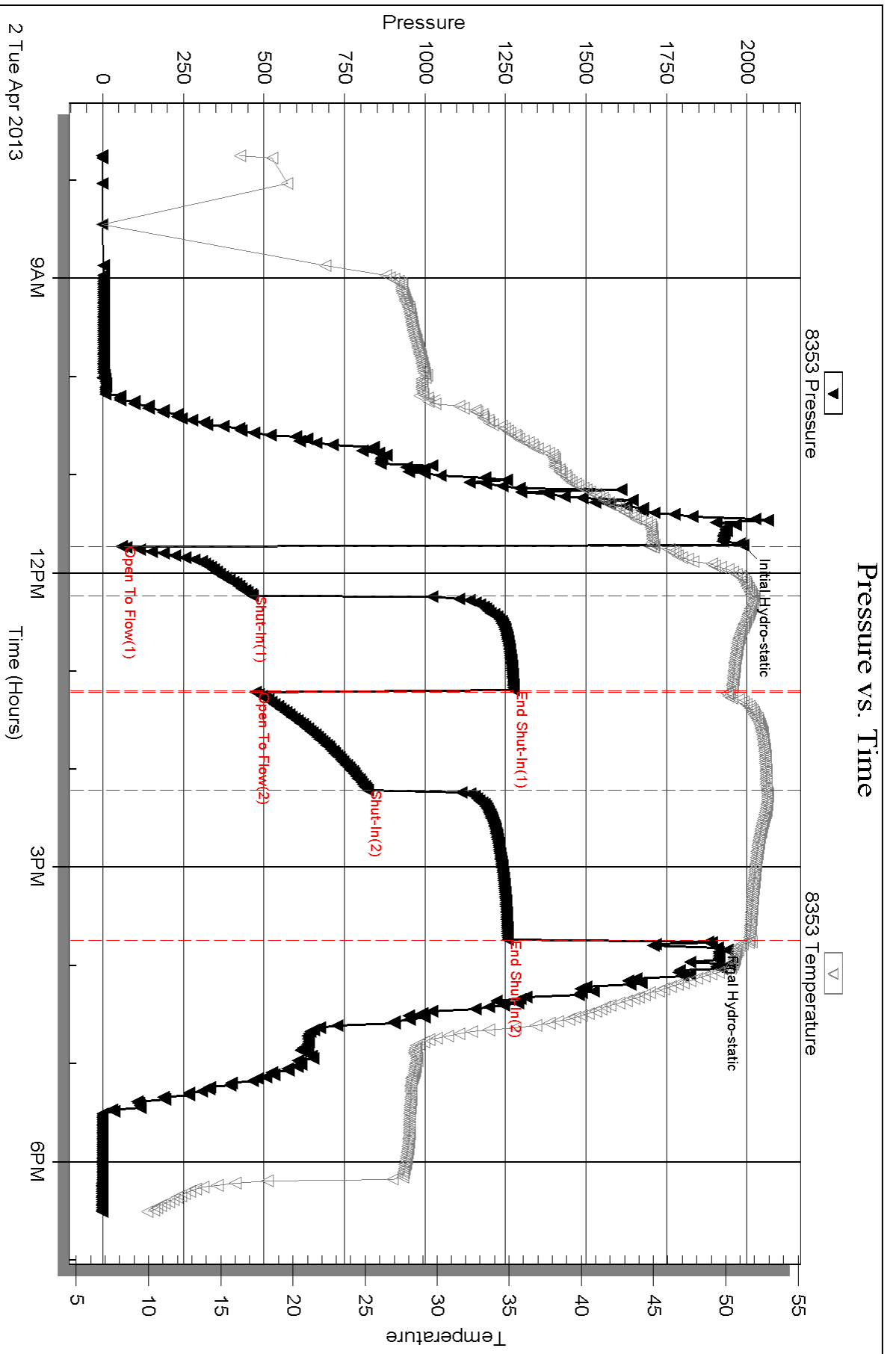
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .115@53 DEG F=95000



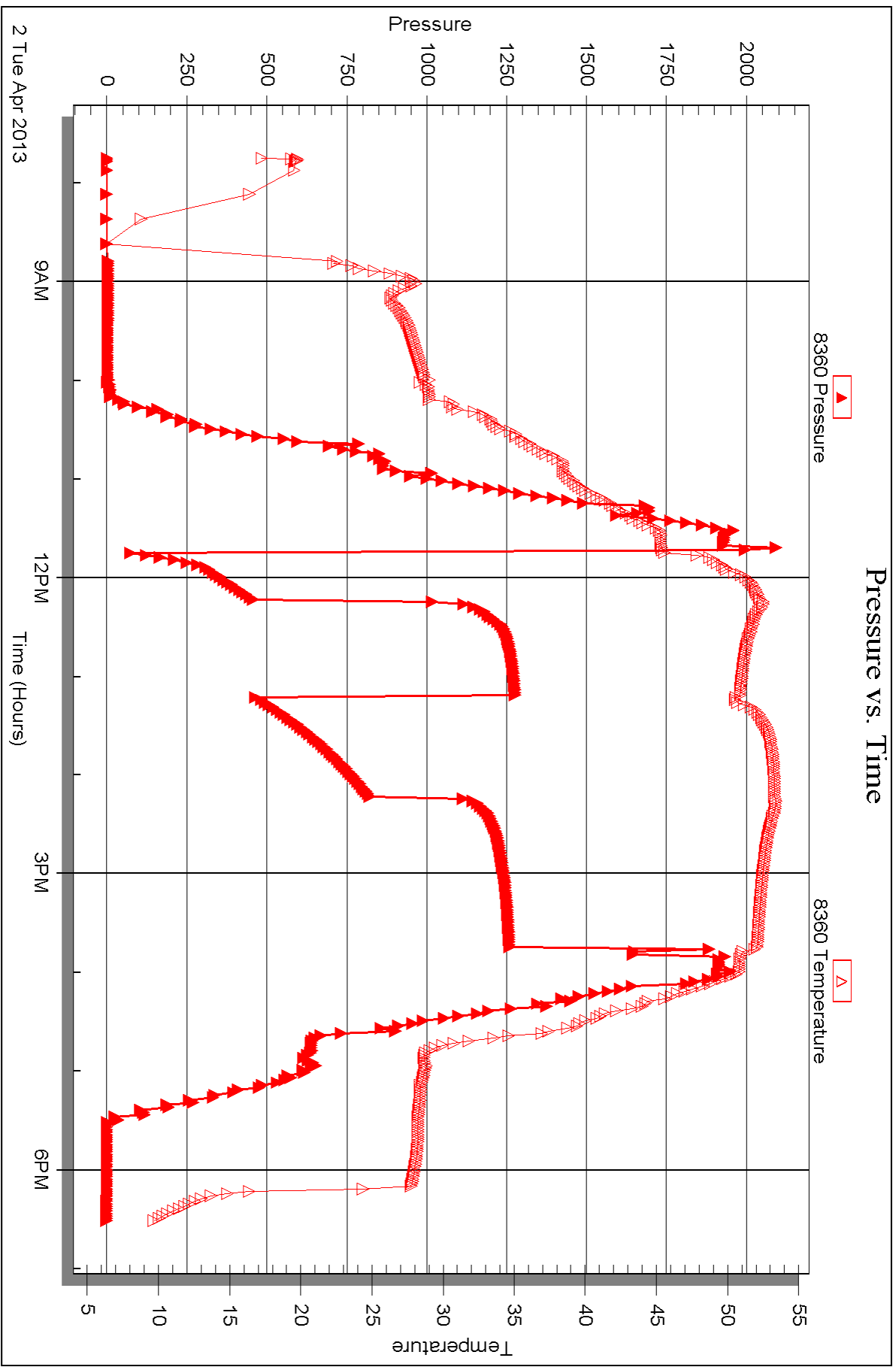
Serial #: 8360

Inside

Murfin Drilling Co.

