



## DRILL STEM TEST REPORT

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

250 N. Water Ste 300  
Wichita KS 67202

ATTN: Steve Miller

**Lana #1-5**

**5-13s-32w Logan,KS**

Start Date: 2013.04.21 @ 02:46:00

End Date: 2013.04.21 @ 11:38:55

Job Ticket #: 49233                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.30 @ 09:15:05



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**5-13s-32w Logan, KS**

**Lana #1-5**

Job Ticket: 49233

**DST#: 1**

Test Start: 2013.04.21 @ 02:46:00

## GENERAL INFORMATION:

Formation: **LKC " A - B "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:33:55

Time Test Ended: 11:38:55

Test Type: Conventional Bottom Hole (Initial)

Tester: Will MacLean

Unit No: 58

**Interval: 4039.00 ft (KB) To 4086.00 ft (KB) (TVD)**

Reference Elevations: 3060.00 ft (KB)

Total Depth: 4086.00 ft (KB) (TVD)

3049.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8674**

**Inside**

Press @ Run Depth: 784.81 psig @ 4040.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.21

End Date:

2013.04.21

Last Calib.:

2013.04.21

Start Time: 02:46:00

End Time:

11:38:55

Time On Btm:

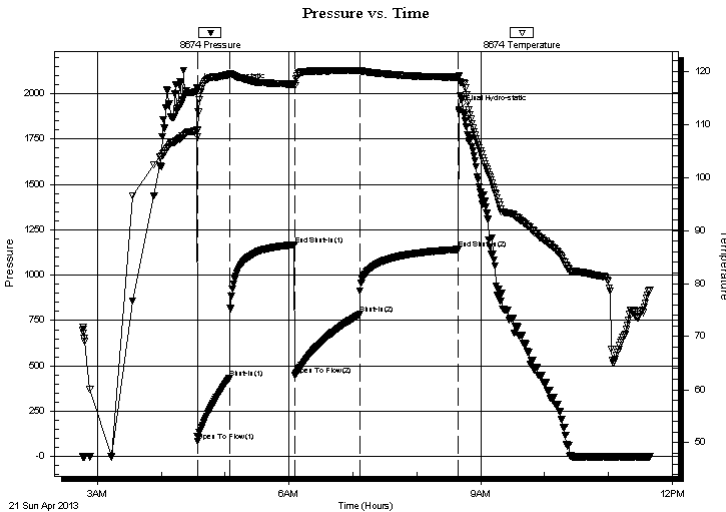
2013.04.21 @ 04:33:25

Time Off Btm:

2013.04.21 @ 08:39:24

**TEST COMMENT:** IF- Surface Blow Built to BOB in 3 min  
 IS- No Blow  
 FF- Surface Blow Built to BOB in 3 3/4 min  
 FS- Weak Surface Blow in 25 min

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2033.70	108.91	Initial Hydro-static
1	83.04	108.81	Open To Flow (1)
31	432.25	119.31	Shut-In(1)
92	1168.06	117.54	End Shut-In(1)
93	447.63	117.33	Open To Flow (2)
153	784.81	120.11	Shut-In(2)
246	1142.66	118.85	End Shut-In(2)
246	1911.35	119.24	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
620.00	MCW 3% <i>m</i> 97% <i>w</i> with a Skim of Oil on	7.07
567.00	MCW 11% <i>m</i> 89% <i>w</i> with Skim of Oil on	7.95
252.00	GOMCW 2% <i>g</i> 3% <i>oil</i> 29% <i>m</i> 66% <i>w</i>	3.53
189.00	GOMCW 4% <i>g</i> 14% <i>oil</i> 34% <i>m</i> 48% <i>w</i>	2.65
30.00	GO 3% <i>g</i> 97% <i>oil</i>	0.42
0.00	126' of GIP	0.00

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49233      **DST#: 1**  
Test Start: 2013.04.21 @ 02:46:00

**Tool Information**

Drill Pipe:	Length: 3854.00 ft	Diameter: 3.80 inches	Volume: 54.06 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	26000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	10000.00 lb
			<u>Total Volume: 54.94 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	4039.00 ft			Final	62000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	47.00 ft				
Tool Length:	75.00 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			4012.00	
Shut In Tool	5.00			4017.00	
Hydraulic tool	5.00			4022.00	
Jars	5.00			4027.00	
Safety Joint	3.00			4030.00	
Packer	5.00			4035.00	28.00      Bottom Of Top Packer
Packer	4.00			4039.00	
Stubb	1.00			4040.00	
Recorder	0.00	8355	Outside	4040.00	
Recorder	0.00	8674	Inside	4040.00	
Perforations	10.00			4050.00	
Change Over Sub	1.00			4051.00	
Drill Pipe	31.00			4082.00	
Change Over Sub	1.00			4083.00	
Bullnose	3.00			4086.00	47.00      Bottom Packers & Anchor

**Total Tool Length: 75.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49233      **DST#: 1**  
Test Start: 2013.04.21 @ 02:46:00

## Mud and Cushion Information

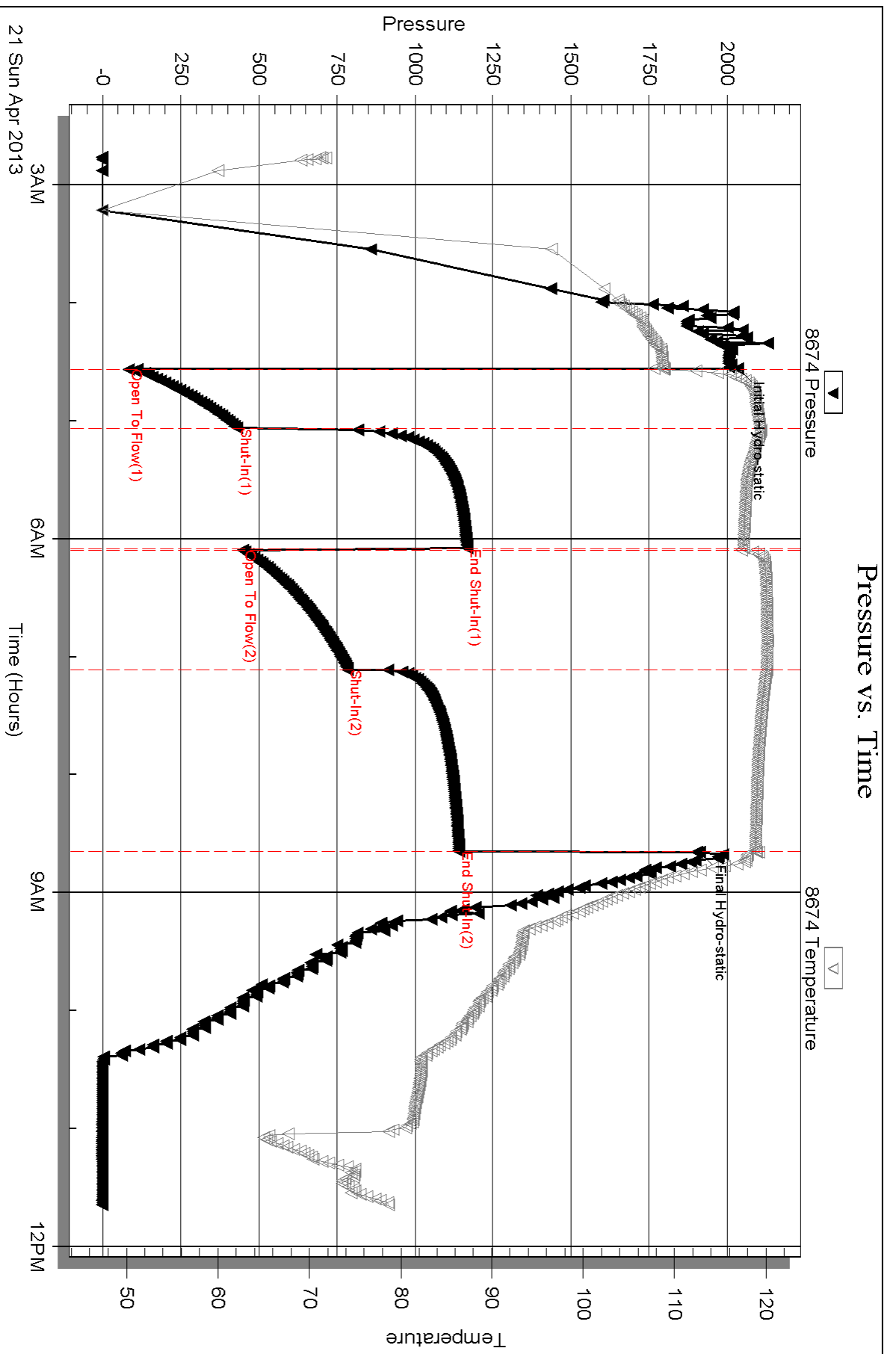
Mud Type: Gel Chem	Cushion Type:	Oil API: 32 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 35000 ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.13 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 4800.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
620.00	MCW 3% <i>m</i> 97% <i>w</i> with a Skim of Oil on Top	7.066
567.00	MCW 11% <i>m</i> 89% <i>w</i> with Skim of Oil on Top	7.954
252.00	GOMCW 2% <i>g</i> 3% <i>oil</i> 29% <i>m</i> 66% <i>w</i>	3.535
189.00	GOMCW 4% <i>g</i> 14% <i>oil</i> 34% <i>m</i> 48% <i>w</i>	2.651
30.00	GO 3% <i>g</i> 97% <i>oil</i>	0.421
0.00	126' of GIP	0.000

Total Length: 1658.00 ft      Total Volume: 21.627 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: RW is .187 @ 74f = 35000  
                                  API is 33 @ 70f = 32

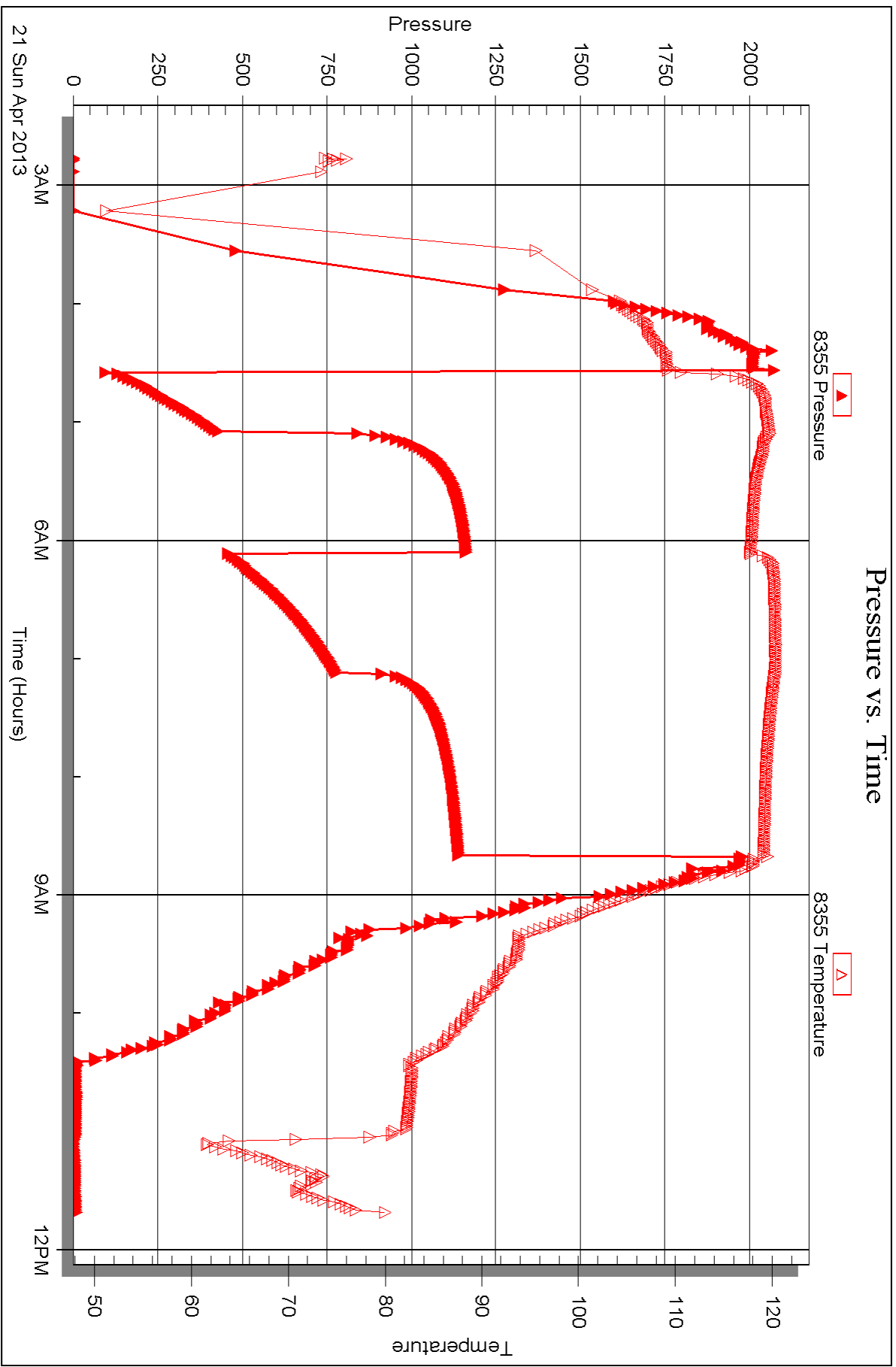


Serial #: 8355

Outside Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 49233

Printed: 2013.04.30 @ 09:15:09



## DRILL STEM TEST REPORT

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

250 N. Water Ste 300  
Wichita KS 67202

ATTN: Steve Miller

**Lana #1-5**

**5-13s-32w Logan,KS**

Start Date: 2013.04.22 @ 00:12:00

End Date: 2013.04.22 @ 08:32:54

Job Ticket #: 49234                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.30 @ 09:14:19

Murfin Drilling Co. Inc  
5-13s-32w Logan,KS  
Lana #1-5  
DST # 2  
LKC " E - F "  
2013.04.22





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

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

**5-13s-32w Logan,KS**

**Lana #1-5**

Job Ticket: 49234

**DST#: 2**

Test Start: 2013.04.22 @ 00:12:00

## GENERAL INFORMATION:

Formation: **LKC " E - F "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:05:25

Time Test Ended: 08:32:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

**Interval: 4088.00 ft (KB) To 4148.00 ft (KB) (TVD)**

Total Depth: 4148.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3060.00 ft (KB)

3049.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8674**

**Inside**

Press @ Run Depth: 247.12 psig @ 4089.00 ft (KB)

Start Date: 2013.04.22

End Date:

2013.04.22

Start Time: 00:12:00

End Time:

08:32:54

Capacity: 8000.00 psig

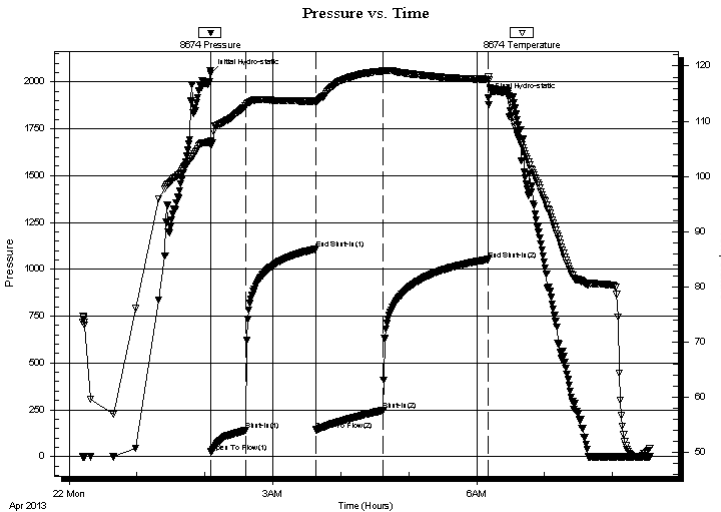
Last Calib.: 2013.04.22

Time On Btm: 2013.04.22 @ 02:05:10

Time Off Btm: 2013.04.22 @ 06:10:24

**TEST COMMENT:** IF- Weak Surface Blow Built to BOB in 20 1/2 min  
IS- No Blow  
FF- Weak Surface Blow Built to BOB in 30 1/4 min  
FS- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2045.53	106.40	Initial Hydro-static
1	25.11	105.68	Open To Flow (1)
31	139.64	112.80	Shut-In(1)
93	1107.42	113.64	End Shut-In(1)
93	142.80	113.30	Open To Flow (2)
153	247.12	119.09	Shut-In(2)
245	1052.22	117.57	End Shut-In(2)
246	1916.64	118.00	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
242.00	MCW 7% m 93% w	1.76
189.00	MCW 33% m 67% w with Skim of Oil on	2.65
68.00	OMCW 3% oil 38% m 59% w	0.95
1.00	100% oil	0.01

