



## DRILL STEM TEST REPORT

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

205 N Water STE 300  
Wichita KS 67202

ATTN: Tom Funk

**Vanava #2-5**

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

Start Date: 2012.08.05 @ 10:17:13

End Date: 2012.08.05 @ 18:26:13

Job Ticket #: 46949                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.14 @ 15:35:15

Murfin Drilling Co. Inc  
5-13s-32w Logan,KS  
Vanava #2-5  
DST # 1  
LCK-"B-D"  
2012.08.05



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc  
 205 N Water STE 300  
 Wichita KS 67202  
 ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 46949

**DST#: 1**

Test Start: 2012.08.05 @ 10:17:13

## GENERAL INFORMATION:

Formation: **LCK-"B-D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:14:13

Time Test Ended: 18:26:13

Test Type: Conventional Bottom Hole (Initial)

Tester: Tate Lang

Unit No: 55

**Interval: 4030.00 ft (KB) To 4074.00 ft (KB) (TVD)**

Reference Elevations: 3024.00 ft (KB)

Total Depth: 4074.00 ft (KB) (TVD)

3013.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8368**

**Inside**

Press @ RunDepth: 226.35 psig @ 4036.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.08.05

End Date:

2012.08.05

Last Calib.:

2012.08.05

Start Time: 10:17:28

End Time:

18:26:13

Time On Btm:

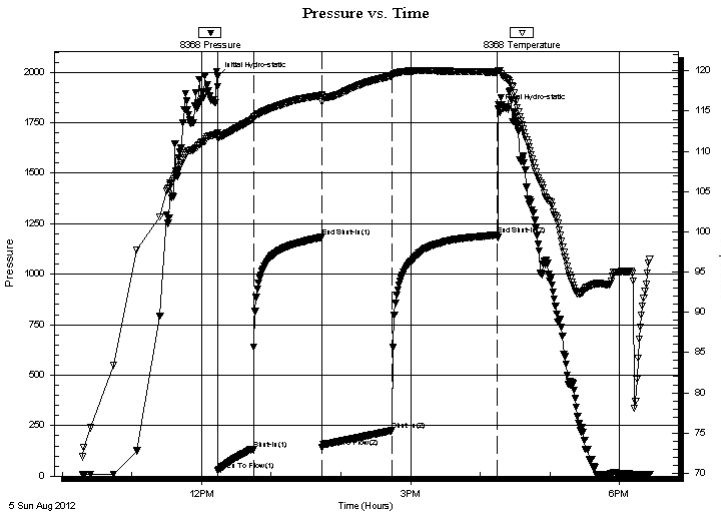
2012.08.05 @ 12:13:43

Time Off Btm:

2012.08.05 @ 16:15:28

**TEST COMMENT:** IF-Fair Blow Built To 9 in.  
 ISI-Bled Off For 5 mins Dead No Return  
 FF-B.O.B. 50 mins.  
 FSI-Bled Off For 5 mins Dead No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1978.63	112.31	Initial Hydro-static
1	28.04	111.64	Open To Flow (1)
31	134.54	114.03	Shut-In(1)
90	1184.52	116.97	End Shut-In(1)
91	143.12	116.21	Open To Flow (2)
151	226.35	119.39	Shut-In(2)
241	1193.97	119.85	End Shut-In(2)
242	1818.16	120.06	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
488.00	40%M 60%W	4.71

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 46949      **DST#: 1**  
Test Start: 2012.08.05 @ 10:17:13

**Tool Information**

Drill Pipe:	Length: 3788.00 ft	Diameter: 3.80 inches	Volume: 53.14 bbl	Tool Weight: 20000.00 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: 234.00 ft	Diameter: 2.25 inches	Volume: 1.15 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 54.29 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4030.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	64.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Change Over Sub	1.00			4011.00	
Shut In Tool	5.00			4016.00	
Hydraulic tool	5.00			4021.00	
Packer	5.00			4026.00	20.00      Bottom Of Top Packer
Packer	4.00			4030.00	
Stubb	1.00			4031.00	
Perforations	5.00			4036.00	
Recorder	0.00	8368	Inside	4036.00	
Recorder	0.00	6667	Outside	4036.00	
Change Over Sub	1.00			4037.00	
Drill Pipe	31.00			4068.00	
Change Over Sub	1.00			4069.00	
Bullnose	5.00			4074.00	44.00      Bottom Packers & Anchor

**Total Tool Length: 64.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 46949      **DST#: 1**  
Test Start: 2012.08.05 @ 10:17:13

## Mud and Cushion Information

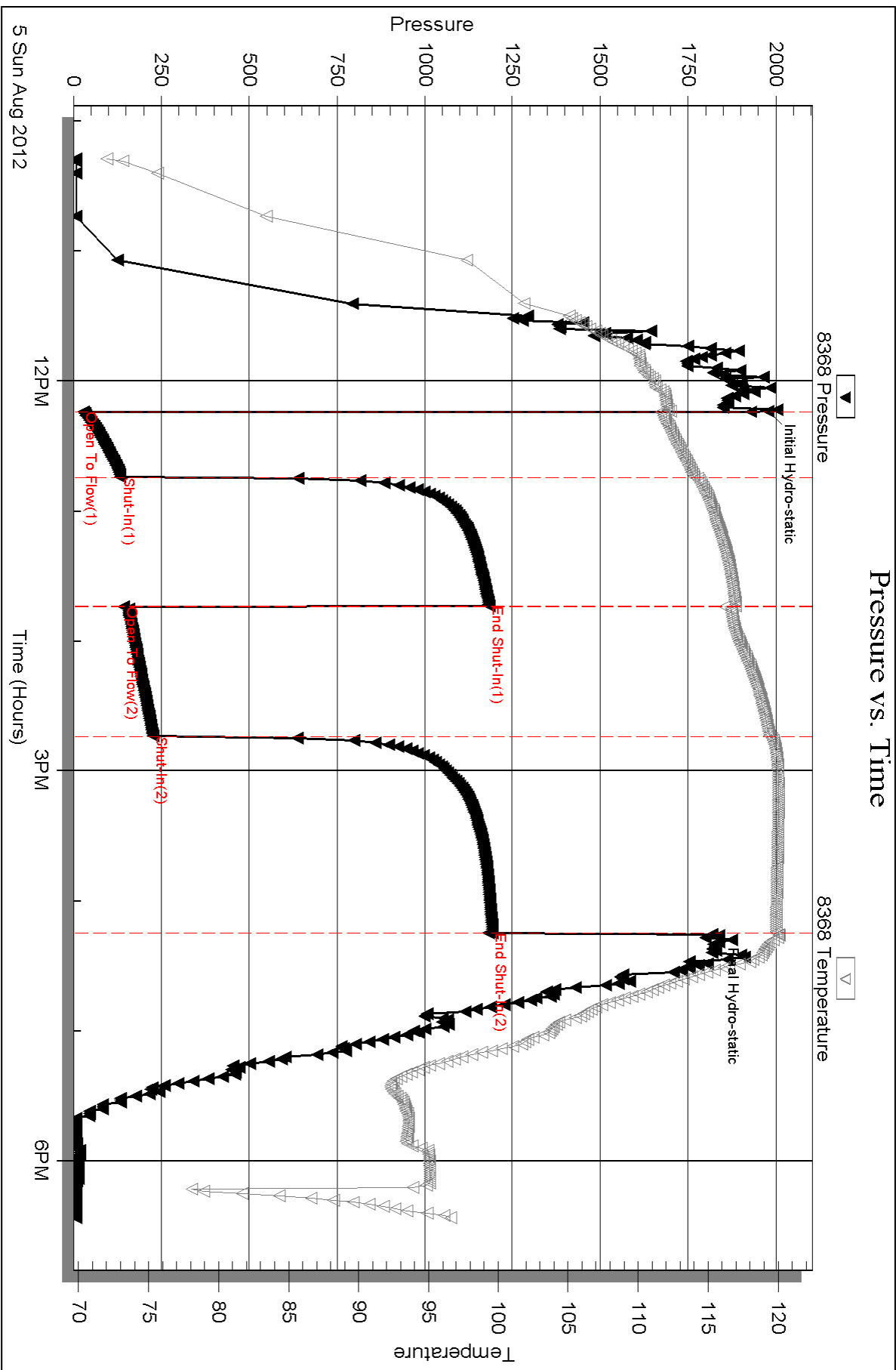
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 46.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.27 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 34000.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
488.00	40%M 60%W	4.714

Total Length: 488.00 ft      Total Volume: 4.714 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

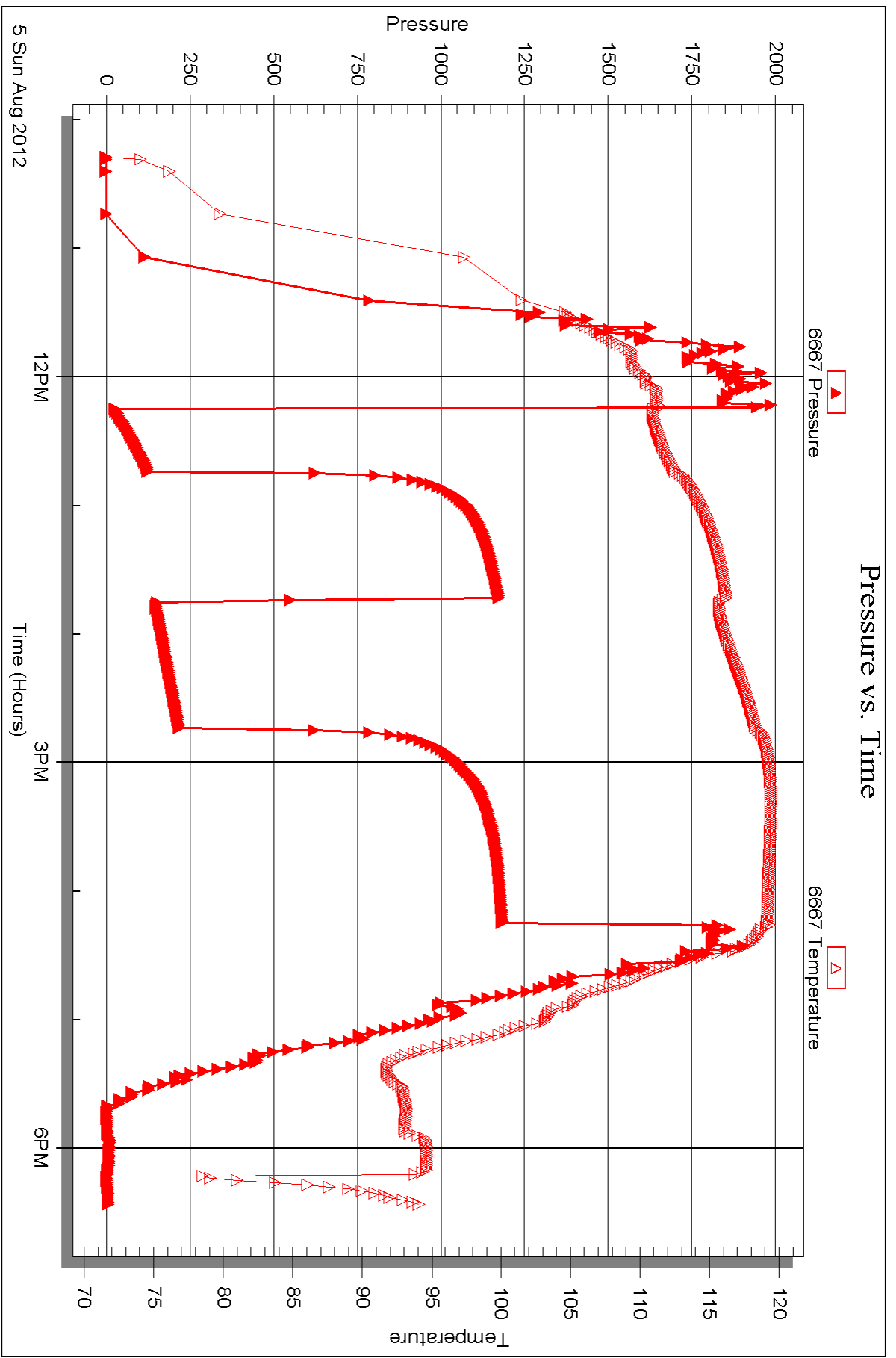


Serial #: 6667

Outside Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 46949

Printed: 2012.08.14 @ 15:35:19



## DRILL STEM TEST REPORT

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

205 N Water STE 300  
Wichita KS 67202

ATTN: Tom Funk

**Vanava #2-5**

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

Start Date: 2012.08.06 @ 01:15:08

End Date: 2012.08.06 @ 09:37:23

Job Ticket #: 46950                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.14 @ 15:34:22





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 46950

**DST#: 2**

Test Start: 2012.08.06 @ 01:15:08

## GENERAL INFORMATION:

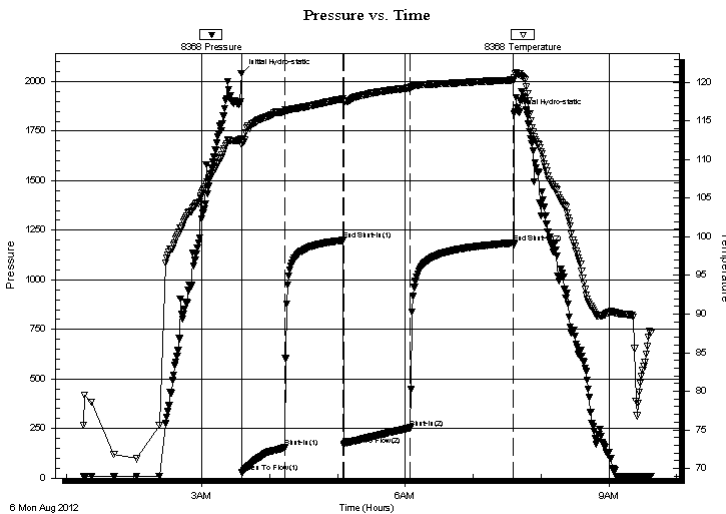
Formation: **LKC-"E-F"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:35:23  
 Time Test Ended: 09:37:23  
 Interval: **4078.00 ft (KB) To 4110.00 ft (KB) (TVD)**  
 Total Depth: 4110.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 55  
 Reference Elevations: 3024.00 ft (KB)  
 3013.00 ft (CF)  
 KB to GR/CF: 11.00 ft

## Serial #: 8368

Inside

Press @ Run Depth: 253.73 psig @ 4105.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.08.06 End Date: 2012.08.06 Last Calib.: 2012.08.06  
 Start Time: 01:15:23 End Time: 09:37:23 Time On Btm: 2012.08.06 @ 03:35:08  
 Time Off Btm: 2012.08.06 @ 07:36:08

**TEST COMMENT:** IF-Strong Blow Built To 9 1/2"  
 ISI-Bled Off For 10 Mins Chain Got Caught Between The Bales and Head Manifold- Dead No Return  
 FF-B.O.B. 42 mins  
 FSI-Bled Of For 5 mins Dead No Return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2041.67	112.73	Initial Hydro-static
1	28.66	111.97	Open To Flow (1)
39	153.54	116.19	Shut-In(1)
90	1199.62	117.86	End Shut-In(1)
91	165.71	117.45	Open To Flow (2)
150	253.73	119.29	Shut-In(2)
241	1186.35	120.30	End Shut-In(2)
241	1838.12	120.62	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
249.00	10%M 90%W	1.36
244.00	5%M 95%W	3.42