Gly #1-27

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 50641

Printed: 2013.04.10 @ 16:32:25



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300  
Wichita KS 67202

ATTN: Paul Gunzelman

**Gly #1-27**

**27-4s-31w Rawlins,KS**

Start Date: 2013.04.03 @ 13:30:00

End Date: 2013.04.03 @ 20:35:00

Job Ticket #: 50642                      DST #: 2

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

Printed: 2013.04.10 @ 16:31:05

Murfin Drilling Co. 27-4s-31w Rawlins,KS Gly #1-27 DST # 2 LKC F 2013.04.03





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co.

**27-4s-31w Rawlins, KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50642

**DST#: 2**

ATTN: Paul Gunzelman

Test Start: 2013.04.03 @ 13:30:00

## GENERAL INFORMATION:

Formation: **LKC F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:53:00

Time Test Ended: 20:35:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 39

**Interval: 4027.00 ft (KB) To 4046.00 ft (KB) (TVD)**

Reference Elevations: 2937.00 ft (KB)

Total Depth: 4046.00 ft (KB) (TVD)

2927.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

**Serial #: 8353 Outside**

Press @ RunDepth: 74.26 psig @ 4028.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.03

End Date:

2013.04.03

Last Calib.: 2013.04.03

Start Time: 13:30:15

End Time:

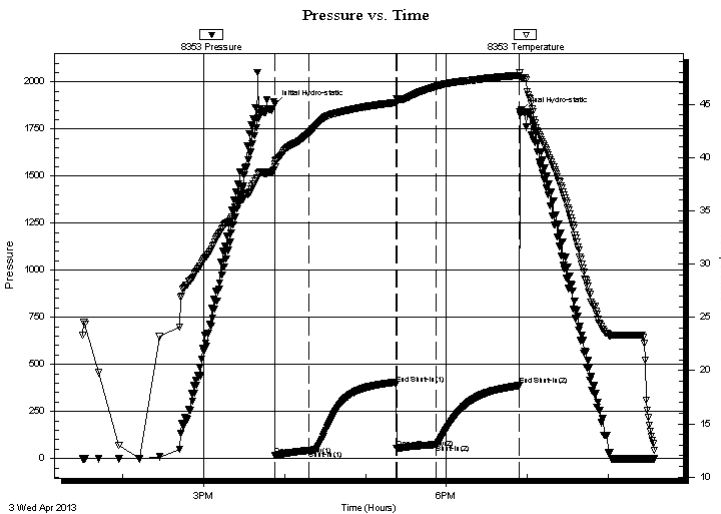
20:35:00

Time On Btm: 2013.04.03 @ 15:52:30

Time Off Btm: 2013.04.03 @ 18:54:30

**TEST COMMENT:** 30 IF; Built to 1 1/2"  
60 IS; No Blow  
30 FF; Built to 3/4"  
60 FS; No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg C)	Annotation
0	1882.17	39.40	Initial Hydro-static
1	15.96	39.11	Open To Flow (1)
26	42.96	42.30	Shut-In(1)
90	394.54	45.16	End Shut-In(1)
91	53.59	45.48	Open To Flow (2)
120	74.26	46.67	Shut-In(2)
182	387.43	47.71	End Shut-In(2)
182	1842.66	47.96	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
96.00	OWCM 10%O 30%W 60%M	0.47
54.00	MCO 35%M 65%O	0.27

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.

**27-4s-31w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50642

**DST#: 2**

ATTN: Paul Gunzelman

Test Start: 2013.04.03 @ 13:30:00

## Tool Information

Drill Pipe:	Length: 3489.00 ft	Diameter: 3.80 inches	Volume: 48.94 bbl	Tool Weight:	25000.00 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: 534.00 ft	Diameter: 2.25 inches	Volume: 2.63 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 51.57 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial	70000.00 lb
Depth to Top Packer:	4027.00 ft			Final	70000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	19.00 ft				
Tool Length:	46.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4005.00	
Hydraulic tool	5.00			4010.00	
jars	5.00			4015.00	
safety Joint	3.00			4018.00	
Packer	5.00			4023.00	27.00 Bottom Of Top Packer
Packer	4.00			4027.00	
Stubb	1.00			4028.00	
Recorder	0.00	8360	Inside	4028.00	
Recorder	0.00	8353	Outside	4028.00	
Perforations	15.00			4043.00	
Bullnose	3.00			4046.00	19.00 Bottom Packers & Anchor

**Total Tool Length: 46.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**27-4s-31w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50642

**DST#: 2**

ATTN: Paul Gunzelman

Test Start: 2013.04.03 @ 13:30:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 8.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 74.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
96.00	OWCM 10%O 30%W 60%M	0.472
54.00	MCO 35%M 65%O	0.266