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**5-13s-32w Logan,KS**

**Lana #1-5**

Job Ticket: 49234 **DST#: 2**

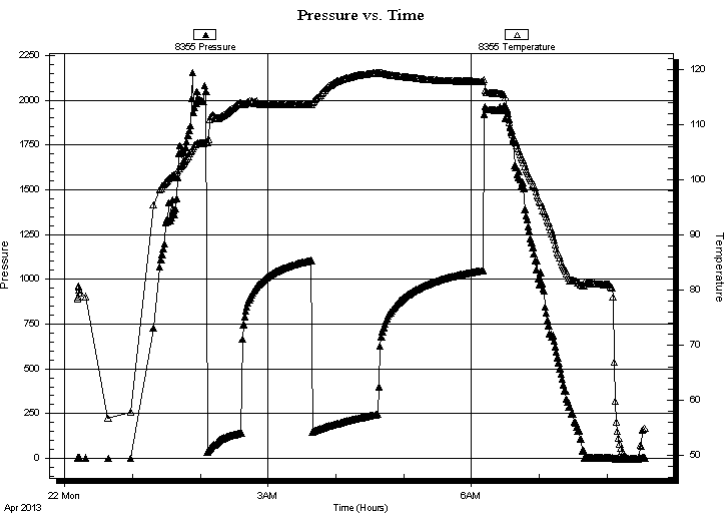
Test Start: 2013.04.22 @ 00:12:00

**GENERAL INFORMATION:**

Formation:	<b>LKC " E - F "</b>		
Deviated:	No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened:	02:05:25		Tester: Will MacLean
Time Test Ended:	08:32:54		Unit No: 58
<b>Interval:</b>	<b>4088.00 ft (KB) To 4148.00 ft (KB) (TVD)</b>		Reference Elevations: 3060.00 ft (KB)
Total Depth:	4148.00 ft (KB) (TVD)		3049.00 ft (CF)
Hole Diameter:	7.88 inches	Hole Condition: Good	KB to GR/CF: 11.00 ft

<b>Serial #: 8355</b>	<b>Outside</b>		
Press @ Run Depth:	psig @ 4089.00 ft (KB)	Capacity:	8000.00 psig
Start Date:	2013.04.22	End Date:	2013.04.22
Start Time:	00:11:30	End Time:	08:33:54
		Last Calib.:	2013.04.22
		Time On Btm:	
		Time Off Btm:	

**TEST COMMENT:** IF- Weak Surface Blow Built to BOB in 20 1/2 min  
 IS- No Blow  
 FF- Weak Surface Blow Built to BOB in 30 1/4 min  
 FS- No Blow



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
242.00	MCW 7% m 93% w	1.76
189.00	MCW 33% m 67% w with Skim of Oil on	2.65
68.00	OMCW 3% oil 38% m 59% w	0.95
1.00	100% oil	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. Inc  
250 N. Water Ste 300  
Wichita KS 67202  
ATTN: Steve Miller

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49234      **DST#: 2**  
Test Start: 2013.04.22 @ 00:12:00

**Tool Information**

Drill Pipe:	Length: 3895.00 ft	Diameter: 3.80 inches	Volume: 54.64 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:	24000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	8000.00 lb
			<u>Total Volume: 55.52 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	4088.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	60.00 ft				
Tool Length:	80.00 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			4069.00	
Shut In Tool	5.00			4074.00	
Hydraulic tool	5.00			4079.00	
Packer	5.00			4084.00	20.00      Bottom Of Top Packer
Packer	4.00			4088.00	
Stubb	1.00			4089.00	
Recorder	0.00	8355	Outside	4089.00	
Recorder	0.00	8674	Inside	4089.00	
Perforations	20.00			4109.00	
Change Over Sub	1.00			4110.00	
Drill Pipe	31.00			4141.00	
Change Over Sub	1.00			4142.00	
Perforations	3.00			4145.00	
Bullnose	3.00			4148.00	60.00      Bottom Packers & Anchor

**Total Tool Length: 80.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49234      **DST#: 2**  
Test Start: 2013.04.22 @ 00:12:00

## 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:	45000 ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.72 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6000.00 ppm			
Filter Cake: 2.00 inches			

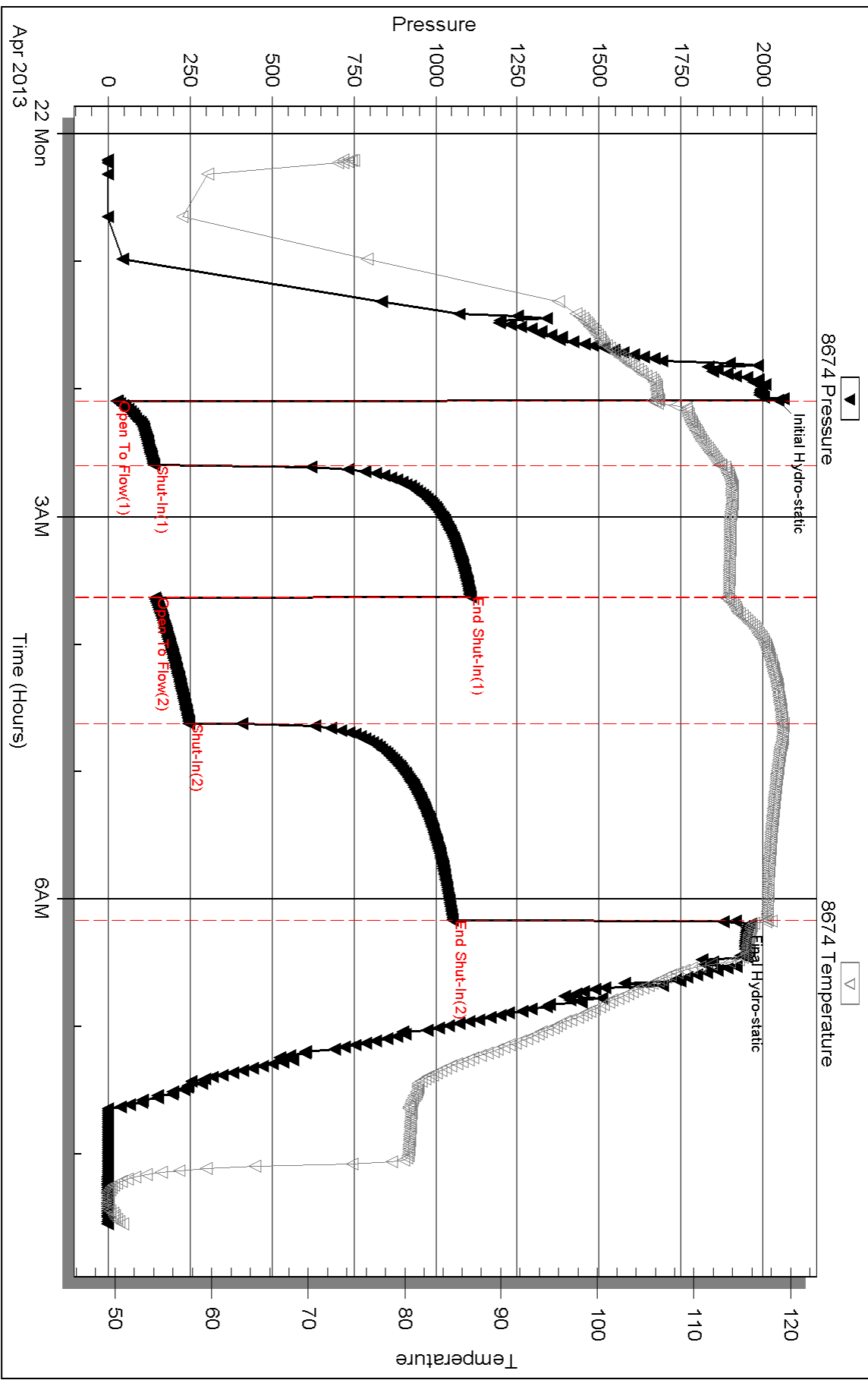
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
242.00	MCW 7%m 93%w	1.764
189.00	MCW 33%m 67%w with Skim of Oil on Top	2.651
68.00	OMCW 3%oil 38%m 59%w	0.954
1.00	100%oil	0.014

Total Length: 500.00 ft      Total Volume: 5.383 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: RW is .221 @ 50f = 45000

### Pressure vs. Time

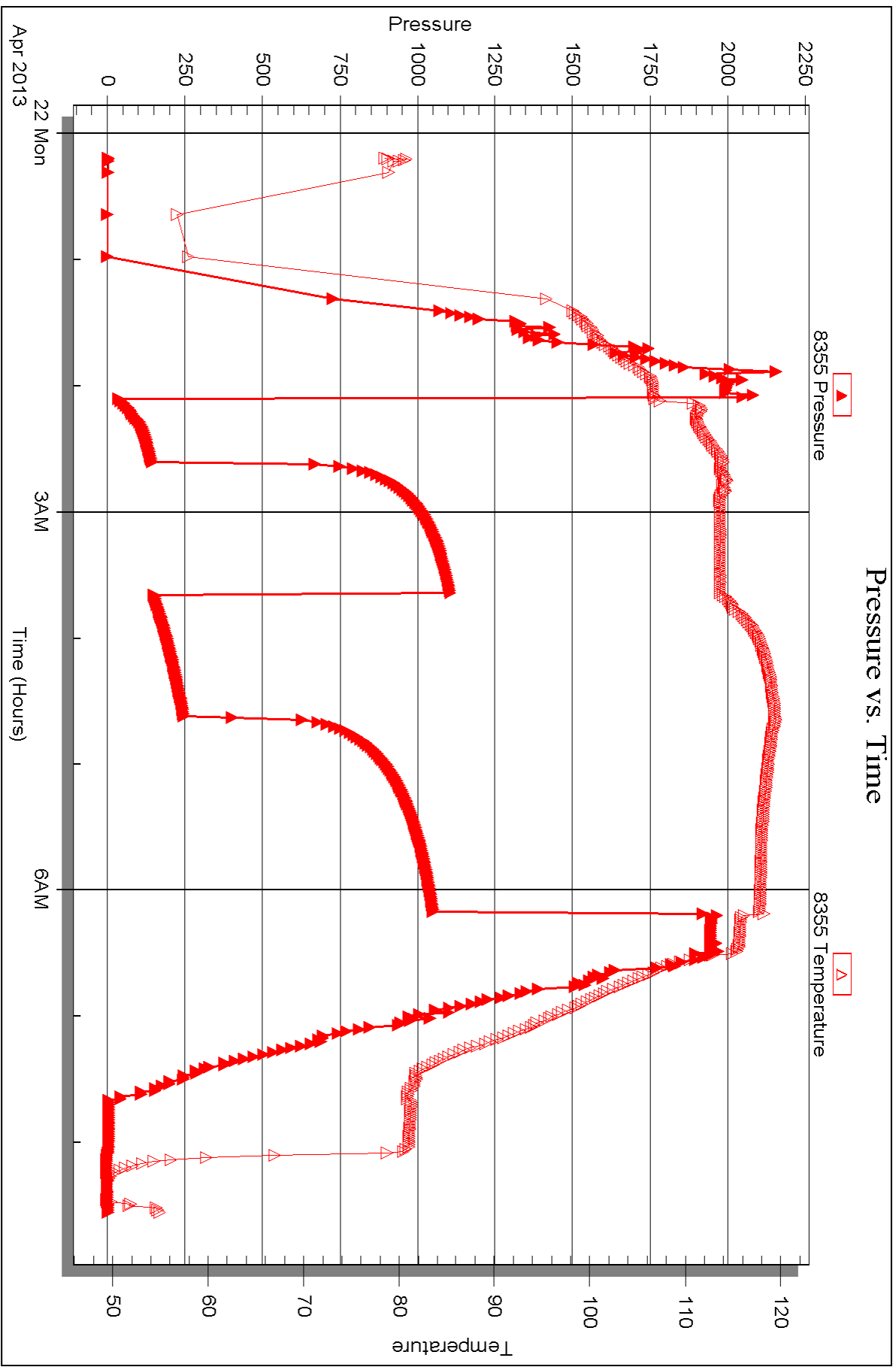


Serial #: 8355

Outside Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 2





## DRILL STEM TEST REPORT

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

250 N. Water Ste 300  
Wichita KS 67202

ATTN: Steve Miller

**Lana #1-5**

**5-13s-32w Logan,KS**

Start Date: 2013.04.22 @ 17:24:00

End Date: 2013.04.23 @ 00:48:39

Job Ticket #: 49235                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.30 @ 09:13:39



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

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

**5-13s-32w Logan,KS**

**Lana #1-5**

Job Ticket: 49235

**DST#: 3**

Test Start: 2013.04.22 @ 17:24:00

## GENERAL INFORMATION:

Formation: **LKC " G "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:38:10

Time Test Ended: 00:48:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

**Interval: 4150.00 ft (KB) To 4164.00 ft (KB) (TVD)**

Reference Elevations: 3060.00 ft (KB)

Total Depth: 4164.00 ft (KB) (TVD)

3049.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8674**

**Inside**

Press @ Run Depth: 12.70 psig @ 4151.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.22

End Date:

2013.04.23

Last Calib.: 2013.04.23

Start Time: 17:24:00

End Time:

00:48:39

Time On Btm: 2013.04.22 @ 19:37:55

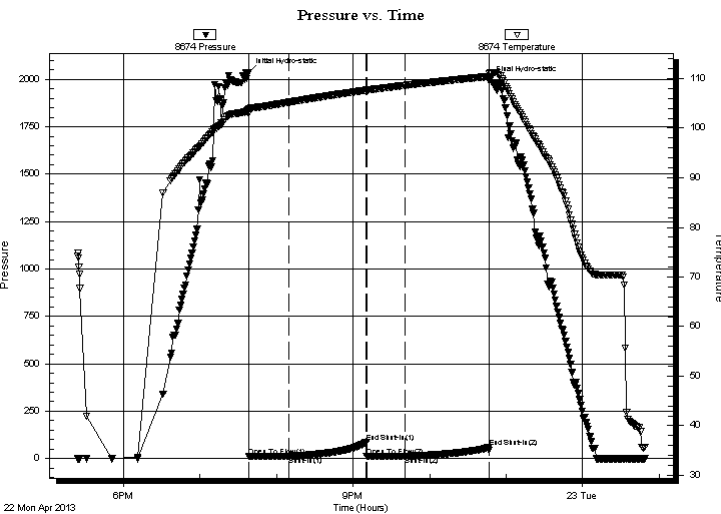
Time Off Btm: 2013.04.22 @ 22:46:54

**TEST COMMENT:** IF- Weak Surface Blow 1/2"

IS- No Blow

FF- No Blow

FS- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2036.18	103.79	Initial Hydro-static
1	10.25	102.96	Open To Flow (1)
32	12.45	105.22	Shut-In(1)
93	87.15	107.65	End Shut-In(1)
93	12.46	107.61	Open To Flow (2)
123	12.70	108.62	Shut-In(2)
189	58.14	110.42	End Shut-In(2)
189	1992.82	111.07	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% m with a Few Oil Spots	0.02

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49235      **DST#: 3**  
Test Start: 2013.04.22 @ 17:24:00

**Tool Information**

Drill Pipe:	Length: 3981.00 ft	Diameter: 3.80 inches	Volume: 55.84 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:	28000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	8000.00 lb
			<u>Total Volume: 56.72 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	4150.00 ft			Final	56000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	14.00 ft				
Tool Length:	34.00 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			4131.00	
Shut In Tool	5.00			4136.00	
Hydraulic tool	5.00			4141.00	
Packer	5.00			4146.00	20.00      Bottom Of Top Packer
Packer	4.00			4150.00	
Stubb	1.00			4151.00	
Recorder	0.00	8355	Outside	4151.00	
Recorder	0.00	8674	Inside	4151.00	
Perforations	10.00			4161.00	
Bullnose	3.00			4164.00	14.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>34.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49235      **DST#: 3**  
Test Start: 2013.04.22 @ 17:24:00