\* 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  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 46950      **DST#: 2**  
Test Start: 2012.08.06 @ 01:15:08

**Tool Information**

Drill Pipe:	Length: 3849.00 ft	Diameter: 3.80 inches	Volume: 53.99 bbl	Tool Weight: 20000.00 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: 234.00 ft	Diameter: 2.25 inches	Volume: 1.15 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 55.14 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4078.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	52.00 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			4059.00	
Shut In Tool	5.00			4064.00	
Hydraulic tool	5.00			4069.00	
Packer	5.00			4074.00	20.00      Bottom Of Top Packer
Packer	4.00			4078.00	
Stubb	1.00			4079.00	
Perforations	26.00			4105.00	
Recorder	0.00	8368	Inside	4105.00	
Recorder	0.00	6667	Outside	4105.00	
Bullnose	5.00			4110.00	32.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>52.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 46950      **DST#: 2**  
Test Start: 2012.08.06 @ 01:15:08

## Mud and Cushion Information

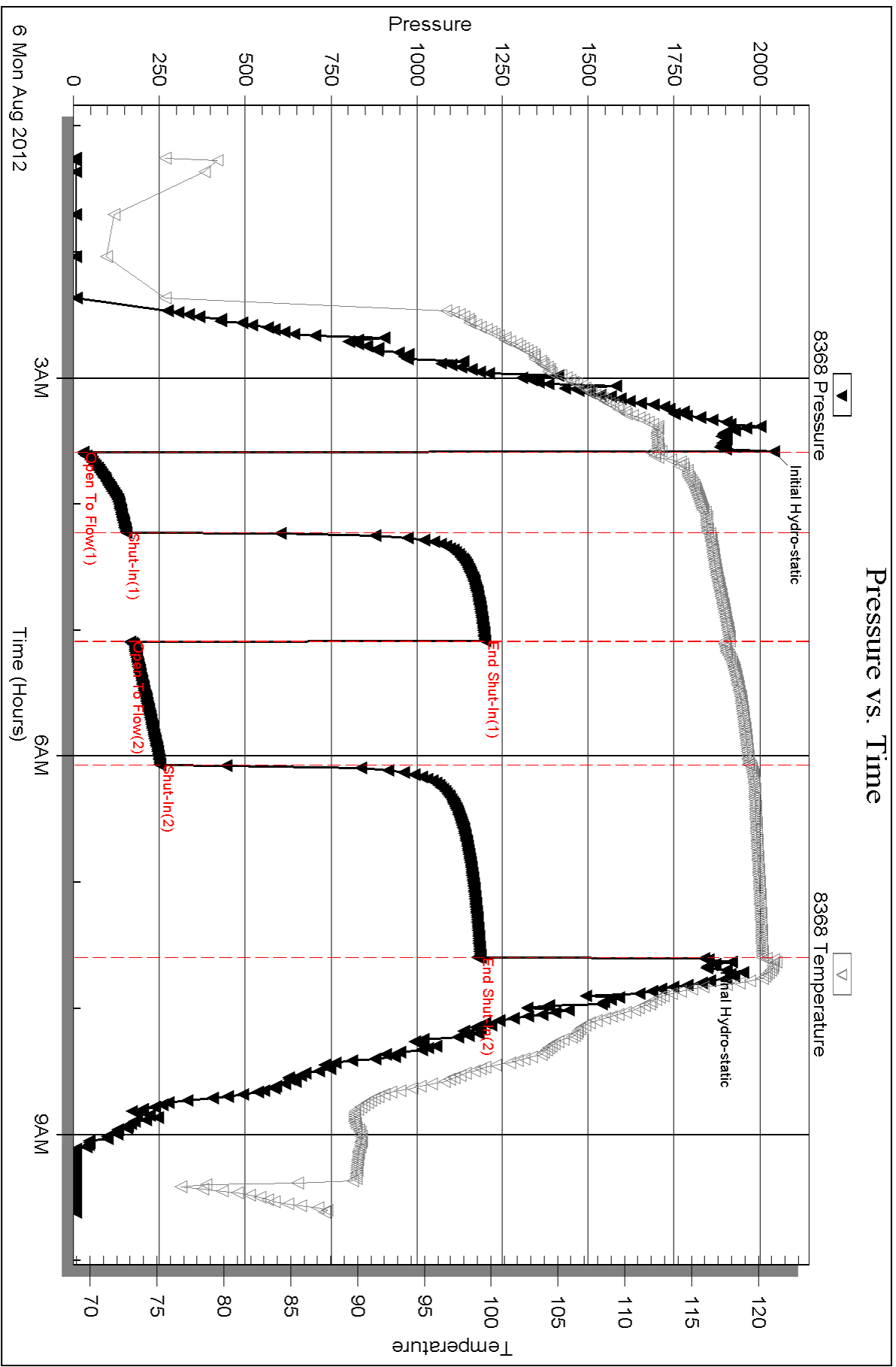
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.12 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 34000.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
249.00	10%M 90%W	1.361
244.00	5%M 95%W	3.423

Total Length: 493.00 ft      Total Volume: 4.784 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

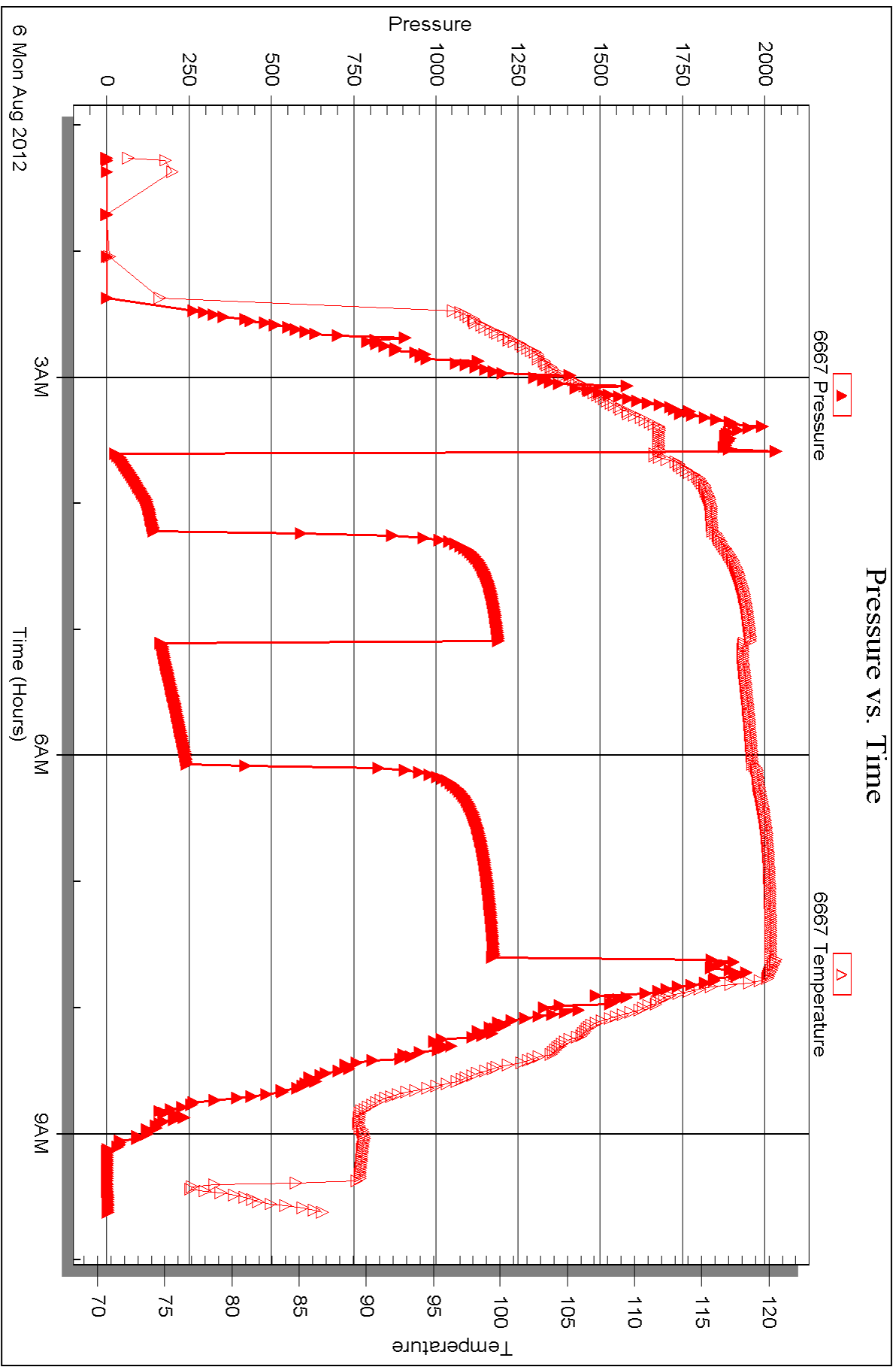


Serial #: 6667

Outside Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 2





## DRILL STEM TEST REPORT

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

205 N Water STE 300  
Wichita KS 67202

ATTN: Tom Funk

**Vanava #2-5**

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

Start Date: 2012.08.06 @ 18:25:11

End Date: 2012.08.07 @ 01:32:11

Job Ticket #: 48281                      DST #: 3

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

Printed: 2012.08.14 @ 15:33:29



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc  
 205 N Water STE 300  
 Wichita KS 67202  
 ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 48281

**DST#: 3**

Test Start: 2012.08.06 @ 18:25:11

## GENERAL INFORMATION:

Formation: **LKC-"H"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 20:29:11  
 Time Test Ended: 01:32:11  
 Interval: **4150.00 ft (KB) To 4175.00 ft (KB) (TVD)**  
 Total Depth: 4175.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 55  
 Reference Elevations: 3024.00 ft (KB)  
 3013.00 ft (CF)  
 KB to GR/CF: 11.00 ft

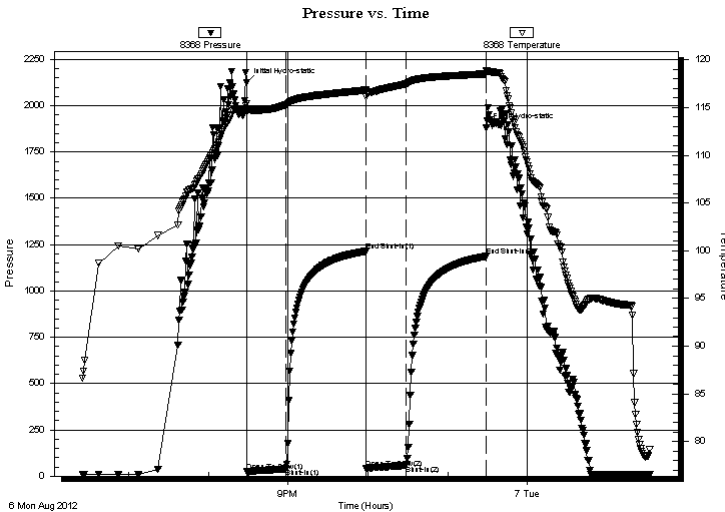
## Serial #: 8368

Inside

Press @ Run Depth: 57.84 psig @ 4170.00 ft (KB)  
 Start Date: 2012.08.06 End Date: 2012.08.07  
 Start Time: 18:25:26 End Time: 01:32:11  
 Capacity: 8000.00 psig  
 Last Calib.: 2012.08.07  
 Time On Btm: 2012.08.06 @ 20:28:56  
 Time Off Btm: 2012.08.06 @ 23:29:11

TEST COMMENT: IF-Weak Surface Blow Built to 1 1/4 in.  
 ISI-Dead No Return  
 FF-Dead No Blow  
 FSI-Dead No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2124.07	115.37	Initial Hydro-static
1	24.48	114.62	Open To Flow (1)
30	39.49	115.29	Shut-In(1)
90	1213.65	116.81	End Shut-In(1)
90	42.95	116.07	Open To Flow (2)
120	57.84	117.46	Shut-In(2)
180	1187.01	118.52	End Shut-In(2)
181	1880.36	118.88	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
65.00	10%O 90%M	0.32

\* 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  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48281  
Test Start: 2012.08.06 @ 18:25:11

**DST#: 3**

### Tool Information

Drill Pipe:	Length: 3911.00 ft	Diameter: 3.80 inches	Volume: 54.86 bbl	Tool Weight: 20000.00 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: 234.00 ft	Diameter: 2.25 inches	Volume: 1.15 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 56.01 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4150.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	25.00 ft			
Tool Length:	45.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			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	
Perforations	19.00			4170.00	
Recorder	0.00	8368	Inside	4170.00	
Recorder	0.00	6667	Outside	4170.00	
Bullnose	5.00			4175.00	25.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>45.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48281      **DST#: 3**  
Test Start: 2012.08.06 @ 18:25:11

## Mud and Cushion Information

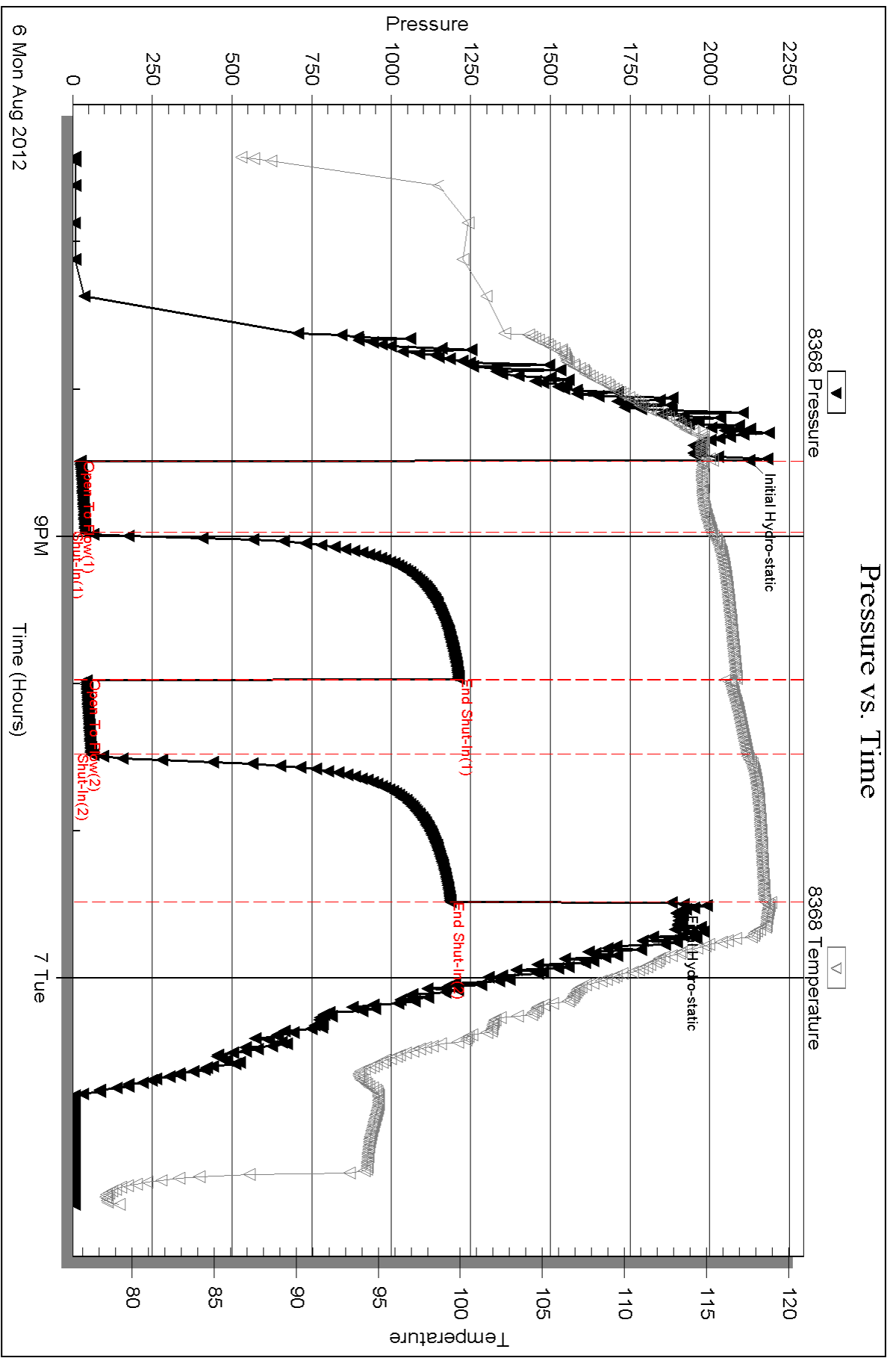
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.14 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 5900.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
65.00	10%O 90%M	0.320

