



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Rocky Milford

### **Haller #1-7**

### **7-2s-34w Rawlins,KS**

Start Date: 2016.11.20 @ 16:50:00

End Date: 2016.11.21 @ 02:20:00

Job Ticket #: 63024                      DST #: 1

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

Printed: 2016.11.28 @ 15:56:00



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Rocky Milford

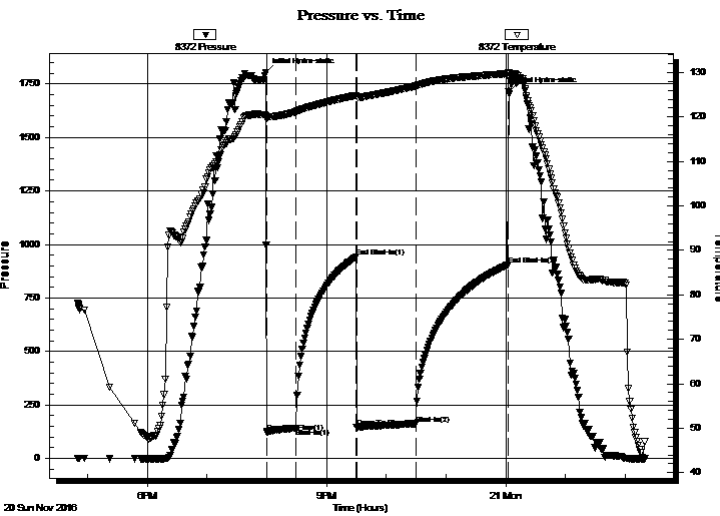
**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
 Job Ticket: 63024 **DST#: 1**  
 Test Start: 2016.11.20 @ 16:50:00

## GENERAL INFORMATION:

Formation: **Stotler-Topeka**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 20:00:00  
 Time Test Ended: 02:20:00  
 Interval: **3746.00 ft (KB) To 3859.00 ft (KB) (TVD)**  
 Total Depth: 3859.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3123.00 ft (KB)  
 3118.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8372 Outside**  
 Press@RunDepth: 161.45 psig @ 3755.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.11.20 End Date: 2016.11.21 Last Calib.: 2016.11.21  
 Start Time: 16:50:02 End Time: 02:20:00 Time On Btm: 2016.11.20 @ 19:59:00  
 Time Off Btm: 2016.11.21 @ 00:02:45

**TEST COMMENT:** 30-IFP- 5" Blow Tool Slid 21ft. Mud Dropped 30+ft. Bled off 2 1/2 min.  
 60-ISIP- No Blow  
 60-FFP- Surface Blow Building to 4 1/4"  
 90-FSIP- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1804.37	120.37	Initial Hydro-static
1	122.97	119.76	Open To Flow (1)
31	141.86	121.17	Shut-In(1)
91	940.94	124.84	End Shut-In(1)
91	145.09	124.52	Open To Flow (2)
151	161.45	126.96	Shut-In(2)
243	902.60	129.74	End Shut-In(2)
244	1714.42	130.03	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
125.00	WCM 45%w 55%m Show of Oil	0.61
62.00	WCM 10%w 90%m Show of Oil	0.30
113.00	Oil Speck Mud 100%	1.59

## 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 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 63024      **DST#: 1**  
Test Start: 2016.11.20 @ 16:50:00

## Tool Information

Drill Pipe:	Length: 3547.00 ft	Diameter: 3.80 inches	Volume: 49.76 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose: 60000.00 lb
		Total Volume: 50.68 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	3746.00 ft			Final 49000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	113.00 ft			
Tool Length:	141.00 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			3719.00	
Shut In Tool	5.00			3724.00	
Hydraulic tool	5.00			3729.00	
Jars	5.00			3734.00	
Safety Joint	2.00			3736.00	
Packer	5.00			3741.00	28.00      Bottom Of Top Packer
Packer	5.00			3746.00	
Stubb	1.00			3747.00	
Perforations	7.00			3754.00	
Change Over Sub	1.00			3755.00	
Recorder	0.00	8789	Inside	3755.00	
Recorder	0.00	8372	Outside	3755.00	
Blank Spacing	95.00			3850.00	
Change Over Sub	1.00			3851.00	
Perforations	5.00			3856.00	
Bullnose	3.00			3859.00	113.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>141.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 63024      **DST#: 1**  
Test Start: 2016.11.20 @ 16:50:00

## 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:	40000 ppm
Viscosity: 61.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.54 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 600.00 ppm			
Filter Cake: 4.00 inches			

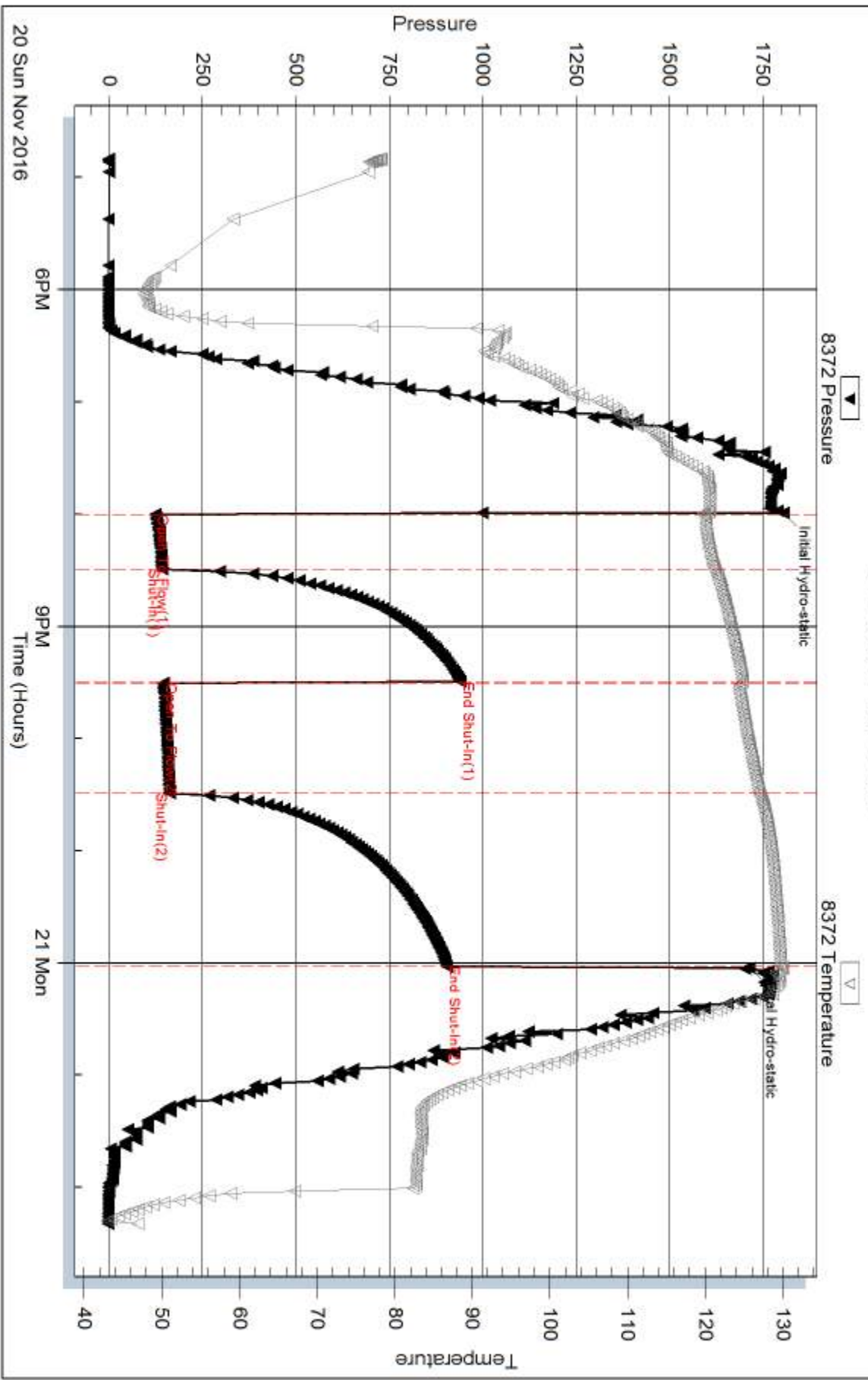
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
125.00	WCM 45%w 55%m Show of Oil	0.615
62.00	WCM 10%w 90%m Show of Oil	0.305
113.00	Oil Speck Mud 100%	1.585

Total Length: 300.00 ft      Total Volume: 2.505 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: .320 @ 40

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Rocky Milford

### **Haller #1-7**

#### **7-2s-34w Rawlins,KS**

Start Date: 2016.11.21 @ 12:25:00

End Date: 2016.11.21 @ 19:03:00

Job Ticket #: 63025                      DST #: 2

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

Printed: 2016.11.28 @ 15:55:04





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

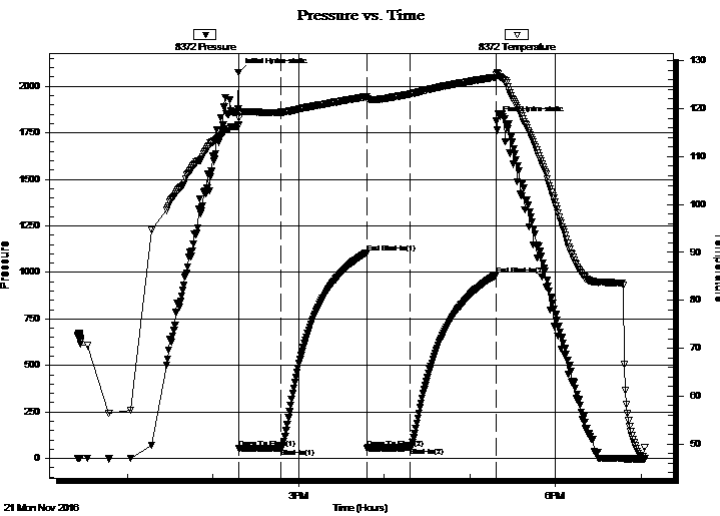
**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 63025      **DST#: 2**  
Test Start: 2016.11.21 @ 12:25:00

## GENERAL INFORMATION:

Formation: **Oread**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 14:18:15  
Time Test Ended: 19:03:00  
Interval: **3884.00 ft (KB) To 3944.00 ft (KB) (TVD)**  
Total Depth: 3944.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Jim Svaty  
Unit No: 76  
Reference Elevations: 3123.00 ft (KB)  
3118.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 8372      Outside**  
Press@RunDepth: 58.47 psig @ 3888.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2016.11.21      End Date: 2016.11.21      Last Calib.: 2016.11.21  
Start Time: 12:25:02      End Time: 19:03:00      Time On Btm: 2016.11.21 @ 14:17:45  
Time Off Btm: 2016.11.21 @ 17:18:30

TEST COMMENT: 30-IFP- 1/4" Blow ---Tool Slide 10ft.---Mud Dropped 5ft.---Bled off 30 sec.  
60-ISIP- No Blow  
30-FFP- No Blow  
60-FSIP- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2074.68	116.54	Initial Hydro-static
1	52.37	118.17	Open To Flow (1)
30	55.32	119.26	Shut-In(1)
90	1105.57	122.51	End Shut-In(1)
91	56.15	122.10	Open To Flow (2)
120	58.47	123.02	Shut-In(2)
181	985.27	126.58	End Shut-In(2)
181	1815.22	127.01	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
65.00	Mud 100%	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  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 63025      **DST#: 2**  
Test Start: 2016.11.21 @ 12:25:00

