



## DRILL STEM TEST REPORT

Prepared For: **Mull Drilling Company, Inc.**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206

ATTN: Kevin Kessler

**Tillitson #1-7**

**7-17s-24w-Ness,KS**

Start Date: 2013.01.06 @ 22:50:12

End Date: 2013.01.07 @ 07:08:27

Job Ticket #: 51708                      DST #: 1

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

Printed: 2013.01.10 @ 10:37:40



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Mull Drilling Company, Inc.

**7-17s-24w-Ness, KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51708

**DST#: 1**

Test Start: 2013.01.06 @ 22:50:12

## GENERAL INFORMATION:

Formation: **Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:32:12

Time Test Ended: 07:08:27

Test Type: Conventional Bottom Hole (Initial)

Tester: Jason McLemore

Unit No: 54

**Interval: 4320.00 ft (KB) To 4380.00 ft (KB) (TVD)**

Reference Elevations: 2462.00 ft (KB)

Total Depth: 4380.00 ft (KB) (TVD)

2457.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366 Inside**

Press @ Run Depth: 46.00 psig @ 4357.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.01.06

End Date:

2013.01.07

Last Calib.: 2013.01.07

Start Time: 22:50:14

End Time:

07:08:27

Time On Btm: 2013.01.07 @ 01:31:42

Time Off Btm: 2013.01.07 @ 05:15:27

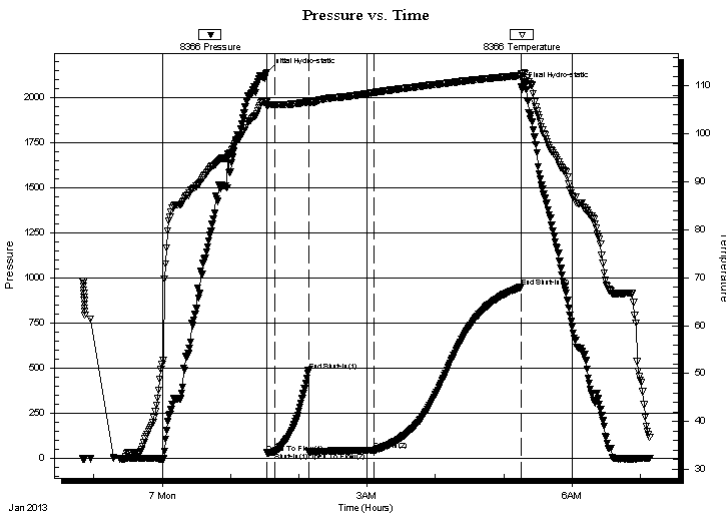
TEST COMMENT: IFP-Weak Blow , Built to 1"

ISI-Dead

FFP-Weak Blow , Built to 3-1/2"

FSI-Dead

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2139.11	106.58	Initial Hydro-static
1	31.81	105.80	Open To Flow (1)
7	36.45	106.04	Shut-In(1)
37	486.79	106.68	End Shut-In(1)
38	35.90	106.55	Open To Flow (2)
95	46.00	108.63	Shut-In(2)
224	950.55	112.16	End Shut-In(2)
224	2060.88	112.55	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
45.00	OCM-15%O-85%M	0.22

## Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Mull Drilling Company, Inc.

**7-17s-24w-Ness, KS**

1700 N. Waterfront Pkwy  
 Building 1200  
 Wichita, KS 67206  
 ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51708

**DST#: 1**

Test Start: 2013.01.06 @ 22:50:12

## GENERAL INFORMATION:

Formation: **Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:32:12

Time Test Ended: 07:08:27

Test Type: Conventional Bottom Hole (Initial)

Tester: Jason McLemore

Unit No: 54

**Interval: 4320.00 ft (KB) To 4380.00 ft (KB) (TVD)**

Reference Elevations: 2462.00 ft (KB)

Total Depth: 4380.00 ft (KB) (TVD)

2457.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8289 Outside**

Press @ Run Depth: psig @ 4357.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.01.06

End Date:

2013.01.07

Last Calib.:

2013.01.07

Start Time: 22:49:59

End Time:

07:08:42

Time On Btm:

Time Off Btm:

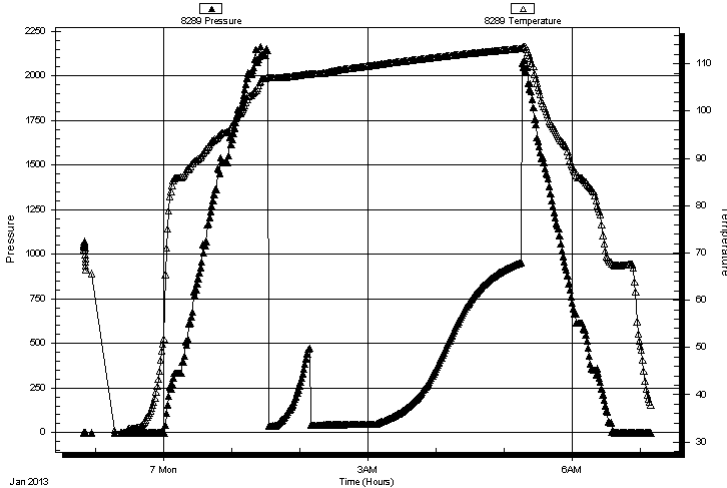
TEST COMMENT: IFP-Weak Blow , Built to 1"

ISI-Dead

FFP-Weak Blow , Built to 3-1/2"

FSI-Dead

Pressure vs. Time



## PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
45.00	OCM-15%O-85%M	0.22

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Mull Drilling Company, Inc.

**7-17s-24w-Ness,KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51708

**DST#: 1**

Test Start: 2013.01.06 @ 22:50:12

## Tool Information

Drill Pipe:	Length: 4173.00 ft	Diameter: 3.80 inches	Volume: 58.54 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 59.15 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4320.00 ft			Final 55000.00 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:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4293.00	
Shut In Tool	5.00			4298.00	
Hydraulic tool	5.00			4303.00	
Jars	5.00			4308.00	
Safety Joint	2.00			4310.00	
Packer	5.00			4315.00	28.00 Bottom Of Top Packer
Packer	5.00			4320.00	
Stubb	1.00			4321.00	
Perforations	3.00			4324.00	
Change Over Sub	1.00			4325.00	
Blank Spacing	31.00			4356.00	
Change Over Sub	1.00			4357.00	
Recorder	0.00	8366	Inside	4357.00	
Recorder	0.00	8289	Outside	4357.00	
Perforations	20.00			4377.00	
Bullnose	3.00			4380.00	60.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>88.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mull Drilling Company, Inc.