Total Length: 65.00 ft      Total Volume: 0.320 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

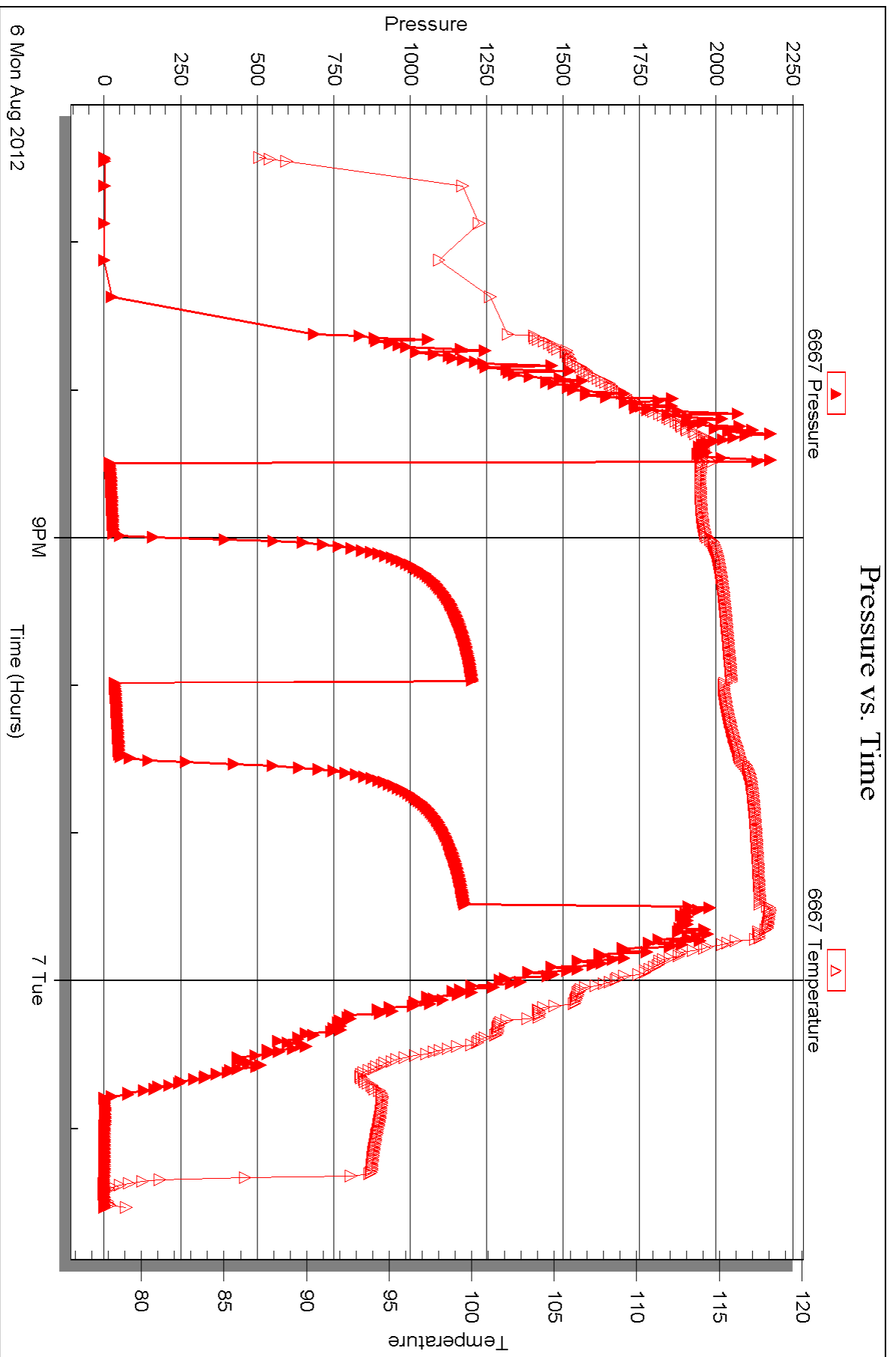


Serial #: 6667

Outside Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 3





## DRILL STEM TEST REPORT

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

205 N Water STE 300  
Wichita KS 67202

ATTN: Tom Funk

### **Vanava #2-5**

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

Start Date: 2012.08.07 @ 09:03:43

End Date: 2012.08.07 @ 17:24:43

Job Ticket #: 48282                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.14 @ 15:32:19



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 48282

**DST#: 4**

Test Start: 2012.08.07 @ 09:03:43

## GENERAL INFORMATION:

Formation: **LKC-"I"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:58:43  
 Time Test Ended: 17:24:43  
 Interval: **4180.00 ft (KB) To 4213.00 ft (KB) (TVD)**  
 Total Depth: 4213.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 55  
 Reference Elevations: 3024.00 ft (KB)  
 3013.00 ft (CF)  
 KB to GR/CF: 11.00 ft

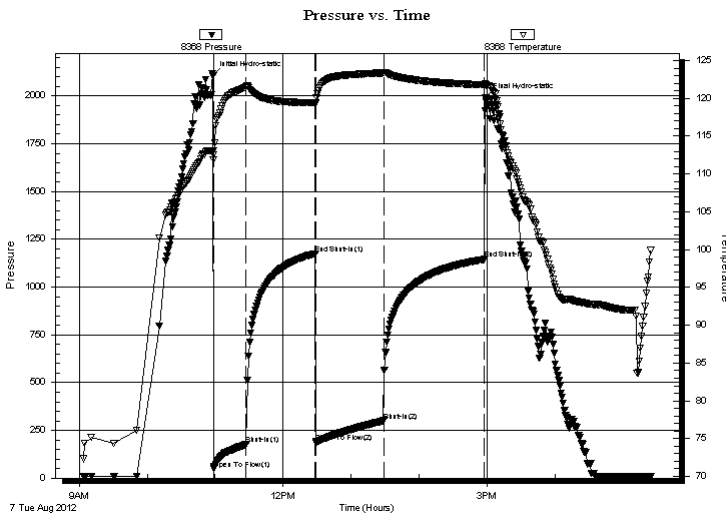
## Serial #: 8368

Inside

Press @ Run Depth: 300.09 psig @ 4183.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.08.07 End Date: 2012.08.07 Last Calib.: 2012.08.07  
 Start Time: 09:03:58 End Time: 17:24:43 Time On Btm: 2012.08.07 @ 10:58:13  
 Time Off Btm: 2012.08.07 @ 14:58:43

TEST COMMENT: IF-B.O.B. 13 mins  
 ISI-Bled Off For 5 mins Dead No Return  
 FF-B.O.B. 23 mins  
 FSI-Bled Off For 5 mins Dead No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2108.16	113.11	Initial Hydro-static
1	48.20	112.58	Open To Flow (1)
30	176.56	121.53	Shut-In(1)
91	1174.92	119.40	End Shut-In(1)
91	189.18	119.34	Open To Flow (2)
151	300.09	123.37	Shut-In(2)
240	1144.56	121.79	End Shut-In(2)
241	1992.09	121.85	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
549.00	5%O 5%M 90%W	5.57
61.00	40%M 60% W	0.86
3.00	100% Free Oil	0.04
0.00	610 Weak G.I.P.	0.00

## Gas Rates

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

\* Recovery from multiple tests







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48282      **DST#: 4**  
Test Start: 2012.08.07 @ 09:03:43

**Tool Information**

Drill Pipe:	Length: 3943.00 ft	Diameter: 3.80 inches	Volume: 55.31 bbl	Tool Weight:	20000.00 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: 234.00 ft	Diameter: 2.25 inches	Volume: 1.15 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 56.46 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial	54000.00 lb
Depth to Top Packer:	4180.00 ft			Final	57000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	33.00 ft				
Tool Length:	53.00 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			4161.00	
Shut In Tool	5.00			4166.00	
Hydraulic tool	5.00			4171.00	
Packer	5.00			4176.00	20.00      Bottom Of Top Packer
Packer	4.00			4180.00	
Stubb	1.00			4181.00	
Perforations	2.00			4183.00	
Recorder	0.00	8368	Inside	4183.00	
Recorder	0.00	6667	Outside	4183.00	
Perforations	25.00			4208.00	
Bullnose	5.00			4213.00	33.00      Bottom Packers & Anchor

**Total Tool Length: 53.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48282      **DST#: 4**  
Test Start: 2012.08.07 @ 09:03:43

## Mud and Cushion Information

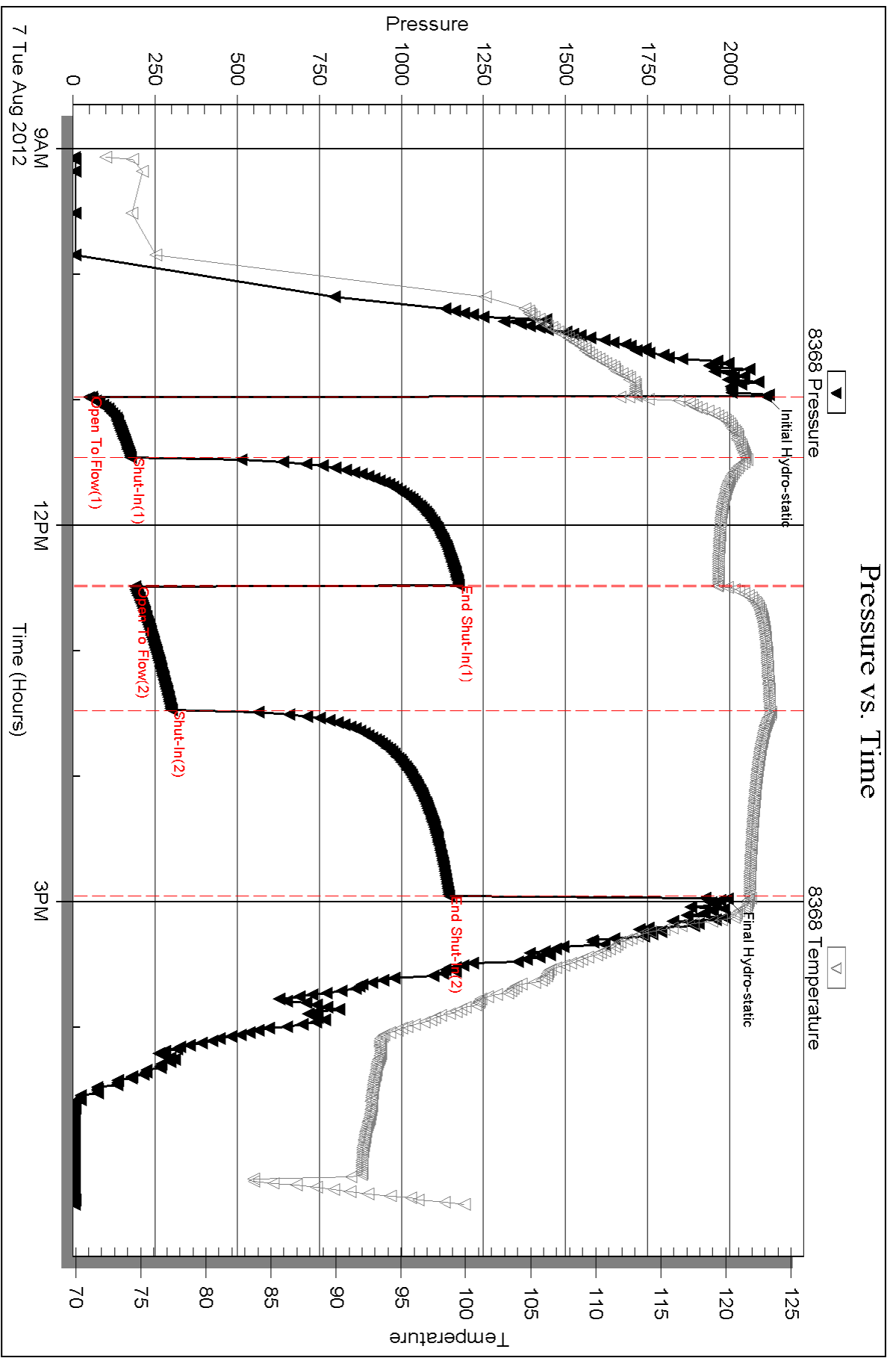
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.14 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 59000.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
549.00	5%O 5%M 90%W	5.569
61.00	40%M 60% W	0.856
3.00	100% Free Oil	0.042
0.00	610 Weak G.I.P.	0.000

Total Length: 613.00 ft      Total Volume: 6.467 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