**Tool Information**

Drill Pipe:	Length: 3674.00 ft	Diameter: 3.80 inches	Volume: 51.54 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 52.46 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3884.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	60.00 ft			
Tool Length:	88.00 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			3857.00	
Shut In Tool	5.00			3862.00	
Hydraulic tool	5.00			3867.00	
Jars	5.00			3872.00	
Safety Joint	2.00			3874.00	
Packer	5.00			3879.00	28.00      Bottom Of Top Packer
Packer	5.00			3884.00	
Stubb	1.00			3885.00	
Perforations	2.00			3887.00	
Change Over Sub	1.00			3888.00	
Recorder	0.00	8789	Inside	3888.00	
Recorder	0.00	8372	Outside	3888.00	
Blank Spacing	32.00			3920.00	
Change Over Sub	1.00			3921.00	
Perforations	20.00			3941.00	
Bullnose	3.00			3944.00	60.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>88.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 63025      **DST#: 2**  
Test Start: 2016.11.21 @ 12:25:00

## Mud and Cushion Information

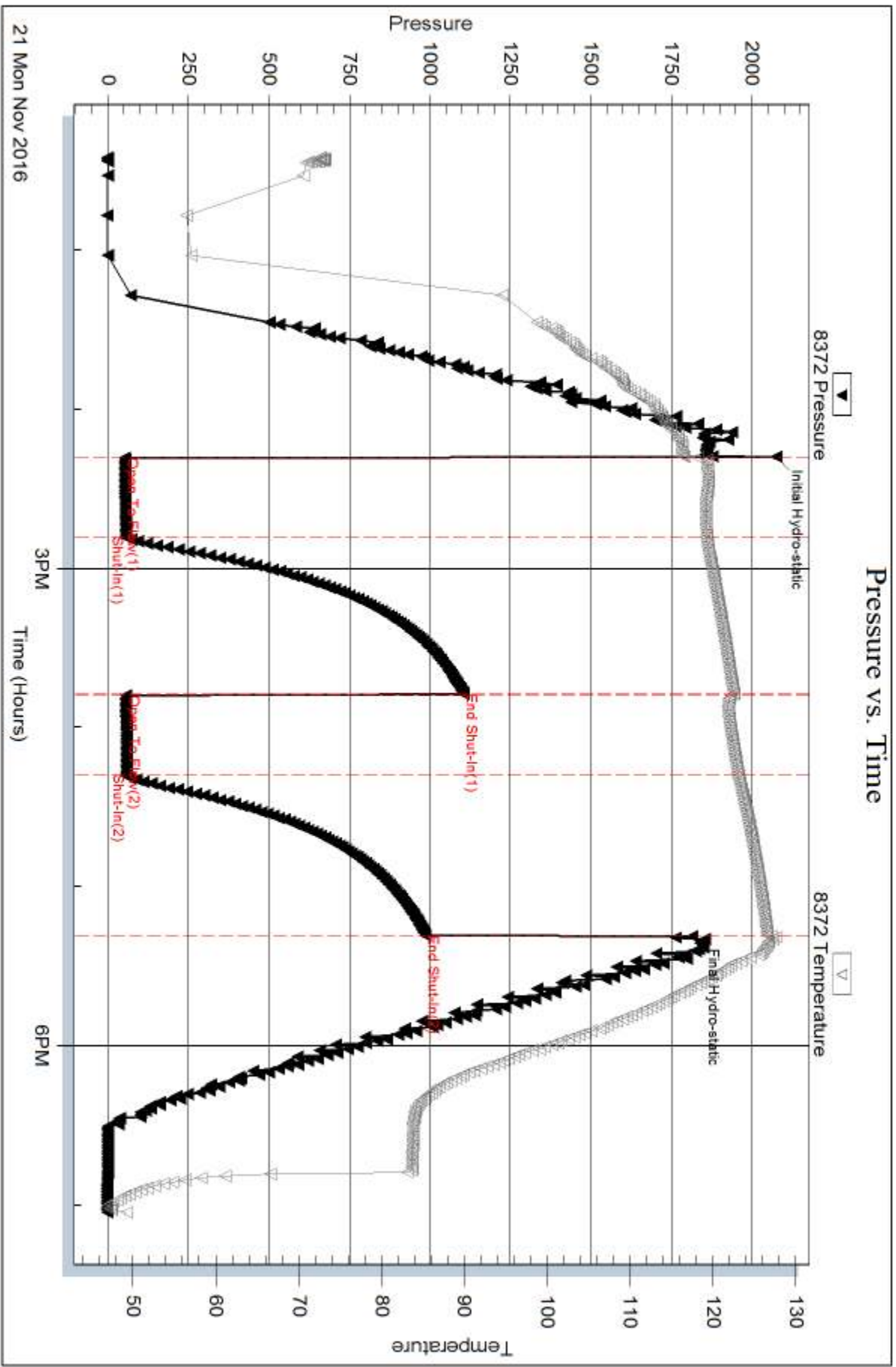
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 57.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.94 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 700.00 ppm			
Filter Cake: 4.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
65.00	Mud 100%	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:



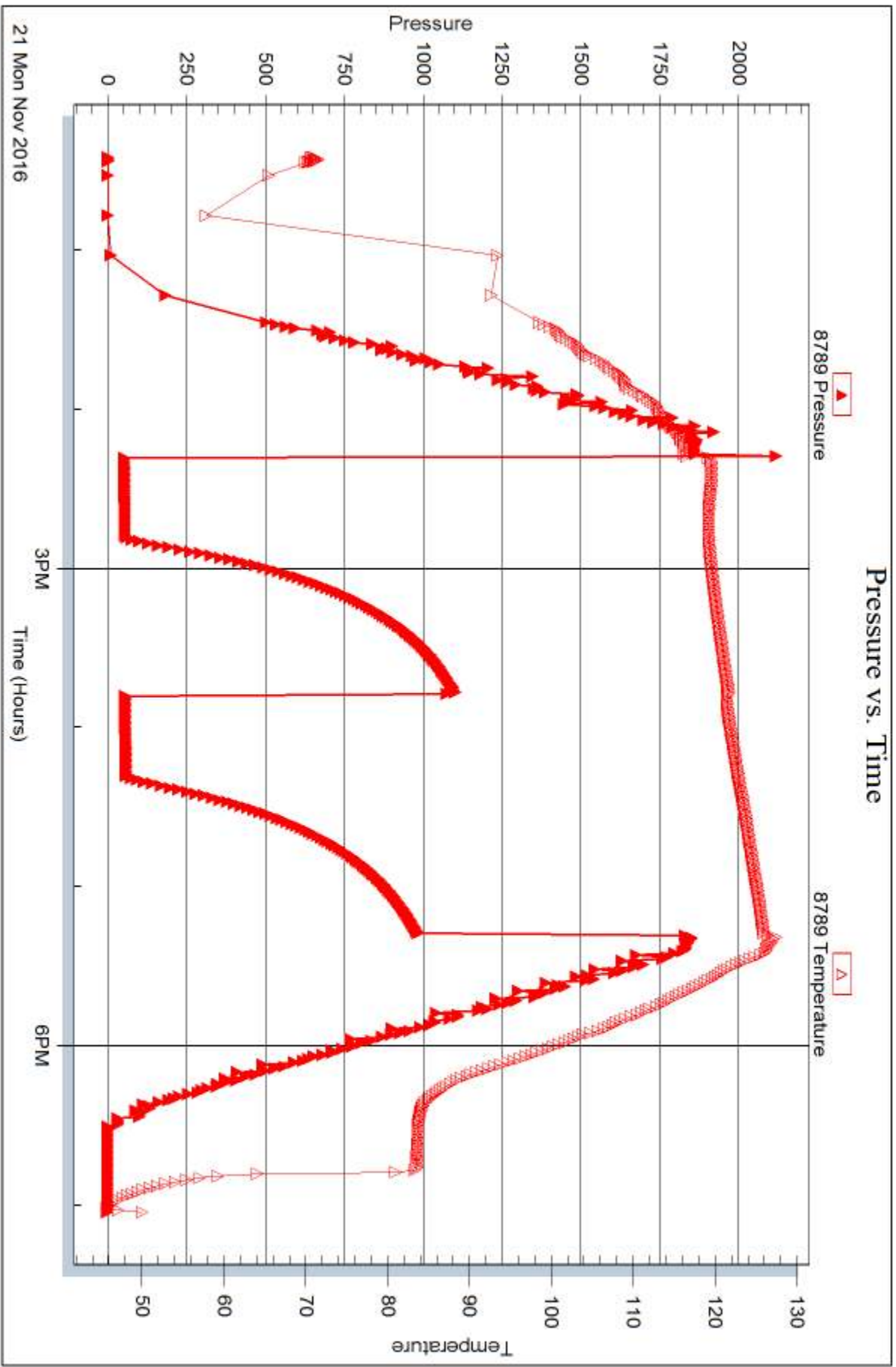
Serial #: 8789

Inside

Murfin Drilling Co Inc

Haller #1-7

DST Test Number: 2



21 Mon Nov 2016

Trilobite Testing, Inc

Ref. No: 63025

Printed: 2016.11.28 @ 15:55:06



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Rocky Milford

**Haller #1-7**

**7-2s-34w Rawlins,KS**

Start Date: 2016.11.22 @ 07:03:00

End Date: 2016.11.22 @ 15:29:00

Job Ticket #: 61201                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.11.28 @ 15:53:52



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Rocky Milford

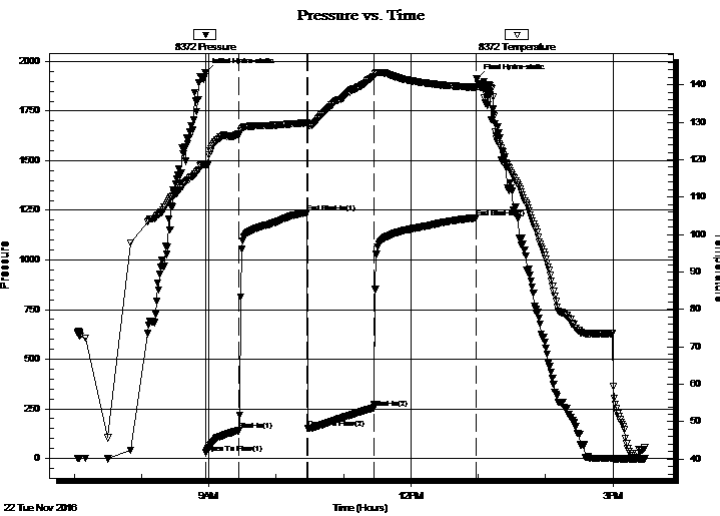
**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
 Job Ticket: 61201 **DST#: 3**  
 Test Start: 2016.11.22 @ 07:03:00

## GENERAL INFORMATION:

Formation: **LKC " A "**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:57:00  
 Time Test Ended: 15:29:00  
 Interval: **3963.00 ft (KB) To 4040.00 ft (KB) (TVD)**  
 Total Depth: 4040.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3123.00 ft (KB)  
 3118.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8372 Outside**  
 Press@RunDepth: 254.86 psig @ 3970.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.11.22 End Date: 2016.11.22 Last Calib.: 2016.11.22  
 Start Time: 07:03:02 End Time: 15:28:45 Time On Btm: 2016.11.22 @ 08:56:45  
 Time Off Btm: 2016.11.22 @ 12:58:30