## 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: 73.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.34 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4000.00 ppm			
Filter Cake: 2.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	100% m with a Few Oil Spots	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:

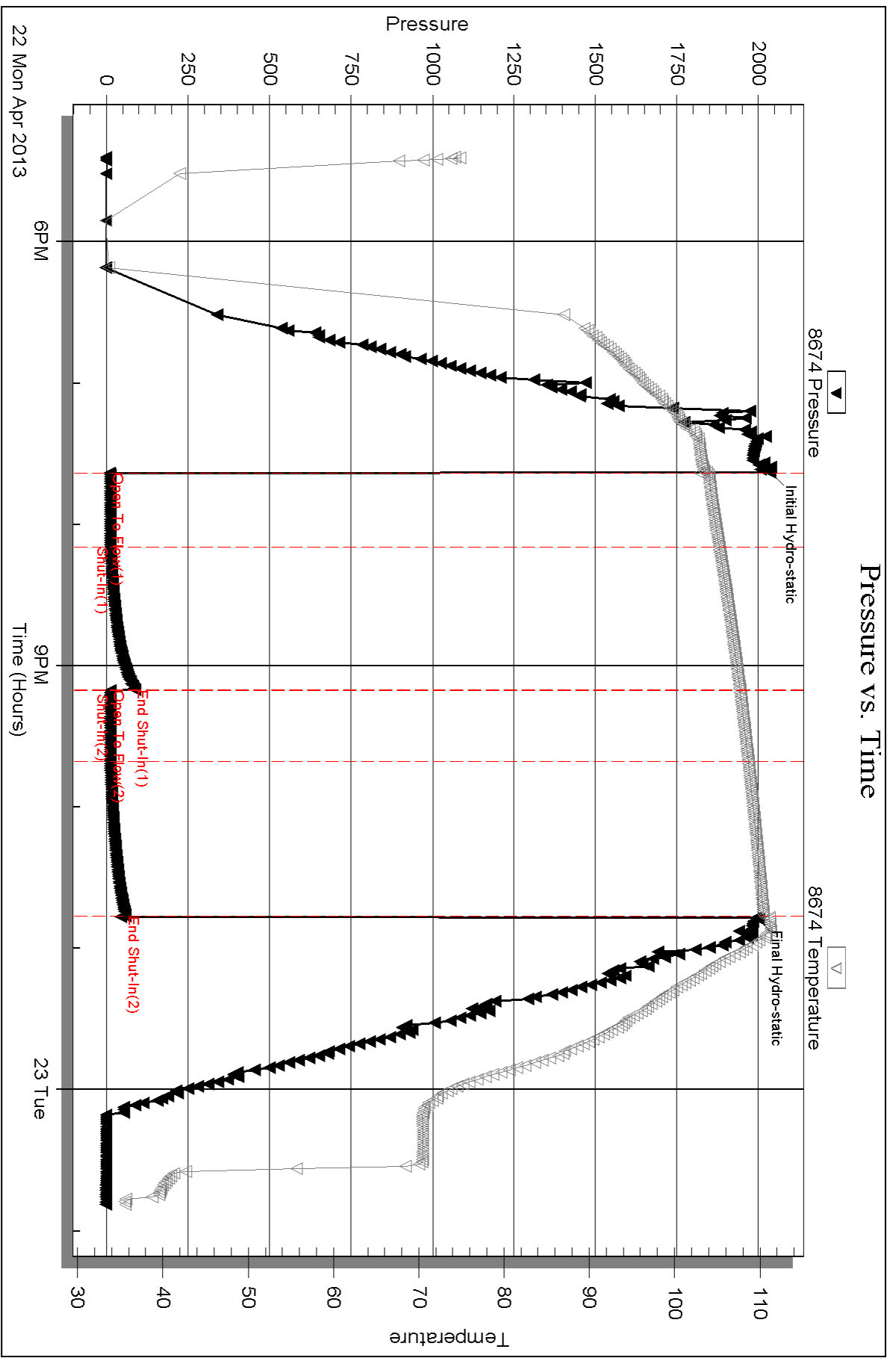
Serial #: 8674

Inside

Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 3

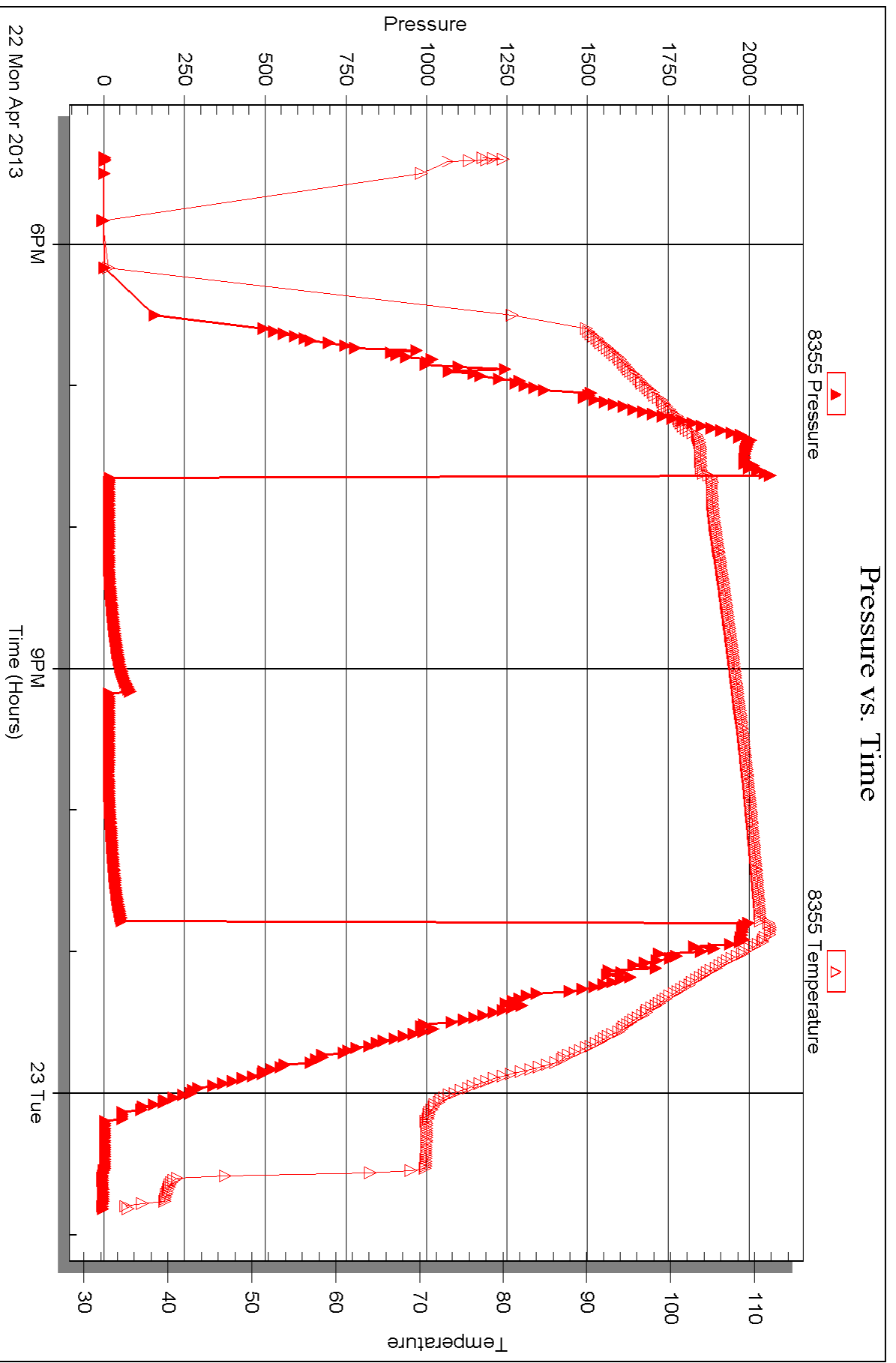


Serial #: 8355

Outside Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 49235

Printed: 2013.04.30 @ 09:13:43



## DRILL STEM TEST REPORT

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

250 N. Water Ste 300  
Wichita KS 67202

ATTN: Steve Miller

**Lana #1-5**

**5-13s-32w Logan,KS**

Start Date: 2013.04.23 @ 21:18:00

End Date: 2013.04.24 @ 06:04:25

Job Ticket #: 49236                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.30 @ 09:12:47

Murfin Drilling Co. Inc  
5-13s-32w Logan,KS  
Lana #1-5  
DST # 4  
LKC " H - J "  
2013.04.23



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**5-13s-32w Logan, KS**  
**Lana #1-5**  
 Job Ticket: 49236 **DST#: 4**  
 Test Start: 2013.04.23 @ 21:18:00

## GENERAL INFORMATION:

Formation: **LKC "H-J"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 23:30:55 Tester: Will MacLean  
 Time Test Ended: 06:04:25 Unit No: 58  
 Interval: **4188.00 ft (KB) To 4274.00 ft (KB) (TVD)** Reference Elevations: 3060.00 ft (KB)  
 Total Depth: 4086.00 ft (KB) (TVD) 3049.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

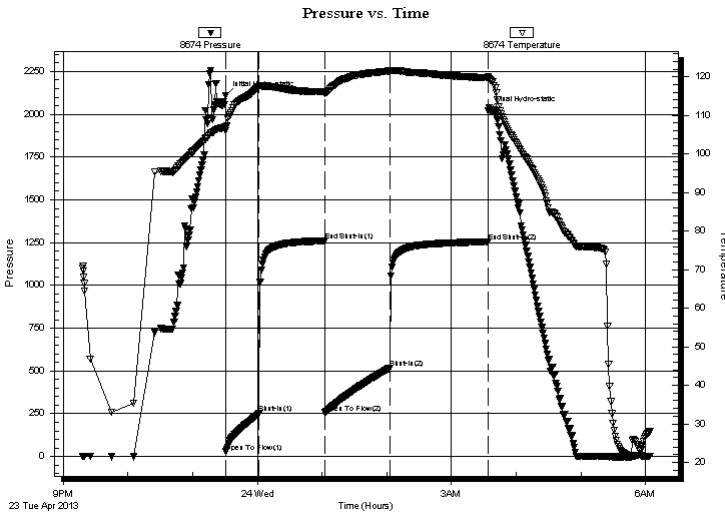
## Serial #: 8674

Inside

Press @ Run Depth: 515.97 psig @ 4189.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.23 End Date: 2013.04.24 Last Calib.: 2013.04.24  
 Start Time: 21:18:00 End Time: 06:04:25 Time On Btm: 2013.04.23 @ 23:30:40  
 Time Off Btm: 2013.04.24 @ 03:33:54

TEST COMMENT: IF- Surface Blow Built to BOB in 8 1/4 min  
 IS- No Blow  
 FF- Surface Blow Built to BOB in 10 3/4 min  
 FS- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2107.31	107.02	Initial Hydro-static
1	26.43	106.02	Open To Flow (1)
31	250.73	117.42	Shut-In(1)
92	1260.73	116.11	End Shut-In(1)
92	255.54	115.67	Open To Flow (2)
152	515.97	121.47	Shut-In(2)
243	1255.15	119.70	End Shut-In(2)
244	2023.55	119.99	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
368.00	MCW 9% <i>m</i> 91% <i>w</i>	3.53
126.00	MCW 21% <i>m</i> 79% <i>w</i>	1.77
441.00	WCM 48% <i>w</i> 52% <i>m</i>	6.19
154.00	OWCM 1% <i>oil</i> 32% <i>w</i> 67% <i>m</i>	2.16
2.00	100% <i>oil</i>	0.03

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49236      **DST#: 4**  
Test Start: 2013.04.23 @ 21:18:00

**Tool Information**

Drill Pipe:	Length: 4015.00 ft	Diameter: 3.80 inches	Volume: 56.32 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:	24000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	12000.00 lb
			<u>Total Volume: 57.20 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	4188.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	86.00 ft				
Tool Length:	106.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4169.00	
Shut In Tool	5.00			4174.00	
Hydraulic tool	5.00			4179.00	
Packer	5.00			4184.00	20.00      Bottom Of Top Packer
Packer	4.00			4188.00	
Stubb	1.00			4189.00	
Recorder	0.00	8355	Outside	4189.00	
Recorder	0.00	8674	Inside	4189.00	
Perforations	15.00			4204.00	
Change Over Sub	1.00			4205.00	
Drill Pipe	63.00			4268.00	
Change Over Sub	1.00			4269.00	
Perforations	2.00			4271.00	
Bullnose	3.00			4274.00	86.00      Bottom Packers & Anchor

**Total Tool Length: 106.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49236      **DST#: 4**  
Test Start: 2013.04.23 @ 21:18:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 70000 ppm	
Viscosity: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.95 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4400.00 ppm			
Filter Cake: 2.00 inches			

## Recovery Information

Recovery Table

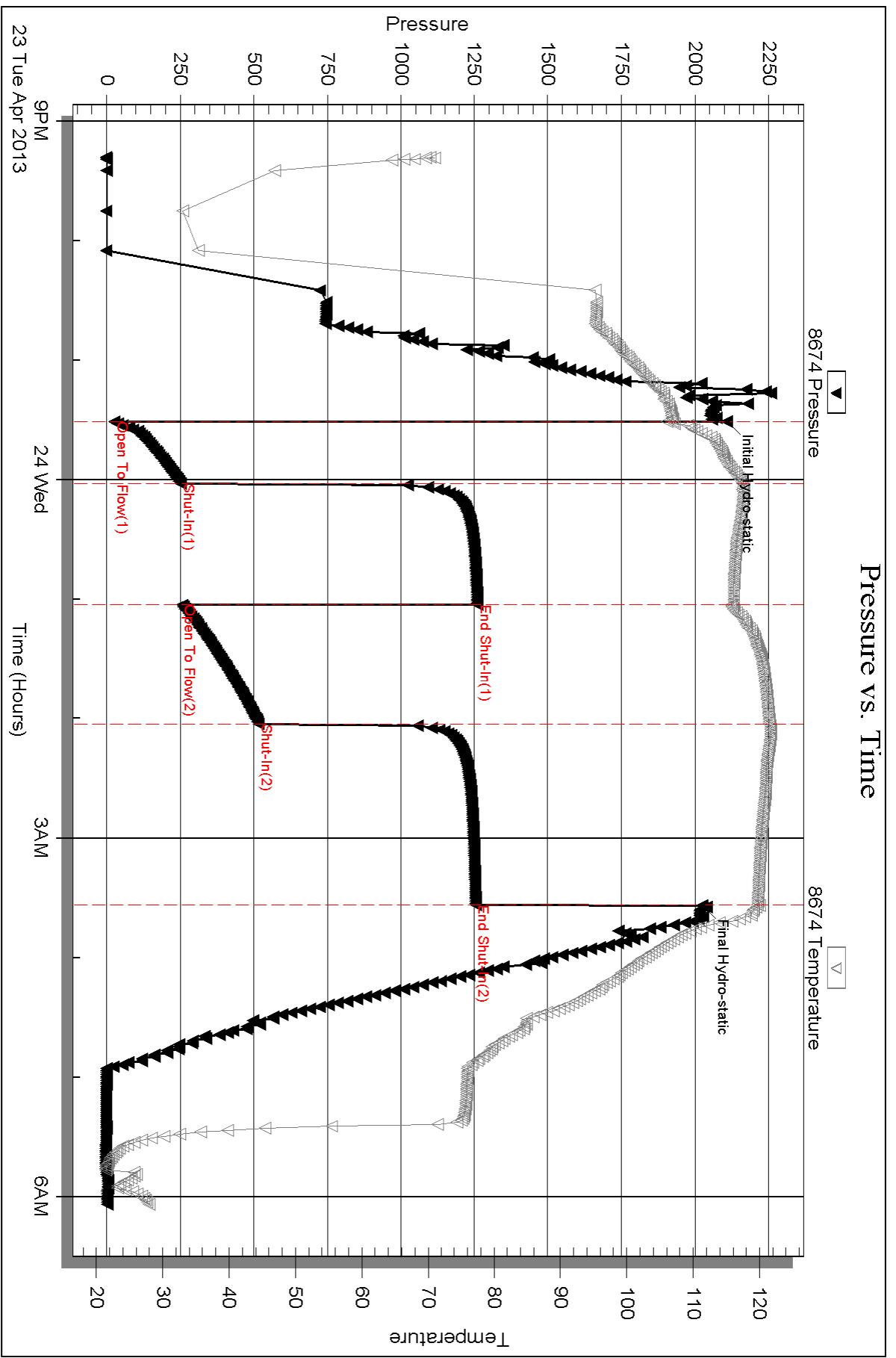
Length ft	Description	Volume bbl
368.00	MCW 9% <i>m</i> 91% <i>w</i>	3.531
126.00	MCW 21% <i>m</i> 79% <i>w</i>	1.767
441.00	WCM 48% <i>w</i> 52% <i>m</i>	6.186
154.00	OWCM 1% <i>oil</i> 32% <i>w</i> 67% <i>m</i>	2.160
2.00	100% <i>oil</i>	0.028