Total Length: 150.00 ft      Total Volume: 0.738 bbl

Num Fluid Samples: 0

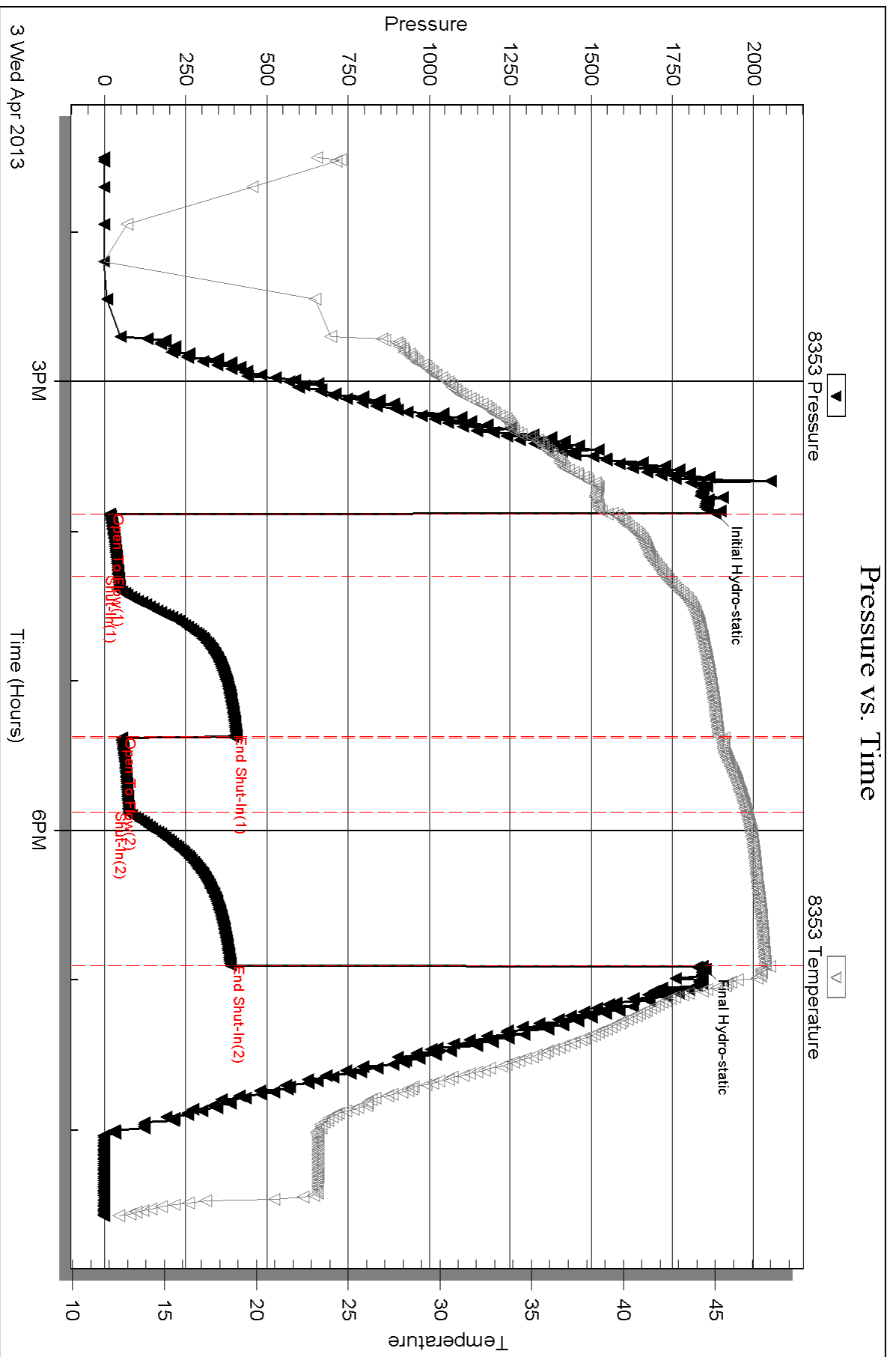
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity 28.2@58 DEG F=28.4



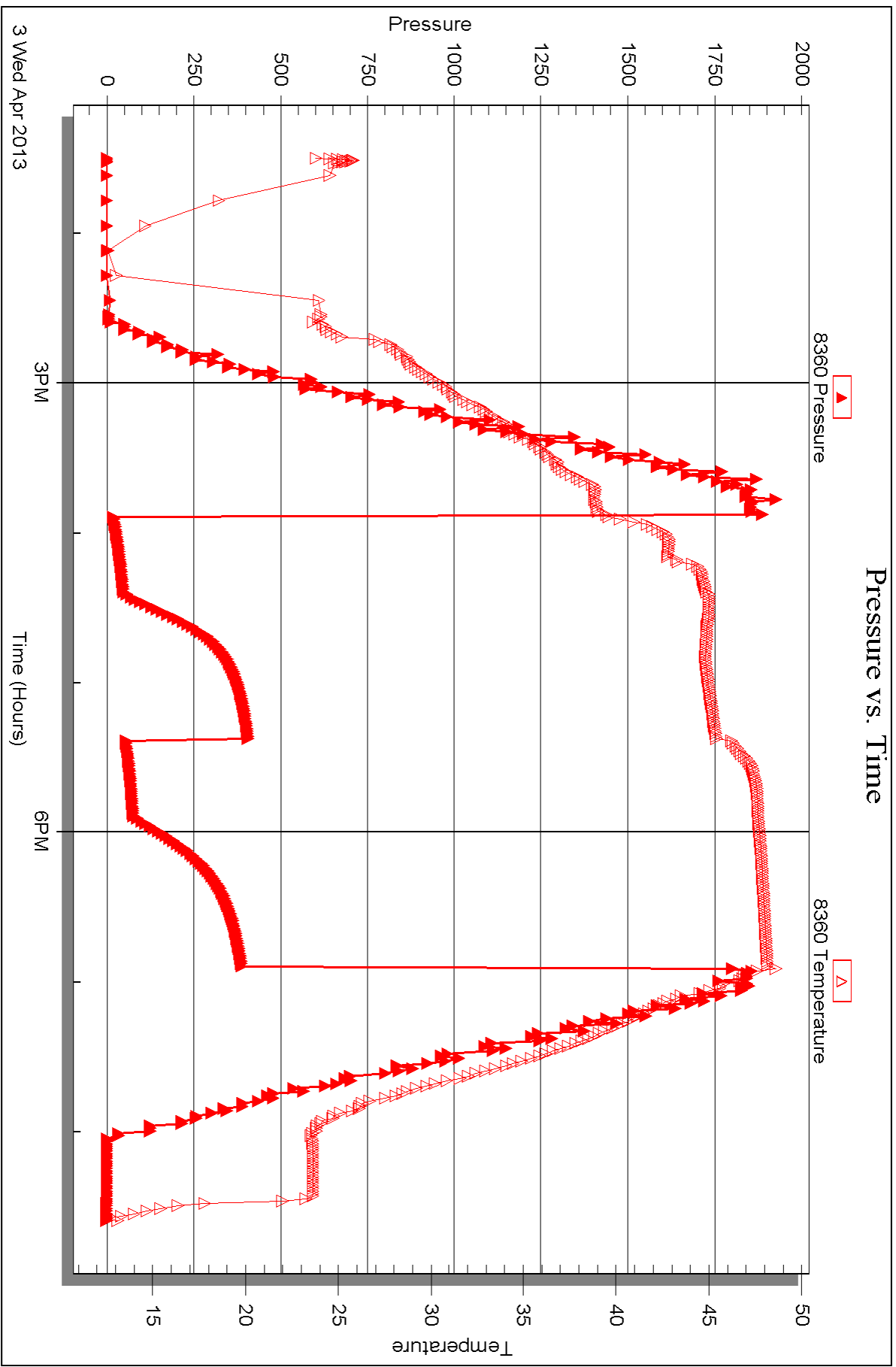
Serial #: 8360

Inside

Murfin Drilling Co.

Gly #1-27

DST Test Number: 2





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300  
Wichita KS 67202

ATTN: Paul Gunzelman

**Gly #1-27**

**27-4s-31w Rawlins,KS**

Start Date: 2013.04.04 @ 09:40:00

End Date: 2013.04.04 @ 16:25:45

Job Ticket #: 50643                      DST #: 3

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

Printed: 2013.04.10 @ 16:30:28



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co.