**7-17s-24w-Ness,KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51708

**DST#: 1**

Test Start: 2013.01.06 @ 22:50:12

## 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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	OCM-15%O-85%M	0.221

Total Length: 45.00 ft      Total Volume: 0.221 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

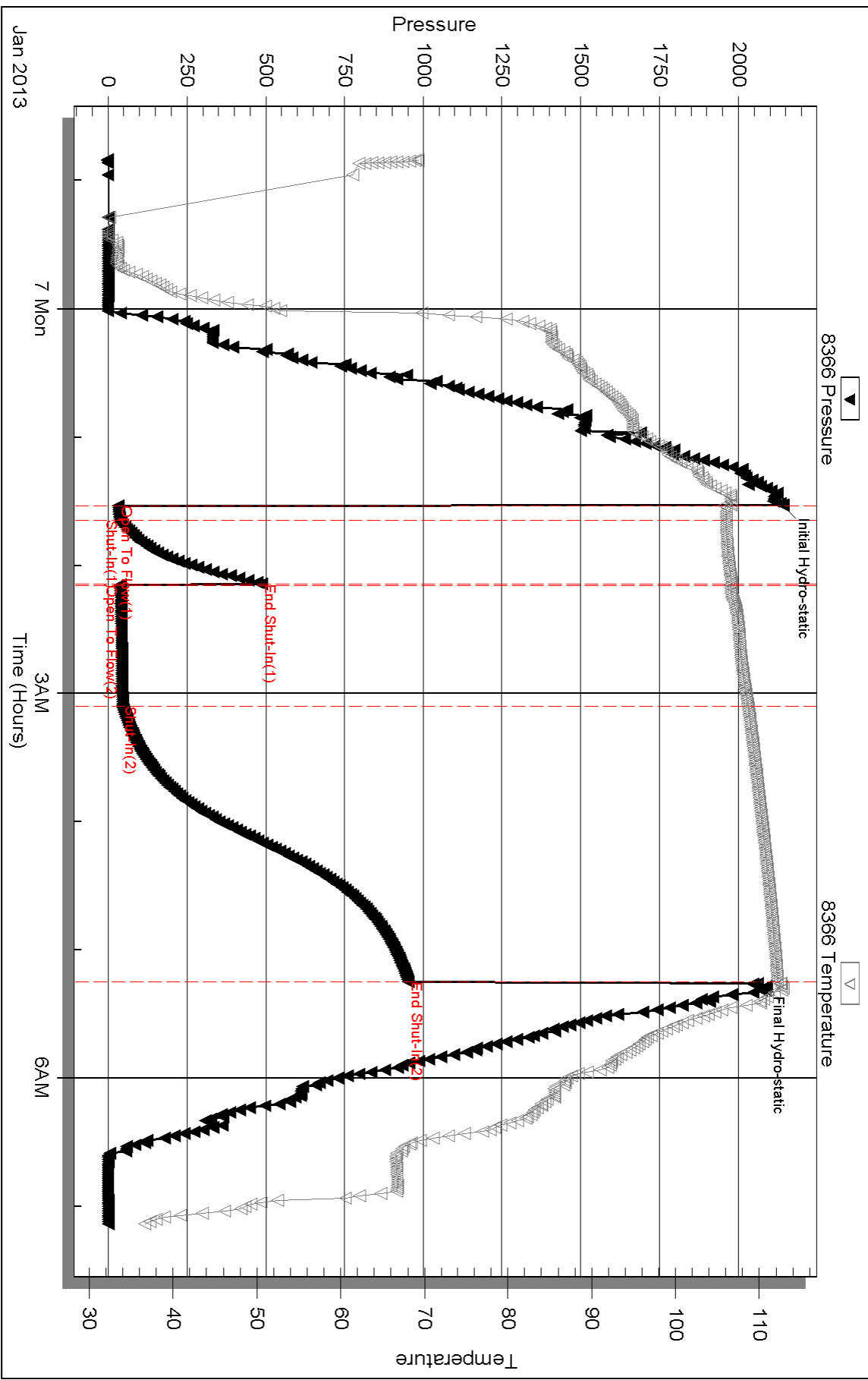
Serial #:

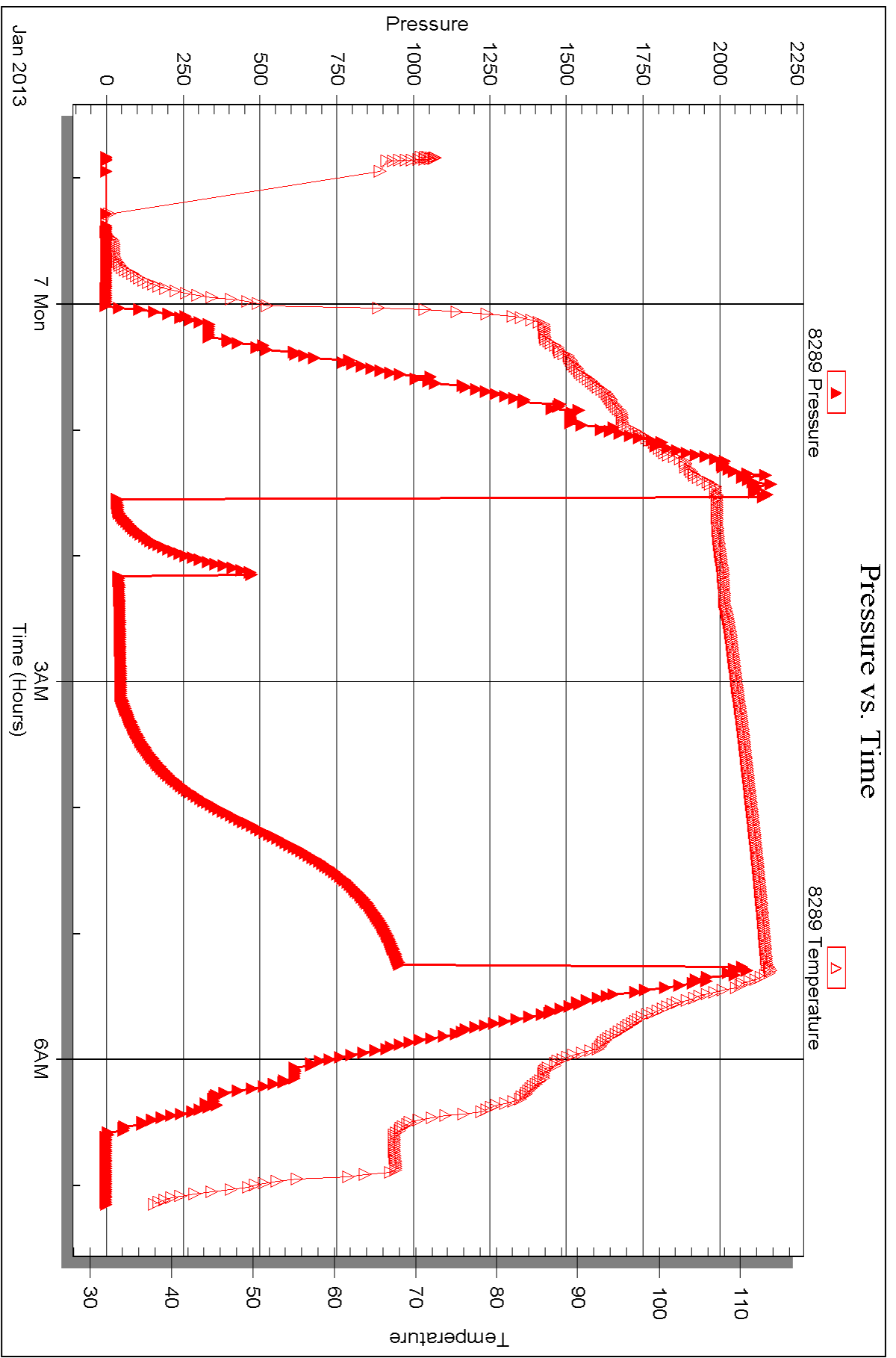
Laboratory Name:

Laboratory Location:

Recovery Comments:

# Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Mull Drilling Company, Inc.**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206

ATTN: Kevin Kessler

### **Tillitson #1-7**

### **7-17s-24w-Ness,KS**

Start Date: 2013.01.07 @ 15:23:42

End Date: 2013.01.07 @ 23:31:12

Job Ticket #: 51709                      DST #: 2

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

Printed: 2013.01.10 @ 10:36:49





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Mull Drilling Company, Inc.