Total Length: 1091.00 ft      Total Volume: 13.672 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: RW is .295 @ 25f = 70000

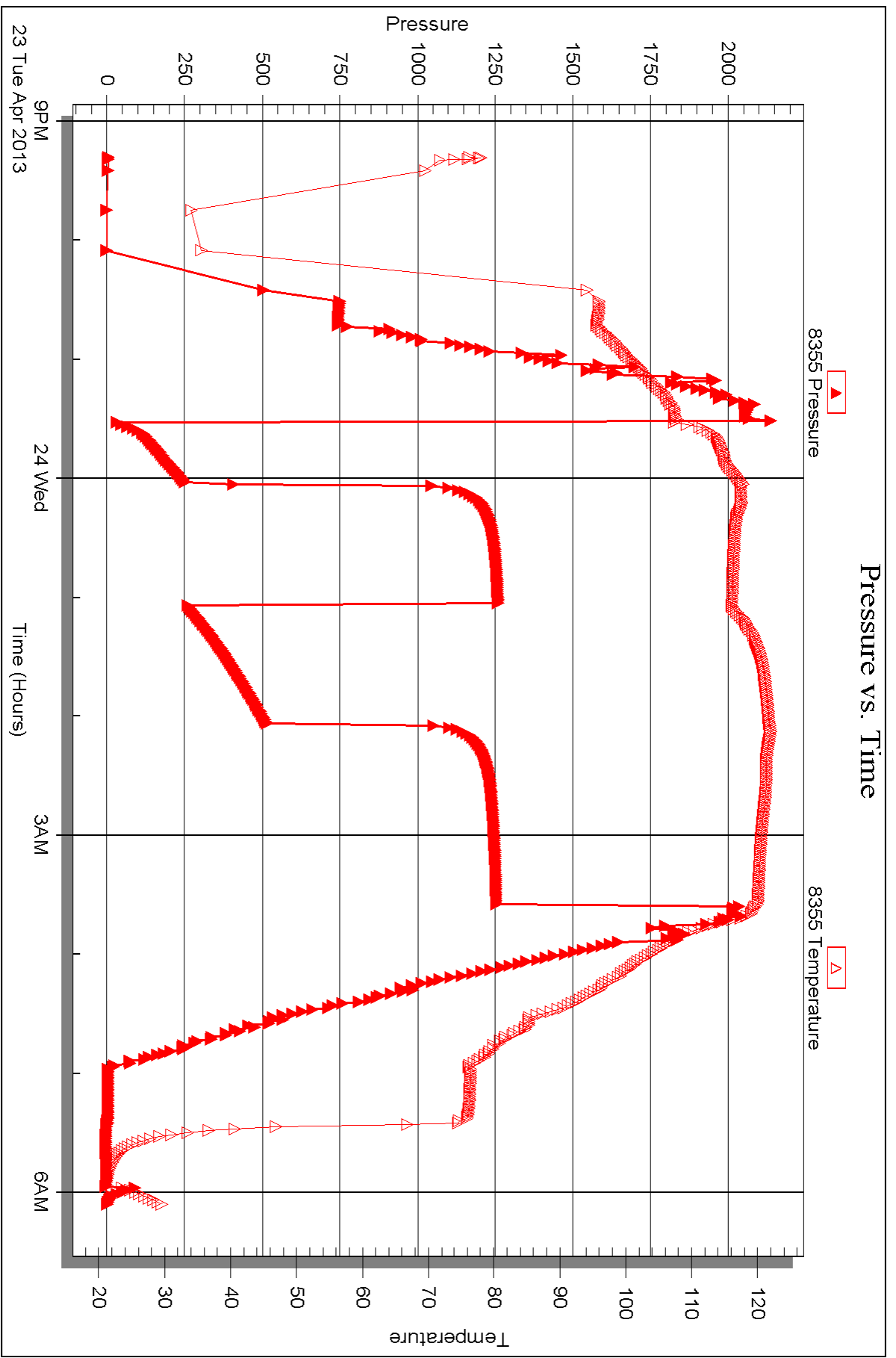


Serial #: 8355

Outside Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 49236

Printed: 2013.04.30 @ 09:12:52



## DRILL STEM TEST REPORT

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

250 N. Water Ste 300  
Wichita KS 67202

ATTN: Steve Miller

**Lana #1-5**

**5-13s-32w Logan,KS**

Start Date: 2013.04.24 @ 20:38:00

End Date: 2013.04.25 @ 03:46:39

Job Ticket #: 49237                      DST #: 5

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

Printed: 2013.04.30 @ 09:12:00



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**5-13s-32w Logan, KS**

**Lana #1-5**

Job Ticket: 49237

**DST#: 5**

Test Start: 2013.04.24 @ 20:38:00

## GENERAL INFORMATION:

Formation: **LKC " K - L "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:47:25

Time Test Ended: 03:46:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

**Interval: 4276.00 ft (KB) To 4354.00 ft (KB) (TVD)**

Reference Elevations: 3060.00 ft (KB)

Total Depth: 4354.00 ft (KB) (TVD)

3049.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8674**

**Inside**

Press @ Run Depth: 96.14 psig @ 4277.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.24

End Date:

2013.04.25

Last Calib.:

2013.04.25

Start Time: 20:38:00

End Time:

03:46:39

Time On Btm:

2013.04.24 @ 22:46:55

Time Off Btm:

2013.04.25 @ 01:49:39

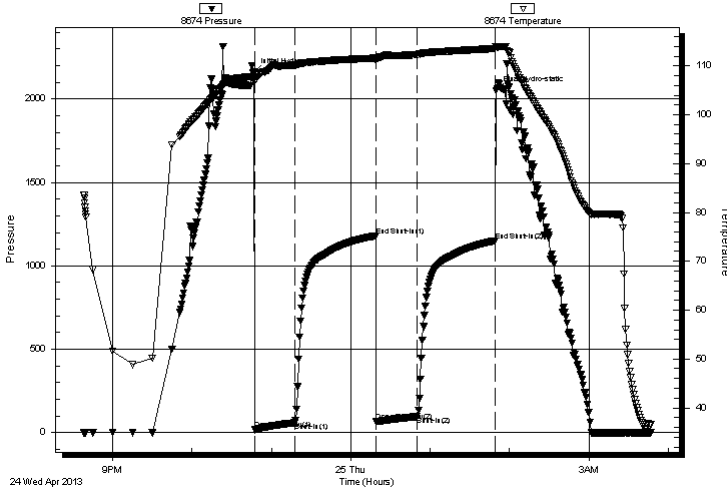
**TEST COMMENT:** IF- Weak Surface Blow Built to 3"

IS- No Blow

FF- Weak Surface Blow Built to 1/4"

FS- No Blow

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2158.28	107.30	Initial Hydro-static
1	17.36	106.86	Open To Flow (1)
31	59.35	110.16	Shut-In(1)
92	1179.73	111.60	End Shut-In(1)
93	65.30	111.12	Open To Flow (2)
124	96.14	112.33	Shut-In(2)
183	1150.51	113.52	End Shut-In(2)
183	2049.00	113.92	Final Hydro-static

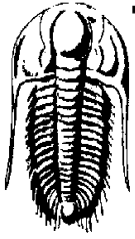
## Recovery

Length (ft)	Description	Volume (bbl)
60.00	100% mud w with Oil Spots	0.30
90.00	OCM 1% oil 99% m	0.44

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

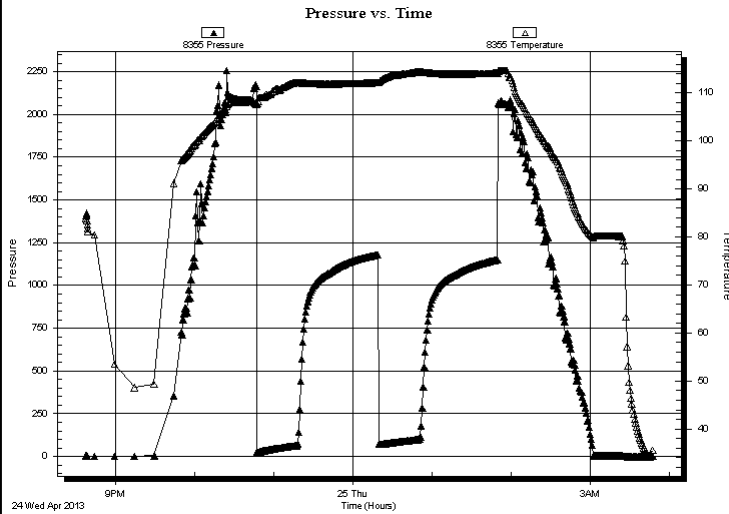
**5-13s-32w Logan, KS**  
**Lana #1-5**  
Job Ticket: 49237 **DST#: 5**  
Test Start: 2013.04.24 @ 20:38:00

## GENERAL INFORMATION:

Formation: **LKC " K - L "**  
Deviated: No Whipstock: ft (KB)  
Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 22:47:25 Tester: Will MacLean  
Time Test Ended: 03:46:39 Unit No: 58  
Interval: **4276.00 ft (KB) To 4354.00 ft (KB) (TVD)**  
Reference Elevations: 3060.00 ft (KB)  
Total Depth: 4354.00 ft (KB) (TVD) 3049.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

**Serial #: 8355 Outside**  
Press @ Run Depth: psig @ 4277.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2013.04.24 End Date: 2013.04.25 Last Calib.: 2013.04.25  
Start Time: 20:37:15 End Time: 03:47:24 Time On Btm:  
Time Off Btm:

**TEST COMMENT:** IF- Weak Surface Blow Built to 3"  
IS- No Blow  
FF- Weak Surface Blow Built to 1/4"  
FS- No Blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	100% mud w with Oil Spots	0.30
90.00	OCM 1%oil 99%m	0.44

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49237      **DST#: 5**  
Test Start: 2013.04.24 @ 20:38:00

**Tool Information**

Drill Pipe:	Length: 4109.00 ft	Diameter: 3.80 inches	Volume: 57.64 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: 24000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 20000.00 lb
			<u>Total Volume: 58.52 bbl</u>	Tool Chased: ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4276.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	78.00 ft			
Tool Length:	98.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4257.00	
Shut In Tool	5.00			4262.00	
Hydraulic tool	5.00			4267.00	
Packer	5.00			4272.00	20.00      Bottom Of Top Packer
Packer	4.00			4276.00	
Stubb	1.00			4277.00	
Recorder	0.00	8355	Outside	4277.00	
Recorder	0.00	8674	Inside	4277.00	
Perforations	9.00			4286.00	
Change Over Sub	1.00			4287.00	
Drill Pipe	63.00			4350.00	
Change Over Sub	1.00			4351.00	
Bullnose	3.00			4354.00	78.00      Bottom Packers & Anchor

**Total Tool Length: 98.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49237      **DST#: 5**  
Test Start: 2013.04.24 @ 20:38:00

## 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: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.75 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6300.00 ppm			
Filter Cake: 2.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	100% mud with Oil Spots	0.295
90.00	OCM 1%oil 99%m	0.443