**27-4s-31w Rawlins, KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50643

**DST#: 3**

ATTN: Paul Gunzelman

Test Start: 2013.04.04 @ 09:40:00

## GENERAL INFORMATION:

Formation: **LKC J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:45:00

Time Test Ended: 16:25:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 39

**Interval: 4098.00 ft (KB) To 4142.00 ft (KB) (TVD)**

Reference Elevations: 2937.00 ft (KB)

Total Depth: 4142.00 ft (KB) (TVD)

2927.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

**Serial #: 8353 Outside**

Press @ Run Depth: 21.75 psig @ 4099.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.04

End Date:

2013.04.04

Last Calib.:

2013.04.04

Start Time: 09:40:15

End Time:

16:25:45

Time On Btm:

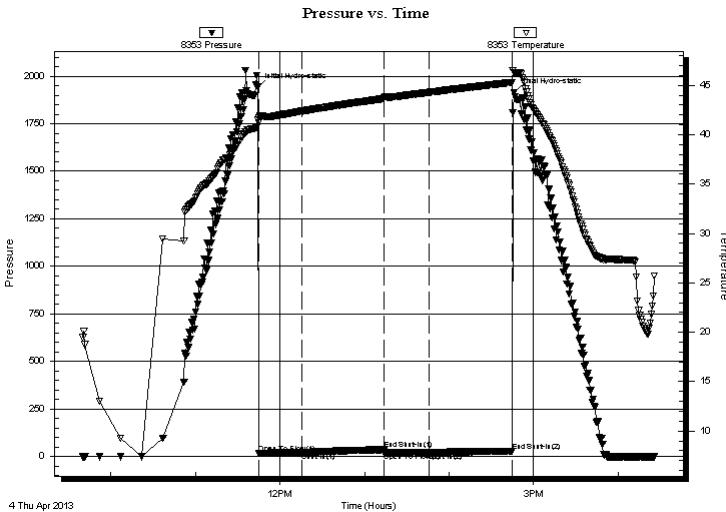
2013.04.04 @ 11:44:30

Time Off Btm:

2013.04.04 @ 14:46:00

**TEST COMMENT:** 30 IF; Weak surface blow through out  
60 ISI; No Blow  
30 FF; No Blow  
60 FSI; No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg C)	Annotation
0	1941.64	41.52	Initial Hydro-static
1	15.22	41.20	Open To Flow (1)
31	20.33	42.38	Shut-In(1)
89	35.52	43.65	End Shut-In(1)
90	20.64	43.75	Open To Flow (2)
121	21.75	44.29	Shut-In(2)
180	27.45	45.29	End Shut-In(2)
182	1912.17	46.32	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM 15%O 85%M	0.05

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co.

**27-4s-31w Rawlins, KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50643

**DST#: 3**

ATTN: Paul Gunzelman

Test Start: 2013.04.04 @ 09:40:00

## GENERAL INFORMATION:

Formation: **LKC J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:45:00

Time Test Ended: 16:25:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 39

**Interval: 4098.00 ft (KB) To 4142.00 ft (KB) (TVD)**

Reference Elevations: 2937.00 ft (KB)

Total Depth: 4142.00 ft (KB) (TVD)

2927.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

**Serial #: 8360**

**Inside**

Press @ Run Depth: psig @ 4099.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.04

End Date:

2013.04.04

Last Calib.:

2013.04.04

Start Time: 09:40:05

End Time:

16:25:59

Time On Btm:

Time Off Btm:

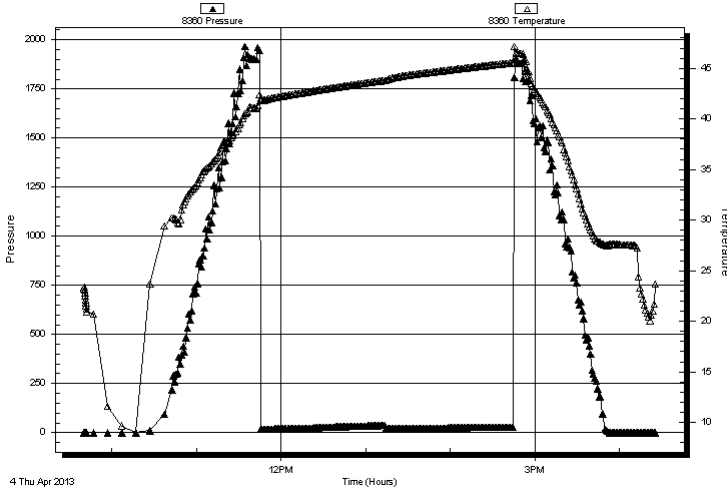
**TEST COMMENT:** 30 IF; Weak surface blow through out

60 IS; No Blow

30 FF; No Blow

60 FS; No Blow

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg C)	Annotation
-------------	-----------------	--------------	------------

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM 15%O 85%M	0.05

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.

**27-4s-31w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50643

**DST#: 3**

ATTN: Paul Gunzelman

Test Start: 2013.04.04 @ 09:40:00

## Tool Information

Drill Pipe:	Length: 3552.00 ft	Diameter: 3.80 inches	Volume: 49.83 bbl	Tool Weight: 25000.00 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: 534.00 ft	Diameter: 2.25 inches	Volume: 2.63 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 52.46 bbl</u>	Tool Chased 6.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 74000.00 lb
Depth to Top Packer:	4098.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	71.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4076.00	
Hydraulic tool jars	5.00			4081.00	
safety Joint	3.00			4089.00	
Packer	5.00			4094.00	27.00 Bottom Of Top Packer
Packer	4.00			4098.00	
Stubb	1.00			4099.00	
Recorder	0.00	8360	Inside	4099.00	
Recorder	0.00	8353	Outside	4099.00	
Perforations	6.00			4105.00	
Change Over Sub	1.00			4106.00	
Blank Spacing	32.00			4138.00	
Change Over Sub	1.00			4139.00	
Bullnose	3.00			4142.00	44.00 Bottom Packers & Anchor

**Total Tool Length: 71.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**27-4s-31w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50643

**DST#: 3**

ATTN: Paul Gunzelman

Test Start: 2013.04.04 @ 09:40:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	OCM 15%O 85%M	0.049

Total Length: 10.00 ft      Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