**TEST COMMENT:** 30-IFP- BOB in 10 min.  
 60-ISIP- Surface Blow Building to 6 1/2"  
 60-FFP- BOB in 9 min.  
 90-FSIP- BOB in 15 min.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1944.70	118.99	Initial Hydro-static
1	27.90	118.32	Open To Flow (1)
30	140.35	126.87	Shut-In(1)
91	1238.66	129.87	End Shut-In(1)
92	151.12	129.48	Open To Flow (2)
151	254.86	142.21	Shut-In(2)
241	1211.59	139.30	End Shut-In(2)
242	1913.47	139.55	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
187.00	GOCM 30%g 20%o 50%m	0.92
63.00	GOCM 20%g 30%o 50%m	0.88
368.00	GCO 20%g 80%o	5.16
0.00	GIP 955	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 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61201      **DST#: 3**  
Test Start: 2016.11.22 @ 07:03:00

**Tool Information**

Drill Pipe:	Length: 3769.00 ft	Diameter: 3.80 inches	Volume: 52.87 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 53.79 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial	54000.00 lb
Depth to Top Packer:	3963.00 ft			Final	56000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	77.00 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>
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Change Over Sub	1.00			3936.00	
Shut In Tool	5.00			3941.00	
Hydraulic tool	5.00			3946.00	
Jars	5.00			3951.00	
Safety Joint	2.00			3953.00	
Packer	5.00			3958.00	28.00      Bottom Of Top Packer
Packer	5.00			3963.00	
Stubb	1.00			3964.00	
Perforations	5.00			3969.00	
Change Over Sub	1.00			3970.00	
Recorder	0.00	8789	Inside	3970.00	
Recorder	0.00	8372	Outside	3970.00	
Blank Spacing	32.00			4002.00	
Change Over Sub	1.00			4003.00	
Perforations	34.00			4037.00	
Bullnose	3.00			4040.00	77.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>105.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61201      **DST#: 3**  
Test Start: 2016.11.22 @ 07:03:00

## Mud and Cushion Information

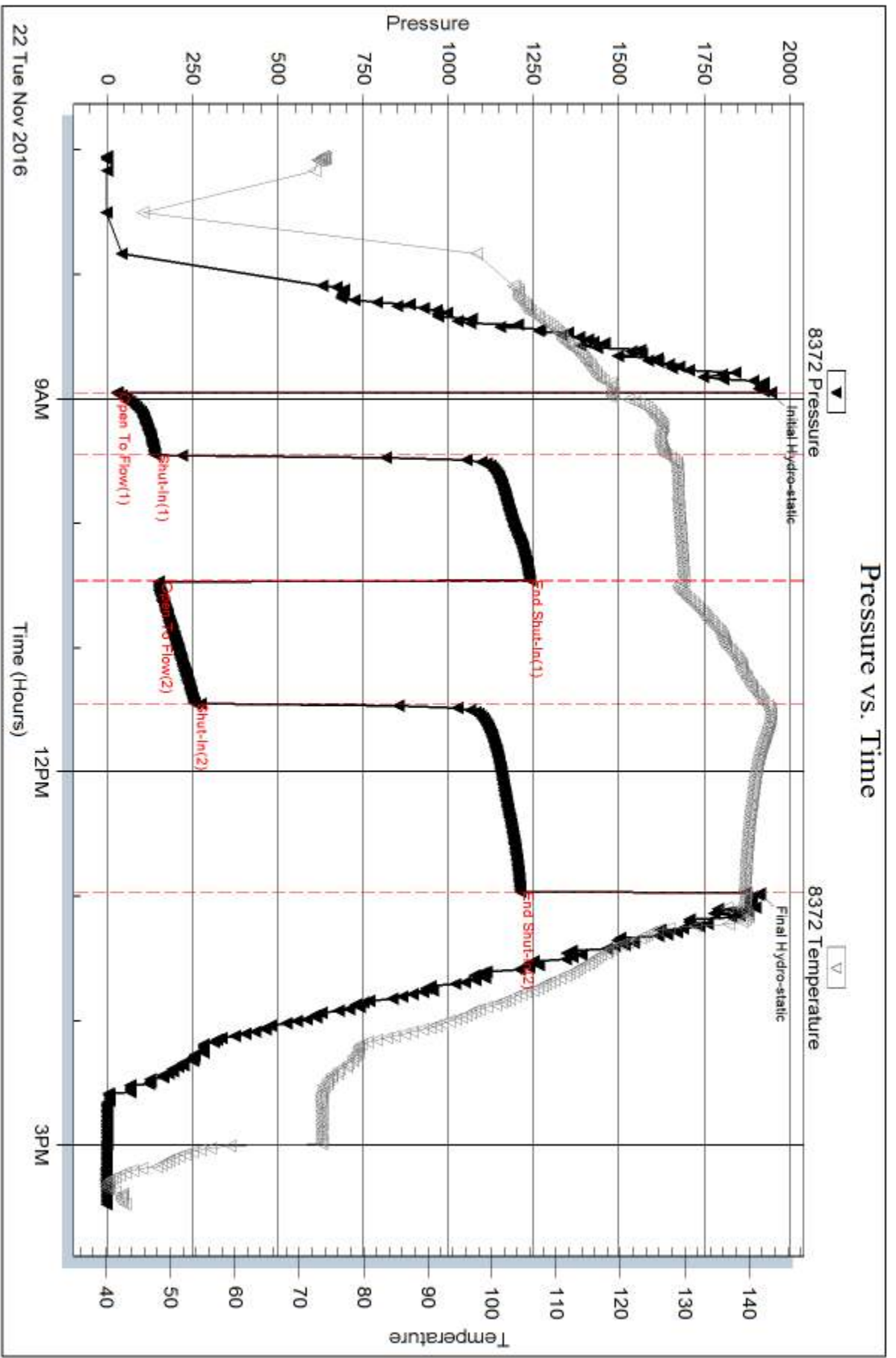
Mud Type: Gel Chem	Cushion Type:	Oil API: 32 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 59.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.56 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 700.00 ppm		
Filter Cake: 4.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
187.00	GOCM 30%g 20%o 50%m	0.920
63.00	GOCM 20%g 30%o 50%m	0.884
368.00	GCO 20%g 80%o	5.162
0.00	GIP 955	0.000

Total Length: 618.00 ft      Total Volume: 6.966 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:



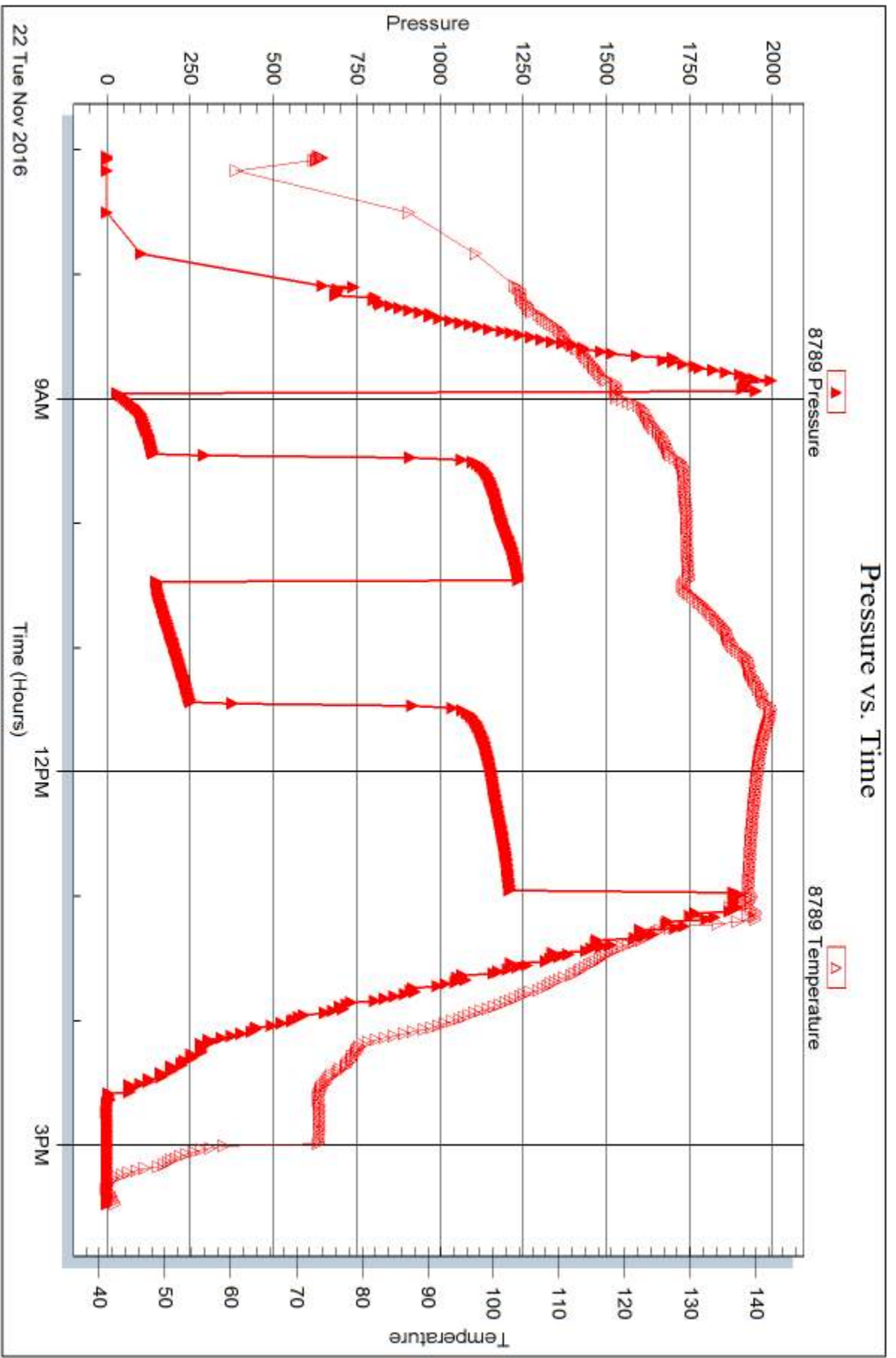
Serial #: 8789

Inside

Murfin Drilling Co Inc

Haller #1-7

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 61201

Printed: 2016.11.28 @ 15:54:00



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Rocky Milford

### **Haller #1-7**

### **7-2s-34w Rawlins,KS**

Start Date: 2016.11.23 @ 01:08:00

End Date: 2016.11.23 @ 09:30:00

Job Ticket #: 61202                      DST #: 4

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

Printed: 2016.11.28 @ 15:53:13

Murfin Drilling Co Inc  
7-2s-34w Rawlins,KS  
Haller #1-7  
DST # 4  
LKC " A Sand---D Pri  
2016.11.23



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
 Job Ticket: 61202 **DST#: 4**  
 Test Start: 2016.11.23 @ 01:08:00

## GENERAL INFORMATION:

Formation: **LKC " A Sand---D Pri**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:07:15  
 Time Test Ended: 09:30:00  
 Interval: **4035.00 ft (KB) To 4107.00 ft (KB) (TVD)**  
 Total Depth: 4107.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3123.00 ft (KB)  
 3118.00 ft (CF)  
 KB to GR/CF: 5.00 ft