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 #: 8674

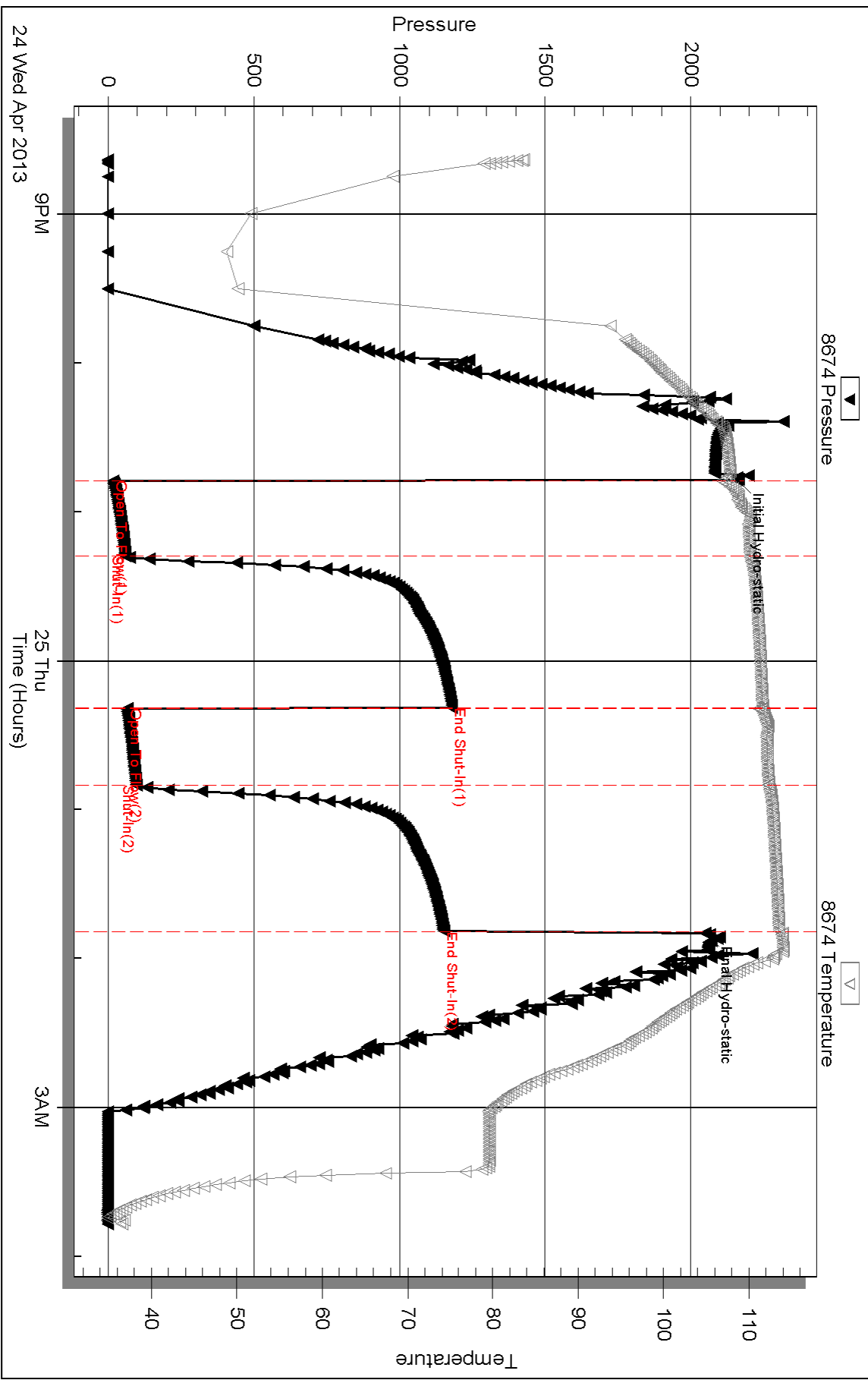
Inside

Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 5

### Pressure vs. Time



24 Wed Apr 2013

25 Thu

3AM

Triobite Testing, Inc

Ref. No: 49237

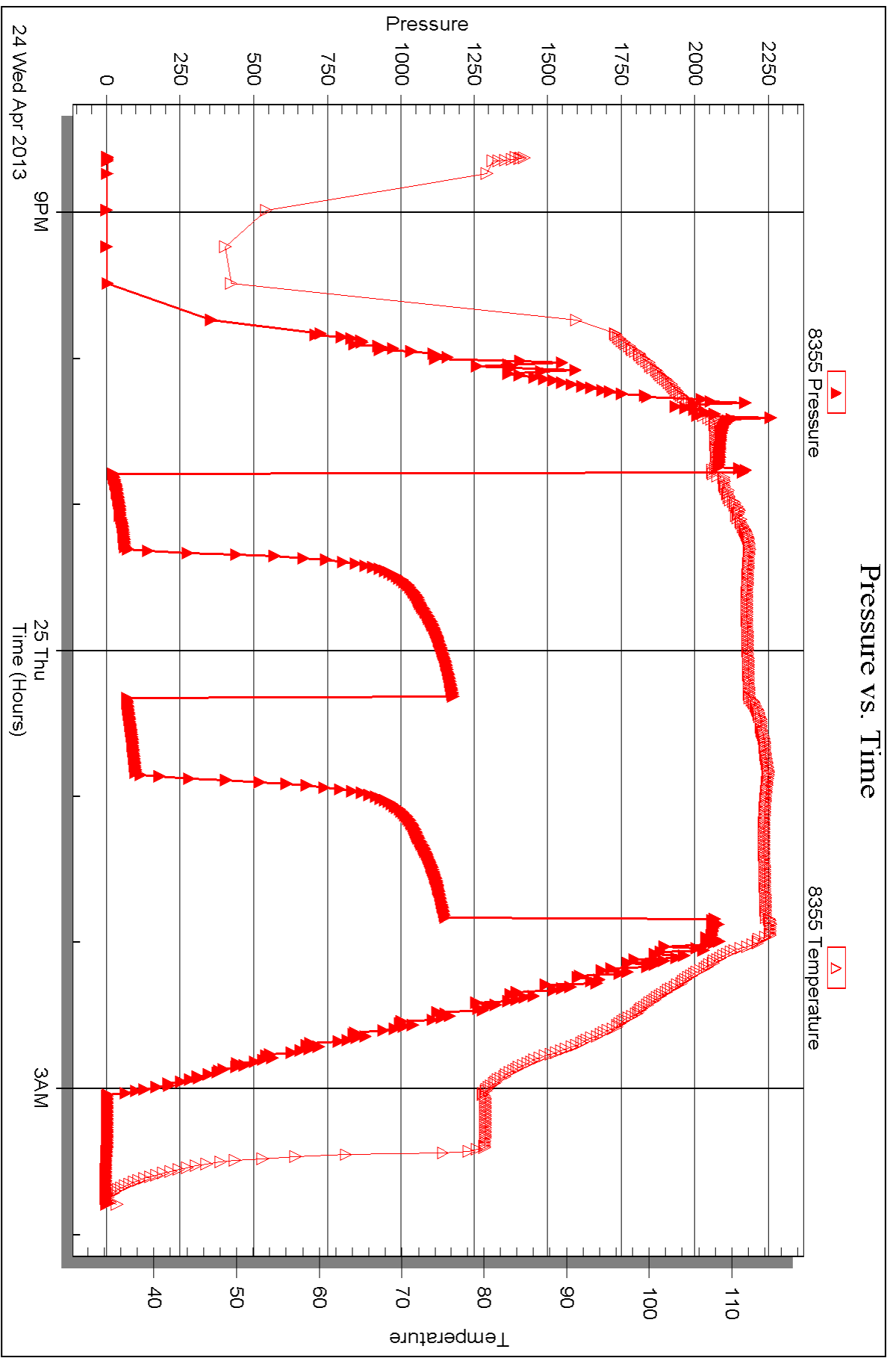
Printed: 2013.04.30 @ 09:12:03

Serial #: 8355

Outside Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 5



Triobite Testing, Inc

Ref. No: 49237

Printed: 2013.04.30 @ 09:12:03



## DRILL STEM TEST REPORT

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

250 N. Water Ste 300  
Wichita KS 67202

ATTN: Steve Miller

### **Lana #1-5**

### **5-13s-32w Logan,KS**

Start Date: 2013.04.25 @ 21:40:00

End Date: 2013.04.26 @ 07:27:10

Job Ticket #: 49238                      DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.30 @ 09:10:23



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

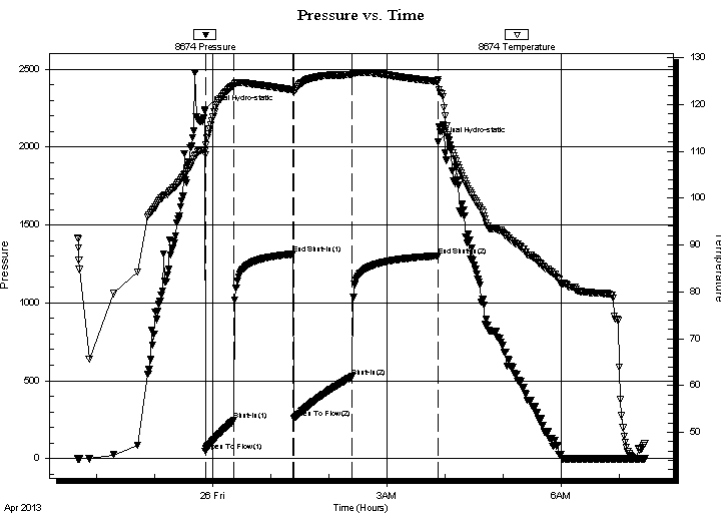
**5-13s-32w Logan, KS**  
**Lana #1-5**  
 Job Ticket: 49238      **DST#: 6**  
 Test Start: 2013.04.25 @ 21:40:00

## GENERAL INFORMATION:

Formation: **Marmanton**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 23:51:55 Tester: Will MacLean  
 Time Test Ended: 07:27:10 Unit No: 58  
 Interval: **4381.00 ft (KB) To 4466.00 ft (KB) (TVD)** Reference Elevations: 3060.00 ft (KB)  
 Total Depth: 4466.00 ft (KB) (TVD) 3049.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

**Serial #: 8674 Inside**  
 Press @ Run Depth: 526.23 psig @ 4383.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.25 End Date: 2013.04.26 Last Calib.: 2013.04.26  
 Start Time: 21:40:00 End Time: 07:27:10 Time On Btm: 2013.04.25 @ 23:51:40  
 Time Off Btm: 2013.04.26 @ 03:52:39

**TEST COMMENT:** IF- Surface Blow Built to BOB in 2 min  
 IS- Weak Surface Blow in 4 min Built to 7 3/4"  
 FF- Surface Blow Built to BOB in 3 3/4 min  
 FS- Weak Surface Blow in 1 1/2 min Built to 5 1/2"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2239.59	110.01	Initial Hydro-static
1	47.85	109.29	Open To Flow (1)
30	244.71	124.07	Shut-In(1)
91	1313.50	123.10	End Shut-In(1)
92	257.35	122.57	Open To Flow (2)
153	526.23	126.35	Shut-In(2)
241	1302.05	124.93	End Shut-In(2)
241	2032.37	125.30	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	GMCO 25%g 35%m 40%oil	0.59
312.00	MGCO 8%m 35%g 57%oil	3.84
378.00	MGCO 5%m 32%g 63%oil	5.30
252.00	GO 34%g 66%oil	3.53
315.00	GO 20%g 80%oil	4.42
0.00	1449' of GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

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

**5-13s-32w Logan,KS**

**Lana #1-5**

Job Ticket: 49238

**DST#: 6**

Test Start: 2013.04.25 @ 21:40:00

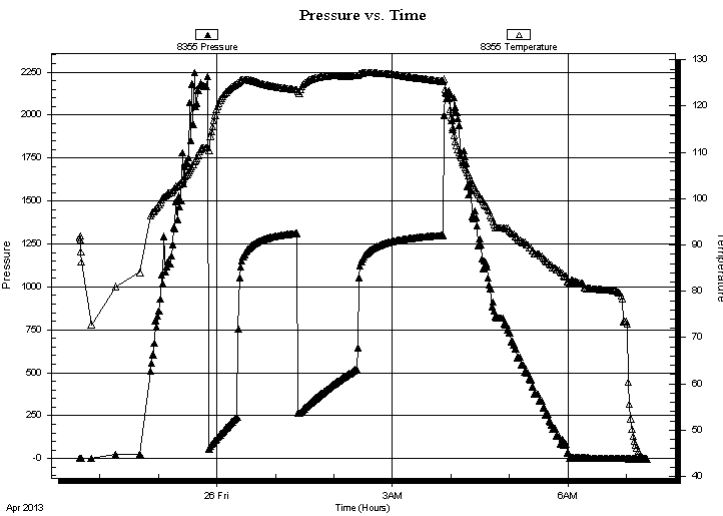
### GENERAL INFORMATION:

Formation: **Marmanton**  
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 23:51:55 Tester: Will MacLean  
 Time Test Ended: 07:27:10 Unit No: 58  
 Interval: **4381.00 ft (KB) To 4466.00 ft (KB) (TVD)** Reference Elevations: 3060.00 ft (KB)  
 Total Depth: 4466.00 ft (KB) (TVD) 3049.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

### Serial #: 8355 Outside

Press @ Run Depth: psig @ 4383.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.25 End Date: 2013.04.26 Last Calib.: 2013.04.26  
 Start Time: 21:39:15 End Time: 07:21:25 Time On Btm:  
 Time Off Btm:

TEST COMMENT: IF- Surface Blow Built to BOB in 2 min  
 IS- Weak Surface Blow in 4 min Built to 7 3/4"  
 FF- Surface Blow Built to BOB in 3 3/4 min  
 FS- Weak Surface Blow in 1 1/2 min Built to 5 1/2"



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
120.00	GMCO 25%g 35%m 40%oil	0.59
312.00	MGCO 8%m 35%g 57%oil	3.84
378.00	MGCO 5%m 32%g 63%oil	5.30
252.00	GO 34%g 66%oil	3.53
315.00	GO 20%g 80%oil	4.42
0.00	1449' of 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 Drilling Co. Inc  
250 N. Water Ste 300  
Wichita KS 67202  
ATTN: Steve Miller

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49238      **DST#: 6**  
Test Start: 2013.04.25 @ 21:40:00

**Tool Information**

Drill Pipe:	Length: 4204.00 ft	Diameter: 3.80 inches	Volume: 58.97 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:	24000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	16000.00 lb
			<u>Total Volume: 59.85 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4381.00 ft			Final	64000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	85.00 ft				
Tool Length:	105.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
Change Over Sub	1.00			4362.00	
Shut In Tool	5.00			4367.00	
Hydraulic tool	5.00			4372.00	
Packer	5.00			4377.00	20.00      Bottom Of Top Packer
Packer	4.00			4381.00	
Stubb	1.00			4382.00	
Perforations	1.00			4383.00	
Recorder	0.00	8355	Outside	4383.00	
Recorder	0.00	8674	Inside	4383.00	
Perforations	15.00			4398.00	
Change Over Sub	1.00			4399.00	
Drill Pipe	63.00			4462.00	
Change Over Sub	1.00			4463.00	
Bullnose	3.00			4466.00	85.00      Bottom Packers & Anchor

**Total Tool Length: 105.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49238      **DST#: 6**  
Test Start: 2013.04.25 @ 21:40:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 27 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.16 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 6200.00 ppm		
Filter Cake: 2.00 inches		

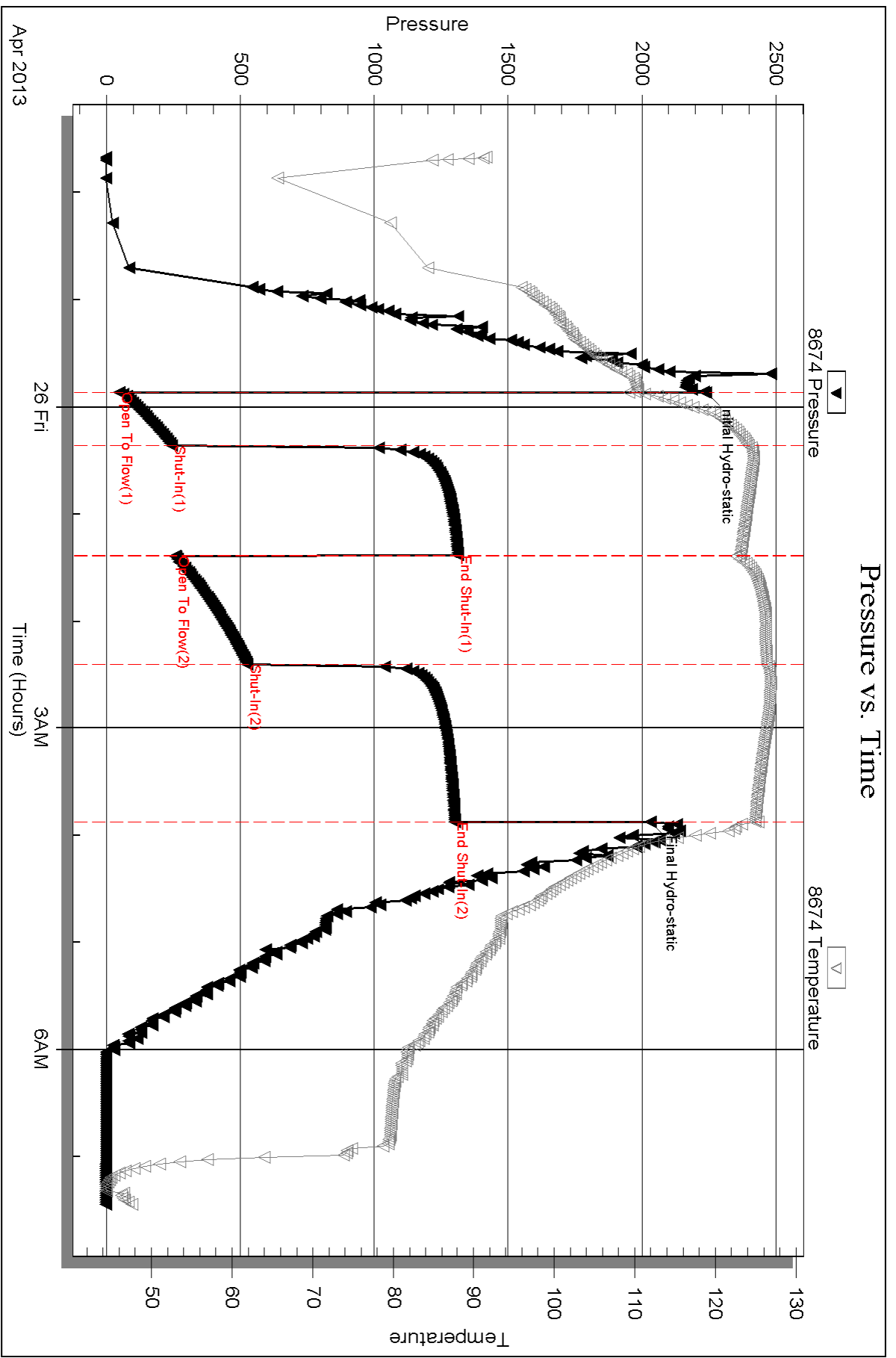
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	GMCO 25%g 35%m 40%oil	0.590
312.00	MGCO 8%m 35%g 57%oil	3.839
378.00	MGCO 5%m 32%g 63%oil	5.302
252.00	GO 34%g 66%oil	3.535
315.00	GO 20%g 80%oil	4.419
0.00	1449' of GIP	0.000

Total Length: 1377.00 ft      Total Volume: 17.685 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: API is 26 @ 50f = 27