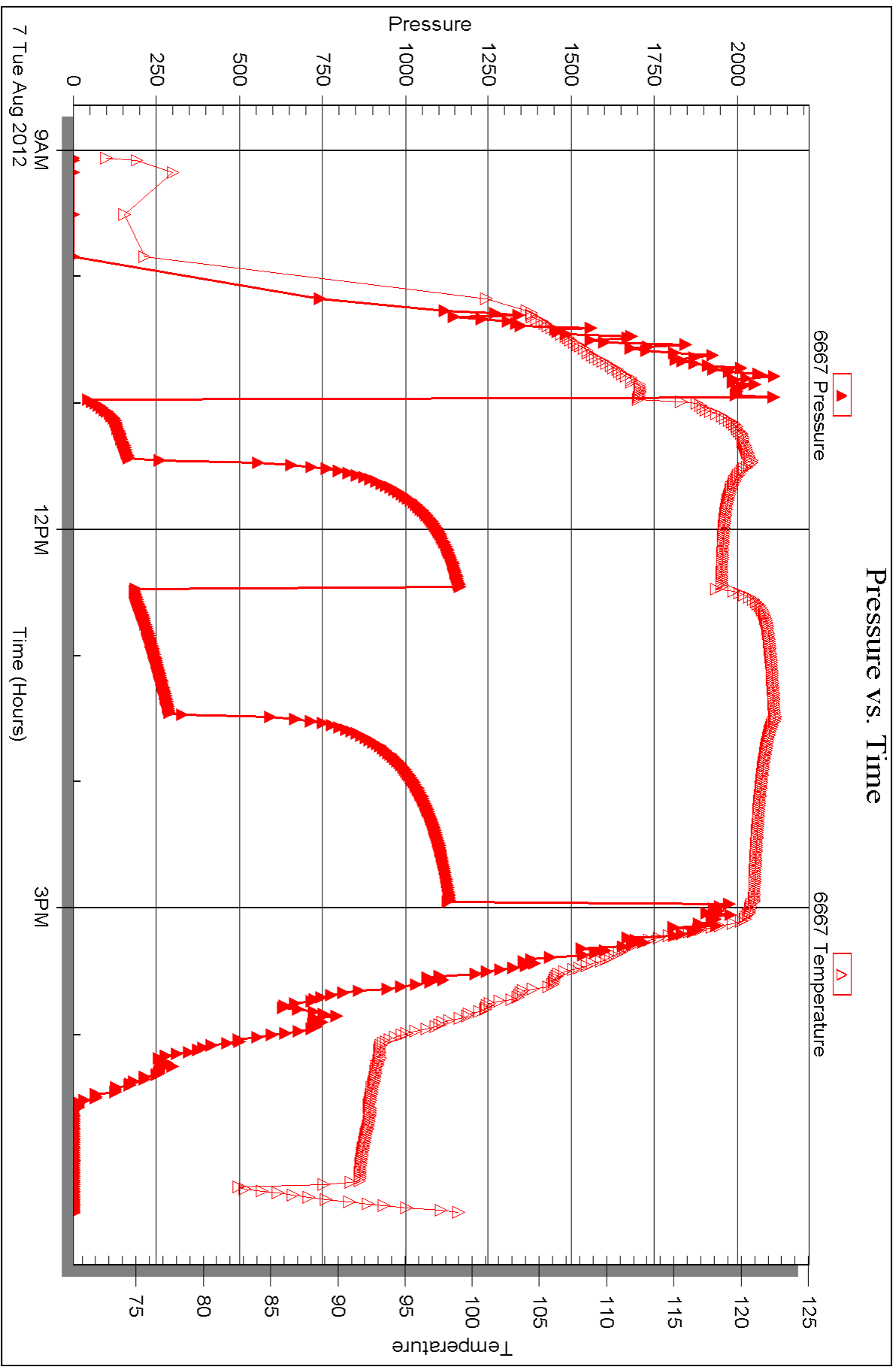


Serial #: 6667

Outside Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 4





## DRILL STEM TEST REPORT

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

205 N Water STE 300  
Wichita KS 67202

ATTN: Tom Funk

**Vanava #2-5**

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

Start Date: 2012.08.08 @ 00:20:25

End Date: 2012.08.08 @ 07:59:10

Job Ticket #: 48283                      DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.14 @ 15:31:37

Murfin Drilling Co. Inc  
5-13s-32w Logan,KS  
Vanava #2-5  
DST # 5  
LKC- "J"  
2012.08.08



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 48283

**DST#: 5**

Test Start: 2012.08.08 @ 00:20:25

## GENERAL INFORMATION:

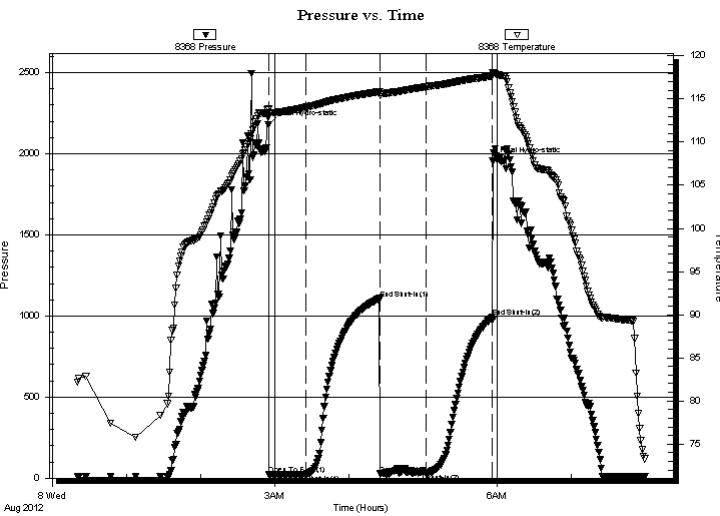
Formation: **LKC- "J"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 02:55:10  
 Time Test Ended: 07:59:10  
 Interval: **4213.00 ft (KB) To 4235.00 ft (KB) (TVD)**  
 Total Depth: 4235.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 55  
 Reference Elevations: 3024.00 ft (KB)  
 3013.00 ft (CF)  
 KB to GR/CF: 11.00 ft

## Serial #: 8368

Inside

Press @ RunDepth: 28.75 psig @ 4216.00 ft (KB)  
 Start Date: 2012.08.08 End Date: 2012.08.08  
 Start Time: 00:20:40 End Time: 07:59:10  
 Capacity: 8000.00 psig  
 Last Calib.: 2012.08.08  
 Time On Btm: 2012.08.08 @ 02:54:55  
 Time Off Btm: 2012.08.08 @ 05:56:25

TEST COMMENT: IF-Weak Surface Blow Died in 7 mins.  
 ISI-Dead No Return  
 FF-Dead No Blow  
 FSI-Dead No Return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2179.84	113.82	Initial Hydro-static
1	21.71	112.94	Open To Flow (1)
31	24.49	114.05	Shut-In(1)
90	1106.70	115.85	End Shut-In(1)
91	26.41	115.45	Open To Flow (2)
128	28.75	116.39	Shut-In(2)
181	991.10	117.64	End Shut-In(2)
182	1953.47	118.09	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	100%M	0.05

\* 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  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48283      **DST#: 5**  
Test Start: 2012.08.08 @ 00:20:25

**Tool Information**

Drill Pipe:	Length: 3975.00 ft	Diameter: 3.80 inches	Volume: 55.76 bbl	Tool Weight:	20000.00 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: 234.00 ft	Diameter: 2.25 inches	Volume: 1.15 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 56.91 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial	55000.00 lb
Depth to Top Packer:	4213.00 ft			Final	55000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	22.00 ft				
Tool Length:	42.00 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			4194.00	
Shut In Tool	5.00			4199.00	
Hydraulic tool	5.00			4204.00	
Packer	5.00			4209.00	20.00      Bottom Of Top Packer
Packer	4.00			4213.00	
Stubb	1.00			4214.00	
Perforations	2.00			4216.00	
Recorder	0.00	8368	Inside	4216.00	
Recorder	0.00	6667	Outside	4216.00	
Perforations	14.00			4230.00	
Bullnose	5.00			4235.00	22.00      Bottom Packers & Anchor

**Total Tool Length: 42.00**





**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48283      **DST#: 5**  
Test Start: 2012.08.08 @ 00:20:25

**Mud and Cushion Information**

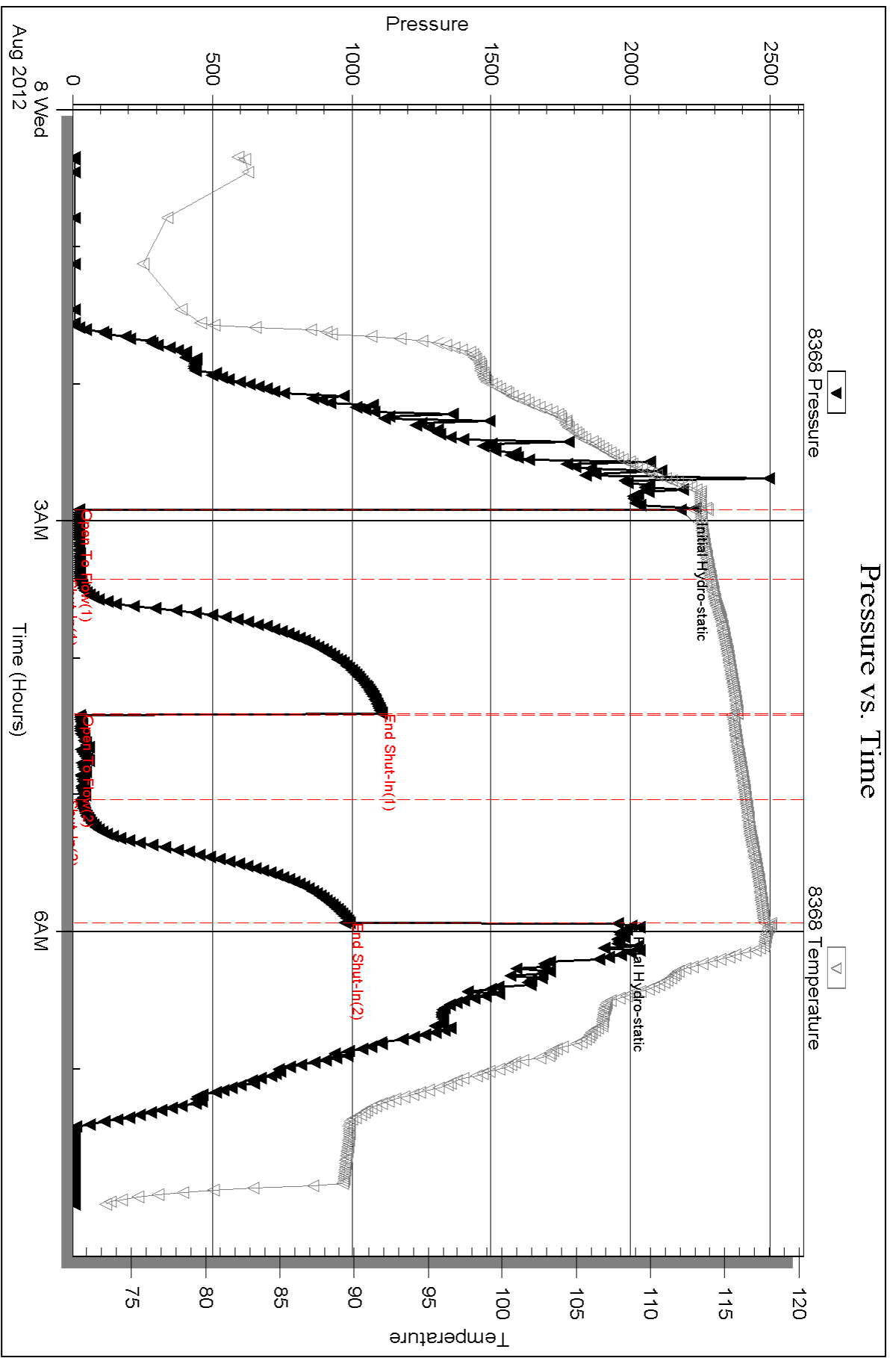
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.15 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6400.00 ppm			
Filter Cake: inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
10.00	100%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:

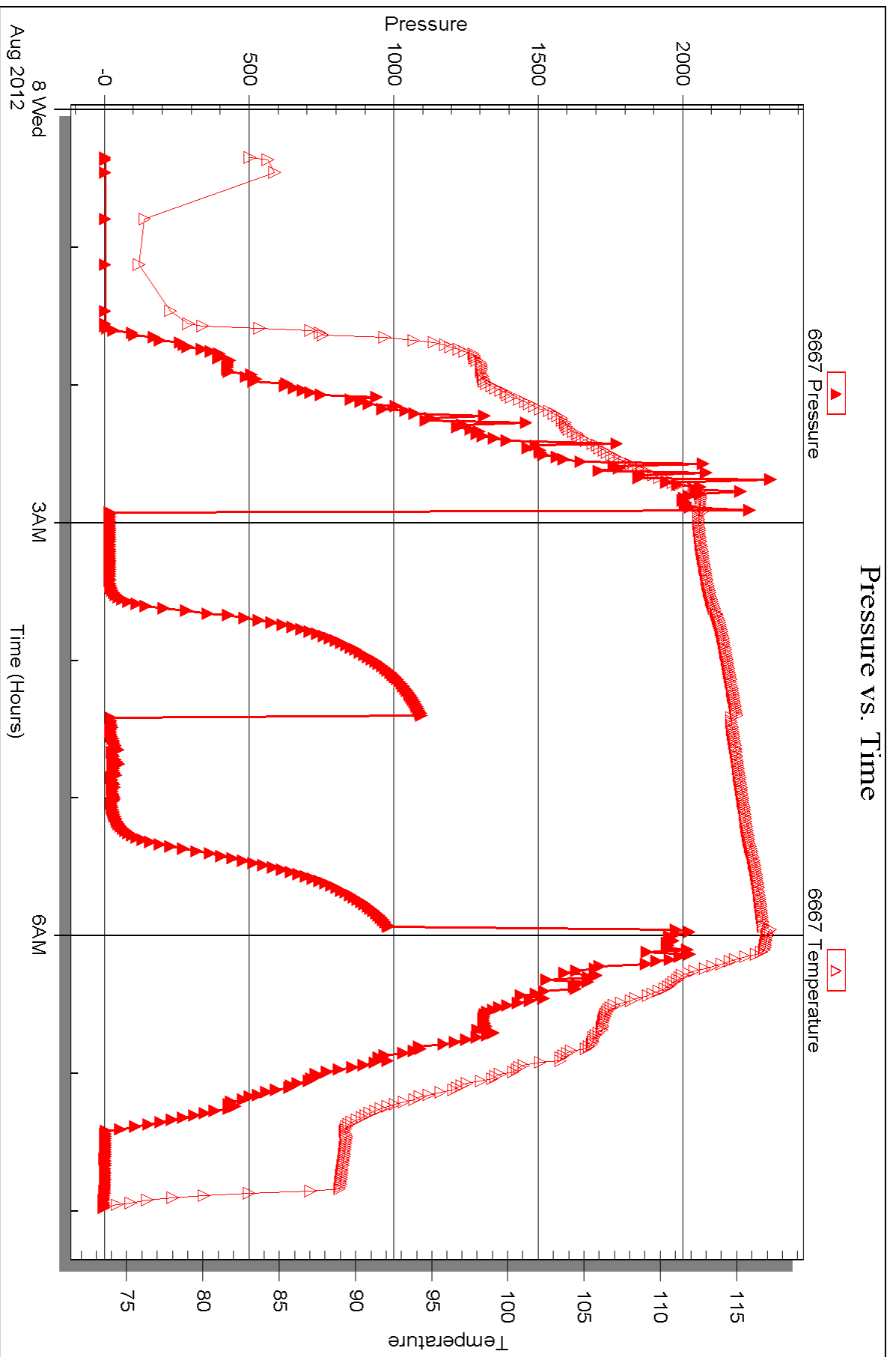


Serial #: 6667

Outside Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 5





## DRILL STEM TEST REPORT

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

205 N Water STE 300  
Wichita KS 67202

ATTN: Tom Funk

**Vanava #2-5**

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

Start Date: 2012.08.08 @ 14:00:11

End Date: 2012.08.08 @ 22:27:41

Job Ticket #: 48284                      DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.14 @ 15:30:53



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc  
 205 N Water STE 300  
 Wichita KS 67202  
 ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 48284