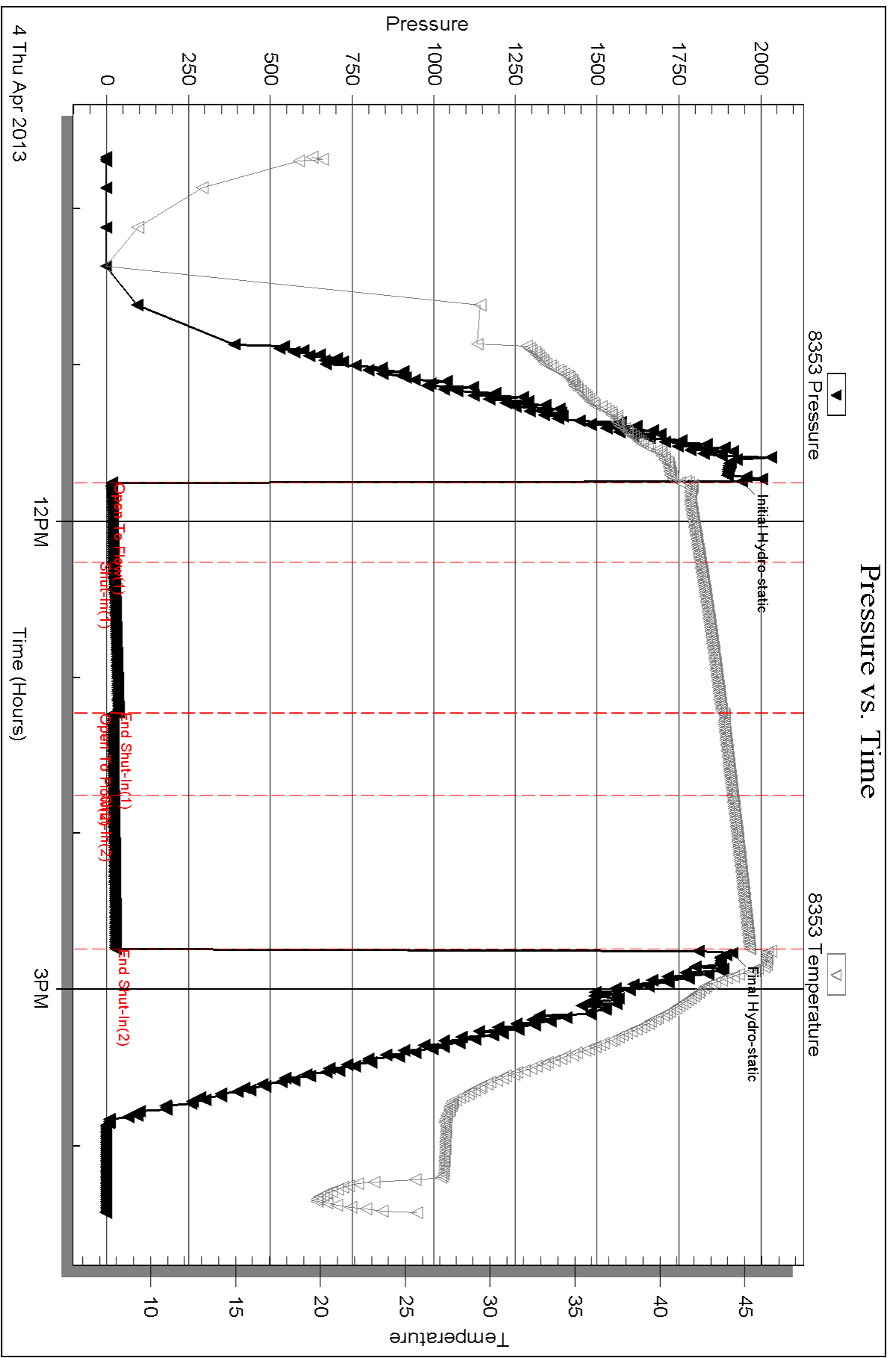
Recovery Comments:

Serial #: 8353

Outside Murfin Drilling Co.

Gly #1-27

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 50643

Printed: 2013.04.10 @ 16:30:30

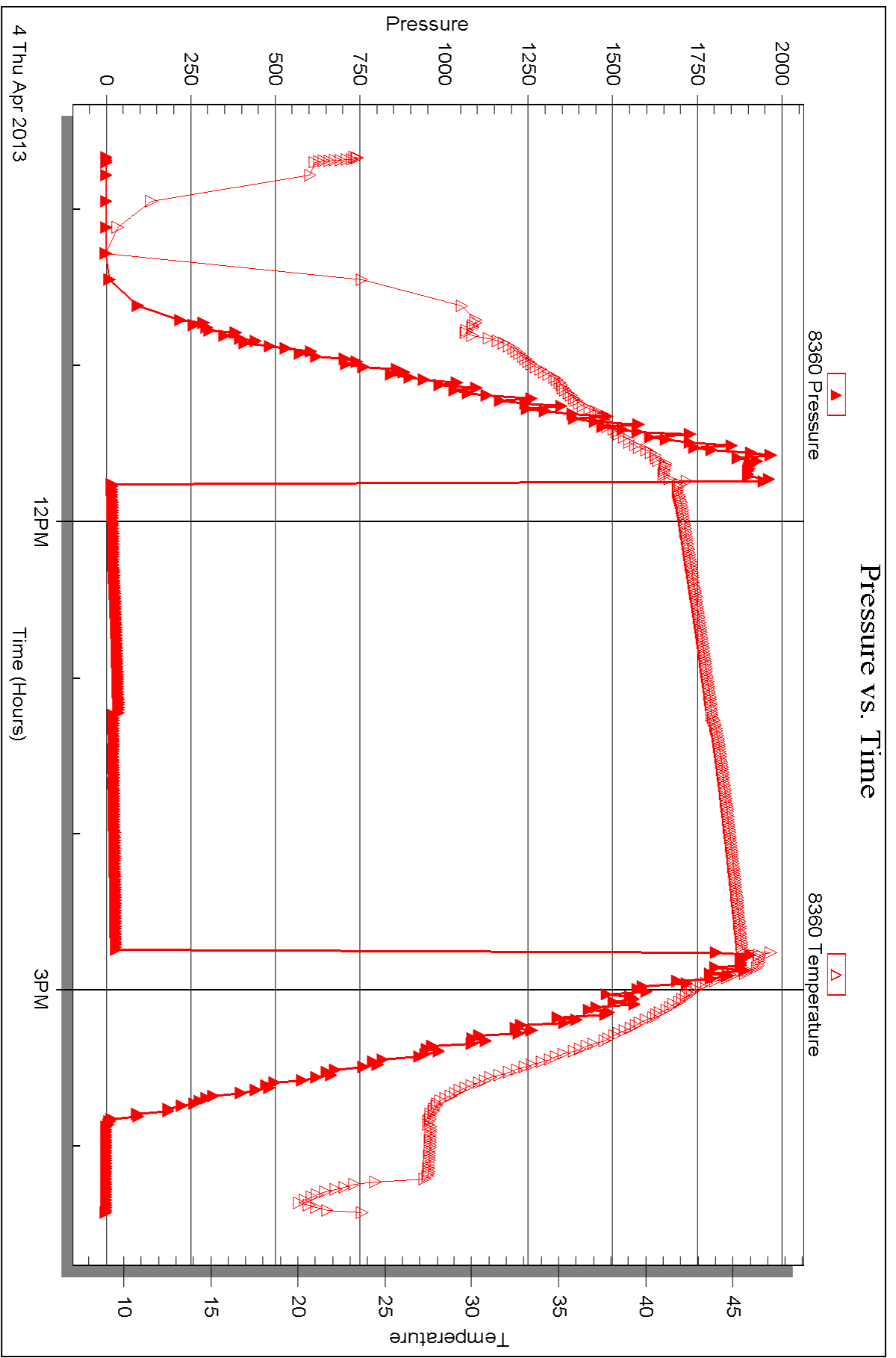
Serial #: 8360

Inside

Murfin Drilling Co.