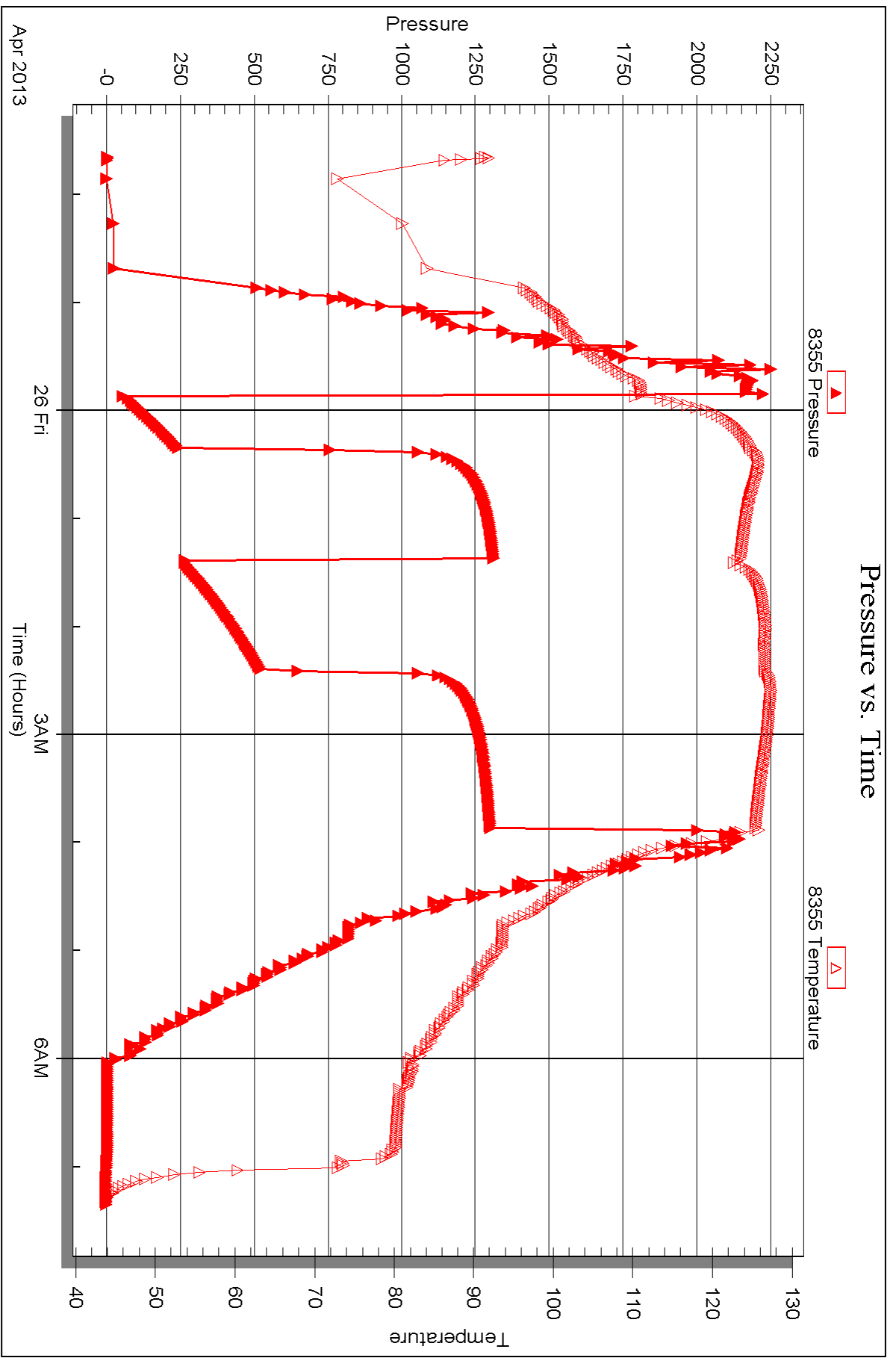


Serial #: 8355

Outside Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 6



Triobite Testing, Inc

Ref. No: 49238

Printed: 2013.04.30 @ 09:10:27



## DRILL STEM TEST REPORT

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

250 N. Water Ste 300  
Wichita KS 67202

ATTN: Steve Miller

**Lana #1-5**

**5-13s-32w Logan,KS**

Start Date: 2013.04.26 @ 23:36:00

End Date: 2013.04.27 @ 10:02:55

Job Ticket #: 49239                      DST #: 7

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

Printed: 2013.04.30 @ 09:07:20



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**5-13s-32w Logan, KS**

**Lana #1-5**

Job Ticket: 49239

**DST#: 7**

Test Start: 2013.04.26 @ 23:36:00

## GENERAL INFORMATION:

Formation: **Pawnee / Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:43:25

Time Test Ended: 10:02:55

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

**Interval: 4468.00 ft (KB) To 4548.00 ft (KB) (TVD)**

Reference Elevations: 3060.00 ft (KB)

Total Depth: 4548.00 ft (KB) (TVD)

3049.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8674 Inside**

Press @ Run Depth: 572.15 psig @ 4470.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.26

End Date: 2013.04.27

Last Calib.: 2013.04.27

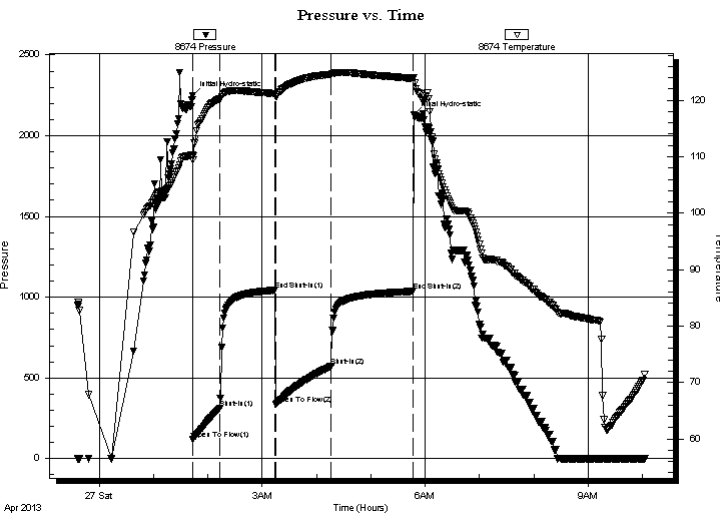
Start Time: 23:36:00

End Time: 10:02:55

Time On Btm: 2013.04.27 @ 01:43:10

Time Off Btm: 2013.04.27 @ 05:47:24

**TEST COMMENT:** IF- Surface Blow Built to BOB in 2 min  
 IS- Weak Surface Blow in 1 1/4 min Built to BOB in 48 min  
 FF- Surface Blow Built to BOB in 1 3/4 min  
 FS- Weak Surface Blow Built to BOB in 25 min ( Gas to Surface in 70 min )



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2248.79	110.20	Initial Hydro-static
1	121.99	109.52	Open To Flow (1)
30	312.05	120.28	Shut-In(1)
91	1042.81	121.18	End Shut-In(1)
92	337.91	120.69	Open To Flow (2)
153	572.15	124.62	Shut-In(2)
244	1036.44	123.83	End Shut-In(2)
245	2127.12	123.98	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
243.00	GOCM 18%g 37%oil 45%m	1.78
63.00	OGCM 10%oil 30%g 60%m	0.88
378.00	MGCO 15%m 26%g 59%oil	5.30
441.00	MGCO 3%m 28%g 69%oil	6.19
277.00	MGCO 2%m 9%g 89%oil	3.89
0.00	2999' of GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

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

**5-13s-32w Logan, KS**

**Lana #1-5**

Job Ticket: 49239

**DST#: 7**

Test Start: 2013.04.26 @ 23:36:00

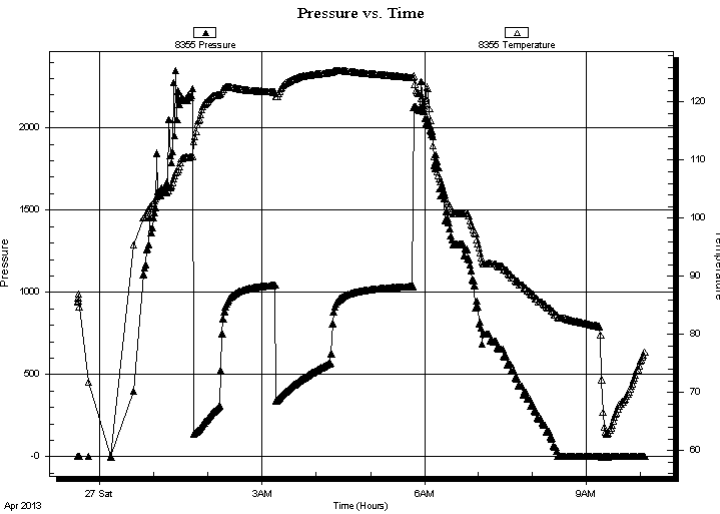
## GENERAL INFORMATION:

Formation: **Pawnee / Ft. Scott**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 01:43:25 Tester: Will MacLean  
 Time Test Ended: 10:02:55 Unit No: 58  
 Interval: **4468.00 ft (KB) To 4548.00 ft (KB) (TVD)** Reference Elevations: 3060.00 ft (KB)  
 Total Depth: 4548.00 ft (KB) (TVD) 3049.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

**Serial #: 8355 Outside**

Press @ Run Depth: psig @ 4470.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.26 End Date: 2013.04.27 Last Calib.: 2013.04.27  
 Start Time: 23:35:15 End Time: 10:04:10 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF- Surface Blow Built to BOB in 2 min  
 IS- Weak Surface Blow in 1 1/4 min Built to BOB in 48 min  
 FF- Surface Blow Built to BOB in 1 3/4 min  
 FS- Weak Surface Blow Built to BOB in 25 min ( Gas to Surface in 70 min )



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
243.00	GOCM 18%g 37%oil 45%m	1.78
63.00	OGCM 10%oil 30%g 60%m	0.88
378.00	MGCO 15%m 26%g 59%oil	5.30
441.00	MGCO 3%m 28%g 69%oil	6.19
277.00	MGCO 2%m 9%g 89%oil	3.89
0.00	2999' of 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 Drilling Co. Inc  
250 N. Water Ste 300  
Wichita KS 67202  
ATTN: Steve Miller

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49239      **DST#: 7**  
Test Start: 2013.04.26 @ 23:36:00

**Tool Information**

Drill Pipe:	Length: 4299.00 ft	Diameter: 3.80 inches	Volume: 60.30 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	18000.00 lb
			<u>Total Volume: 61.18 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4468.00 ft			Final	64000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	80.00 ft				
Tool Length:	100.00 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			4449.00	
Shut In Tool	5.00			4454.00	
Hydraulic tool	5.00			4459.00	
Packer	5.00			4464.00	20.00      Bottom Of Top Packer
Packer	4.00			4468.00	
Stubb	1.00			4469.00	
Perforations	1.00			4470.00	
Recorder	0.00	8355	Outside	4470.00	
Recorder	0.00	8674	Inside	4470.00	
Perforations	10.00			4480.00	
Change Over Sub	1.00			4481.00	
Drill Pipe	63.00			4544.00	
Change Over Sub	1.00			4545.00	
Bullnose	3.00			4548.00	80.00      Bottom Packers & Anchor

**Total Tool Length: 100.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49239      **DST#: 7**  
Test Start: 2013.04.26 @ 23:36:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 32 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 57.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.78 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 6300.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
243.00	GOCM 18%g 37%oil 45%m	1.778
63.00	OGCM 10%oil 30%g 60%m	0.884
378.00	MGCO 15%m 26%g 59%oil	5.302
441.00	MGCO 3%m 28%g 69%oil	6.186
277.00	MGCO 2%m 9%g 89%oil	3.886
0.00	2999' of GIP	0.000

Total Length: 1402.00 ft      Total Volume: 18.036 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: API is 32 @ 60f = 32