**DST#: 6**

Test Start: 2012.08.08 @ 14:00:11

## GENERAL INFORMATION:

Formation: **LKC-"K"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 16:14:41  
 Time Test Ended: 22:27:41  
 Interval: **4235.00 ft (KB) To 4265.00 ft (KB) (TVD)**  
 Total Depth: 4261.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 55  
 Reference Elevations: 3024.00 ft (KB)  
 3013.00 ft (CF)  
 KB to GR/CF: 11.00 ft

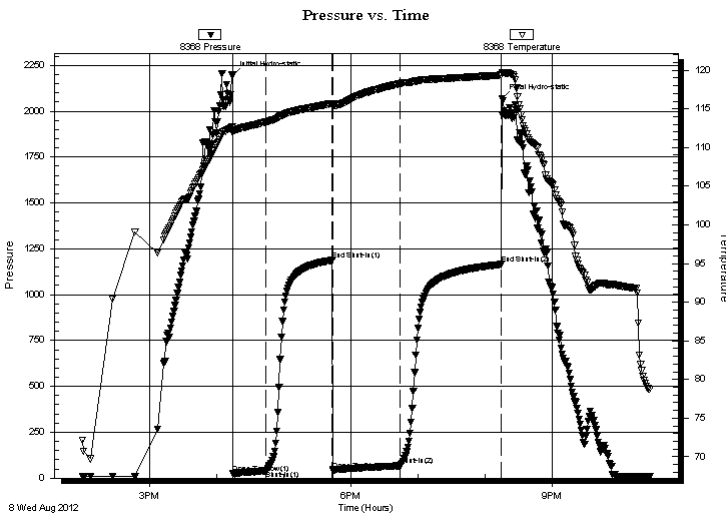
## Serial #: 8368

Inside

Press @ Run Depth: 67.48 psig @ 4242.00 ft (KB)  
 Start Date: 2012.08.08 End Date: 2012.08.08  
 Start Time: 14:00:26 End Time: 22:27:41  
 Capacity: 8000.00 psig  
 Last Calib.: 2012.08.08  
 Time On Btm: 2012.08.08 @ 16:14:26  
 Time Off Btm: 2012.08.08 @ 20:15:26

TEST COMMENT: IF-Weak Surface Blow Built to 1"  
 ISI-Dead No Return  
 FF-Weak Surface Blow Built to 2"  
 FSI-Dead No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2193.94	112.68	Initial Hydro-static
1	24.53	111.90	Open To Flow (1)
30	39.64	113.30	Shut-In(1)
89	1188.12	115.71	End Shut-In(1)
90	42.20	115.35	Open To Flow (2)
150	67.48	118.28	Shut-In(2)
240	1165.09	119.36	End Shut-In(2)
241	2068.56	119.72	Final Hydro-static

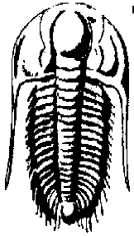
## Recovery

Length (ft)	Description	Volume (bbl)
70.00	40%O 60%M	0.34
0.00	60' G.I.P.	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  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 48284

**DST#: 6**

Test Start: 2012.08.08 @ 14:00:11

## GENERAL INFORMATION:

Formation: **LKC-"K"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 16:14:41 Tester: Tate Lang  
 Time Test Ended: 22:27:41 Unit No: 55  
 Interval: **4235.00 ft (KB) To 4265.00 ft (KB) (TVD)** Reference Elevations: 3024.00 ft (KB)  
 Total Depth: 4261.00 ft (KB) (TVD) 3013.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

**Serial #: 6667**

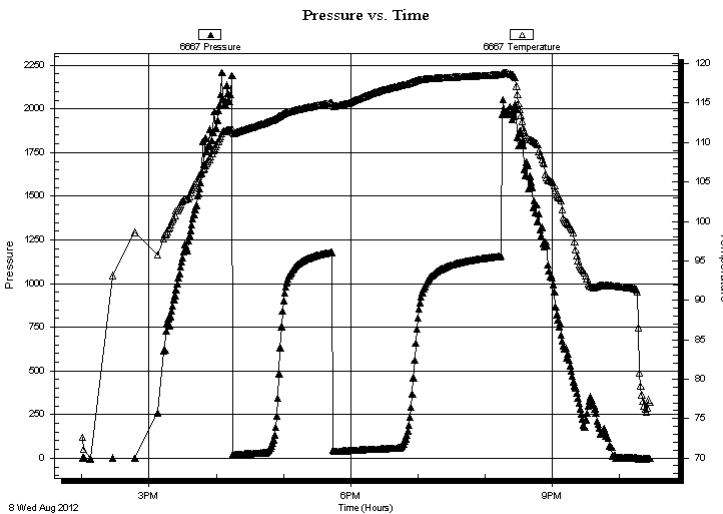
**Outside**

Press @ Run Depth: psig @ 4242.00 ft (KB)  
 Start Date: 2012.08.08 End Date: 2012.08.08  
 Start Time: 14:00:40 End Time: 22:27:55

Capacity: 8000.00 psig  
 Last Calib.: 2012.08.08  
 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF-Weak Surface Blow Built to 1"  
 ISI-Dead No Return  
 FF-Weak Surface Blow Built to 2"  
 FSI-Dead No Return

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
70.00	40%O 60%M	0.34
0.00	60' G.I.P.	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  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48284      **DST#: 6**  
Test Start: 2012.08.08 @ 14:00:11

**Tool Information**

Drill Pipe:	Length: 4007.00 ft	Diameter: 3.80 inches	Volume: 56.21 bbl	Tool Weight:	20000.00 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: 234.00 ft	Diameter: 2.25 inches	Volume: 1.15 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 57.36 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial	52000.00 lb
Depth to Top Packer:	4235.00 ft			Final	52000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	26.00 ft				
Tool Length:	46.00 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			4216.00	
Shut In Tool	5.00			4221.00	
Hydraulic tool	5.00			4226.00	
Packer	5.00			4231.00	20.00      Bottom Of Top Packer
Packer	4.00			4235.00	
Stubb	1.00			4236.00	
Perforations	6.00			4242.00	
Recorder	0.00	8368	Inside	4242.00	
Recorder	0.00	6667	Outside	4242.00	
Perforations	14.00			4256.00	
Bullnose	5.00			4261.00	26.00      Bottom Packers & Anchor

**Total Tool Length: 46.00**



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48284      **DST#: 6**  
Test Start: 2012.08.08 @ 14:00:11

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.16 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6400.00 ppm			
Filter Cake: inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
70.00	40%O 60%M	0.344
0.00	60' G.I.P.	0.000

Total Length: 70.00 ft      Total Volume: 0.344 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:



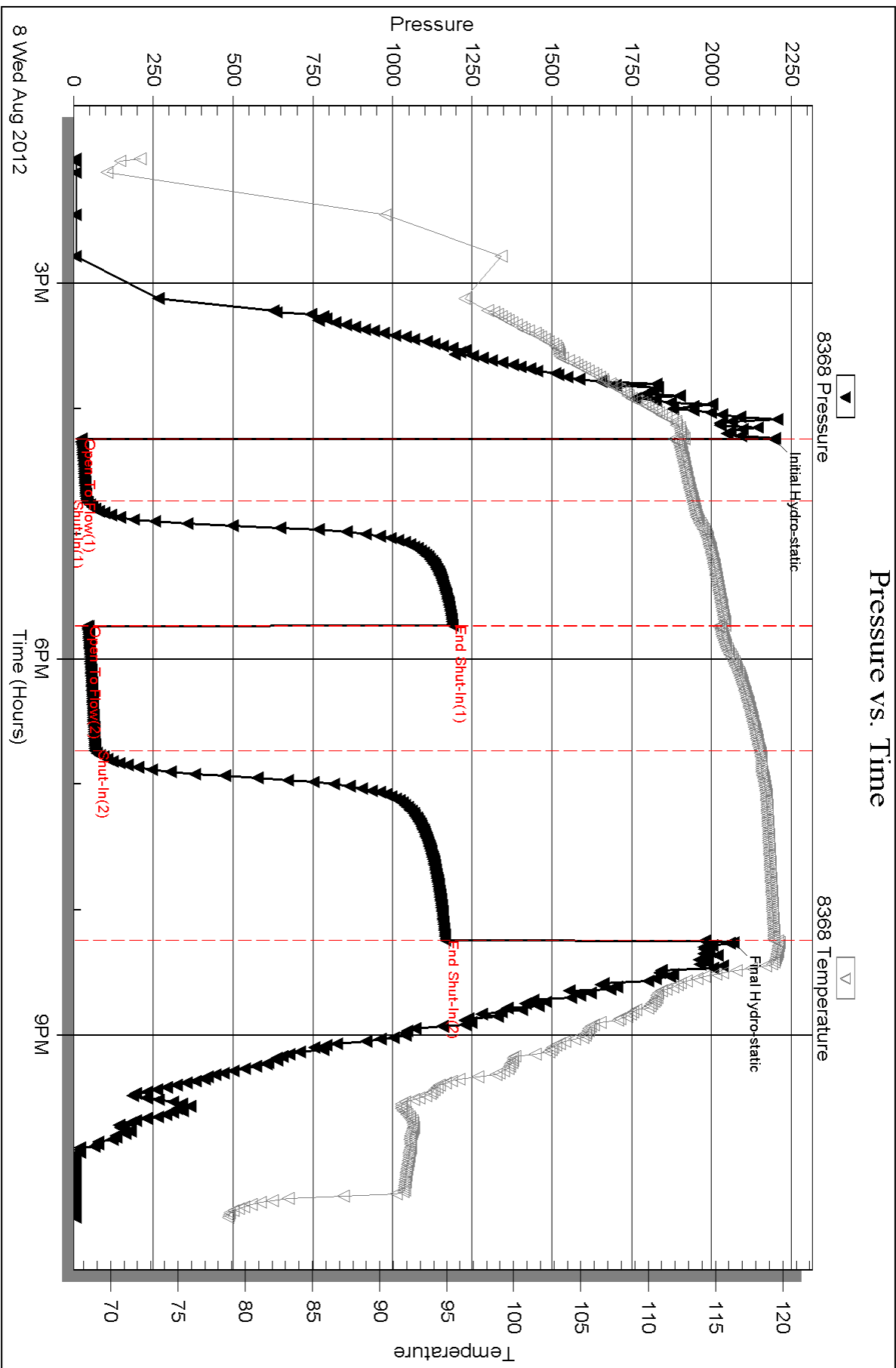
Serial #: 8368

Inside

Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 6



Triobite Testing, Inc

Ref. No: 48284

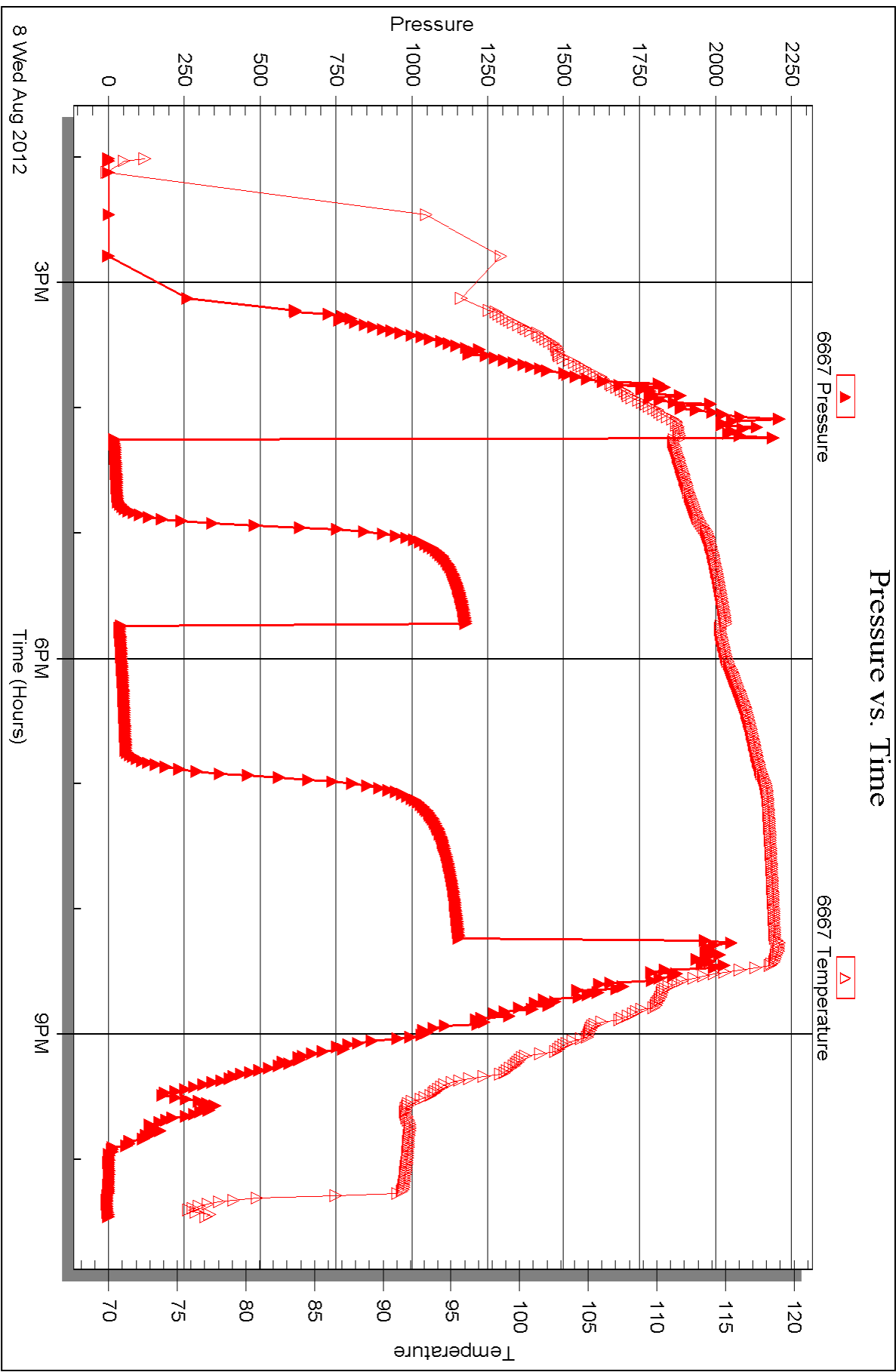
Printed: 2012.08.14 @ 15:30:57

Serial #: 6667

Outside Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 6





## DRILL STEM TEST REPORT

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

205 N Water STE 300  
Wichita KS 67202

ATTN: Tom Funk

### **Vanava #2-5**

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

Start Date: 2012.08.09 @ 19:51:46

End Date: 2012.08.10 @ 04:37:46

Job Ticket #: 48285                      DST #: 7

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.14 @ 15:30:04



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc  
 205 N Water STE 300  
 Wichita KS 67202  
 ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 48285

**DST#: 7**

Test Start: 2012.08.09 @ 19:51:46

## GENERAL INFORMATION:

Formation: **Pawnee- Ft. Scott**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 22:10:46  
 Time Test Ended: 04:37:46  
 Interval: **4430.00 ft (KB) To 4511.00 ft (KB) (TVD)**  
 Total Depth: 4511.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 55  
 Reference Elevations: 3024.00 ft (KB)  
 3013.00 ft (CF)  
 KB to GR/CF: 11.00 ft