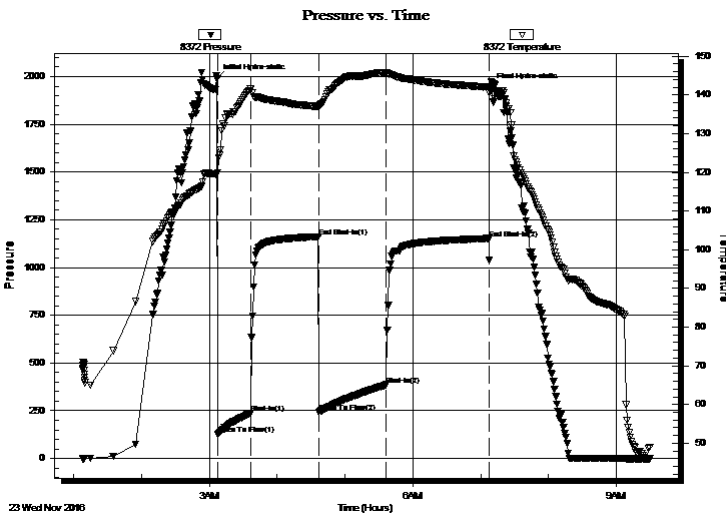
## Serial #: 8372

Outside

Press@RunDepth: 385.76 psig @ 4042.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.11.23 End Date: 2016.11.23 Last Calib.: 2016.11.23  
 Start Time: 01:08:02 End Time: 09:30:00 Time On Btm: 2016.11.23 @ 03:06:45  
 Time Off Btm: 2016.11.23 @ 07:07:45

TEST COMMENT: 30-IFP- Tool Slide 10ft.--Mud Drop 20ft.--Bled off 1min.--BOB in 8 min.  
 60-ISIP- Very Weak Surface Blow Died in 44 min.  
 60-FFP- BOB in 13 min.  
 90-FSIP- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1990.86	119.56	Initial Hydro-static
1	128.63	119.84	Open To Flow (1)
30	237.75	141.66	Shut-In(1)
90	1160.49	136.94	End Shut-In(1)
91	242.88	136.79	Open To Flow (2)
150	385.76	145.81	Shut-In(2)
241	1151.93	142.01	End Shut-In(2)
241	1939.58	140.58	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
313.00	MCW 25%w 75%w Show of Oil	2.69
189.00	WCM 45%w 55%w Show of Oil	2.65
282.00	Oil Speck WCM 1%o 4%w 95%w	3.96

\* 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 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61202      **DST#: 4**  
Test Start: 2016.11.23 @ 01:08:00

**Tool Information**

Drill Pipe:	Length: 3832.00 ft	Diameter: 3.80 inches	Volume: 53.75 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 54.67 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4035.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	72.00 ft			
Tool Length:	100.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4008.00	
Shut In Tool	5.00			4013.00	
Hydraulic tool	5.00			4018.00	
Jars	5.00			4023.00	
Safety Joint	2.00			4025.00	
Packer	5.00			4030.00	28.00      Bottom Of Top Packer
Packer	5.00			4035.00	
Stubb	1.00			4036.00	
Perforations	5.00			4041.00	
Change Over Sub	1.00			4042.00	
Recorder	0.00	8789	Inside	4042.00	
Recorder	0.00	8372	Outside	4042.00	
Blank Spacing	32.00			4074.00	
Change Over Sub	1.00			4075.00	
Perforations	29.00			4104.00	
Bullnose	3.00			4107.00	72.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>100.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61202      **DST#: 4**  
Test Start: 2016.11.23 @ 01:08:00

## Mud and Cushion Information

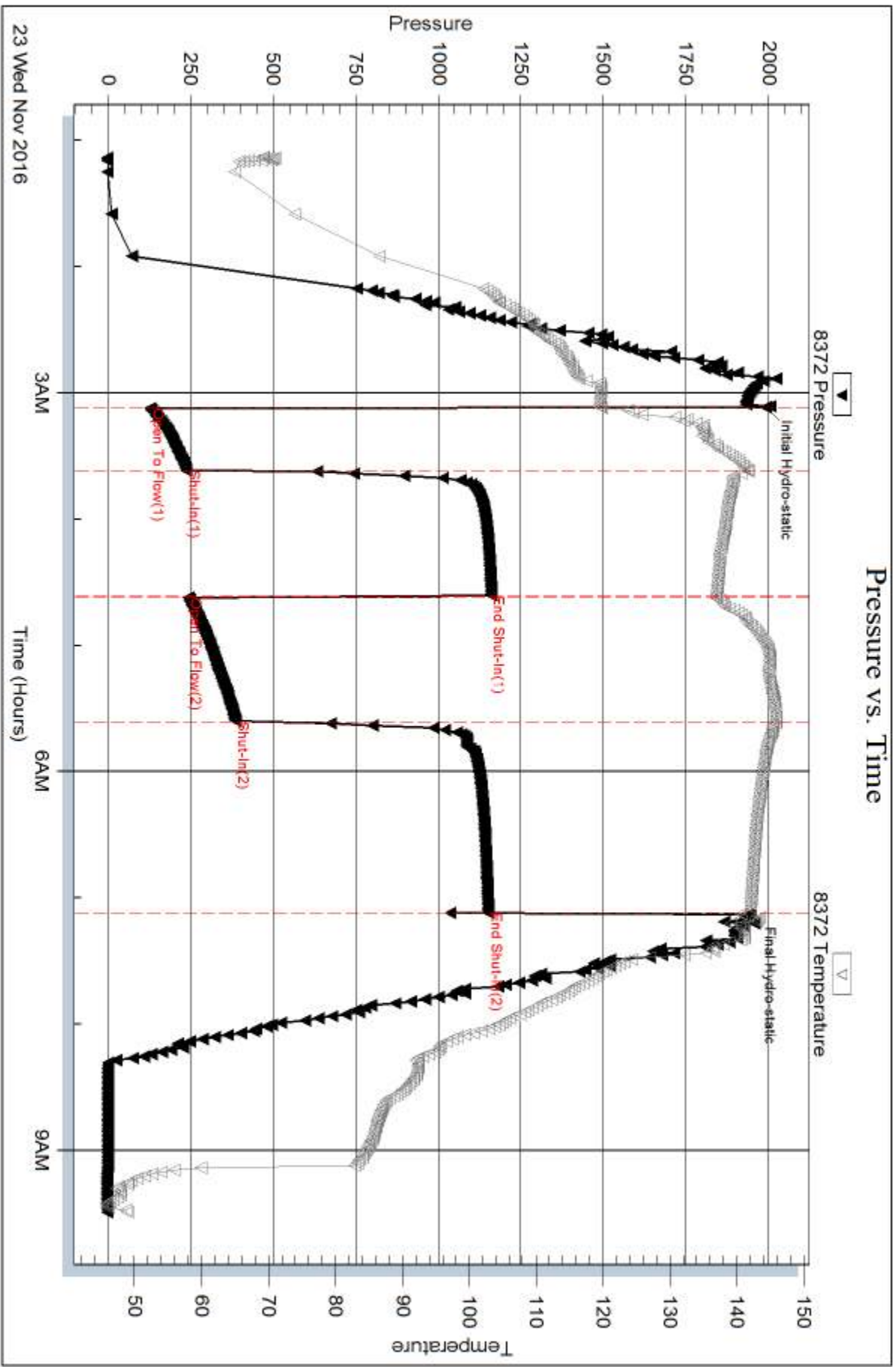
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 70000 ppm	
Viscosity: 59.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.57 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 700.00 ppm			
Filter Cake: 4.00 inches			

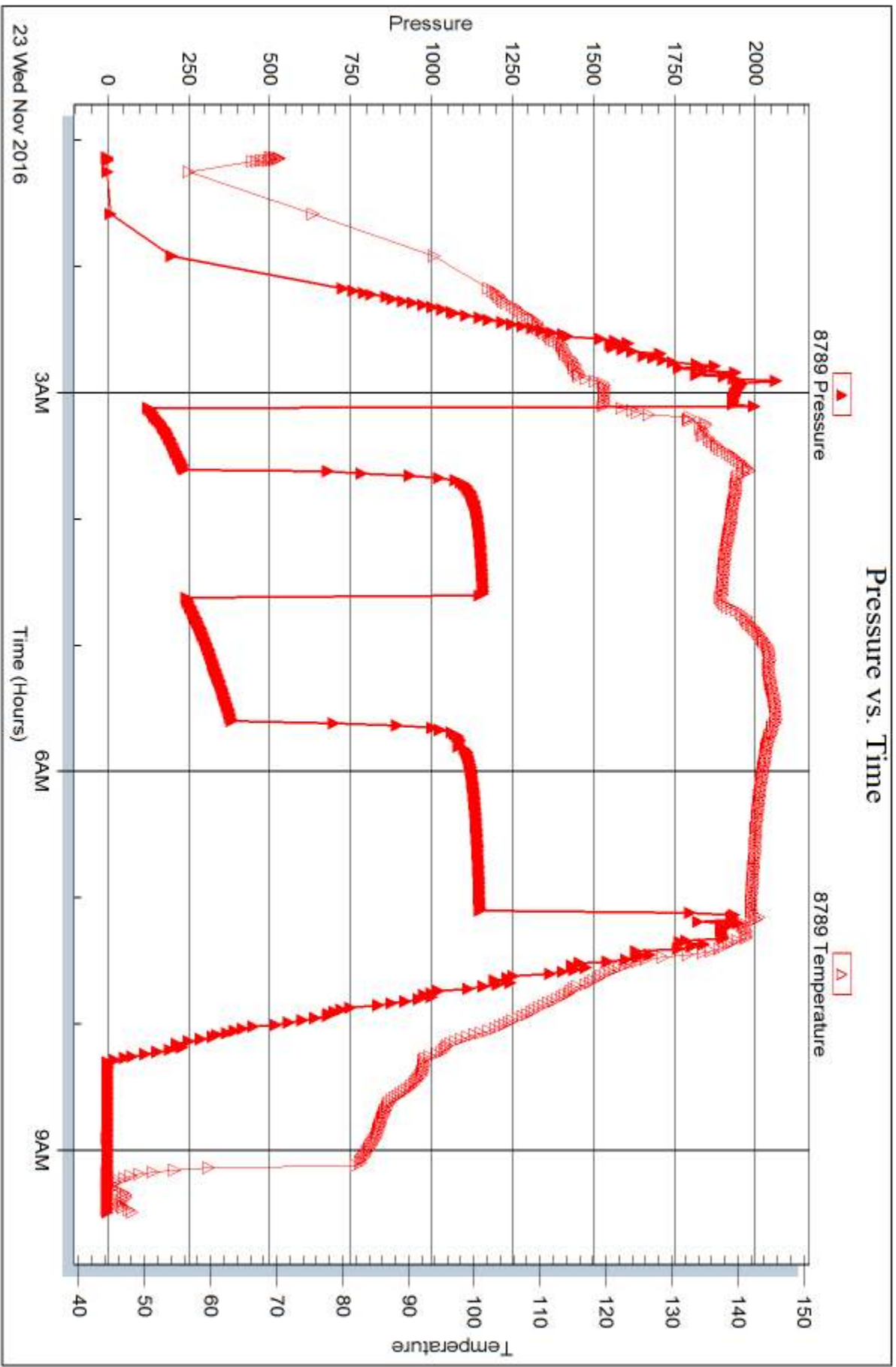
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
313.00	MCW 25% <i>m</i> 75% <i>w</i> Show of Oil	2.687
189.00	WCM 45% <i>w</i> 55% <i>m</i> Show of Oil	2.651
282.00	Oil Speck WCM 1% <i>o</i> 4% <i>w</i> 95% <i>m</i>	3.956

Total Length: 784.00 ft      Total Volume: 9.294 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments: .160 @ 49







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Rocky Milford

### **Haller #1-7**

### **7-2s-34w Rawlins,KS**

Start Date: 2016.11.23 @ 18:12:00

End Date: 2016.11.24 @ 02:04:00

Job Ticket #: 61203                      DST #: 5

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

Printed: 2016.11.28 @ 15:52:35



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
 Job Ticket: 61203 **DST#: 5**  
 Test Start: 2016.11.23 @ 18:12:00