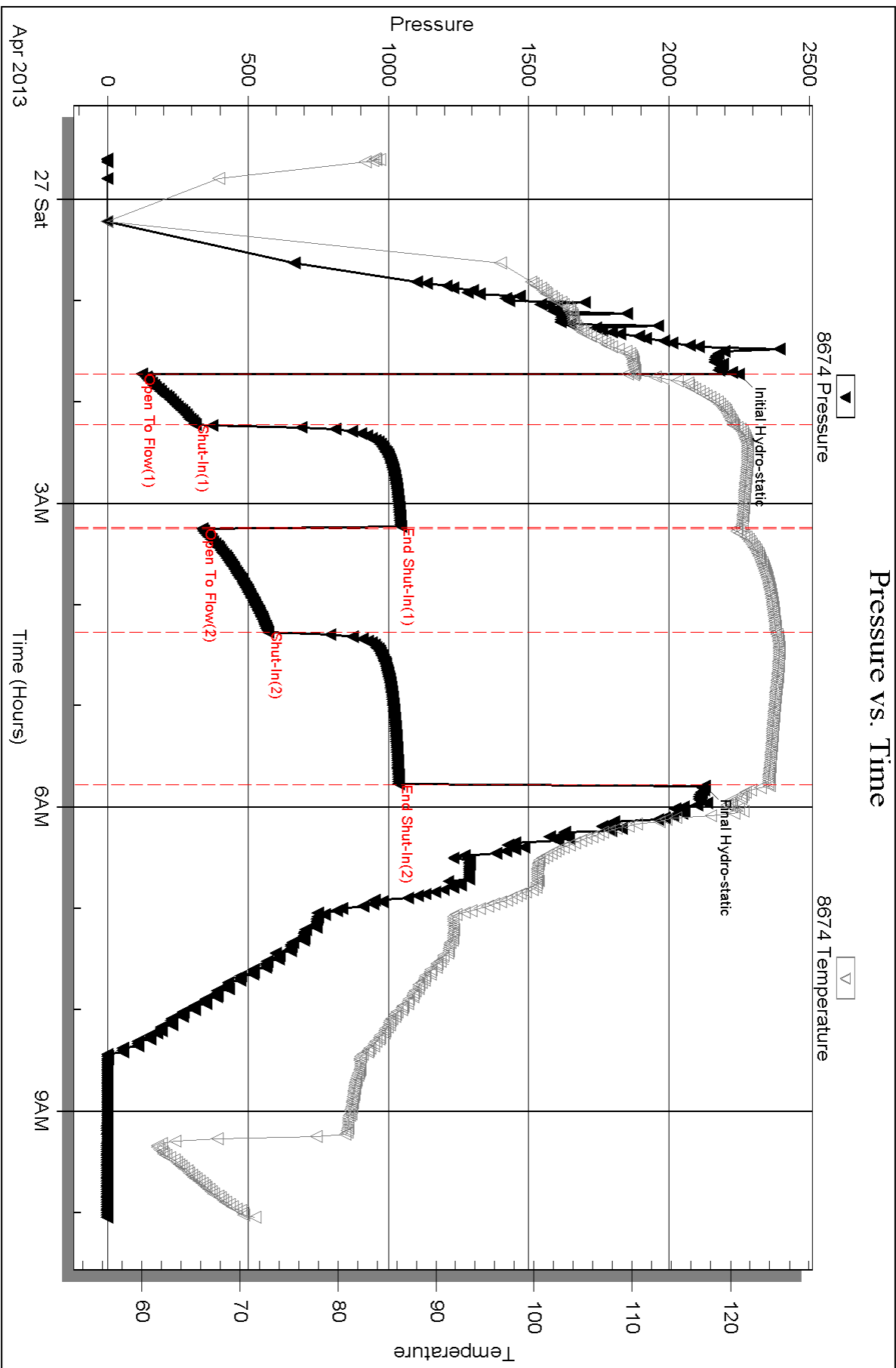
Serial #: 8674

Inside

Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 7



Triobite Testing, Inc

Ref. No: 49239

Printed: 2013.04.30 @ 09:07:22

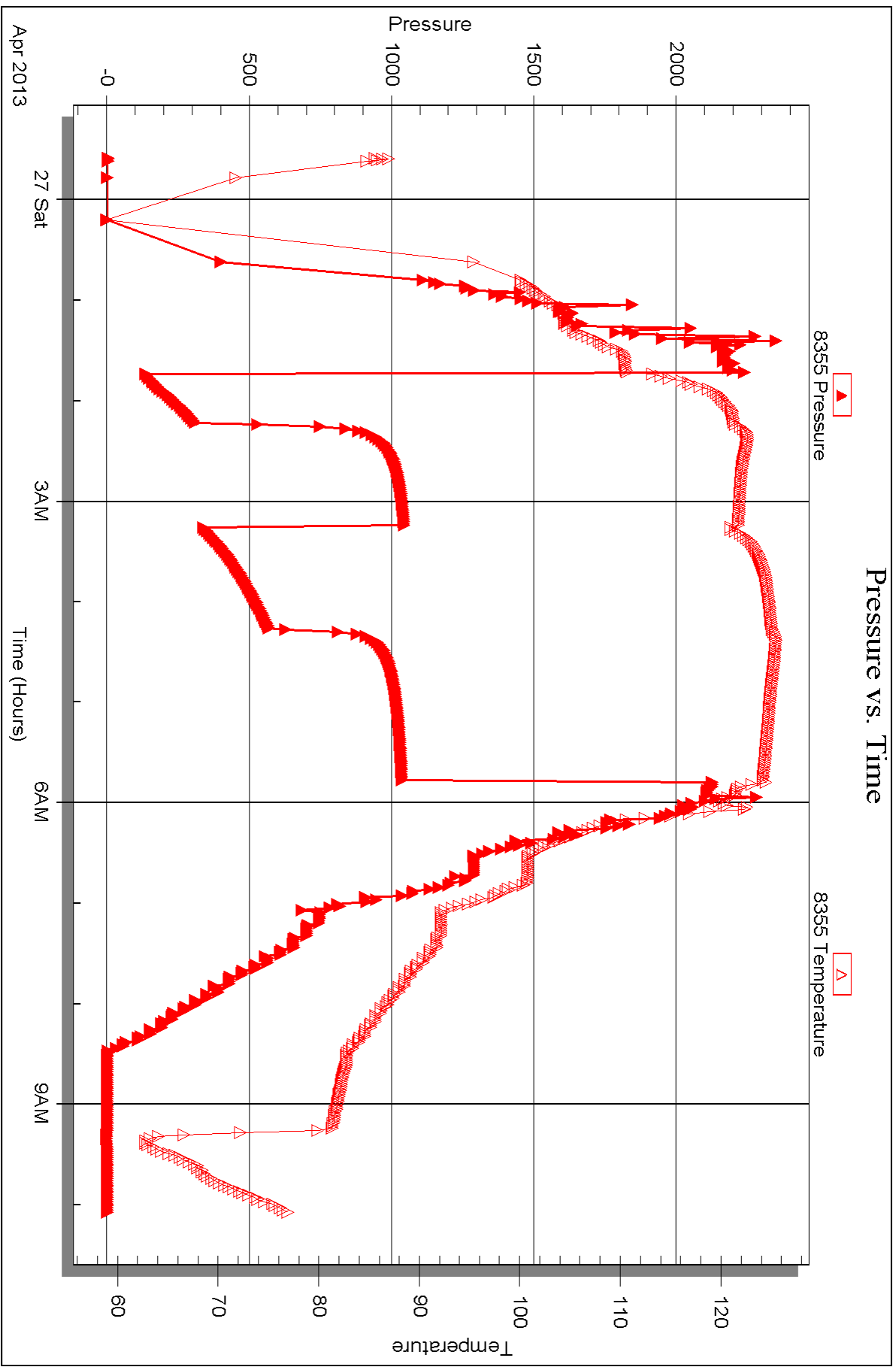


Serial #: 8355

Outside Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 7





## DRILL STEM TEST REPORT

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

250 N. Water Ste 300  
Wichita KS 67202

ATTN: Steve Miller

**Lana #1-5**

**5-13s-32w Logan,KS**

Start Date: 2013.04.28 @ 02:00:00

End Date: 2013.04.28 @ 11:05:10

Job Ticket #: 49240                      DST #: 8

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

Printed: 2013.04.30 @ 09:06:24



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**5-13s-32w Logan, KS**

**Lana #1-5**

Job Ticket: 49240

**DST#: 8**

Test Start: 2013.04.28 @ 02:00:00

## GENERAL INFORMATION:

Formation: **Johnson**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:02:55  
 Time Test Ended: 11:05:10  
 Interval: **4554.00 ft (KB) To 4646.00 ft (KB) (TVD)**  
 Total Depth: 4646.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Will MacLean  
 Unit No: 58  
 Reference Elevations: 3060.00 ft (KB)  
 3049.00 ft (CF)  
 KB to GR/CF: 11.00 ft

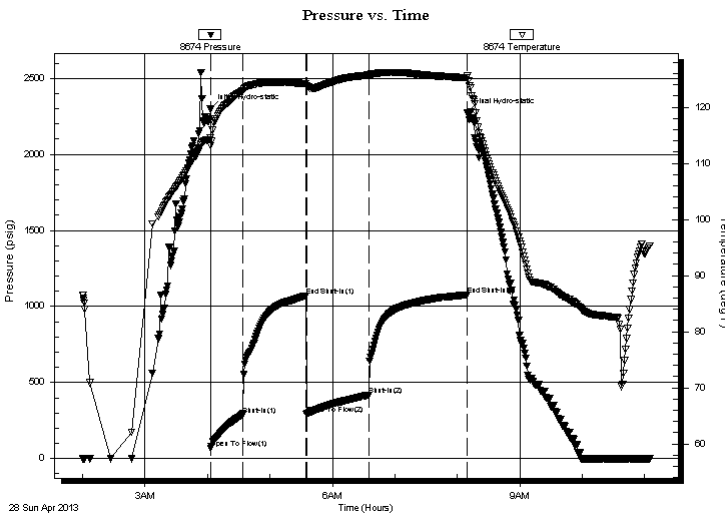
## Serial #: 8674

Inside

Press @ Run Depth: 417.74 psig @ 4556.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.04.28 End Date: 2013.04.28 Last Calib.: 2013.04.28  
 Start Time: 02:00:00 End Time: 11:05:10 Time On Btm: 2013.04.28 @ 04:02:40  
 Time Off Btm: 2013.04.28 @ 08:09:39

TEST COMMENT: IF- Surface Blow Built to BOB in 2 min  
 IS- Weak Surface Blow in 4 1/2 min Built to BOB in 50 min  
 FF- Surface Blow Built to BOB in 7 3/4 min  
 FS- Weak Surface Blow in 1 1/4 min Built to BOB in 29 min

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2298.38	114.55	Initial Hydro-static
1	66.43	113.07	Open To Flow (1)
31	288.69	122.95	Shut-In(1)
92	1071.05	124.20	End Shut-In(1)
93	293.41	123.68	Open To Flow (2)
152	417.74	125.72	Shut-In(2)
247	1077.73	125.25	End Shut-In(2)
247	2273.76	125.63	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
243.00	GMCO 20%g 35%m 45%oil	1.78
252.00	MGCO 8%m 30%g 62%oil	3.53
126.00	MGCO 10%m 28%g 62%oil	1.77
252.00	MGCO 5%m 22%g 73%oil	3.53
164.00	MGCO 2%m 11%g 87%oil	2.30
0.00	1096' of 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 Drilling Co. Inc  
250 N. Water Ste 300  
Wichita KS 67202  
ATTN: Steve Miller

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49240      **DST#: 8**  
Test Start: 2013.04.28 @ 02:00:00

**Tool Information**

Drill Pipe:	Length: 4363.00 ft	Diameter: 3.80 inches	Volume: 61.20 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	40000.00 lb
			<u>Total Volume: 62.08 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4554.00 ft			Final	64000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	92.00 ft				
Tool Length:	112.00 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			4535.00	
Shut In Tool	5.00			4540.00	
Hydraulic tool	5.00			4545.00	
Packer	5.00			4550.00	20.00      Bottom Of Top Packer
Packer	4.00			4554.00	
Stubb	1.00			4555.00	
Perforations	1.00			4556.00	
Recorder	0.00	8355	Outside	4556.00	
Recorder	0.00	8674	Inside	4556.00	
Perforations	22.00			4578.00	
Change Over Sub	1.00			4579.00	
Drill Pipe	63.00			4642.00	
Change Over Sub	1.00			4643.00	
Bullnose	3.00			4646.00	92.00      Bottom Packers & Anchor

**Total Tool Length: 112.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**5-13s-32w Logan,KS**  
**Lana #1-5**  
Job Ticket: 49240      **DST#: 8**  
Test Start: 2013.04.28 @ 02:00:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 27 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.59 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 5000.00 ppm		
Filter Cake: 2.00 inches		

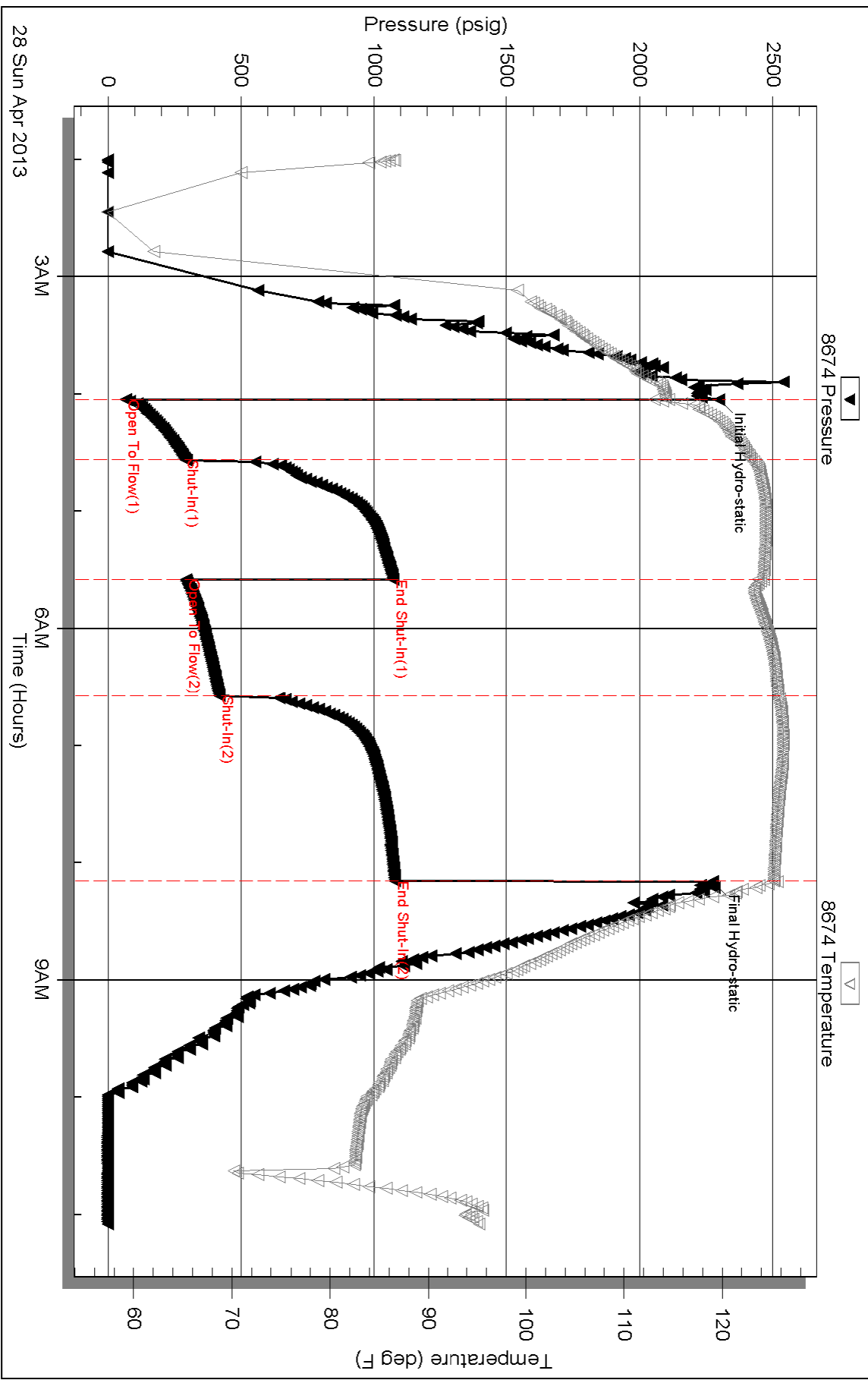
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
243.00	GMCO 20%g 35%m 45%oil	1.778
252.00	MGCO 8%m 30%g 62%oil	3.535
126.00	MGCO 10%m 28%g 62%oil	1.767
252.00	MGCO 5%m 22%g 73%oil	3.535
164.00	MGCO 2%m 11%g 87%oil	2.300
0.00	1096' of GIP	0.000

Total Length: 1037.00 ft      Total Volume: 12.915 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: API is 29 @ 80f = 27

### Pressure vs. Time

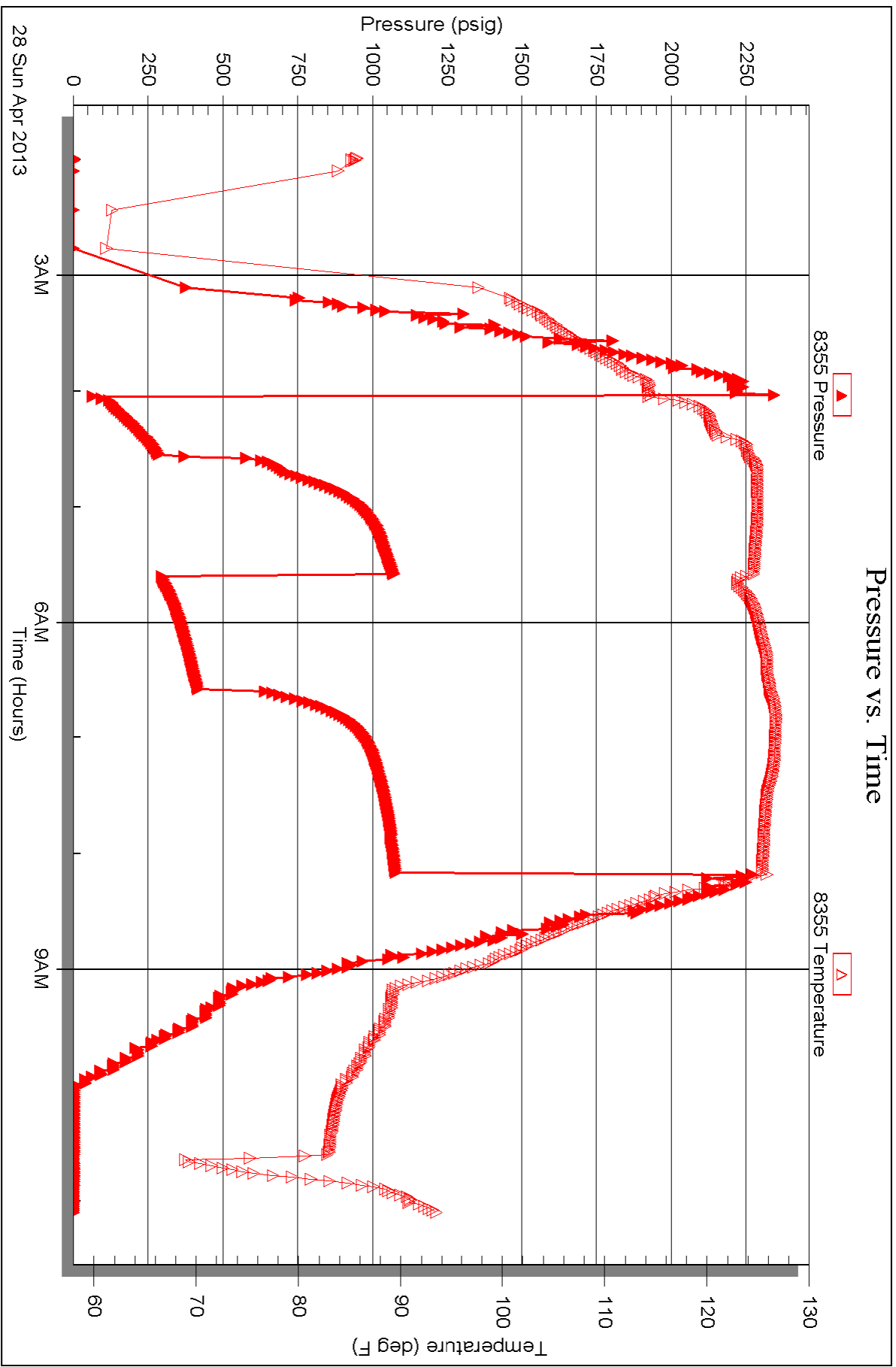


Serial #: 8355

Outside Murfin Drilling Co. Inc

Lana #1-5

DST Test Number: 8







# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 49233

Well Name & No. Lana #1-5 Test No. DST #1 Date 4-21-13  
 Company Murfin Drilling Co. Inc Elevation 3060 KB 3049 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin Rig #20  
 Location: Sec. 5 Twp. 13s Rge. 32W Co. Logan State KS

Interval Tested 4039-4086 Zone Tested LRC "A-B"  
 Anchor Length 47 Drill Pipe Run 3854 Mud Wt. 9.0  
 Top Packer Depth 4035 Drill Collars Run 179 Vis 55  
 Bottom Packer Depth 4039 Wt. Pipe Run 0 WL 5.2  
 Total Depth 4086 Chlorides 4800 ppm System LCM 416  
 Blow Description IF - Surface Blow Built to BOB in 3min  
ISI - No Blow  
FF - Surface Blow Built to BOB in 3 3/4 min  
FSI - Weak Surface Blow in 25min

Rec	Feet of	%gas	%oil	%water	%mud
30	60	3%	97%		
189	GOMCW	4%	14%	48%	34%
252	GOMCW	2%	3%	66%	29%
567	MCW with sknot oil on top			89%	11%
620	MCW with sknot oil on top			97%	3%
Rec Total	1658				