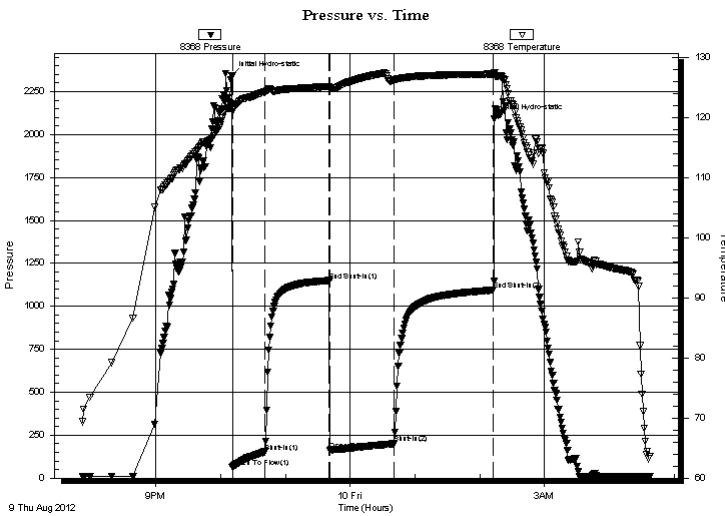
## Serial #: 8368

Inside

Press @ Run Depth: 200.20 psig @ 4496.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.08.09 End Date: 2012.08.10 Last Calib.: 2012.08.10  
 Start Time: 19:52:01 End Time: 04:37:46 Time On Btm: 2012.08.09 @ 22:10:31  
 Time Off Btm: 2012.08.10 @ 02:13:46

TEST COMMENT: IF-Fair Blow Built to 5 1/2"  
 ISI-Dead No Return  
 FF-Stong Blow Built to 10"  
 FSI-Dead No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2343.19	122.06	Initial Hydro-static
1	61.90	120.95	Open To Flow (1)
31	150.61	124.21	Shut-In(1)
90	1150.31	125.15	End Shut-In(1)
91	159.63	124.78	Open To Flow (2)
150	200.20	126.23	Shut-In(2)
243	1094.95	127.21	End Shut-In(2)
244	2091.18	127.50	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
325.00	40%O 60%M	2.43
2.00	100% Free Oil	0.03

\* 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  
 205 N Water STE 300  
 Wichita KS 67202  
 ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 48285

**DST#: 7**

Test Start: 2012.08.09 @ 19:51:46

### GENERAL INFORMATION:

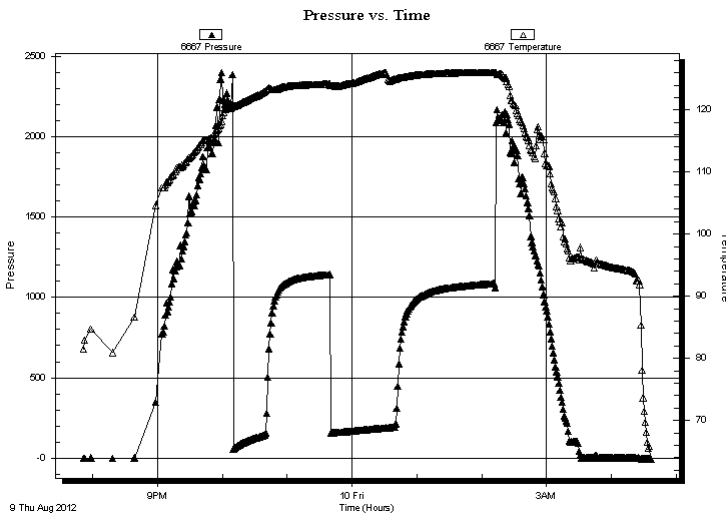
Formation: **Pawnee- Ft. Scott**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 22:10:46  
 Time Test Ended: 04:37:46  
 Interval: **4430.00 ft (KB) To 4511.00 ft (KB) (TVD)**  
 Total Depth: 4511.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 55  
 Reference Elevations: 3024.00 ft (KB)  
 3013.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 6667 Outside**

Press @ Run Depth: psig @ 4496.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.08.09 End Date: 2012.08.10 Last Calib.: 2012.08.10  
 Start Time: 19:51:41 End Time: 04:36:56 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF-Fair Blow Built to 5 1/2"  
 IS-Dead No Return  
 FF-Stong Blow Built to 10"  
 FS-Dead No Return

### PRESSURE SUMMARY



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

### Recovery

Length (ft)	Description	Volume (bbl)
325.00	40%O 60%M	2.43
2.00	100% Free Oil	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  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48285      **DST#: 7**  
Test Start: 2012.08.09 @ 19:51:46

**Tool Information**

Drill Pipe:	Length: 4194.00 ft	Diameter: 3.80 inches	Volume: 58.83 bbl	Tool Weight: 20000.00 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: 234.00 ft	Diameter: 2.25 inches	Volume: 1.15 bbl	Weight to Pull Loose: 63000.00 lb
			<u>Total Volume: 59.98 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4430.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	81.00 ft			
Tool Length:	101.00 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			4411.00	
Shut In Tool	5.00			4416.00	
Hydraulic tool	5.00			4421.00	
Packer	5.00			4426.00	20.00      Bottom Of Top Packer
Packer	4.00			4430.00	
Stubb	1.00			4431.00	
Perforations	1.00			4432.00	
Change Over Sub	1.00			4433.00	
Drill Pipe	62.00			4495.00	
Change Over Sub	1.00			4496.00	
Recorder	0.00	8368	Inside	4496.00	
Recorder	0.00	6667	Outside	4496.00	
Perforations	10.00			4506.00	
Bullnose	5.00			4511.00	81.00      Bottom Packers & Anchor

**Total Tool Length: 101.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48285      **DST#: 7**  
Test Start: 2012.08.09 @ 19:51:46

## 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: 7.58 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6500.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
325.00	40%O 60%M	2.427
2.00	100% Free Oil	0.028

Total Length: 327.00 ft      Total Volume: 2.455 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments:

Serial #: 8368

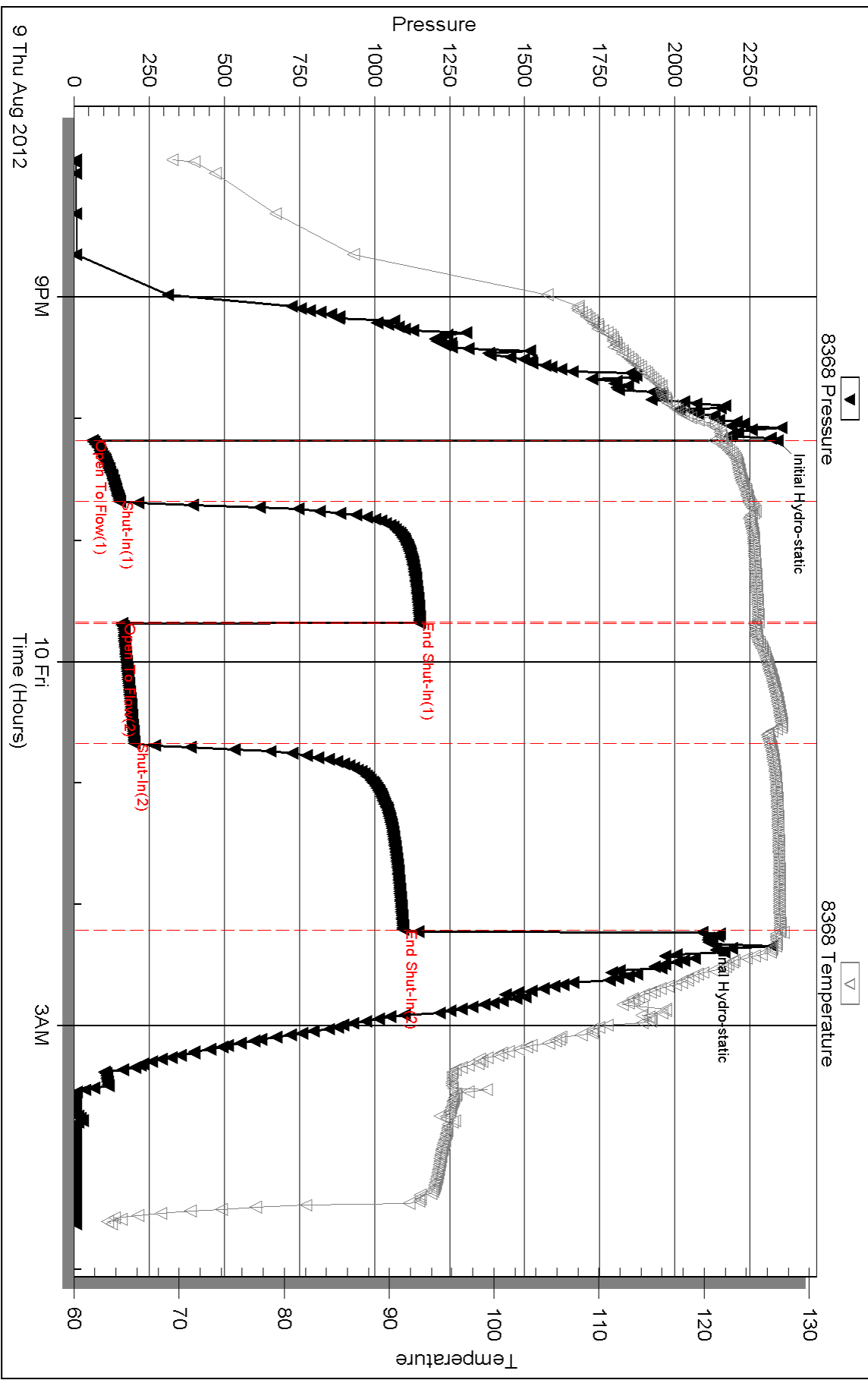
Inside

Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 7

# Pressure vs. Time



Triobite Testing, Inc

Ref. No: 48285

Printed: 2012.08.14 @ 15:30:07

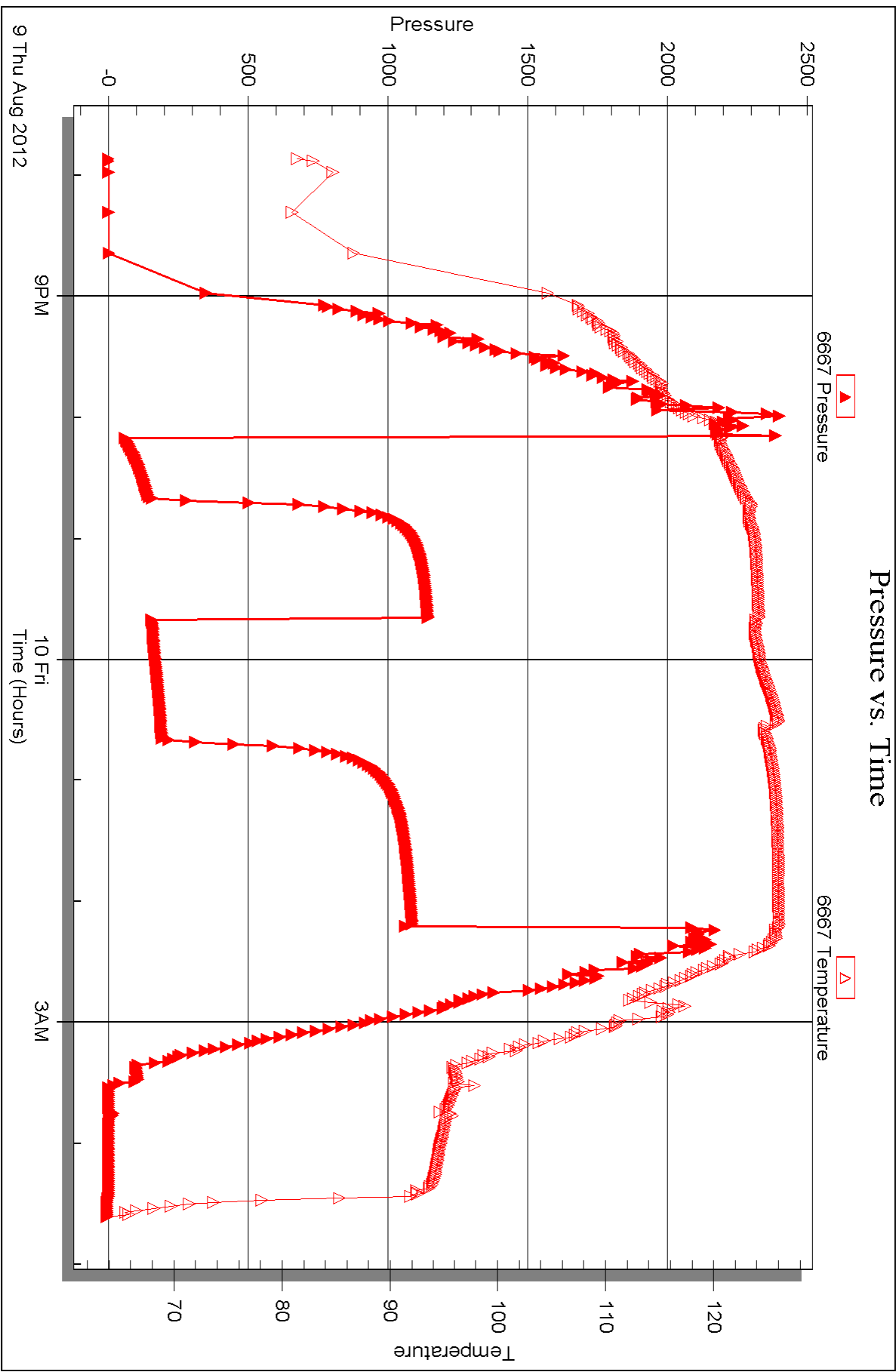


Serial #: 6667

Outside Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 7





## DRILL STEM TEST REPORT

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

205 N Water STE 300  
Wichita KS 67202

ATTN: Tom Funk

**Vanava #2-5**

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

Start Date: 2012.08.10 @ 15:11:22

End Date: 2012.08.10 @ 23:47:07

Job Ticket #: 48286                      DST #: 8

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.14 @ 15:29:18

Murfin Drilling Co. Inc  
5-13s-32w Logan,KS  
Vanava #2-5  
DST # 8  
Johnson  
2012.08.10



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

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

**Vanava #2-5**

Job Ticket: 48286

**DST#: 8**

Test Start: 2012.08.10 @ 15:11:22

## GENERAL INFORMATION:

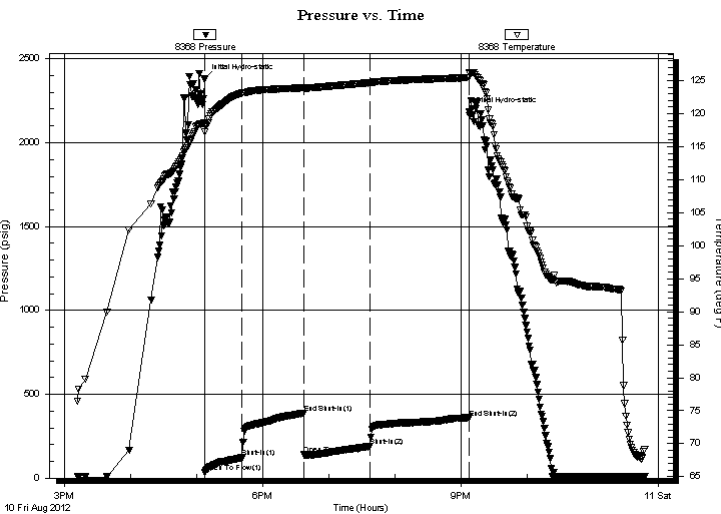
Formation: **Johnson**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 17:07:07  
 Time Test Ended: 23:47:07  
 Interval: **4545.00 ft (KB) To 4590.00 ft (KB) (TVD)**  
 Total Depth: 4590.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 55  
 Reference Elevations: 3024.00 ft (KB)  
 3013.00 ft (CF)  
 KB to GR/CF: 11.00 ft