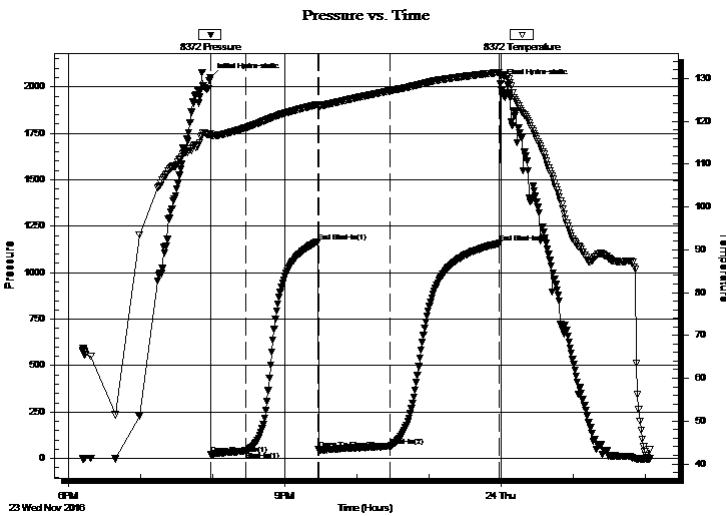
## GENERAL INFORMATION:

Formation: **LKC " G "**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 19:58:15  
 Time Test Ended: 02:04:00  
 Interval: **4102.00 ft (KB) To 4150.00 ft (KB) (TVD)**  
 Total Depth: 4150.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3123.00 ft (KB)  
 3118.00 ft (CF)  
 KB to GR/CF: 5.00 ft

## Serial #: 8372 Outside

Press@RunDepth: 67.49 psig @ 4109.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.11.23 End Date: 2016.11.24 Last Calib.: 2016.11.24  
 Start Time: 18:12:02 End Time: 02:04:00 Time On Btm: 2016.11.23 @ 19:58:00  
 Time Off Btm: 2016.11.23 @ 23:59:15

TEST COMMENT: 30-IFP- 4". Blow -- 2" 10min. -- 3" 18 min.  
 60-ISIP- Weak Surface Blow in 5 min. Died Back in 13 min.  
 60-FFP- 7 1/2" Blow [ 1"-1 min.] [ 2" 3 min.] [ 3" 9 min.] [ 4" 17 min.] [ 5" 29 min.] [ 6" 41 min.] [ 7" 54 min.]  
 90-FSIP- Weak Surface Blow in 4 min. Died Back in 7 min. Dead in 24 min.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2048.22	117.17	Initial Hydro-static
1	21.52	116.48	Open To Flow (1)
30	38.12	118.53	Shut-In(1)
90	1167.61	123.89	End Shut-In(1)
90	48.39	123.50	Open To Flow (2)
150	67.49	127.11	Shut-In(2)
241	1157.82	131.42	End Shut-In(2)
242	2018.95	130.61	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	OCM 25% o 75% m	0.30
15.00	CO 100%	0.07

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61203      **DST#: 5**  
Test Start: 2016.11.23 @ 18:12:00

**Tool Information**

Drill Pipe:	Length: 3896.00 ft	Diameter: 3.80 inches	Volume: 54.65 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose:	56000.00 lb
			<u>Total Volume: 55.57 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial	52000.00 lb
Depth to Top Packer:	4102.00 ft			Final	52000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	48.00 ft				
Tool Length:	76.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4075.00	
Shut In Tool	5.00			4080.00	
Hydraulic tool	5.00			4085.00	
Jars	5.00			4090.00	
Safety Joint	2.00			4092.00	
Packer	5.00			4097.00	28.00      Bottom Of Top Packer
Packer	5.00			4102.00	
Stubb	1.00			4103.00	
Perforations	5.00			4108.00	
Change Over Sub	1.00			4109.00	
Recorder	0.00	8789	Inside	4109.00	
Recorder	0.00	8372	Outside	4109.00	
Blank Spacing	32.00			4141.00	
Change Over Sub	1.00			4142.00	
Perforations	5.00			4147.00	
Bullnose	3.00			4150.00	48.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>76.00</b>				





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61203      **DST#: 5**  
Test Start: 2016.11.23 @ 18:12:00

### Mud and Cushion Information

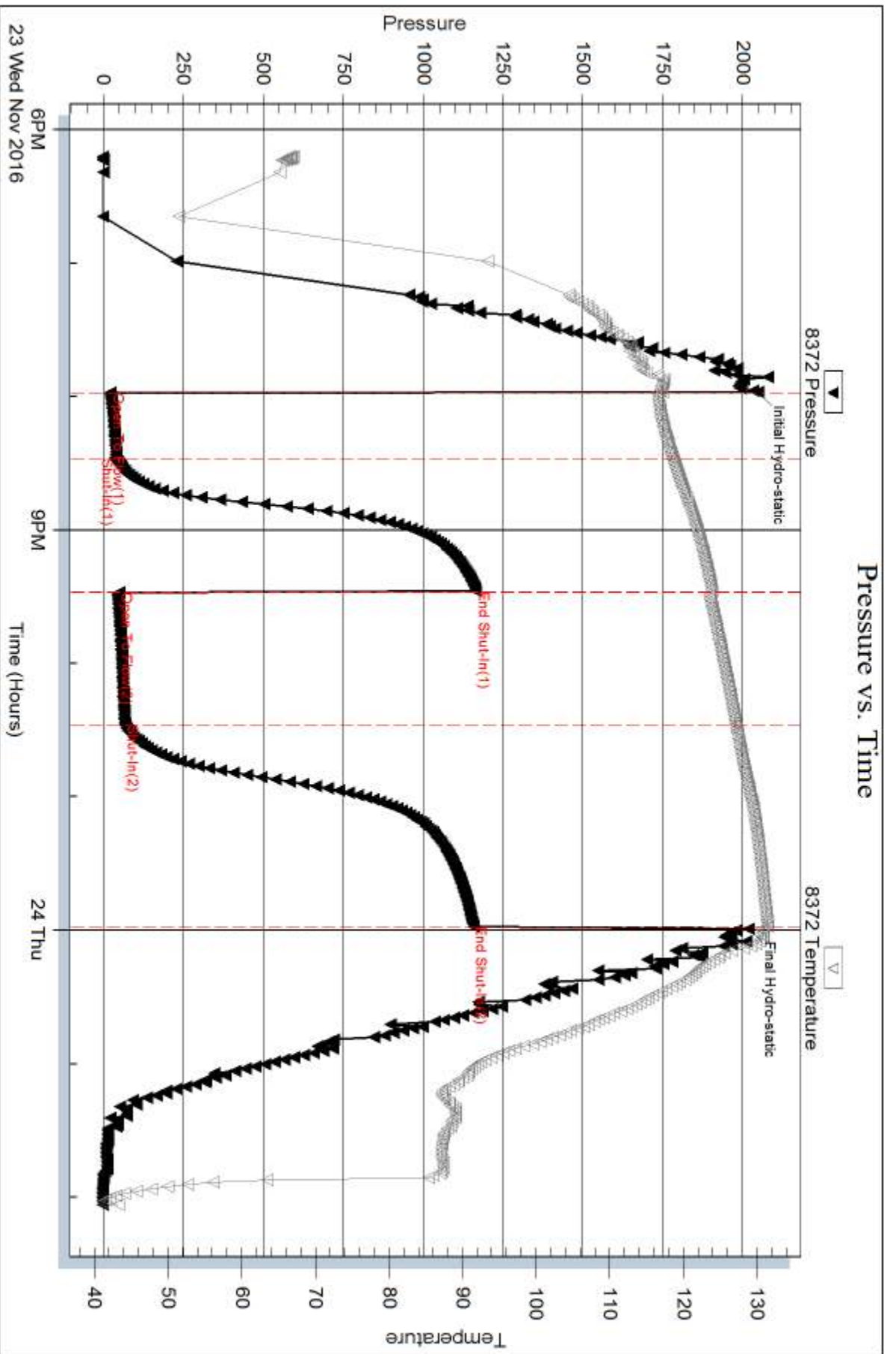
Mud Type: Gel Chem	Cushion Type:	Oil API: 36 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.56 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 800.00 ppm		
Filter Cake: 3.00 inches		

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	OCM 25%o 75%m	0.295
15.00	CO 100%	0.074

Total Length: 75.00 ft      Total Volume: 0.369 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:



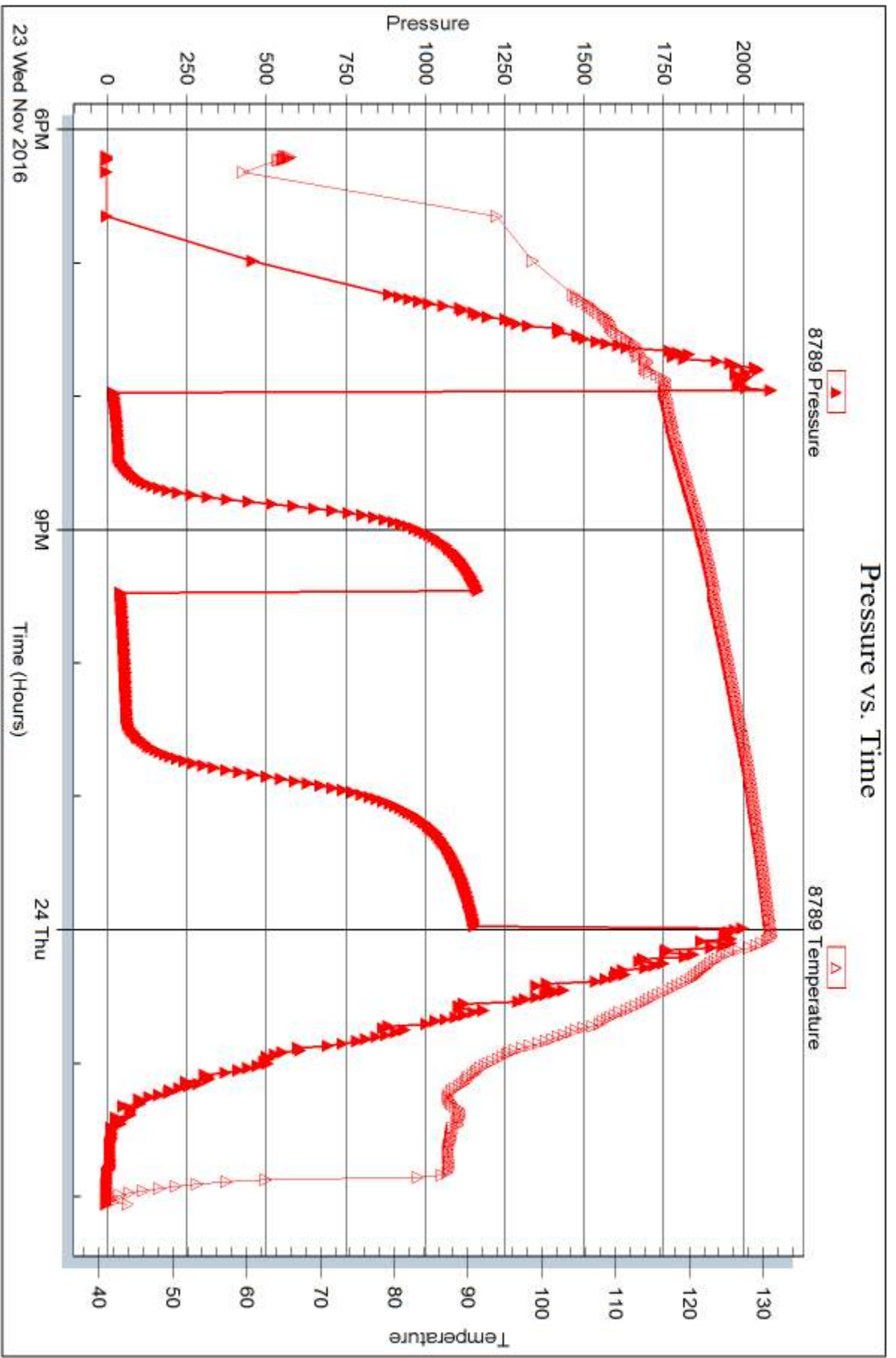
Serial #: 8789

Inside

Murfin Drilling Co Inc

Haller #1-7

DST Test Number: 5



Tribble Testing, Inc

Ref. No: 61203

Printed: 2016.11.28 @ 15:52:37



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Rocky Milford

### **Haller #1-7**

### **7-2s-34w Rawlins,KS**

Start Date: 2016.11.24 @ 13:45:00

End Date: 2016.11.24 @ 22:32:00

Job Ticket #: 61204                      DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.11.28 @ 15:51:55