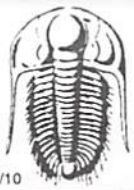
BHT 112 Gravity \_\_\_\_\_ API RW, 187 @ 74 °F Chlorides 35000 ppm  
 (A) Initial Hydrostatic 2033  Test 1250 T-On Location 1:48  
 (B) First Initial Flow 83  Jars 250 T-Started 2:46  
 (C) First Final Flow 432  Safety Joint 75 T-Open 4:33  
 (D) Initial Shut-In 1168  Circ Sub NIC T-Pulled 8:39  
 (E) Second Initial Flow 447  Hourly Standby \_\_\_\_\_ T-Out 11:38  
 (F) Second Final Flow 784  Mileage 76 RIT 117.80 Comments API is 33 @ 70f = 32  
 (G) Final Shut-In 1142  Sampler \_\_\_\_\_ 126' of GIP  
 (H) Final Hydrostatic 1911  Straddle \_\_\_\_\_  Ruined Shale Packer  
 Shale Packer \_\_\_\_\_  Ruined Packer  
 Extra Packer \_\_\_\_\_  Extra Copies  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1692.80  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1692.80

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

Approved By [Signature]

Our Representative Will Mart

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. 49234

Well Name & No. Lana #1-5 Test No. DST #2 Date 4-22-13  
 Company Murfin Drilling Co. Inc Elevation 3060 KB 3049 GL  
 Address 250 N Water Stc 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murfn Rig #20  
 Location: Sec. 5 Twp. 13s Rge. 32w Co. Logan State KS

Interval Tested 4088-4148 Zone Tested LKC "F+F"  
 Anchor Length 60 Drill Pipe Run 3895 Mud Wt. 9.3  
 Top Packer Depth 4084 Drill Collars Run 179 Vis 60  
 Bottom Packer Depth 4088 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4148 Chlorides 6000 ppm System LCM 716  
 Blow Description IF- Weak Surface Blow Built to BOB in 20 1/2 min  
ISI- No Blow  
FF- Weak Surface Blow Built to BOB in 30 1/4 min  
FSI- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>Oil</u>		<u>100</u>		
<u>68</u>	<u>OMCW</u>		<u>3</u>	<u>59</u>	<u>38</u>
<u>189</u>	<u>MCW with skim of oil on top</u>			<u>67</u>	<u>33</u>
<u>242</u>	<u>MCW</u>			<u>93</u>	<u>7</u>

Rec Total 1500 BHT 114 Gravity \_\_\_\_\_ API RW 221 @ 50 ° F Chlorides 45000 ppm

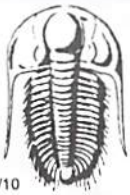
(A) Initial Hydrostatic 2045  Test 1250 T-On Location 00:12  
 (B) First Initial Flow 25  Jars \_\_\_\_\_ T-Started 00:48  
 (C) First Final Flow 139  Safety Joint \_\_\_\_\_ T-Open 2:05  
 (D) Initial Shut-In 1107  Circ Sub N/C T-Pulled 6:10  
 (E) Second Initial Flow 142  Hourly Standby \_\_\_\_\_ T-Out 8:32  
 (F) Second Final Flow 247  Mileage 76 RIT 117.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 1052  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1916  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1367.80  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1367.80

Approved By \_\_\_\_\_

Our Representative RJM

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. 49235

Well Name & No. Lana #1-5 Test No. DST #3 Date 4-22-13  
 Company Murkin Drilling Co. Inc Elevation 3060 KB 3049 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murkin Rig #20  
 Location: Sec. 5 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4150-4164 Zone Tested LKC "G"  
 Anchor Length 14 Drill Pipe Run 3981 Mud Wt. 9.3  
 Top Packer Depth 4146 Drill Collars Run 179 Vis 73  
 Bottom Packer Depth 4150 Wt. Pipe Run 0 WL 6.4  
 Total Depth 4164 Chlorides 4000 ppm System LCM 616

Blow Description IF - Weak Surface Blow 1/2"  
ISI - No Blow  
FF - No Blow  
FSI - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud with a few 0.1 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 110 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2036  Test 1250 T-On Location 16:24  
 (B) First Initial Flow 10  Jars \_\_\_\_\_ T-Started 17:24  
 (C) First Final Flow 12  Safety Joint \_\_\_\_\_ T-Open 19:38  
 (D) Initial Shut-In 87  Circ Sub NIC T-Pulled 22:46  
 (E) Second Initial Flow 12  Hourly Standby \_\_\_\_\_ T-Out 00:48  
 (F) Second Final Flow 12  Mileage 76 RIT 117.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 58  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1992  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Initial Open 30  Ruined Shale Packer \_\_\_\_\_  
 Initial Shut-In 60  Ruined Packer \_\_\_\_\_  
 Final Flow 30  Extra Copies \_\_\_\_\_  
 Final Shut-In 60 Sub Total 0  
 Total 1367.80  
 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1367.80

Approved By [Signature] Our Representative Will Menden

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.

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## Test Ticket

NO. 49236

Well Name & No. Lana #1-5 Test No. DST #4 Date 4-23-13  
 Company Murfin Drilling Co. Inc Elevation 3060 KB 3049 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin Rig #20  
 Location: Sec. 5 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4188-4274 Zone Tested LKC "H-I-J"  
 Anchor Length 4184 86' Drill Pipe Run 4015 Mud Wt. 9.1  
 Top Packer Depth 4188 4184 Drill Collars Run 179 Vis 52  
 Bottom Packer Depth 4188 Wt. Pipe Run 0 WL 6.0  
 Total Depth 4274 Chlorides 4400 ppm System LCM 716  
 Blow Description IF - Surface Blow Built to BOB in 8 1/4 min  
ISI - No Blow  
FF - Surface Blow Built to BOB in 10 3/4 min  
FSI - No Blow

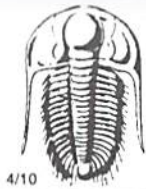
Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>Oil</u>		<u>100</u>		
<u>54</u>	<u>OWCM</u>		<u>1</u>	<u>32</u>	<u>67</u>
<u>441</u>	<u>WCM</u>			<u>48</u>	<u>52</u>
<u>126</u>	<u>WCM</u>			<u>79</u>	<u>21</u>
<u>368</u>	<u>WCM</u>			<u>91</u>	<u>9</u>

Rec Total 1091 BHT 112 Gravity \_\_\_\_\_ API RW 295 @ 25 ° F Chlorides 70 ppm  
 (A) Initial Hydrostatic 2107  Test 1250 T-On Location 20:28  
 (B) First Initial Flow 26  Jars \_\_\_\_\_ T-Started 21:18  
 (C) First Final Flow 250  Safety Joint \_\_\_\_\_ T-Open 23:30  
 (D) Initial Shut-In 1260  Circ Sub NIC T-Pulled 3:33  
 (E) Second Initial Flow 255  Hourly Standby \_\_\_\_\_ T-Out 6:04  
 (F) Second Final Flow 515  Mileage 76 RIT 117.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 1255  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2023  Straddle \_\_\_\_\_  
 Initial Open 30  Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Initial Shut-In 60  Extra Packer \_\_\_\_\_  Ruined Packer 320  
 Final Flow 60  Extra Recorder \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Final Shut-In 90  Day Standby \_\_\_\_\_ Sub Total \_\_\_\_\_  
 Accessibility \_\_\_\_\_ Total 1687.80  
 Sub Total 1367.80 MP/DST Disc't \_\_\_\_\_

Approved By [Signature] Our Representative Will Marz

Trilobite Testing Inc. shall not be liable for damages 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. 49237

Well Name & No. Lana #1-5 Test No. DST #5 Date 4-24-13  
 Company Murfin Drilling Co. Inc Elevation 3060 KB 3049 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin Rig #20  
 Location: Sec. 5 Twp. 13s Rge. 32w Co. Logan State KS

Interval Tested 4276-4354 Zone Tested LKC "K-L"  
 Anchor Length 78 Drill Pipe Run 4109 Mud Wt. 9.2  
 Top Packer Depth 4272 Drill Collars Run 179 Vis 54  
 Bottom Packer Depth 4276 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4354 Chlorides 6300 ppm System LCM 616  
 Blow Description IF- Weak Surface Blow Built to 3"  
ISI- No Blow  
FF- Weak Surface Blow Built to 1/4"  
FSI- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
90	OCM		1		99
60	Mud with oil spots				

Rec Total 150 BHT 105 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2158  Test 1250 T-On Location 20:18  
 (B) First Initial Flow 17  Jars \_\_\_\_\_ T-Started 20:38  
 (C) First Final Flow 59  Safety Joint \_\_\_\_\_ T-Open 22:47  
 (D) Initial Shut-In 1179  Circ Sub NIC T-Pulled 1:49  
 (E) Second Initial Flow 65  Hourly Standby \_\_\_\_\_ T-Out 3:46  
 (F) Second Final Flow 96  Mileage 76 RIT 117.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 1150  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2049  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

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

Sub Total 1367.80

Approved By [Signature] Our Representative Nick Mas  
 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.

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## Test Ticket

NO. 49238

Well Name & No. Lana #1-5 Test No. DST #6 Date 4-25-13  
 Company Murfin Drilling Co. Inc Elevation 3060 KB 3049 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin Rig #20  
 Location: Sec. 5 Twp. 13s Rge. 32w Co. Logan State KS

Interval Tested 4381-4466 Zone Tested Marmanton  
 Anchor Length 85 Drill Pipe Run 4204 Mud Wt. 9.2  
 Top Packer Depth 4377 Drill Collars Run 179 Vis 53  
 Bottom Packer Depth 4381 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4466 Chlorides 6200 ppm System LCM 616

Blow Description IF- Surface Blow Built to BOB in 2min  
TSI- Weak Surface Blow in 4min Built to 7 3/4"  
FF- Surface Blow Built to BOB in 3 3/4min  
FSI- Weak Surface Blow in 1 1/2min Built to 5 1/2"

Rec	Feet of	%gas	%oil	%water	%mud
315	G-O	20%	80%		
252	G-O	34%	66%		
378	MGCCO	32%	63%		5%
312	MGCCO	35%	57%		8%
120	G-MCO	25%	40%		35%

Rec Total 1377 BHT 112 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

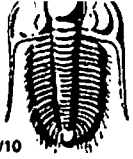
(A) Initial Hydrostatic 2239  Test 1250 T-On Location 21:18  
 (B) First Initial Flow 47  Jars \_\_\_\_\_ T-Started 21:40  
 (C) First Final Flow 244  Safety Joint \_\_\_\_\_ T-Open 23:51  
 (D) Initial Shut-In 1313  Circ Sub \_\_\_\_\_ T-Pulled 3:52  
 (E) Second Initial Flow 257  Hourly Standby \_\_\_\_\_ T-Out 7:27  
 (F) Second Final Flow 526  Mileage 76 RIT 117.80 Comments 1449' of GIP  
 (G) Final Shut-In 1302  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2032  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 30 Sub Total 0  
 Initial Shut-In 60 Total 1367.80  
 Final Flow 60 MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1367.80

Approved By [Signature] Our Representative Will Moore

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. 49289

Well Name & No. Lana #1-5 Test No. DST #7 Date 4-26-13  
 Company Murfin Drilling Co. Inc Elevation 3060 KB 3049 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin Rig #20  
 Location: Sec. 5 Twp. 13s Rge. 32w Co. Logan State KS

Interval Tested 4468-4548 Zone Tested Pawnee  
 Anchor Length 80 Drill Pipe Run 4299 Mud Wt. 9.2  
 Top Packer Depth 4464 Drill Collars Run 179 Vis 57  
 Bottom Packer Depth 4468 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4548 Chlorides 6300 ppm System LCM 716

Blow Description IF - Surface Blow Built to BOB in 2min  
ISI - Weak Surface Blow in 14min Built to BOB in 48min  
FF - Surface Blow Built to BOB in 134min  
FSI - Weak Surface Blow Built to BOB in 25min

Rec	Feet of	%gas	%oil	%water	%mud
<u>277</u>	<u>MGCO</u>	<u>9</u>	<u>89</u>		<u>2</u>
<u>471</u>	<u>MGCO</u>	<u>28</u>	<u>69</u>		<u>3</u>
<u>378</u>	<u>MGCO</u>	<u>26</u>	<u>59</u>		<u>15</u>
<u>63</u>	<u>OG-CM</u>	<u>30</u>	<u>10</u>		<u>60</u>
<u>243</u>	<u>GOCM</u>	<u>18</u>	<u>37</u>		<u>45</u>

Rec Total 1402 BHT 117 Gravity 32 API RW @ ° F Chlorides ppm

- (A) Initial Hydrostatic 2248
- (B) First Initial Flow 121
- (C) First Final Flow 312
- (D) Initial Shut-In 1042
- (E) Second Initial Flow 337
- (F) Second Final Flow 572
- (G) Final Shut-In 1036
- (H) Final Hydrostatic 2127

- Test 1250
- Jars
- Safety Joint
- Circ Sub NIC
- Hourly Standby 1 Hr 100
- Mileage 76 RIT 117.80
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1467.80

T-On Location 23:04  
 T-Started 23:36  
 T-Open 1:43  
 T-Pulled 5:47  
 T-Out 10:02

Comments 2999' of GIP  
API is 32 @ 60 f = 32  
 Ruined Shale Packer  
 Ruined Packer  
 Extra Copies  
 Sub Total 0  
 Total 1467.80  
 MP/DST Disc't

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

Approved By [Signature]

Our Representative Will Mart

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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 49240

Well Name & No. Lana #1-5 Test No. DST #8 Date 4-28-13  
 Company Murfin Drilling Co. Inc Elevation 3060 KB 3094 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202  
 Co. Rep / Geo. Steve Miller Rig Murfin Rig #20  
 Location: Sec. 5 Twp. 13s Rge. 32w Co. Logan State KS

Interval Tested 4554-4646 Zone Tested Johnson  
 Anchor Length 92 Drill Pipe Run 4363 Mud Wt. 9.2  
 Top Packer Depth 4550 Drill Collars Run 179 Vis 50  
 Bottom Packer Depth 4554 Wt. Pipe Run 0 WL 7.6  
 Total Depth 4646 Chlorides 5000 ppm System LCM 6/b

Blow Description IF - Surface Blow Built to BOB in 2 min  
ISI - Weak Surface Blow in 4 1/2 min Built to BOB in 50 min  
FF - Surface Blow Built to BOB in 7 3/4 min  
FSI - Weak Surface Blow with 1 1/4 min Built to BOB in 29 min

Rec	Feet of	%gas	%oil	%water	%mud
<u>164</u>	<u>MGCO</u>	<u>11</u>	<u>87</u>	<u>2</u>	<u>0</u>
<u>252</u>	<u>MGCO</u>	<u>22</u>	<u>73</u>	<u>5</u>	<u>0</u>
<u>126</u>	<u>MGCO</u>	<u>28</u>	<u>62</u>	<u>10</u>	<u>0</u>
<u>252</u>	<u>MGCO</u>	<u>30</u>	<u>62</u>	<u>8</u>	<u>0</u>
<u>243</u>	<u>GMCO</u>	<u>20</u>	<u>45</u>	<u>35</u>	<u>0</u>

Rec Total 1037 BHT 119 Gravity 27 API RW @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2298  
 (B) First Initial Flow 66  
 (C) First Final Flow 288  
 (D) Initial Shut-In 1071  
 (E) Second Initial Flow 293  
 (F) Second Final Flow 417  
 (G) Final Shut-In 1077  
 (H) Final Hydrostatic 2273

Test 1250  
 Jars \_\_\_\_\_  
 Safety Joint \_\_\_\_\_  
 Circ Sub NIC  
 Hourly Standby \_\_\_\_\_  
 Mileage 76 RIT X 2  
 Sampler \_\_\_\_\_  
 Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby 1d 1h  
 Accessibility \_\_\_\_\_  
 Sub Total 1485.60

T-On Location 1:10  
 T-Started 2:00  
 T-Open 4:02  
 T-Pulled 8:09  
 T-Out 11:05

Comments API is 29080t = 27  
1096' of GIP  
 Ruined Shale Packer  
 Ruined Packer  
 Extra Copies  
 Sub Total 800  
 Total Loaded Tools @ 12:00 pm  
 on 4-29-13  
 MP/DST Disc't 2285.60

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

Approved By [Signature]

Our Representative [Signature]

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