**7-17s-24w-Ness, KS**

1700 N. Waterfront Pkwy  
 Building 1200  
 Wichita, KS 67206  
 ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51709

**DST#: 2**

Test Start: 2013.01.07 @ 15:23:42

## GENERAL INFORMATION:

Formation: **Cherokee Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:42:27

Time Test Ended: 23:31:12

Test Type: Conventional Bottom Hole (Reset)

Tester: Jason McLemore

Unit No: 54

**Interval: 4360.00 ft (KB) To 4435.00 ft (KB) (TVD)**

Reference Elevations: 2462.00 ft (KB)

Total Depth: 4435.00 ft (KB) (TVD)

2457.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366**

**Inside**

Press @ Run Depth: 62.99 psig @ 4427.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.01.07

End Date:

2013.01.07

Last Calib.:

2013.01.07

Start Time: 15:23:44

End Time:

23:31:12

Time On Btm:

2013.01.07 @ 17:41:57

Time Off Btm:

2013.01.07 @ 21:19:27

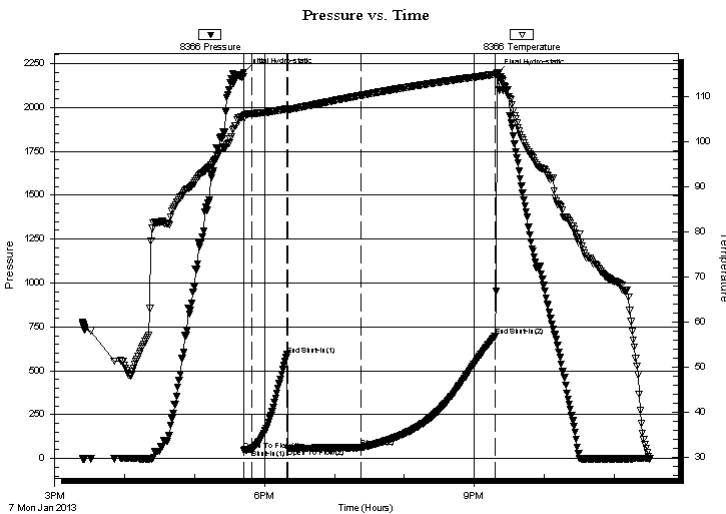
TEST COMMENT: IFP-Weak Blow , Built to 1/4"

ISI-Dead

FFP-Weak Intermittant Blow , Built to 1/2"

FSI-Dead

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2199.67	105.76	Initial Hydro-static
1	47.87	105.14	Open To Flow (1)
7	52.93	106.17	Shut-In(1)
37	590.96	107.24	End Shut-In(1)
38	56.59	107.02	Open To Flow (2)
101	62.99	110.20	Shut-In(2)
216	696.39	114.84	End Shut-In(2)
218	2190.46	115.17	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	OCM-25%O-75%M	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**

Mull Drilling Company, Inc.

**7-17s-24w-Ness,KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51709

**DST#: 2**

Test Start: 2013.01.07 @ 15:23:42

## Tool Information

Drill Pipe:	Length: 4235.00 ft	Diameter: 3.80 inches	Volume: 59.41 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 60.02 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4360.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	75.00 ft			
Tool Length:	103.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4333.00	
Shut In Tool	5.00			4338.00	
Hydraulic tool	5.00			4343.00	
Jars	5.00			4348.00	
Safety Joint	2.00			4350.00	
Packer	5.00			4355.00	28.00 Bottom Of Top Packer
Packer	5.00			4360.00	
Stubb	1.00			4361.00	
Perforations	1.00			4362.00	
Change Over Sub	1.00			4363.00	
Blank Spacing	63.00			4426.00	
Change Over Sub	1.00			4427.00	
Recorder	0.00	8366	Inside	4427.00	
Recorder	0.00	8289	Outside	4427.00	
Perforations	5.00			4432.00	
Bullnose	3.00			4435.00	75.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>103.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mull Drilling Company, Inc.

**7-17s-24w-Ness,KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51709

**DST#: 2**

Test Start: 2013.01.07 @ 15:23:42

## 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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
15.00	OCM-25%O-75%M	0.074

Total Length: 15.00 ft      Total Volume: 0.074 bbl

Num Fluid Samples: 0

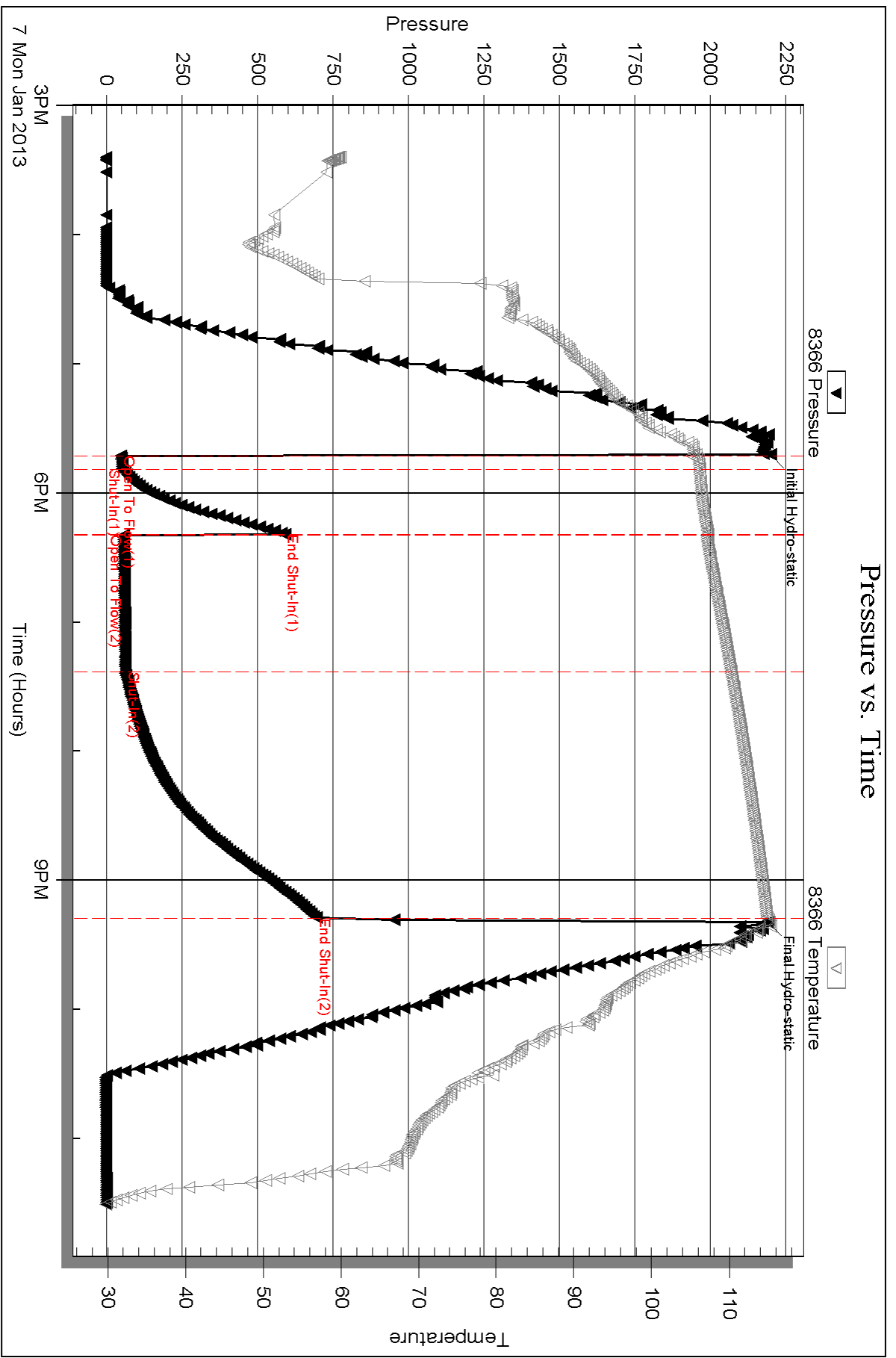
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