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61204      **DST#: 6**  
Test Start: 2016.11.24 @ 13:45:00

**Tool Information**

Drill Pipe:	Length: 3958.00 ft	Diameter: 3.80 inches	Volume: 55.52 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose: 58000.00 lb
		Total Volume: 56.44 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4145.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	89.00 ft			
Tool Length:	117.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4118.00	
Shut In Tool	5.00			4123.00	
Hydraulic tool	5.00			4128.00	
Jars	5.00			4133.00	
Safety Joint	2.00			4135.00	
Packer	5.00			4140.00	28.00      Bottom Of Top Packer
Packer	5.00			4145.00	
Stubb	1.00			4146.00	
Perforations	5.00			4151.00	
Change Over Sub	1.00			4152.00	
Recorder	0.00	8789	Inside	4152.00	
Recorder	0.00	8372	Outside	4152.00	
Blank Spacing	63.00			4215.00	
Change Over Sub	1.00			4216.00	
Perforations	15.00			4231.00	
Bullnose	3.00			4234.00	89.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>117.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61204      **DST#: 6**  
Test Start: 2016.11.24 @ 13:45:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	60000 ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.97 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1400.00 ppm			
Filter Cake: 4.00 inches			

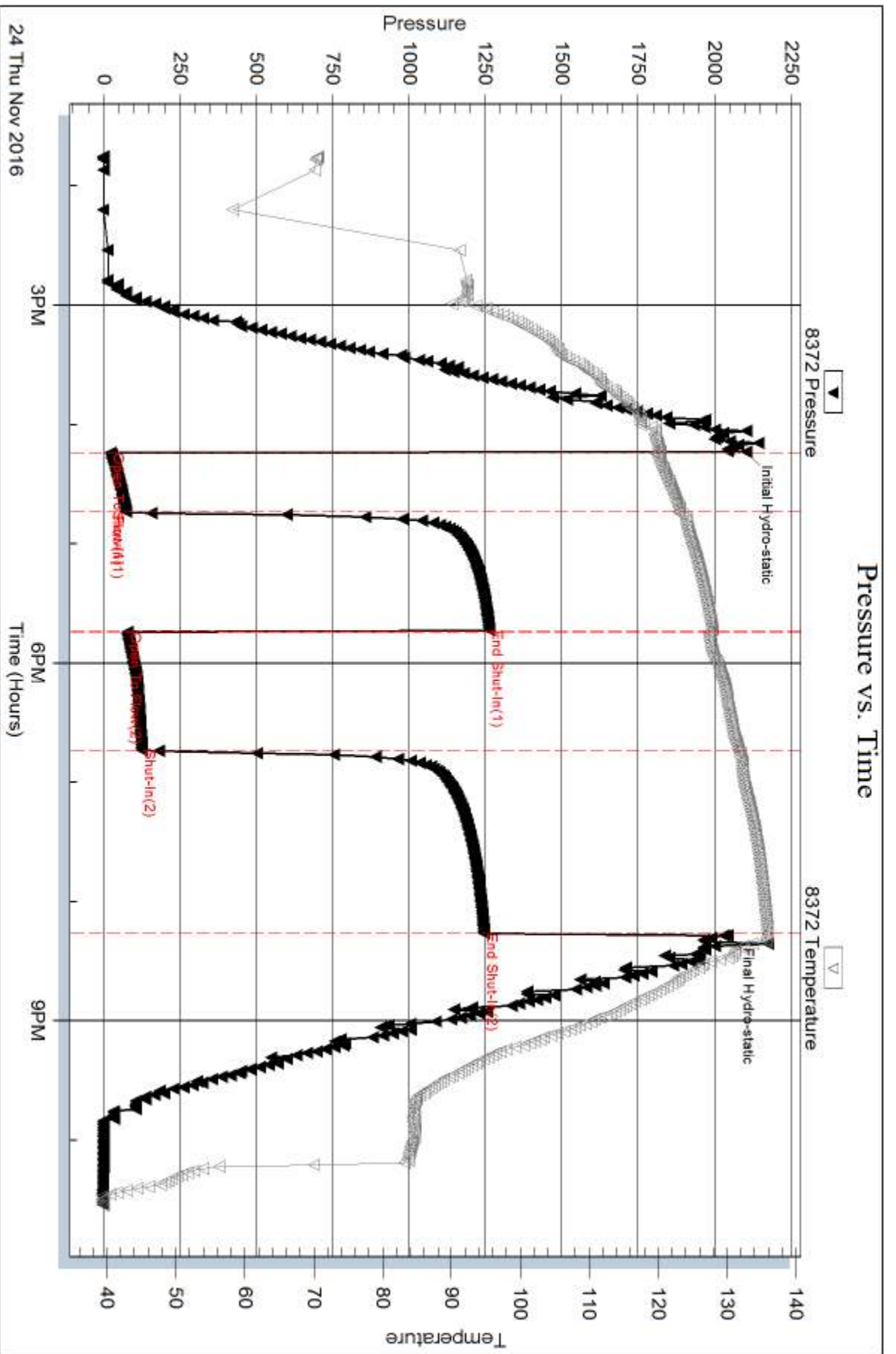
## Recovery Information

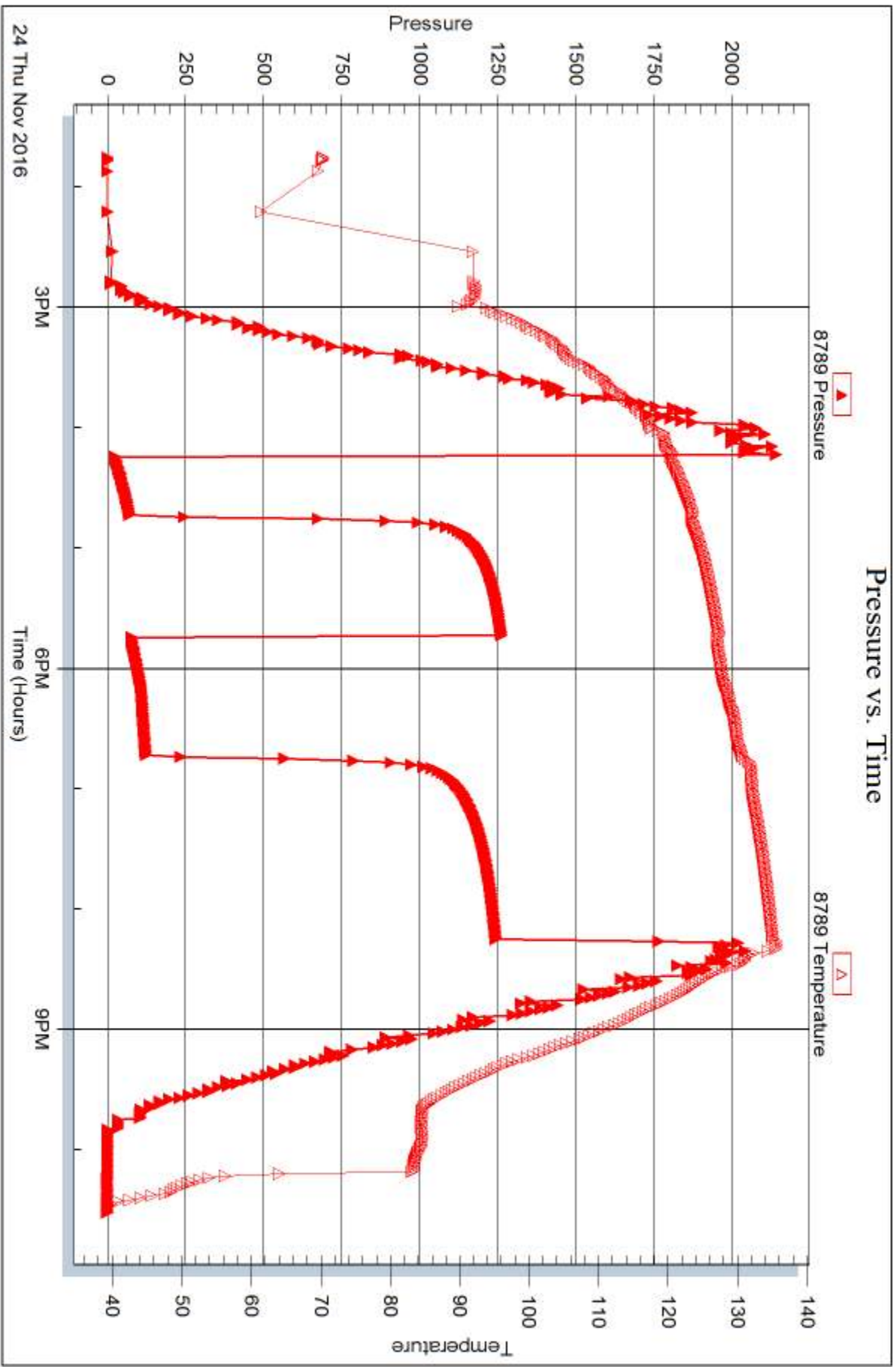
Recovery Table

Length ft	Description	Volume bbl
125.00	WCM 30%w 70%m w/Show of Oil	0.615
97.00	OCM 5%o 95%m	0.796

Total Length: 222.00 ft      Total Volume: 1.411 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: .238 @ 38









## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Rocky Milford

### **Haller #1-7**

### **7-2s-34w Rawlins,KS**

Start Date: 2016.11.25 @ 08:52:00

End Date: 2016.11.25 @ 16:15:00

Job Ticket #: 61205                      DST #: 7

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

Printed: 2016.11.28 @ 15:49:51







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61205      **DST#: 7**  
Test Start: 2016.11.25 @ 08:52:00

**Tool Information**

Drill Pipe:	Length: 4022.00 ft	Diameter: 3.80 inches	Volume: 56.42 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 57.34 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4228.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	57.00 ft			
Tool Length:	85.00 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			4201.00	
Shut In Tool	5.00			4206.00	
Hydraulic tool	5.00			4211.00	
Jars	5.00			4216.00	
Safety Joint	2.00			4218.00	
Packer	5.00			4223.00	28.00      Bottom Of Top Packer
Packer	5.00			4228.00	
Stubb	1.00			4229.00	
Perforations	5.00			4234.00	
Change Over Sub	1.00			4235.00	
Recorder	0.00	8789	Inside	4235.00	
Recorder	0.00	8372	Outside	4235.00	
Blank Spacing	31.00			4266.00	
Change Over Sub	1.00			4267.00	
Perforations	15.00			4282.00	
Bullnose	3.00			4285.00	57.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>85.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Rocky Milford