Gly #1-27

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 50643

Printed: 2013.04.10 @ 16:30:31



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300  
Wichita KS 67202

ATTN: Paul Gunzelman

**Gly #1-27**

**27-4s-31w Rawlins,KS**

Start Date: 2013.04.04 @ 23:23:00

End Date: 2013.04.05 @ 06:32:30

Job Ticket #: 50644                      DST #: 4

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

Printed: 2013.04.10 @ 16:28:42



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co.

**27-4s-31w Rawlins, KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50644

**DST#: 4**

ATTN: Paul Gunzelman

Test Start: 2013.04.04 @ 23:23:00

## GENERAL INFORMATION:

Formation: **LKC K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:50:00

Time Test Ended: 06:32:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 39

**Interval: 4134.00 ft (KB) To 4166.00 ft (KB) (TVD)**

Reference Elevations: 2937.00 ft (KB)

Total Depth: 4166.00 ft (KB) (TVD)

2927.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

**Serial #: 8353 Outside**

Press @ RunDepth: 15.60 psig @ 4135.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.04

End Date:

2013.04.05

Last Calib.:

2013.04.05

Start Time: 23:23:15

End Time:

06:32:30

Time On Btm:

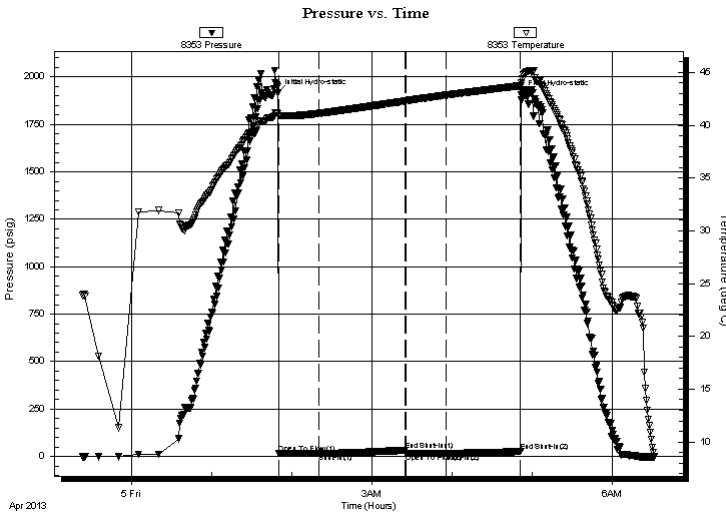
2013.04.05 @ 01:49:30

Time Off Btm:

2013.04.05 @ 04:52:00

**TEST COMMENT:** 30 IF; Weak Surface blow  
60 IS; No Blow  
30 FF; No Blow  
60 FS; No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg C)	Annotation
0	1914.60	41.08	Initial Hydro-static
1	15.27	40.89	Open To Flow (1)
31	15.84	41.12	Shut-In(1)
96	33.12	42.29	End Shut-In(1)
96	15.22	42.29	Open To Flow (2)
127	15.60	42.85	Shut-In(2)
182	26.58	43.74	End Shut-In(2)
183	1906.81	43.98	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud	0.01

## Gas Rates

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

\* Recovery from multiple tests







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.

**27-4s-31w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50644

**DST#: 4**

ATTN: Paul Gunzelman

Test Start: 2013.04.04 @ 23:23:00

## Tool Information

Drill Pipe:	Length: 3585.00 ft	Diameter: 3.80 inches	Volume: 50.29 bbl	Tool Weight: 25000.00 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: 534.00 ft	Diameter: 2.25 inches	Volume: 2.63 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 52.92 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 75000.00 lb
Depth to Top Packer:	4134.00 ft			Final 75000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	59.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			4112.00	
Hydraulic tool	5.00			4117.00	
jars	5.00			4122.00	
safety Joint	3.00			4125.00	
Packer	5.00			4130.00	27.00 Bottom Of Top Packer
Packer	4.00			4134.00	
Stubb	1.00			4135.00	
Recorder	0.00	8360	Inside	4135.00	
Recorder	0.00	8353	Outside	4135.00	
Perforations	28.00			4163.00	
Bullnose	3.00			4166.00	32.00 Bottom Packers & Anchor

**Total Tool Length: 59.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**27-4s-31w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Gly #1-27**

Job Ticket: 50644

**DST#: 4**

ATTN: Paul Gunzelman

Test Start: 2013.04.04 @ 23:23:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Mud	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

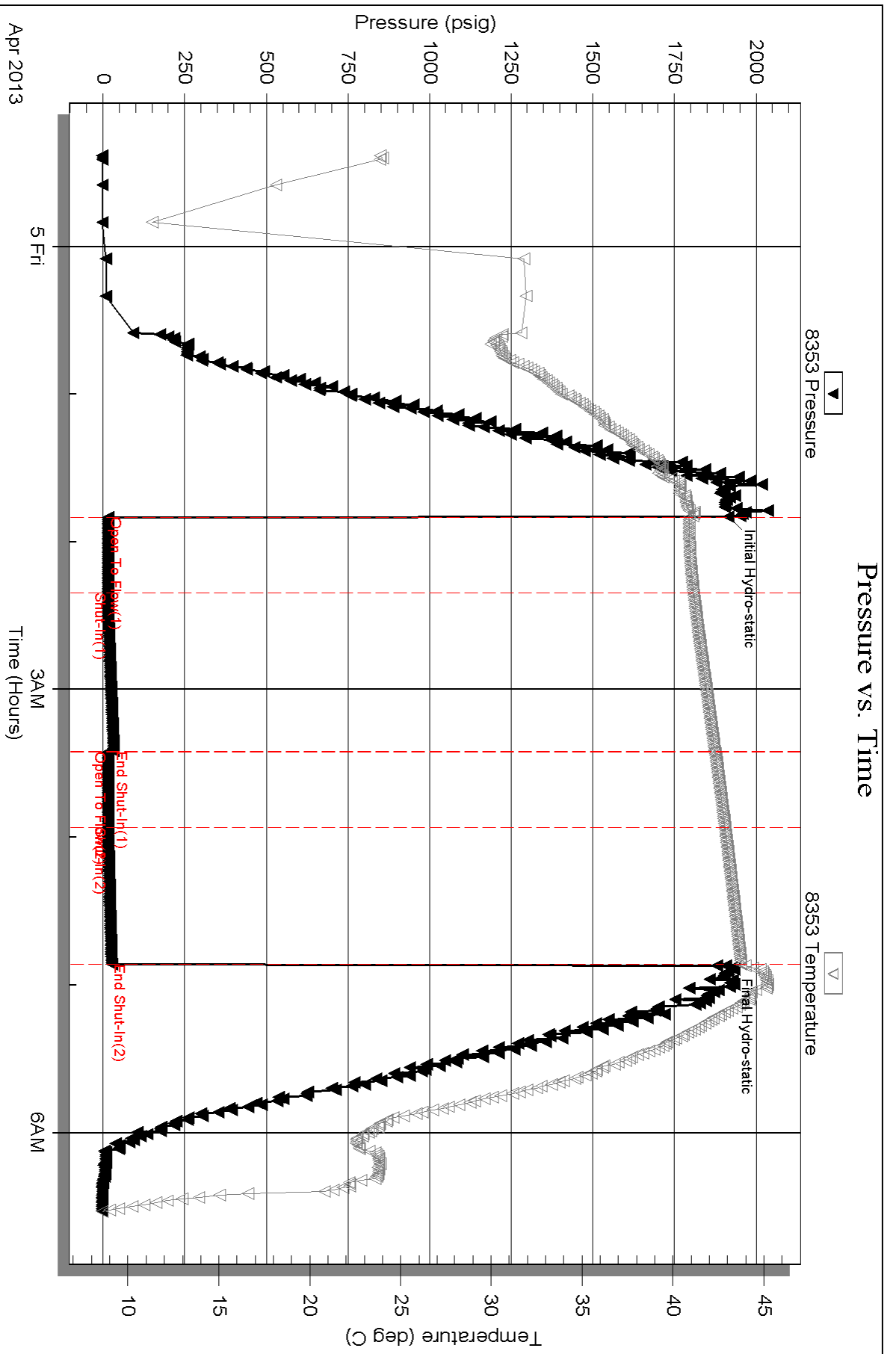
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