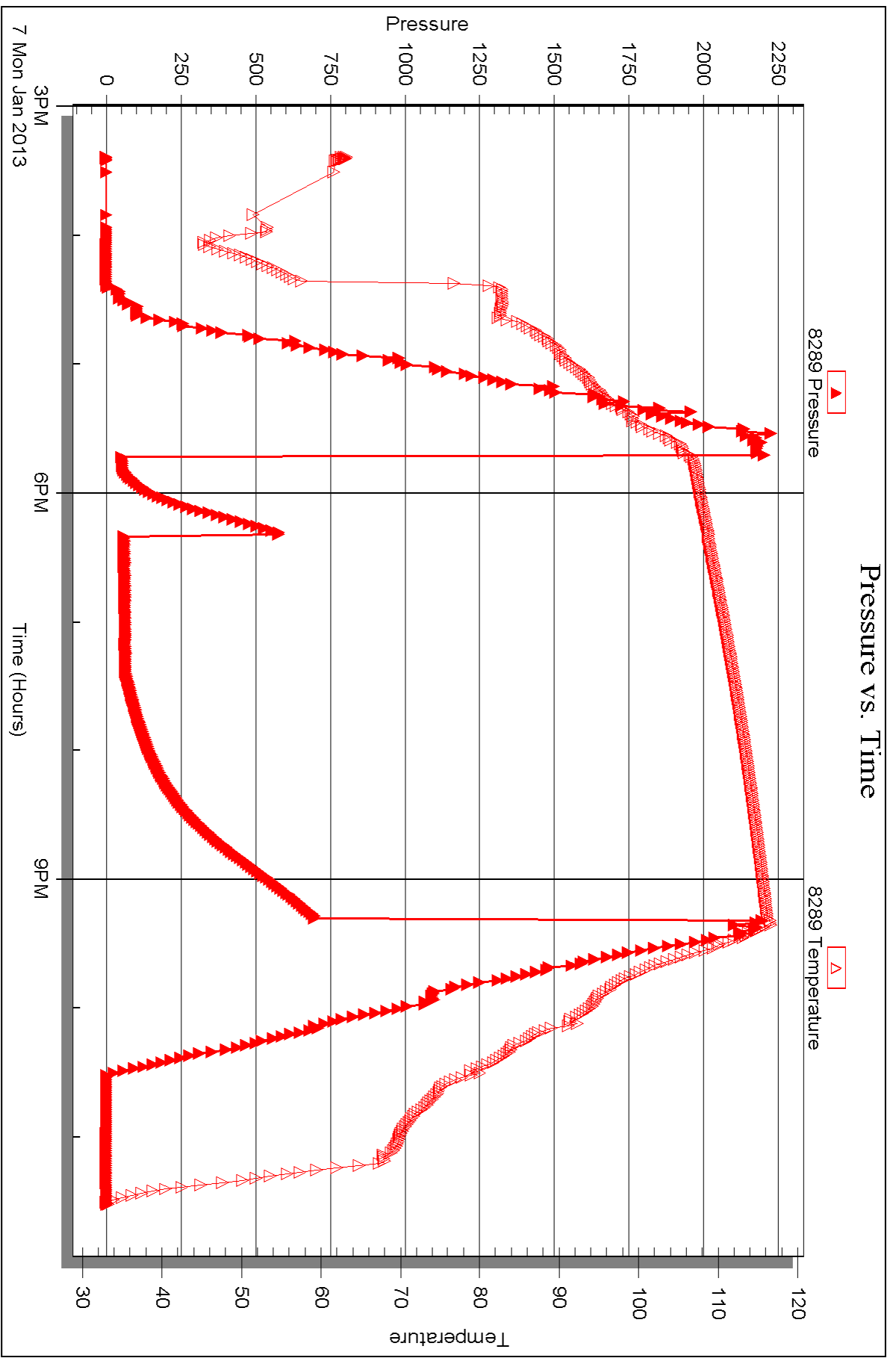


Serial #: 8289

Outside Mull Drilling Company, Inc.

Tillison #1-7

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 51709

Printed: 2013.01.10 @ 10:36:53



## DRILL STEM TEST REPORT

Prepared For: **Mull Drilling Company, Inc.**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206

ATTN: Kevin Kessler

**Tillitson #1-7**

**7-17s-24w-Ness,KS**

Start Date: 2013.01.08 @ 05:45:11

End Date: 2013.01.08 @ 14:19:26

Job Ticket #: 51710                      DST #: 3

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

Printed: 2013.01.10 @ 10:35:58

Mull Drilling Company, Inc.  
7-17s-24w-Ness,KS  
Tillitson #1-7  
DST # 3  
Mississippi  
2013.01.08



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Mull Drilling Company, Inc.

**7-17s-24w-Ness, KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51710

**DST#: 3**

Test Start: 2013.01.08 @ 05:45:11

## GENERAL INFORMATION:

Formation: **Mississippi**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:27:56  
 Time Test Ended: 14:19:26  
 Interval: **4391.00 ft (KB) To 4451.00 ft (KB) (TVD)**  
 Total Depth: 4451.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jason McLemore  
 Unit No: 54  
 Reference Elevations: 2462.00 ft (KB)  
 2457.00 ft (CF)  
 KB to GR/CF: 5.00 ft

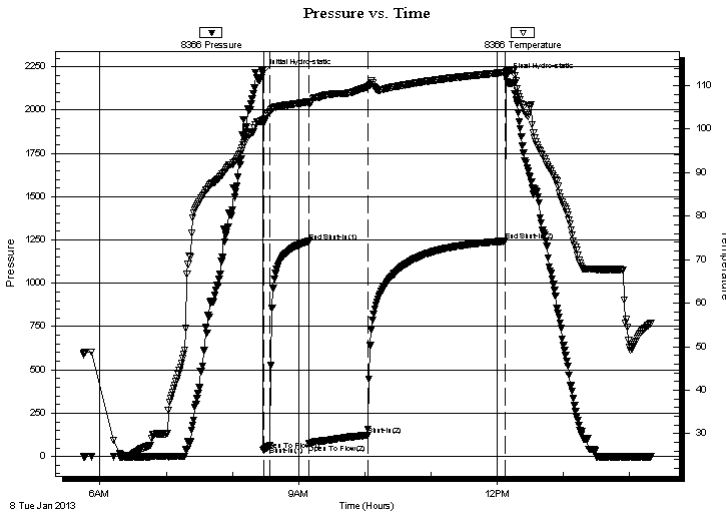
## Serial #: 8366

Inside

Press @ Run Depth: 124.33 psig @ 4428.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.01.08 End Date: 2013.01.08 Last Calib.: 2013.01.08  
 Start Time: 05:45:13 End Time: 14:19:26 Time On Btm: 2013.01.08 @ 08:27:41  
 Time Off Btm: 2013.01.08 @ 12:07:56

TEST COMMENT: IFP-Weak Blow , Built to 2-1/2"  
 ISI-Dead  
 FFP-Weak Blow , Built to 4-1/2"  
 FSI-Dead

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2208.81	102.14	Initial Hydro-static
1	35.76	101.48	Open To Flow (1)
7	61.00	104.00	Shut-In(1)
42	1241.73	106.28	End Shut-In(1)
42	73.82	105.74	Open To Flow (2)
95	124.33	109.69	Shut-In(2)
220	1243.66	112.99	End Shut-In(2)
221	2187.55	113.19	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
180.00	MCO-10%G-55%O-35%M	1.40
30.00	Free Oil	0.42
0.00	30' Gas In Pipe	0.00

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Mull Drilling Company, Inc.