**7-2s-34w Rawlins,KS**  
**Haller #1-7**  
Job Ticket: 61205      **DST#: 7**  
Test Start: 2016.11.25 @ 08:52:00

## Mud and Cushion Information

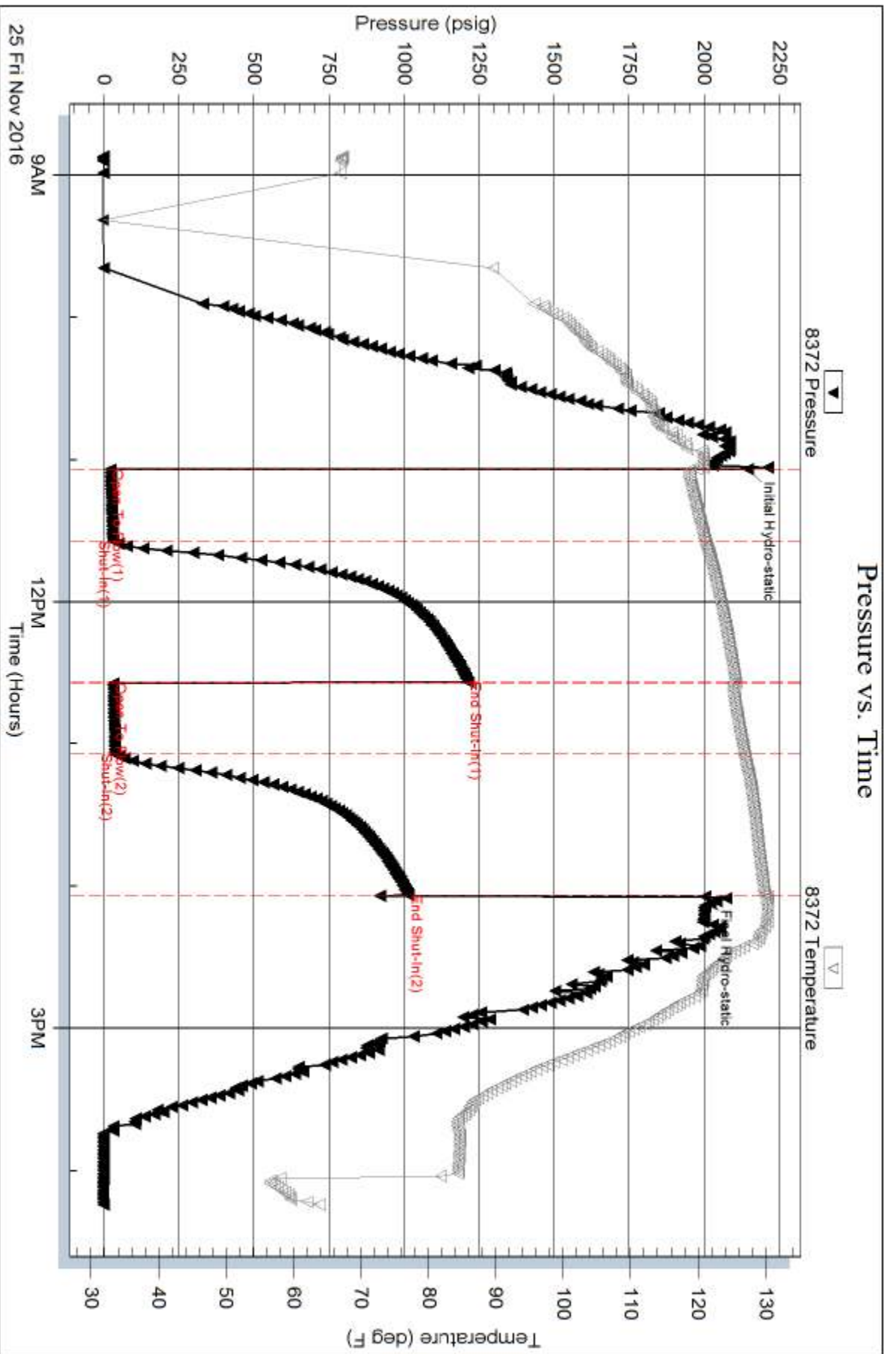
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 58.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.99 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1500.00 ppm			
Filter Cake: 4.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	Oil Speck Mud 100%	0.074

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





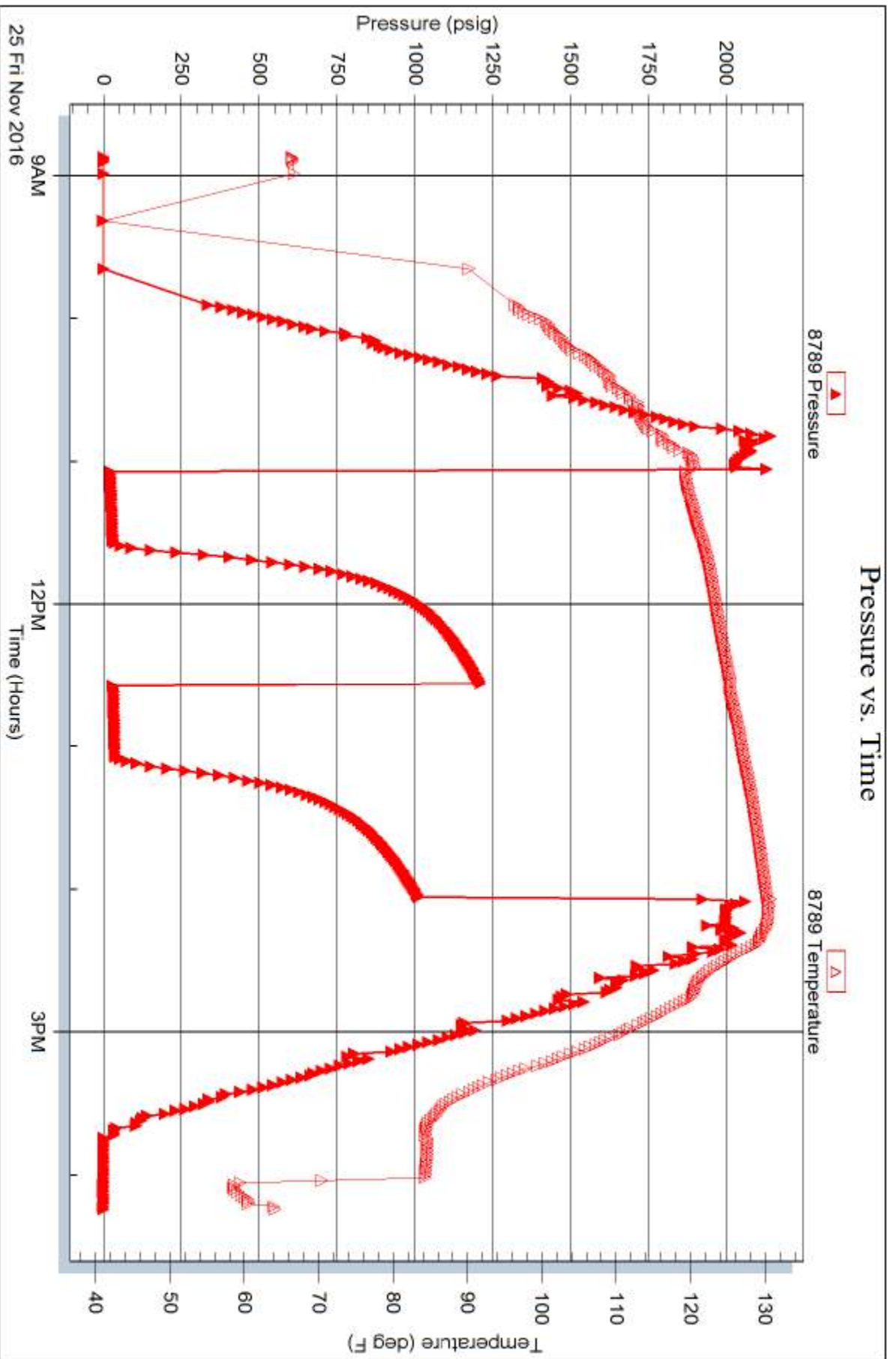
Serial #: 8789

Inside

Murfin Drilling Co Inc

Haller #1-7

DST Test Number: 7



Trilobite Testing, Inc

Ref. No: 61205

Printed: 2016.11.28 @ 15:49:57



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63024

4/10

Well Name & No. Haller # 1-7 Test No. 1 Date 11-20-16  
 Company Murfin Drilling Co. Inc. Elevation 3123 KB 3118 GL  
 Address 250 N Water Ste 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Rocky Milford Rig Murfin 7  
 Location: Sec. 7 Twp. 2<sup>s</sup> Rge. 34<sup>w</sup> Co. RAWLINS State KS

Interval Tested 3746-3859 Zone Tested Stotter-Topeka  
 Anchor Length 113 Drill Pipe Run 3547 Mud Wt. 8.7  
 Top Packer Depth 3741 Drill Collars Run 187 Vis 61  
 Bottom Packer Depth 3746 Wt. Pipe Run 0 WL 5.6  
 Total Depth 3859 Chlorides 600 ppm System LCM 4

Blow Description I FP - 5" Blow Tool Slid 21 ft. Mud Dropped 30+ ft. Bled off 2 1/2 min.  
ISIP - No Blow  
FFP - Surface Blow Building to 4 1/4"  
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>125</u>	<u>WCM Show of Oil</u>		<u>45</u>	<u>55</u>	
<u>62</u>	<u>WCM Show of Oil</u>		<u>10</u>	<u>90</u>	
<u>113</u>	<u>Oil Speck Mud</u>			<u>100</u>	

Rec Total 300 BHT 130 Gravity \_\_\_\_\_ API RW 320 @ 40 ° F Chlorides 40000 ppm

(A) Initial Hydrostatic 1804  Test 1050 T-On Location 15:05  
 (B) First Initial Flow 122  Jars 250 T-Started 16:50  
 (C) First Final Flow 141  Safety Joint 75 T-Open 20:00  
 (D) Initial Shut-In 940  Circ Sub \_\_\_\_\_ T-Pulled 00:00  
 (E) Second Initial Flow 145  Hourly Standby \_\_\_\_\_ T-Out 02:20  
 (F) Second Final Flow 161  Mileage RT 85 63.75 Comments \_\_\_\_\_  
 (G) Final Shut-In 902  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1714  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_

Initial Open 30  Shale Packer 250  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 1688.75  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1688.75

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

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

7856395864



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63025

Well Name & No. Haller #1-7 Test No. 2 Date 11-21-16  
 Company Murfin Drilling Co Inc. Elevation 3123 KB 3118 GL  
 Address 250 N Water Ste 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Rocky Milford Rig Murfin 7  
 Location: Sec. 7 Twp. 25 Rge. 34W Co. Rawlins State KS

Interval Tested 3884-3944 Zone Tested Oread  
 Anchor Length 60 Drill Pipe Run 3674 Mud Wt. 9  
 Top Packer Depth 3879 Drill Collars Run 187 Vis 57  
 Bottom Packer Depth 3884 Wt. Pipe Run 0 WL 6  
 Total Depth 3944 Chlorides 700 ppm System LCM 4

Blow Description IFP - 1/4 in Blow - Tool Slide 10 ft. - Mud Drop 5 ft. - Bled off 30 sec.  
ISIP - No Blow  
FFP - No Blow  
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>65</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 65 BHT 127 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2074</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>11:57</u>
(B) First Initial Flow <u>52</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>12:25</u>
(C) First Final Flow <u>55</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>14:18</u>
(D) Initial Shut-In <u>1105</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>17:18</u>
(E) Second Initial Flow <u>56</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>19:03</u>
(F) Second Final Flow <u>58</u>	<input checked="" type="checkbox"/> Mileage <u>63.75</u>	Comments _____
(G) Final Shut-In <u>985</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1815</u>	<input type="checkbox"/> Straddle _____	
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1438.75</u>
	Sub Total <u>1458.75</u>	MP/DST Disc't _____