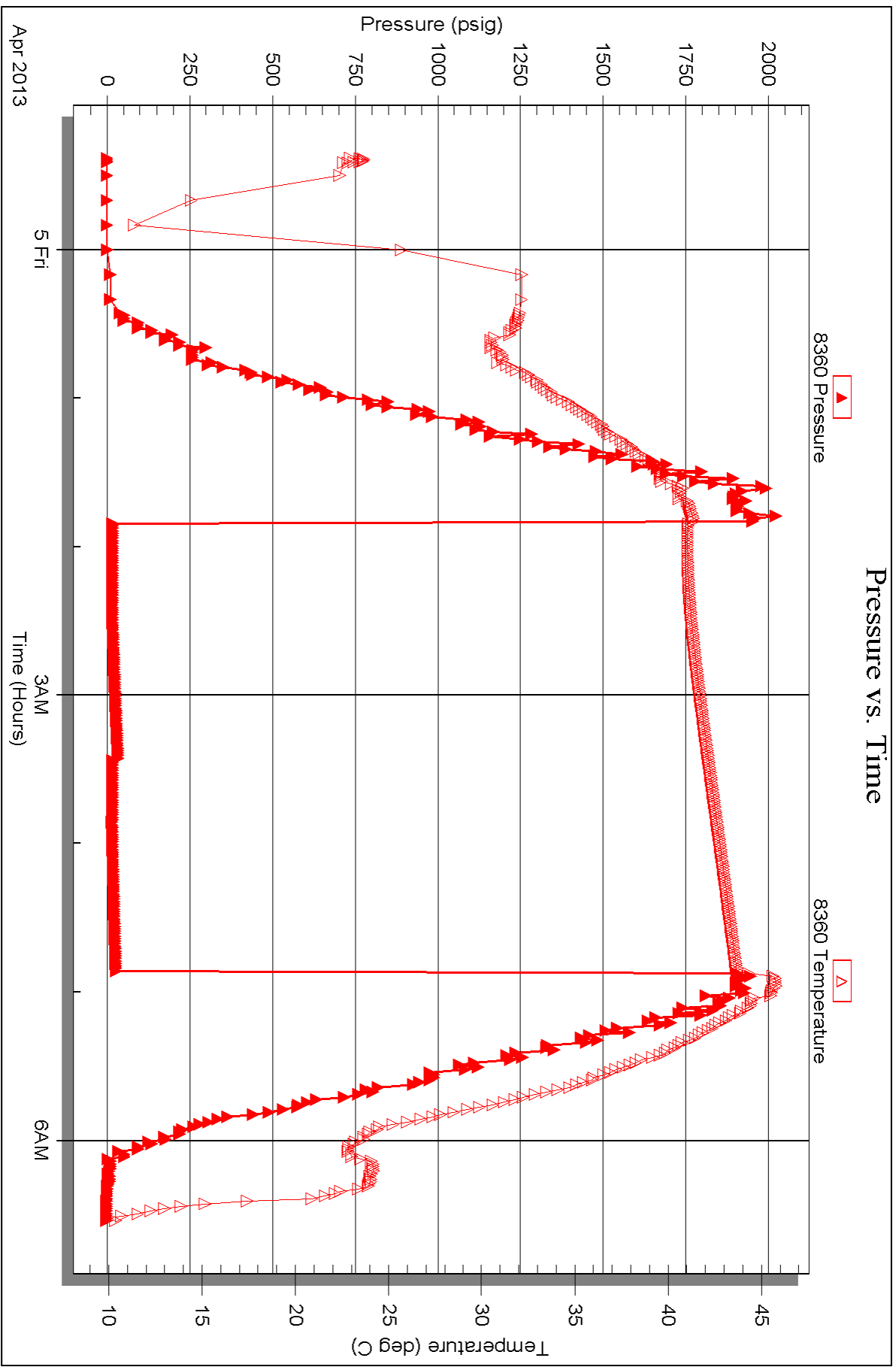
Serial #: 8360

Inside

Murfin Drilling Co.

Gly #1-27

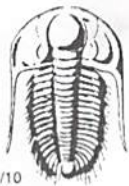
DST Test Number: 4



Triobite Testing, Inc

Ref. No: 50644

Printed: 2013.04.10 @ 16:28:45



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 50641

4/10

Well Name & No. Gly 1-27 Test No. 1 Date 4-2-13  
 Company Murfin Drilling Co. Elevation 2937 KB 2927 GL  
 Address 250 N Water Ste 300 Wichita KS 67202  
 Co. Rep / Geo. Paul Gunzelman Rig Murfin 14  
 Location: Sec. 27 Twp. 4s Rge. 31w Co. Rawlins State KS

Interval Tested 3920 4007 Zone Tested Tor - LKC A+B  
 Anchor Length 87 Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.2  
 Top Packer Depth 3915 Drill Collars Run 534 Vis 56  
 Bottom Packer Depth 3920 Wt. Pipe Run 0 WL 5.6  
 Total Depth 4007 Chlorides 1200 ppm System LCM 4