**7-17s-24w-Ness,KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51710

**DST#: 3**

Test Start: 2013.01.08 @ 05:45:11

## Tool Information

Drill Pipe:	Length: 4266.00 ft	Diameter: 3.80 inches	Volume: 59.84 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 60.45 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4391.00 ft			Final 55000.00 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:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4364.00	
Shut In Tool	5.00			4369.00	
Hydraulic tool	5.00			4374.00	
Jars	5.00			4379.00	
Safety Joint	2.00			4381.00	
Packer	5.00			4386.00	28.00 Bottom Of Top Packer
Packer	5.00			4391.00	
Stubb	1.00			4392.00	
Perforations	3.00			4395.00	
Change Over Sub	1.00			4396.00	
Blank Spacing	31.00			4427.00	
Change Over Sub	1.00			4428.00	
Recorder	0.00	8366	Inside	4428.00	
Recorder	0.00	8289	Outside	4428.00	
Perforations	20.00			4448.00	
Bullnose	3.00			4451.00	60.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>88.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mull Drilling Company, Inc.

**7-17s-24w-Ness,KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51710

**DST#: 3**

Test Start: 2013.01.08 @ 05:45:11

## 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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
180.00	MCO-10%G-55%O-35%M	1.395
30.00	Free Oil	0.421
0.00	30' Gas In Pipe	0.000

Total Length: 210.00 ft      Total Volume: 1.816 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

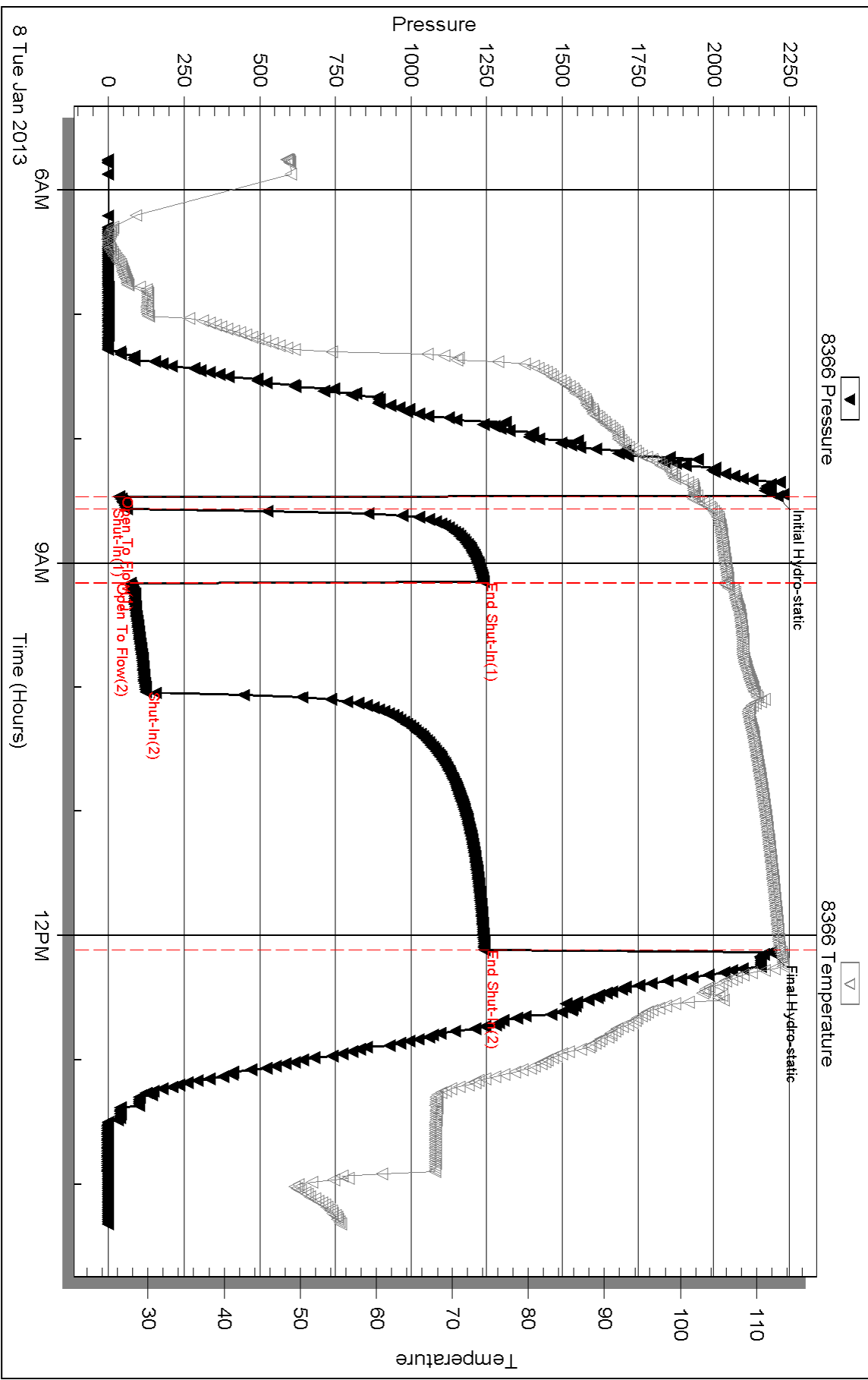
Serial #:

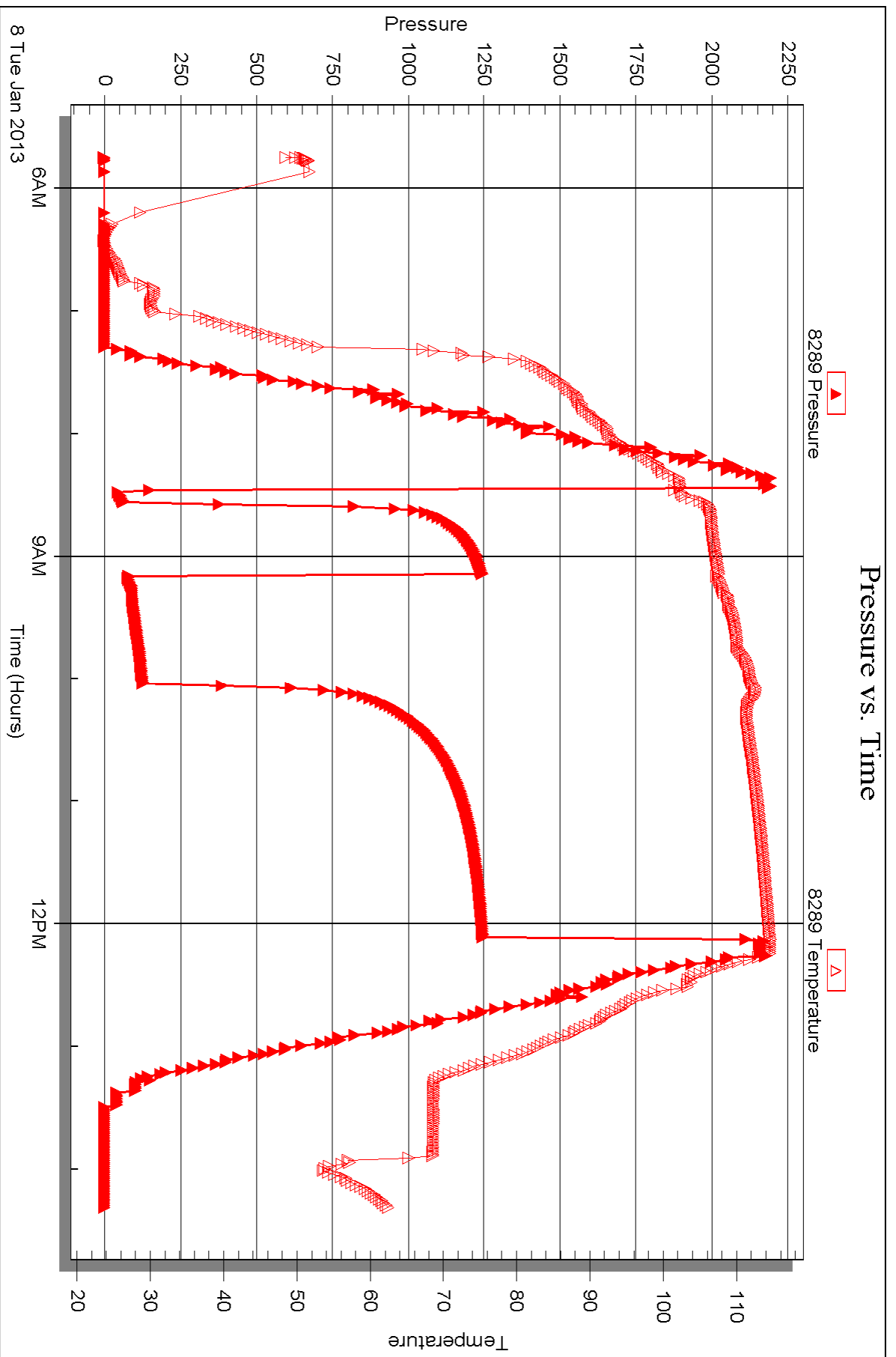
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Mull Drilling Company, Inc.**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206

ATTN: Kevin Kessler

**Tillitson #1-7**

**7-17s-24w-Ness,KS**

Start Date: 2013.01.08 @ 19:00:59

End Date: 2013.01.09 @ 03:39:29

Job Ticket #: 51711                      DST #: 4

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

Printed: 2013.01.10 @ 10:35:14

Mull Drilling Company, Inc.  
7-17s-24w-Ness,KS  
Tillitson #1-7  
DST # 4  
Mississippi  
2013.01.08



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Mull Drilling Company, Inc.

**7-17s-24w-Ness, KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51711

**DST#: 4**

Test Start: 2013.01.08 @ 19:00:59

## GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:26:14

Time Test Ended: 03:39:29

Test Type: Conventional Bottom Hole (Reset)

Tester: Jason McLemore

Unit No: 54

**Interval: 4450.00 ft (KB) To 4456.00 ft (KB) (TVD)**

Reference Elevations: 2462.00 ft (KB)

Total Depth: 4380.00 ft (KB) (TVD)

2457.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366**

**Inside**

Press @ Run Depth: 98.36 psig @ 4453.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.01.08

End Date:

2013.01.09

Last Calib.:

2013.01.09

Start Time: 19:01:01

End Time:

03:39:29

Time On Btm:

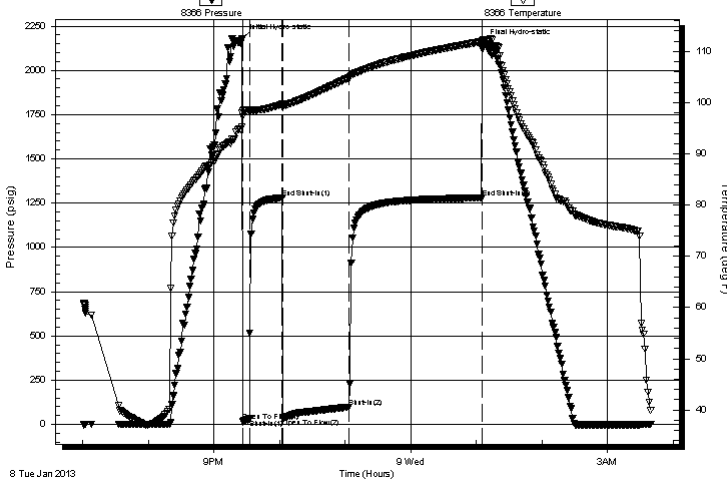
2013.01.08 @ 21:25:59

Time Off Btm:

2013.01.09 @ 01:05:44

**TEST COMMENT:** IFP-Weak Blow , Built to 1-1/2"  
ISI-Dead  
FFP-Weak Blow , Built to 2-1/2"  
FSI-Dead

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2179.25	98.04	Initial Hydro-static
1	15.58	97.29	Open To Flow (1)
7	31.78	98.28	Shut-In(1)
37	1279.76	99.70	End Shut-In(1)
37	33.75	99.00	Open To Flow (2)
98	98.36	104.87	Shut-In(2)
219	1278.95	111.92	End Shut-In(2)
220	2149.41	112.16	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
160.00	Muddy Water-90%W-10%M	1.11
40.00	Free Oil	0.56

## Gas Rates

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

\* Recovery from multiple tests







**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mull Drilling Company, Inc.

**7-17s-24w-Ness,KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51711

**DST#: 4**

Test Start: 2013.01.08 @ 19:00:59

**Tool Information**

Drill Pipe:	Length: 4330.00 ft	Diameter: 3.80 inches	Volume: 60.74 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 61.35 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4450.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	6.00 ft			
Tool Length:	34.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Change Over Sub	1.00			4423.00	
Shut In Tool	5.00			4428.00	
Hydraulic tool	5.00			4433.00	
Jars	5.00			4438.00	
Safety Joint	2.00			4440.00	
Packer	5.00			4445.00	28.00 Bottom Of Top Packer
Packer	5.00			4450.00	
Stubb	1.00			4451.00	
Perforations	2.00			4453.00	
Recorder	0.00	8366	Inside	4453.00	
Recorder	0.00	8289	Outside	4453.00	
Bullnose	3.00			4456.00	6.00 Bottom Packers & Anchor

**Total Tool Length: 34.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mull Drilling Company, Inc.

**7-17s-24w-Ness,KS**

1700 N. Waterfront Pkwy  
Building 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Tillitson #1-7**

Job Ticket: 51711

**DST#: 4**

Test Start: 2013.01.08 @ 19:00:59

## 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:

30000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
160.00	Muddy Water-90%W-10%M	1.115
40.00	Free Oil	0.561