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 61201

4/10

Well Name & No. Haller # 1-7 Test No. 3 Date 11-22-16  
 Company Martin Drilling Co. Inc. Elevation 3123 KB 3118 GL  
 Address 250 N. WATER Ste 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Rocky Milford Rig Martin 7  
 Location: Sec. 7 Twp. 2<sup>s</sup> Rge. 34<sup>w</sup> Co. RAWLINS State KS

Interval Tested 3963-4040 Zone Tested LKC "A"  
 Anchor Length 77 Drill Pipe Run 3769 Mud Wt. 9.0  
 Top Packer Depth 3958 Drill Collars Run 187 Vis 59  
 Bottom Packer Depth 3963 Wt. Pipe Run 0 WL 5.6  
 Total Depth 4040 Chlorides 700 ppm System LCM 4

Blow Description IFP - BOBIN 10min  
ISIP - Surface Blow Building to 6 1/2 in.  
FFP - BOBIN 9min.  
FSIP - BOBIN 15min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>187</u>	<u>MOCM</u>	<u>30</u>	<u>20</u>	<u>50</u>	
<u>63</u>	<u>MOCM</u>	<u>20</u>	<u>30</u>	<u>50</u>	
<u>368</u>	<u>SCO</u>	<u>20</u>	<u>80</u>		
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 618 BHT 139 Gravity 32 API RW @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(MIP 955)  
 Test 1150  
 Jars 250  
 Safety Joint 75  
 Circ Sub  
 Hourly Standby  
 Mileage 63.75  
 Sampler  
 Straddle

T-On Location 06:30  
 T-Started 07:03  
 T-Open 08:57  
 T-Pulled 12:57  
 T-Out 15:29

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

Ruined Shale Packer  
 Ruined Packer  
 Extra Copies  
 Sub Total 0  
 Total 1538.75  
 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1538.75

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 61202

4/10

Well Name & No. Haller #1-7 Test No. 4 Date 11-23-16  
 Company Murfin Drilling Co Inc. Elevation 3123 KB 3118 GL  
 Address 250 N. WATER STE 300 WICHITA KS 67202-1216  
 Co. Rep / Geo. Rocky Milford Rig Murfin 7  
 Location: Sec. 7 Twp. 25 Rge. 34W Co. RAWLINS State KS

Interval Tested 4035-4107 Zone Tested LKC "A Sand - D Prime"  
 Anchor Length 72 Drill Pipe Run 3832 Mud Wt. 9.0  
 Top Packer Depth 4030 Drill Collars Run 187 Vis 59  
 Bottom Packer Depth 4035 Wt. Pipe Run 0 WL 5.6  
 Total Depth 4107 Chlorides 700 ppm System LCM 4

Blow Description I FP - Tool Slide 10ft. - Mud Drop 20ft. - Bled 1min. BOB in 3min.  
ISIP - Very Weak Surface Blow Died in 44min  
FFP - BOB in 13min.  
FSIP - No Blow.

Rec	Feet of	show of	%gas	%oil	%water	%mud
<u>313</u>	<u>MCW</u>	<u>show of Oil</u>		<u>75</u>	<u>25</u>	
<u>189</u>	<u>WCM</u>	<u>show of Oil</u>		<u>45</u>	<u>55</u>	
<u>282</u>	<u>Oil/Speck WCM</u>		<u>1</u>	<u>4</u>	<u>95</u>	
Rec	Feet of		%gas	%oil	%water	%mud
Rec	Feet of		%gas	%oil	%water	%mud

Rec Total 784 BHT 142 Gravity (WIP 125) API RW .160 @ 49 °F Chlorides 70,000 ppm

(A) Initial Hydrostatic 1990  Test 1150 T-On Location 00:10  
 (B) First Initial Flow 128  Jars 250 T-Started 01:08  
 (C) First Final Flow 237  Safety Joint 75 T-Open 03:07  
 (D) Initial Shut-In 1160  Circ Sub \_\_\_\_\_ T-Pulled 07:07  
 (E) Second Initial Flow 242  Hourly Standby \_\_\_\_\_ T-Out 09:30  
 (F) Second Final Flow 385  Mileage 63.75 Comments \_\_\_\_\_  
 (G) Final Shut-In 1151  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1939  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1538.75  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_

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

Approved By \_\_\_\_\_ Our Representative [Signature]  
 Sub Total 1538.75

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 61203

4/10

Well Name & No. Haller #1-7 Test No. 5 Date 11-23-16  
 Company Murfin Drilling Co. Inc. Elevation 3123 KB 3118 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Rocky Milford Rig Murfin 7  
 Location: Sec. 7 Twp. 2<sup>s</sup> Rge. 34W Co. Rawlins State KS

Interval Tested 4102-4150 Zone Tested LRC "A"  
 Anchor Length 48 Drill Pipe Run 3896 Mud Wt. 9  
 Top Packer Depth 4097 Drill Collars Run 187 Vis 55  
 Bottom Packer Depth 4102 Wt. Pipe Run 0 WL 5.6  
 Total Depth 4150 Chlorides 800 ppm System LCM 3

Blow Description IFP - Built to 4 in. (2 in. 10 min.) (3 in. 18 min.)  
IFIP - Weak Surface Blow in 5 min. Died Back in 13 min.  
FFP - 1 1/2 in. Blow (1 in. 1 m) (2 in. 3 m) (3 in. 9 m) (4 in. 17 m) (5 in. 29 m) (6 in. 41 m) (7 in. 54 m)  
IFIP - Weak Surface Blow in 4 min. (Died Back 7 min.) (Dead 24 min.)

Rec 60 Feet of OCM %gas 25 %oil %water 75 %mud  
 Rec 15 Feet of CO %gas 100 %oil %water %mud  
 Rec \_\_\_\_\_ Feet of \_\_\_\_\_ %gas %oil %water %mud  
 Rec \_\_\_\_\_ Feet of IFIP 175 %gas %oil %water %mud  
 Rec \_\_\_\_\_ Feet of \_\_\_\_\_ %gas %oil %water %mud

Rec Total 75 BHT 131 Gravity 36 API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2048  
 (B) First Initial Flow 21  
 (C) First Final Flow 38  
 (D) Initial Shut-In 1167  
 (E) Second Initial Flow 48  
 (F) Second Final Flow 67  
 (G) Final Shut-In 1157  
 (H) Final Hydrostatic 2018

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

Test 1150  
 Jars 250  
 Safety Joint 75  
 Circ Sub \_\_\_\_\_  
 Hourly Standby \_\_\_\_\_  
 Mileage 63.75  
 Sampler \_\_\_\_\_  
 Straddle \_\_\_\_\_  
 Shale Packer 250  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1788.75

T-On Location 17:25  
 T-Started 18:12  
 T-Open 19:58  
 T-Pulled 23:58  
 T-Out 02:04

Comments \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1788.75  
 MP/DST Disc't \_\_\_\_\_

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 61204

4/10

Well Name & No. Haller #1-7 Test No. 6 Date 11-24-16  
 Company Murfin Drilling Co. Inc. Elevation 3123 KB 3118 GL  
 Address 250 N. Water St 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Rocky Milford Rig Murfin 7  
 Location: Sec. 7 Twp. 2<sup>s</sup> Rge. 34<sup>w</sup> Co. Rawlins State KS

Interval Tested 4145-4234 Zone Tested LKC "A-Prime-J"  
 Anchor Length 89 Drill Pipe Run 3958 Mud Wt. 9  
 Top Packer Depth 4140 Drill Collars Run 187 Vis 60  
 Bottom Packer Depth 4145 Wt. Pipe Run 0 WL 6  
 Total Depth 4234 Chlorides 1400 ppm System LCM 4

Blow Description IFP - (2in. 6 1/2 min) (3in. 11 1/2 min) (4in. 2 min) (5in. 30 min)  
ISIP - No Blow  
FFP - (1in. 14m) (2in. 21m) (3in. 33m) (4in. 46m) (5in. 59m)  
FSIP - No Blow

Rec	Feet of	w/show oil	%gas	%oil	%water	%mud
<u>125</u>	<u>Wcm</u>	<u>w/show oil</u>		<u>30</u>	<u>70</u>	
<u>97</u>	<u>OCM</u>		<u>5</u>		<u>95</u>	
Rec	Feet of		%gas	%oil	%water	%mud
Rec	Feet of		%gas	%oil	%water	%mud

Rec Total 222 BHT Gravity \_\_\_\_\_ API RW 238 @ 38 °F Chlorides 60000 ppm

- (A) Initial Hydrostatic 2103
- (B) First Initial Flow 23
- (C) First Final Flow 72
- (D) Initial Shut-In 1263
- (E) Second Initial Flow 78
- (F) Second Final Flow 125
- (G) Final Shut-In 1246
- (H) Final Hydrostatic 2042

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

- Test 1150
- Jars 250
- Safety Joint 75
- Circ Sub \_\_\_\_\_
- Hourly Standby \_\_\_\_\_
- Mileage 63.75
- Sampler \_\_\_\_\_
- Straddle \_\_\_\_\_
- Shale Packer \_\_\_\_\_
- Extra Packer \_\_\_\_\_
- Extra Recorder \_\_\_\_\_
- Day Standby \_\_\_\_\_
- Accessibility \_\_\_\_\_
- Sub Total 1538.75

- T-On Location 12:54
- T-Started 13:45
- T-Open 16:14
- T-Pulled 20:14
- T-Out 22:32

- Comments \_\_\_\_\_
- Ruined Shale Packer \_\_\_\_\_
- Ruined Packer \_\_\_\_\_
- Extra Copies \_\_\_\_\_
- Sub Total 0
- Total 1538.75
- MP/DST Disc't \_\_\_\_\_

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 61205

4/10

Well Name & No. Haller #1-7 Test No. 7 Date 11-25-16  
 Company Murfin Drilling Co. Inc. Elevation 3123 KB 3118 GL  
 Address 250 N. WATER STE 300 WICHITA KS 67202-1216  
 Co. Rep / Geo. Rocky Milford Rig Murfin 7  
 Location: Sec. 7 Twp. 2<sup>s</sup> Rge. 34<sup>w</sup> Co. RAWLINS State KS

Interval Tested 4228-4285 Zone Tested LKC "K-L"  
 Anchor Length 57 Drill Pipe Run 4022 Mud Wt. 9.2  
 Top Packer Depth 4223 Drill Collars Run 187 Vis 58  
 Bottom Packer Depth 4228 Wt. Pipe Run 0 WL 6  
 Total Depth 4285 Chlorides 1500 ppm System LCM 4  
 Blow Description IFP - Surface Blow Building to 1 3/4 in. IN 23 min.  
ISIP - No Blow  
FFP - Surface Blow Building to 1/2 in. IN 20 min.  
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>Oil Speck 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 15 BHT 130 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2145</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>08:12</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>08:52</u>
(C) First Final Flow <u>30</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>11:04</u>
(D) Initial Shut-In <u>1214</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>14:04</u>
(E) Second Initial Flow <u>31</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>16:15</u>
(F) Second Final Flow <u>38</u>	<input checked="" type="checkbox"/> Mileage <u>127.50</u>	Comments _____
(G) Final Shut-In <u>1013</u>	<input type="checkbox"/> Sampler _____	<u>loaded tools 10/26 9:16</u>
(H) Final Hydrostatic <u>2003</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1602.50</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1602.50</u>	

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