## Serial #: 8368

Inside

Press @ Run Depth: 190.89 psig @ 4552.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.08.10 End Date: 2012.08.10 Last Calib.: 2012.08.10  
 Start Time: 15:11:37 End Time: 23:47:07 Time On Btm: 2012.08.10 @ 17:06:52  
 Time Off Btm: 2012.08.10 @ 21:07:52

TEST COMMENT: IF-B.O.B 18 mins  
 ISI-Bled Off for 5 mins Return Blow Built to 2" Died Out In 52 mins  
 FF-B.O.B. 19 mins  
 FSI-Bled Off for 5 mins Return Blow Built to 2 1/4" Died Back to Surface Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2379.92	118.65	Initial Hydro-static
1	32.22	117.18	Open To Flow (1)
35	121.79	123.13	Shut-In(1)
91	388.65	123.93	End Shut-In(1)
91	139.63	123.80	Open To Flow (2)
151	190.89	124.70	Shut-In(2)
241	360.09	125.47	End Shut-In(2)
241	2183.95	126.20	Final Hydro-static

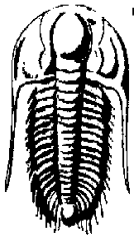
## Recovery

Length (ft)	Description	Volume (bbl)
386.00	30%G 70%O	3.28
120.00	20%M 40%G 40%O	1.68
0.00	1100 G.I.P.	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  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

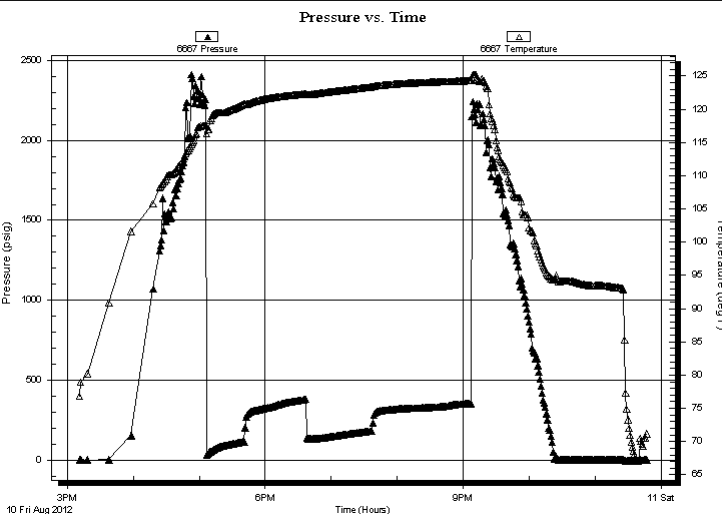
**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48286      **DST#: 8**  
Test Start: 2012.08.10 @ 15:11:22

## GENERAL INFORMATION:

Formation: **Johnson**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 17:07:07      Tester: Tate Lang  
Time Test Ended: 23:47:07      Unit No: 55  
**Interval: 4545.00 ft (KB) To 4590.00 ft (KB) (TVD)**      Reference Elevations: 3024.00 ft (KB)  
Total Depth: 4590.00 ft (KB) (TVD)      3013.00 ft (CF)  
Hole Diameter: 7.88 inches      Hole Condition: Good      KB to GR/CF: 11.00 ft

**Serial #: 6667      Outside**  
Press @ Run Depth:      psig @ 4552.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2012.08.10      End Date: 2012.08.10      Last Calib.: 2012.08.10  
Start Time: 15:11:15      End Time: 23:46:45      Time On Btm:  
Time Off Btm:

**TEST COMMENT:** IF-B.O.B 18 mins  
ISI-Bled Off for 5 mins Return Blow Built to 2" Died Out In 52 mins  
FF-B.O.B. 19 mins  
FSI-Bled Off for 5 mins Return Blow Built to 2 1/4" Died Back to Surface Blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
386.00	30%G 70%O	3.28
120.00	20%M 40%G 40%O	1.68
0.00	1100 G.I.P.	0.00

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48286      **DST#: 8**  
Test Start: 2012.08.10 @ 15:11:22

**Tool Information**

Drill Pipe:	Length: 4318.00 ft	Diameter: 3.80 inches	Volume: 60.57 bbl	Tool Weight: 20000.00 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: 234.00 ft	Diameter: 2.25 inches	Volume: 1.15 bbl	Weight to Pull Loose: 64000.00 lb
			<u>Total Volume: 61.72 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4545.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	45.00 ft			
Tool Length:	65.00 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			4526.00	
Shut In Tool	5.00			4531.00	
Hydraulic tool	5.00			4536.00	
Packer	5.00			4541.00	20.00      Bottom Of Top Packer
Packer	4.00			4545.00	
Stubb	1.00			4546.00	
Perforations	6.00			4552.00	
Recorder	0.00	8368	Inside	4552.00	
Recorder	0.00	6667	Outside	4552.00	
Change Over Sub	1.00			4553.00	
Drill Pipe	31.00			4584.00	
Change Over Sub	1.00			4585.00	
Bullnose	5.00			4590.00	45.00      Bottom Packers & Anchor

**Total Tool Length: 65.00**



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Murfin Drilling Co. Inc  
205 N Water STE 300  
Wichita KS 67202  
ATTN: Tom Funk

**5-13s-32w Logan,KS**  
**Vanava #2-5**  
Job Ticket: 48286      **DST#: 8**  
Test Start: 2012.08.10 @ 15:11:22

**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: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.19 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 7800.00 ppm			
Filter Cake: inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
386.00	30%G 70%O	3.283
120.00	20%M 40%G 40%O	1.683
0.00	1100 G.I.P.	0.000

Total Length: 506.00 ft      Total Volume: 4.966 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

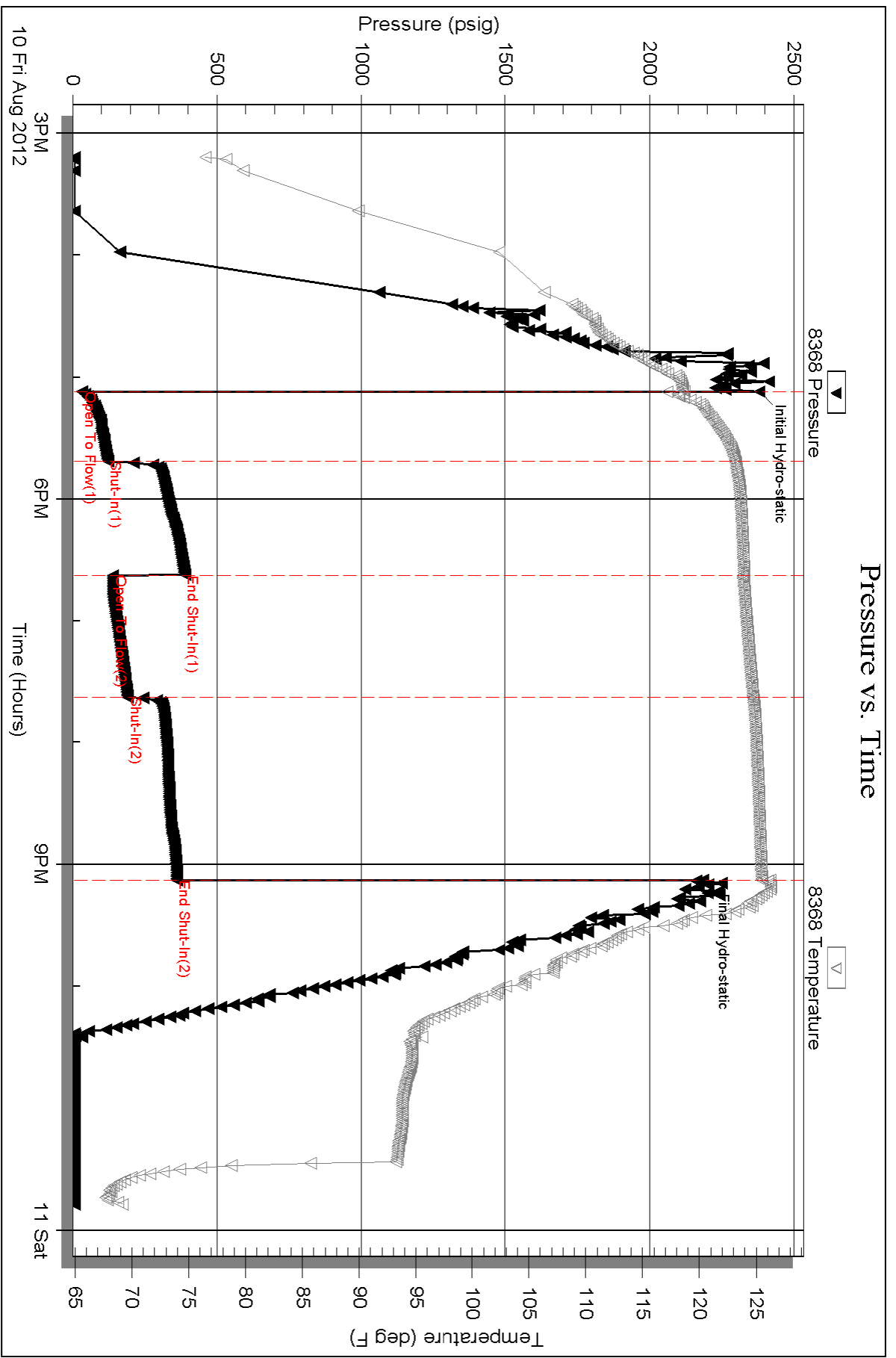
Serial #: 8368

Inside

Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 8

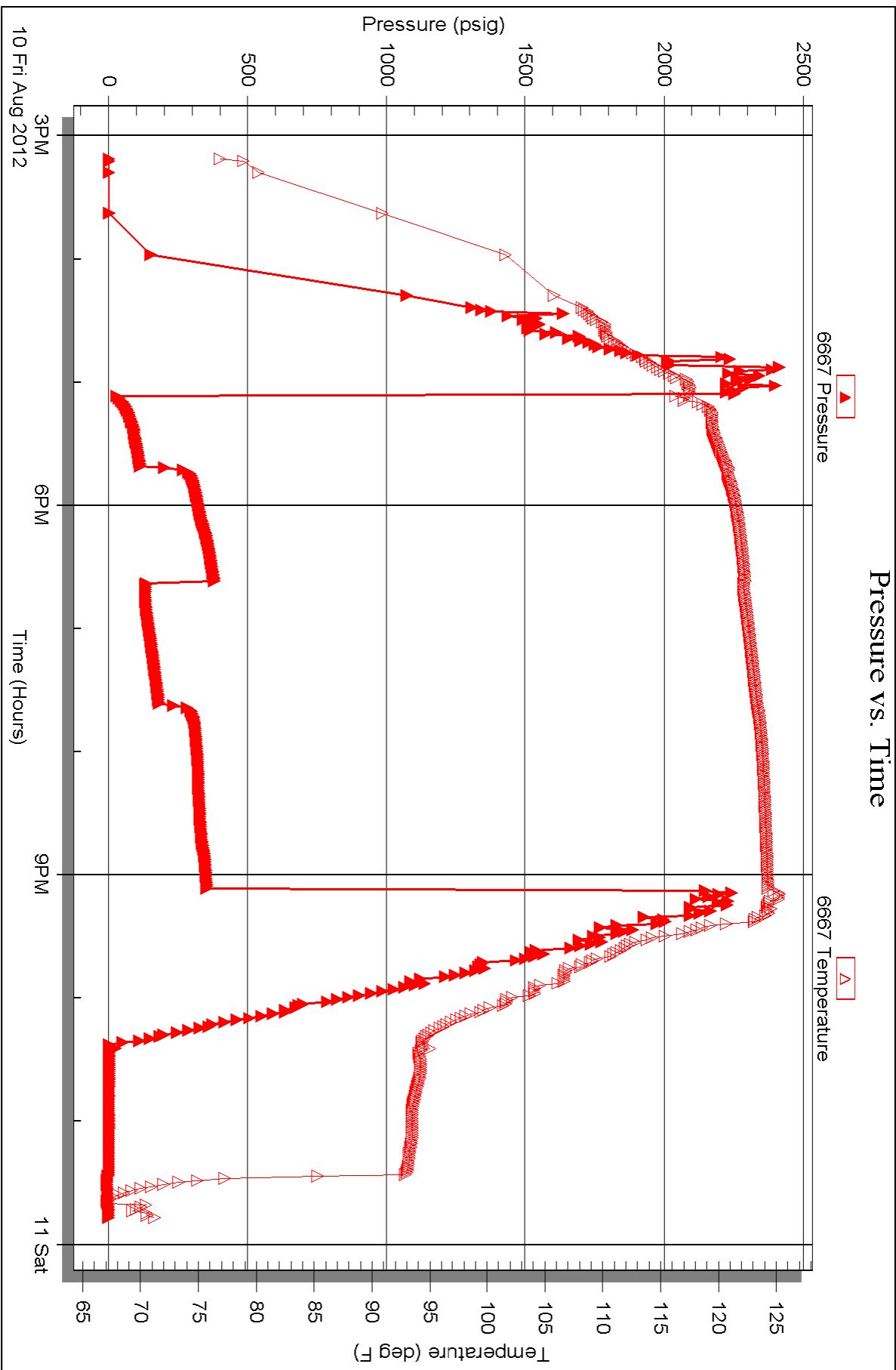


Serial #: 6667

Outside Murfin Drilling Co. Inc

Vanava #2-5

DST Test Number: 8







# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 46949

Well Name & No. Vanava #2-5 Test No. 1 Date 8-5-12  
 Company Murfin Drilling Company Inc. Elevation 3024 KB 3013 GL  
 Address 205 N Water St #E 300 Wichita KS 67202  
 Co. Rep / Geo. Tom Funk Rig Murfin 22  
 Location: Sec. 5 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4030 - 4074 Zone Tested LKC "B-D"  
 Anchor Length 44 Drill Pipe Run 3788 Mud Wt. 9.3  
 Top Packer Depth 4026 Drill Collars Run 234 Vis 46  
 Bottom Packer Depth 4030 Wt. Pipe Run \_\_\_\_\_ WL 8.4  
 Total Depth 4074 Chlorides 3400 ppm System LCM 5