Total Length: 200.00 ft

Total Volume: 1.676 bbl

Num Fluid Samples: 0

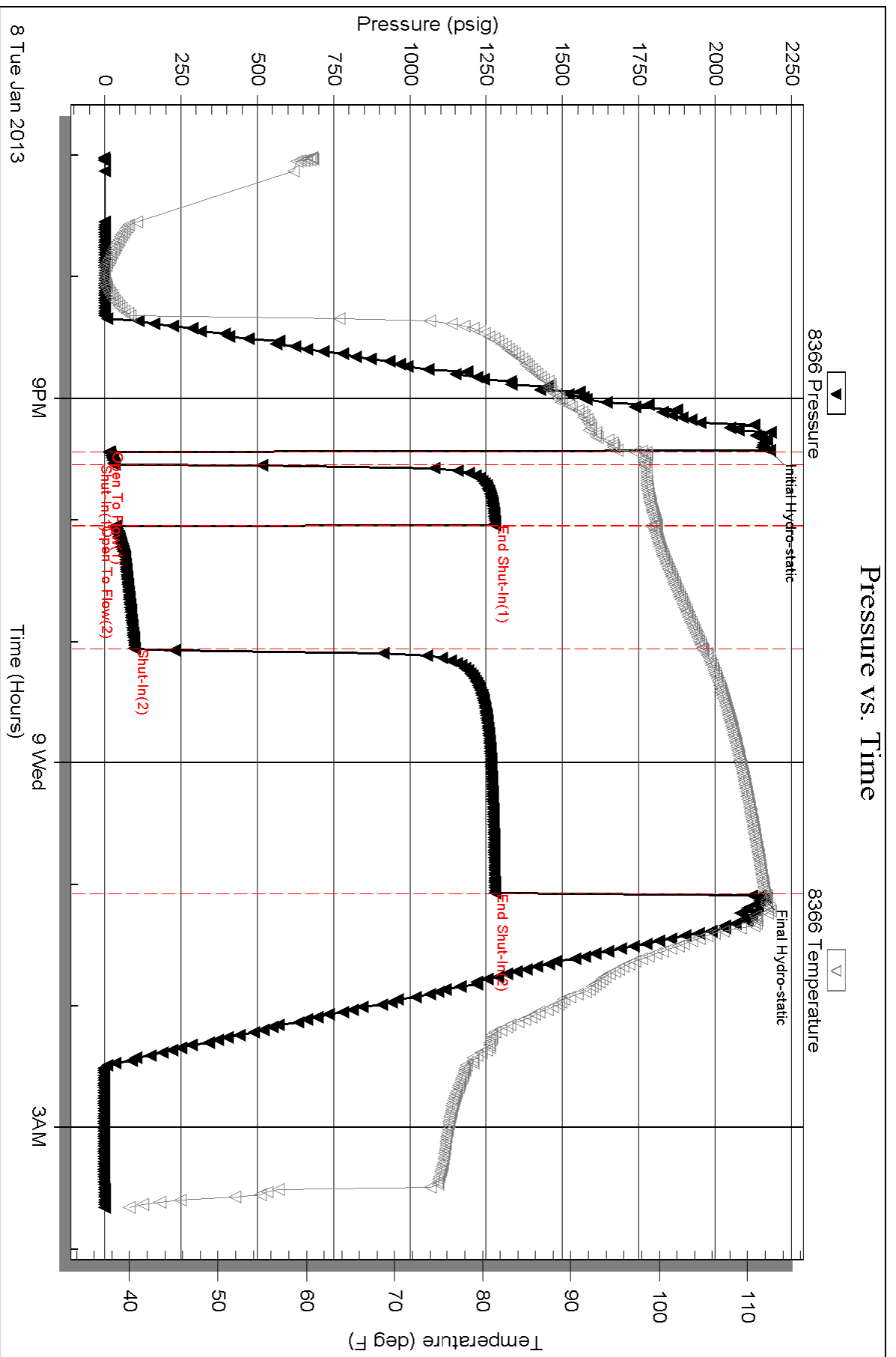
Num Gas Bombs: 0

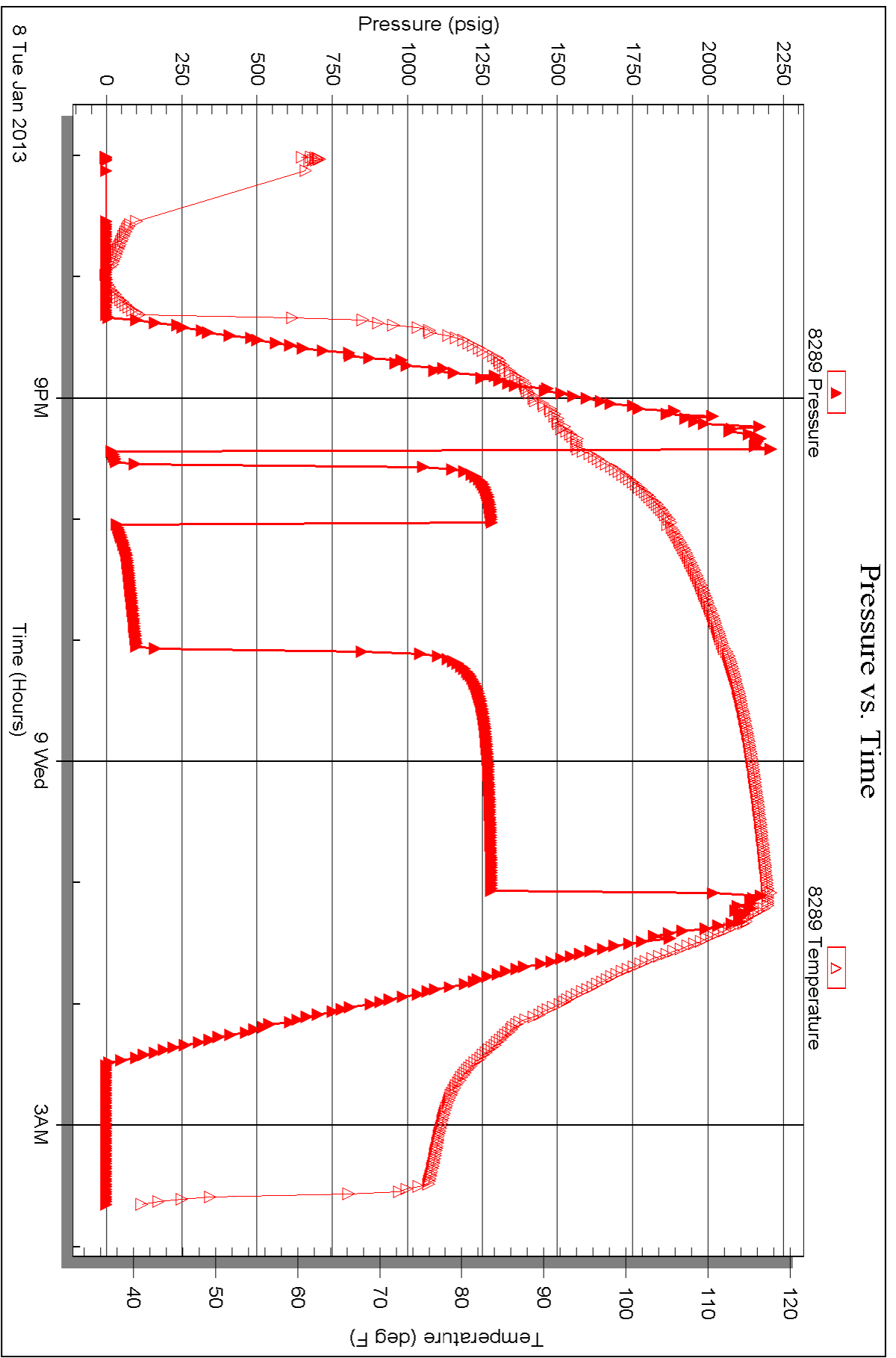
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51708