Blow Description IF; BOB in 3min  
IS; Built to 3/8" in 40min Lead back to surface Blow  
FF; BOB in 3min  
FS; No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>125</u>	<u>OSM</u>			<u>100</u>	
<u>676</u>	<u>WM</u>		<u>60</u>	<u>40</u>	
<u>960</u>	<u>MW</u>		<u>75</u>	<u>25</u>	
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total 1761 BHT 125° Gravity \_\_\_\_\_ API RW 115 @ 53 °F Chlorides 95000 ppm

(A) Initial Hydrostatic 1908  Test 1250 T-On Location 5:00  
 (B) First Initial Flow 73  Jars 250 T-Started 7:45  
 (C) First Final Flow 463  Safety Joint 75 T-Open 11:15  
 (D) Initial Shut-In 1277  Circ Sub NA T-Pulled 15:45  
 (E) Second Initial Flow 476  Hourly Standby \_\_\_\_\_ T-Out 18:30  
 (F) Second Final Flow 821  Mileage 55 RT 85.25 Comments Waited 1/4 hr  
 (G) Final Shut-In 1257  Sampler \_\_\_\_\_ on diff shut-in  
 (H) Final Hydrostatic 1881  Straddle \_\_\_\_\_ tool

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1660.25  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1660.25

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

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 50642

Well Name & No. GLY #1-27 Test No. 2 Date 4-3-13  
 Company Murfin Drilling Co. Elevation 2937 KB 2927 GL  
 Address 250 N Wakar Stc 300 Wichita Ks 67202  
 Co. Rep / Geo. Paul Gunzelman Rig Murfin 14  
 Location: Sec. 27 Twp. 4s Rge. 31w Co. Rawlins State Ks

Interval Tested 4027 4046 Zone Tested LKC F  
 Anchor Length 19 Drill Pipe Run 3489 Mud Wt. 8.5  
 Top Packer Depth 4022 Drill Collars Run 534 Vis 74  
 Bottom Packer Depth 4027 Wt. Pipe Run 0 WL 5.2  
 Total Depth 4046 Chlorides 800 ppm System LCM 16

Blow Description IF; Bit to 1 1/2"  
IS; No blow  
FF; Bit to 3/4"  
FSI; No blow

Rec	Feet of	%gas	%oil	%water	%mud
<del>54</del> 54	MCO	65		35	
96	OWCM	10	30	60	

Rec Total 150 BHT 118° Gravity 28.2 @ 58° = 28.4 API RW @      ° F Chlorides      ppm

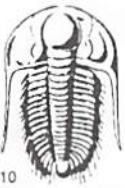
(A) Initial Hydrostatic 4882  Test 1250 T-On Location 13:10  
 (B) First Initial Flow 16  Jars 250 T-Started 13:30  
 (C) First Final Flow 43  Safety Joint 75 T-Open 15:50  
 (D) Initial Shut-In 395  Circ Sub NA T-Pulled 18:50  
 (E) Second Initial Flow 54  Hourly Standby T-Out 20:30  
 (F) Second Final Flow 74  Mileage 55 RT 85.25 Comments \_\_\_\_\_  
 (G) Final Shut-In 387  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1843  Straddle \_\_\_\_\_

Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1660.25

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer 320  
 Extra Copies \_\_\_\_\_  
 Sub Total 320  
 Total 1980  
 MP/DST Disc't \_\_\_\_\_

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

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 50643

4/10

Well Name & No.	GLY #1-27	Test No.	3	Date	4-4-13
Company	Murfin Drilling Co.	Elevation	2937	KB	2927 GL
Address	250 N Water STE 300	Website	Ks	67202	
Co. Rep / Geo.	Paul Gunzclman	Rig	Murfin 14		
Location: Sec.	27	Twp.	4s	Rge.	31w
		Co.	Rawlins	State	Ks

Interval Tested	4098	4142	Zone Tested	LKC J
Anchor Length	44		Drill Pipe Run	3552
Top Packer Depth	4093		Drill Collars Run	534
Bottom Packer Depth	4098		Wt. Pipe Run	0
Total Depth	4142		Chlorides	1,100 ppm System
			LCM	12

Blow Description IF; Weak surface blow Through out  
ISI; No blow  
FF; No blow  
FSI; No blow

Rec	Feet of	%gas	%oil	%water	%mud
10	0CM	15		85	

Rec Total 10 BHT 1150 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

- (A) Initial Hydrostatic 1942
- (B) First Initial Flow 15
- (C) First Final Flow 20
- (D) Initial Shut-In 36
- (E) Second Initial Flow 21
- (F) Second Final Flow 22
- (G) Final Shut-In 27
- (H) Final Hydrostatic 1912

- Test 1250
- Jars 250
- Safety Joint 75
- Circ Sub NA
- Hourly Standby
- Mileage 55 RT 85.25
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1660.25

- T-On Location 9:15
- T-Started 9:40
- T-Open 11:45
- T-Pulled 14:45
- T-Out 16:25

Comments \_\_\_\_\_

Ruined Shale Packer

Ruined Packer

Extra Copies

Sub Total 0

Total 1660.25

MP/DST Disc't \_\_\_\_\_

Initial Open 30

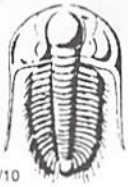
Initial Shut-In 60

Final Flow 30

Final Shut-In 60

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

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 50644

Well Name & No. GLY 1-27 Test No. 4 Date 4-4-13  
 Company Martin Drilling Co. Elevation 2937 KB 2927 GL  
 Address 250 N Water STE 300 Wichita Ks 67202  
 Co. Rep / Geo. Paul Gunczelman Rig Martin 14  
 Location: Sec. 27 Twp. 4S Rge. 31w Co. Rawlins State Ks

Interval Tested 4134 4166 Zone Tested LKC K  
 Anchor Length 32 Drill Pipe Run 3585 Mud Wt. 8.7  
 Top Packer Depth 4129 Drill Collars Run 534 Vis 59  
 Bottom Packer Depth 4134 Wt. Pipe Run 0 WL 5.2  
 Total Depth 4166 Chlorides 1100 ppm System LCM 12

Blow Description IF: Weak surface  
IS: No blow  
FF: No blow  
PSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 2 BHT 111° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1,915</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>23:00</u>
(B) First Initial Flow <u>15</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>23:23</u>
(C) First Final Flow <u>16</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>1:50</u>
(D) Initial Shut-In <u>33</u>	<input checked="" type="checkbox"/> Circ Sub <u>NA</u>	T-Pulled <u>4:50</u>
(E) Second Initial Flow <u>15</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>6:30</u>
(F) Second Final Flow <u>16</u>	<input checked="" type="checkbox"/> Mileage <u>55 RTX2</u> 170.50	Comments <u>Loaded tools</u>
(G) Final Shut-In <u>27</u>	<input type="checkbox"/> Sampler	<u>3:30pm 4-6-13</u>
(H) Final Hydrostatic <u>1,907</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

Initial Open 30  Shale Packer  
 Initial Shut-In 60  Extra Packer  
 Final Flow 30  Extra Recorder  
 Final Shut-In 60  Day Standby 1d 9h  
 Accessibility  
 Sub Total 1745.50 MP/DST Disc't

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

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