Blow Description IF - Fair Blow Built to 9in  
ISI - Bled off for 5mins Dead No Return  
FF - B.O.B. 50mls  
FSL - Bled off for 5mins Dead No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>488</u>	<u>MCW</u>			<u>60</u>	<u>40</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 488 BHT 120 Gravity 8' API RW 1 @ 96° F Chlorides 19000 ppm  
 (A) Initial Hydrostatic 1979  Test 1250 T-On Location 8:51  
 (B) First Initial Flow 1979 28  Jars T-Started 10:17  
 (C) First Final Flow 28 135  Safety Joint T-Open 12:14  
 (D) Initial Shut-In 135 1185  Circ Sub N/C T-Pulled 16:14  
 (E) Second Initial Flow 1185 143  Hourly Standby T-Out 18:26  
 (F) Second Final Flow 143 226  Mileage 74 R/T 114.70 Comments \_\_\_\_\_  
 (G) Final Shut-In 226 1194  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1818  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90  
 Sub Total 1364.70  
 Total 1364.70  
 MP/DST Disc't \_\_\_\_\_

Approved By [Signature] Our Representative [Signature]

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



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 46950

Well Name & No. Vanava #2-5 Test No. 2 Date 8-6-12  
 Company Murfin Drilling Company Inc. Elevation 3024 KB 3013 GL  
 Address 205 N Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Tom Funk Rig Murfin #22  
 Location: Sec. 5 Twp. 13s Rge. 32W Co. Logan State KS

Interval Tested 4078-4110 Zone Tested LKC "E-F"  
 Anchor Length 32 Drill Pipe Run 3849 Mud Wt. 8.9  
 Top Packer Depth 4074 Drill Collars Run 234 Vis 55  
 Bottom Packer Depth 4078 Wt. Pipe Run \_\_\_\_\_ WL 7.2  
 Total Depth 4110 Chlorides 3400 ppm System LCM 4

Blow Description TF - Strong Blow Built to 9 1/2 in  
ISI - Bled off for 10 mins Chain Got Caught in the Bales - Dead No Return  
FF - B.O.B. 42 mins  
FSI - Bled off for 5 mins Dead No Return

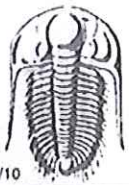
Rec	Feet of	%gas	%oil	%water	%mud
<u>249</u>	<u>mcw</u>		<u>90</u>	<u>10</u>	
<u>244</u>	<u>mcw</u>		<u>95</u>	<u>5</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 493 BHT 121 Gravity  API RW .1 @ 86 °F Chlorides 24 ppm  
 (A) Initial Hydrostatic 2042  Test 1250 T-On Location 00:28  
 (B) First Initial Flow 204 29  Jars T-Started 01:15  
 (C) First Final Flow 154  Safety Joint T-Open 03:35  
 (D) Initial Shut-In 1200  Circ Sub N/C T-Pulled 07:35  
 (E) Second Initial Flow 166  Hourly Standby T-Out 09:37  
 (F) Second Final Flow 254  Mileage 74 R/T 114.70 Comments \_\_\_\_\_  
 (G) Final Shut-In 1186  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1838  Straddle \_\_\_\_\_

Initial Open 30  Ruined Shale Packer \_\_\_\_\_  
 Initial Shut-In 60  Ruined Packer \_\_\_\_\_  
 Final Flow 60  Extra Packer \_\_\_\_\_  
 Final Shut-In 90  Extra Recorder \_\_\_\_\_  
 Sub Total 0  
 Total 1364.70  
 MP/DST Disc't \_\_\_\_\_

Approved By [Signature] Our Representative [Signature]

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# TRIBOLITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 48281

Well Name & No. Vanava # 2-5 Test No. 3 Date 8-6-12  
 Company Murfin Drilling Company Inc. Elevation 3024 KB 3013 GL  
 Address 205 N Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Tom Funk Rig Murfin # 22  
 Location: Sec. 5 Twp. 13s Rge. 32w Co. Logan State KS

Interval Tested 4150-4175 Zone Tested LKC - "H"  
 Anchor Length 25' Drill Pipe Run 3911 Mud Wt. 9.0  
 Top Packer Depth 4146 Drill Collars Run 234 Vis 55  
 Bottom Packer Depth 4150 Wt. Pipe Run --- WL 7.2  
 Total Depth 4175 Chlorides 5900 ppm System LCM 3"

Blow Description IF - Weak Surface Blow Bolt to 1/4 in  
ISI - Dead No Blow Back  
FF - Dead No Blow  
FST - Dead No Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>65</u>	<u>OCM</u>	<u>10</u>		<u>90</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 65 BHT 117 Gravity --- API RW --- @ --- °F Chlorides --- ppm

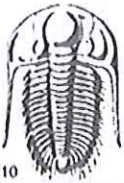
(A) Initial Hydrostatic 2147  Test 1250 T-On Location 16:44  
 (B) First Initial Flow 24  Jars --- T-Started 18:25  
 (C) First Final Flow 39  Safety Joint --- T-Open 20:28  
 (D) Initial Shut-In 1214  Circ Sub N/C T-Pulled 23:28  
 (E) Second Initial Flow 43  Hourly Standby --- T-Out 01:31  
 (F) Second Final Flow 58  Mileage 74 R/T 114.70 Comments ---  
 (G) Final Shut-In 1187  Sampler ---  
 (H) Final Hydrostatic 1880  Straddle ---  Ruined Shale Packer ---  
 Shale Packer ---  Ruined Packer ---  
 Extra Packer ---  Extra Copies ---  
 Extra Recorder --- Sub Total 0  
 Day Standby --- Total 1364.70  
 Accessibility --- MP/DST Disc't ---

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

Sub Total 1364.70

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 48282

Well Name & No. Varava # 2-5 Test No. 21 Date 8-7-12  
 Company Murfin Drilling Company Inc. Elevation 3024 KB 3013 GL  
 Address 205 N Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Tom Funk Rig Murfin # 22  
 Location: Sec. 5 Twp. 13 S Rge. 32 W Co. Logan State KS

Interval Tested 4180 - 4213 Zone Tested LKC - "I"  
 Anchor Length 33 Drill Pipe Run 3943 Mud Wt. 9.0  
 Top Packer Depth 4176 Drill Collars Run 234 Vis 55  
 Bottom Packer Depth 4180 Wt. Pipe Run --- WL 7.2  
 Total Depth 4213 Chlorides 5900 ppm System LCM 3#

Blow Description IF - B.O.B. 13 mins  
ISI - Bled off for 5 mins Dead No Return  
FF - B.O.B. 23 mins  
FSI - Bled off for 5 mins Dead No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>549</u>	<u>SO &amp; MCW</u>	<u>5</u>	<u>90</u>	<u>5</u>	<u>---</u>
<u>61</u>	<u>MCW</u>	<u>---</u>	<u>60</u>	<u>46</u>	<u>---</u>
<u>3</u>	<u>Free Oil</u>	<u>100</u>	<u>---</u>	<u>---</u>	<u>---</u>
<u>610</u>	<u>GIP - Weak</u>	<u>100</u>	<u>---</u>	<u>---</u>	<u>---</u>
<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>

Rec Total 613 BHT 124 Gravity --- API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic 2108  Test 1250 T-On Location 8:24  
 (B) First Initial Flow 48  Jars --- T-Started 9:03  
 (C) First Final Flow 177  Safety Joint --- T-Open 10:58  
 (D) Initial Shut-In 1175  Circ Sub N/C T-Pulled 14:58  
 (E) Second Initial Flow 189  Hourly Standby --- T-Out 17:24  
 (F) Second Final Flow 300  Mileage 74 R/T 114.70 Comments ---  
 (G) Final Shut-In 1145  Sampler ---  
 (H) Final Hydrostatic 1992  Straddle ---  Ruined Shale Packer ---

Initial Open 30  Shale Packer ---  Ruined Packer ---  
 Initial Shut-In 60  Extra Packer ---  Extra Copies ---  
 Final Flow 60  Extra Recorder --- Sub Total 0  
 Final Shut-In 90  Day Standby --- Total 1364.70  
 Accessibility --- MP/DST Disc't ---  
 Sub Total 1364.70

Approved By [Signature] Our Representative [Signature]  
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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 48283

Well Name & No. Varava # 2-5 Test No. 5 Date 8-8-12  
 Company Murfin Drilling Company Inc. Elevation 3024 KB 3013 GL  
 Address 205 N Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Tom Funk Rig Murfit # 22  
 Location: Sec. 5 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4213- 4235 Zone Tested LHC - "5"  
 Anchor Length 22 Drill Pipe Run 3975 Mud Wt. 9.1  
 Top Packer Depth 4231 Drill Collars Run 234 Vis 53  
 Bottom Packer Depth 4235 Wt. Pipe Run \_\_\_\_\_ WL 7.2  
 Total Depth 4235 Chlorides 6400 ppm System LCM 4<sup>th</sup>  
 Blow Description IF - weak surface blow die in 7 mins  
ISI - Dead No Blow Back  
FF - Dead No Blow  
FSL - Dead No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

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

(A) Initial Hydrostatic <u>2180</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>23:28</u>
(B) First Initial Flow <u>22</u>	<input type="checkbox"/> Jars _____	T-Started <u>00:20</u>
(C) First Final Flow <u>1407 24</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>02:55</u>
(D) Initial Shut-In <u>26 1107</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>05:55</u>
(E) Second Initial Flow <u>2 26</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>07:59</u>
(F) Second Final Flow <u>29</u>	<input checked="" type="checkbox"/> Mileage <u>74 R/T</u> 114.70	Comments _____
(G) Final Shut-In <u>991</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1953</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____

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

Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Sub Total 1364.70

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

Approved By [Signature] Our Representative [Signature]

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



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## Test Ticket

NO. 48284

Well Name & No. Vanava # 2-5 Test No. 6 Date 8-8-12  
 Company Murfin Drilling Company Inc. Elevation 3024 KB 3013 GL  
 Address 205 N Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Tom Funk Rig Murfin # 22  
 Location: Sec. 5 Twp. 13s Rge. 32w Co. Logan State KS

Interval Tested 4235-4261 Zone Tested LKC - "H"  
 Anchor Length 26' Drill Pipe Run 4007 Mud Wt. 9.1  
 Top Packer Depth 4231 Drill Collars Run 234 Vis 53  
 Bottom Packer Depth 4235 Wt. Pipe Run --- WL 7.2  
 Total Depth 4261 Chlorides 6400 ppm System LCM 4

Blow Description IF - Weak Surface Blow Built to 1in  
ISI - Dead No Blow Back  
FF - Weak Surface Blow Built to 2in  
FST - Dead No Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>OCM</u>		<u>40</u>		<u>60</u>
<u>60</u>	<u>GIP</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 170 BHT \_\_\_\_\_ Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2194  Test 1250 T-On Location 13:17  
 (B) First Initial Flow 25  Jars \_\_\_\_\_ T-Started 14:00  
 (C) First Final Flow 40  Safety Joint \_\_\_\_\_ T-Open 16:14  
 (D) Initial Shut-In 1188  Circ Sub N/C T-Pulled 20:14  
 (E) Second Initial Flow 40  Hourly Standby \_\_\_\_\_ T-Out 22:27  
 (F) Second Final Flow 67  Mileage 74R/T 114.70 Comments \_\_\_\_\_  
 (G) Final Shut-In 1165  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2069  Straddle \_\_\_\_\_

Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 60  Shale Packer \_\_\_\_\_  
 Final Flow 60  Extra Packer \_\_\_\_\_  
 Final Shut-In 90  Extra Recorder \_\_\_\_\_  
 Sub Total 1364.70  Day Standby \_\_\_\_\_  
 Total 1364.70  Accessibility \_\_\_\_\_  
 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1364.70

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## Test Ticket

NO. 48285

Well Name & No. Vanava II 2-5 Test No. 7 Date 8-9-12  
 Company MurFin Drilling Company, Inc. Elevation 3024 KB 3013 GL  
 Address 205 N Water St E 300 Wichita KS 67202  
 Co. Rep / Geo. Tom Funk Rig MurFin #22  
 Location: Sec. 3 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4430 - 4511 Zone Tested Pawnee - Fort Scott  
 Anchor Length 81 Drill Pipe Run 4194 Mud Wt. 9.2  
 Top Packer Depth 4426 Drill Collars Run 234 Vis 54  
 Bottom Packer Depth 4430 Wt. Pipe Run — WL 7.6  
 Total Depth 4511 Chlorides 6500 ppm System LCM 6

Blow Description IF - Fair Blow Built to 5 1/2 in  
ISI - Dead No Return  
FF - Strong Blow Built to 10 in  
FSI - Dead No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>325</u>	<u>OCM</u>		<u>40</u>	<u>60</u>	
<u>2</u>	<u>Free Oil</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 327 BHT 127 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2343</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>18:55</u>
(B) First Initial Flow <u>62</u>	<input type="checkbox"/> Jars	T-Started <u>19:51</u>
(C) First Final Flow <u>151</u>	<input type="checkbox"/> Safety Joint	T-Open <u>22:10</u>
(D) Initial Shut-In <u>1150</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>02:10</u>
(E) Second Initial Flow <u>160</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>04:37</u>
(F) Second Final Flow <u>200</u>	<input checked="" type="checkbox"/> Mileage <u>74 R/T</u> 114.70	Comments
(G) Final Shut-In <u>1095</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2091</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

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

Sub Total 1364.70

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## Test Ticket

NO. 48286

Well Name & No. Varava # 2-5 Test No. 8 Date 8-10-12  
 Company Murfin Drilling Company Inc. Elevation 3024 KB 3013 GL  
 Address 205 N Water St # 300 Wichita KS 67202  
 Co. Rep / Geo. Tom Funk Rig Murfin # 22  
 Location: Sec. 5 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested ~~4540~~ 4545-4590 Zone Tested Johnson  
 Anchor Length 45 Drill Pipe Run 4318 Mud Wt. 9.3  
 Top Packer Depth 4541 Drill Collars Run 234 Vis 55  
 Bottom Packer Depth 4545 Wt. Pipe Run --- WL 7.2  
 Total Depth 4590 Chlorides 780 ppm System LCM 6

Blow Description IF-B.O.B. 18mins  
ISF-Bled off for 6mins Return Blow Built to 2in Died Out in 5mins  
FF-B.O.B. 19mins  
FSL-Bled off for 5mins Return Blow Built to 2 1/4 in Died Bud to 2 1/4 in

Rec	Feet of	%gas	%oil	%water	%mud
<u>386</u>		<u>30%</u>	<u>70%</u>		
<u>120</u>		<u>40%</u>	<u>40%</u>		<u>20%</u>
<u>1100</u>		<u>100%</u>			

Rec Total 506 BHT 125 Gravity 28 API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic 2380  Test 1250 T-On Location 14:35  
 (B) First Initial Flow 32  Jars --- T-Started 15:11  
 (C) First Final Flow 122  Safety Joint --- T-Open 17:07  
 (D) Initial Shut-In 389  Circ Sub NIC T-Pulled 21:07  
 (E) Second Initial Flow 140  Hourly Standby --- T-Out 23:47  
 (F) Second Final Flow 191  Mileage 74 R/T 114.70 Comments ---  
 (G) Final Shut-In 360  Sampler ---  
 (H) Final Hydrostatic 2184  Straddle ---  
 Shale Packer ---  
 Ruined Shale Packer ---  
 Ruined Packer ---  
 Extra Packer ---  
 Extra Copies ---  
 Extra Recorder ---  
 Day Standby ---  
 Accessibility ---  
 Sub Total 1364.70 MP/DST Disc't ---

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

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