Well Name & No. #1-7 Tillitson Test No. 1 Date 1-6-13  
 Company Mull Drilling Co. Inc. Elevation 2462 KB 2457 GL  
 Address 1700 N. Waterfront Parkway, Building 1200, Wichita, KS, 67206  
 Co. Rep / Geo. Kevin Kessler Rig WW #10  
 Location: Sec. 7 Twp. 17s Rge. 24w Co. Ness State KS

Interval Tested 4320-4380 Zone Tested Fr Scott  
 Anchor Length 60' Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.3  
 Top Packer Depth 4315 Drill Collars Run 124 Vis 50  
 Bottom Packer Depth 4320 Wt. Pipe Run 0 WL 8.0  
 Total Depth 4380 Chlorides 6,000 ppm System LCM 1#  
 Blow Description IFP - Weak Blow, Built to 1"  
ISI - Dead  
FFP - Weak Blow, Built to 3 1/2"  
FSI - Dead

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>OCM</u>	<u>15</u>		<u>85</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 45 BHT 112° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2139  Test 1250 T-On Location 22:40  
 (B) First Initial Flow 32  Jars 250 T-Started 22:48  
 (C) First Final Flow 36  Safety Joint 75 T-Open 1:33  
 (D) Initial Shut-In 487  Circ Sub \_\_\_\_\_ T-Pulled 5:08  
 (E) Second Initial Flow 36  Hourly Standby \_\_\_\_\_ T-Out 7:07  
 (F) Second Final Flow 46  Mileage 140 rt <sub>217</sub>  
 (G) Final Shut-In 951  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2061  Straddle \_\_\_\_\_

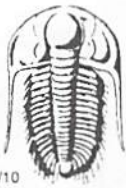
Comments Wait On Tester about 1 hour,

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1792  
 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1792

Approved By \_\_\_\_\_ Our Representative Jason McLemore

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Thank you



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51709

Well Name & No. #1-7 Tillitson Test No. 2 Date 1-7-13  
 Company Mull Drilling Company, Inc. Elevation 2462 KB 2457 GL  
 Address 1700 N Waterfront Parkway, Building 1200, Wichita, 67206  
 Co. Rep / Geo. Kevin Kessler Rig WW #10  
 Location: Sec. 7 Twp. 17s Rge. 24w Co. Ness State KS

Interval Tested 4360 - 4435 Zone Tested Cherokee sand  
 Anchor Length 75' Drill Pipe Run 4235 Mud Wt. 9.3  
 Top Packer Depth 4355 Drill Collars Run 124 Vis 46  
 Bottom Packer Depth 4360 Wt. Pipe Run 0 WL 8.0  
 Total Depth 4435 Chlorides 6100 ppm System LCM 1 #  
 Blow Description IFF- weak Blow, Built to 1/4"  
ISI - Dead  
IFF- Weak Intermittent Blow, Built to 1/2"  
ISI - Dead

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>OCM</u>	<u>25</u>		<u>75</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 \_\_\_\_\_ Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2200</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>15:10</u>
(B) First Initial Flow <u>48</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>15:21</u>
(C) First Final Flow <u>53</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>17:42</u>
(D) Initial Shut-In <u>591</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>21:17</u>
(E) Second Initial Flow <u>57</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>23:29</u>
(F) Second Final Flow <u>63</u>	<input checked="" type="checkbox"/> Mileage <u>217</u>	Comments _____
(G) Final Shut-In <u>696</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2190</u>	<input type="checkbox"/> Straddle _____	
Initial Open <u>5</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>120</u>	<input type="checkbox"/> Day Standby _____	Total <u>1792</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1792</u>	

Approved By \_\_\_\_\_ Our Representative \_\_\_\_\_

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51710

Well Name & No. #1-7 Tillitson Test No. 3 Date 1-8-13  
 Company Mull Drilling Company, Inc. Elevation 2462 KB 2457 GL  
 Address 1700 N. Water Front Parkway, Building 1200, Wichita, Ks. 67206  
 Co. Rep / Geo. Kevin Kessler Rig WW #10  
 Location: Sec. 7 Twp. 17s Rge. 24w Co. Ness State KS

Interval Tested 4391-4451 Zone Tested Mississippi  
 Anchor Length 60 Drill Pipe Run 4266 Mud Wt. 9.4  
 Top Packer Depth 4386 Drill Collars Run 124 Vis 45  
 Bottom Packer Depth 4391 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4451 Chlorides 5200 ppm System LCM 1#  
 Blow Description IFP - Weak Blow, Built to 2'1/2"  
ISI - Dead  
FFP - Weak Blow, Built to 4'1/2"  
FSI - Dead

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>Free Oil</u>				
<u>180</u>	<u>MCO</u>	<u>10%</u>	<u>55%</u>	<u>35%</u>	
	<u>30' GIP</u>				

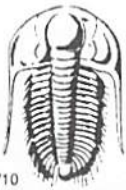
Rec Total 210 BHT 113° Gravity 36 API RW @ ° F Chlorides ppm

(A) Initial Hydrostatic 2209  Test 1250 T-On Location 5:34  
 (B) First Initial Flow 36  Jars 250 T-Started 5:42  
 (C) First Final Flow 61  Safety Joint 75 T-Open 8:28  
 (D) Initial Shut-In 1242  Circ Sub \_\_\_\_\_ T-Pulled 12:03  
 (E) Second Initial Flow 74  Hourly Standby \_\_\_\_\_ T-Out 14:20  
 (F) Second Final Flow 124  Mileage 217 Comments \_\_\_\_\_  
 (G) Final Shut-In 1244  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2188  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1792

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1792  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Jaron Mc Simon *Thank You*

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51711

4/10

Well Name & No. #1-7 Tillitson Test No. 41 Date 1-8-11  
 Company Mull Drilling Company, Inc. Elevation 2462 KB 2457 GL  
 Address 1700 N. Waterfront Parkway, Building 1200, Wichita, Ks. 67206  
 Co. Rep / Geo. Kevin Kessler Rig WW#10  
 Location: Sec. 7 Twp. 17s Rge. 24w Co. Ness State KS

Interval Tested 4450-4454 Zone Tested Mississippi  
 Anchor Length 6 Drill Pipe Run 4330 Mud Wt. 9.4  
 Top Packer Depth 4445 Drill Collars Run 129 Vis 45  
 Bottom Packer Depth 4450 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4456 Chlorides 5200 ppm System LCM 1#  
 Blow Description IFP-Weak Blow, Built to 1 1/2"  
ISI-Dead  
FFP-Weak Blow, Built to 2 1/2"  
FSI-Dead

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>Free Oil</u>				
<u>160</u>	<u>Muddy Water</u>		<u>90</u>	<u>10</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 200 BHT \_\_\_\_\_ Gravity 36 API RW .567 @ 32 °F Chlorides 30,000 ppm  
 (A) Initial Hydrostatic 2179  Test 1250 T-On Location 18:50  
 (B) First Initial Flow 16  Jars 250 T-Started 18:57  
 (C) First Final Flow 32  Safety Joint 75 T-Open 21:26  
 (D) Initial Shut-In 1280  Circ Sub \_\_\_\_\_ T-Pulled 11:01  
 (E) Second Initial Flow 34  Hourly Standby \_\_\_\_\_ T-Out 3:38  
 (F) Second Final Flow 98  Mileage 217 Comments \_\_\_\_\_  
 (G) Final Shut-In 1279  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2149  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1792  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1792

Approved By \_\_\_\_\_ Our Representative \_\_\_\_\_

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