

## DRILL STEM TEST REPORT

Prepared For: **Mull Drilling Co.**

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206

ATTN: Phil Askey

### **TSA Unit #1-14**

### **14-17s-45w Kiowa,CO**

Start Date: 2012.02.24 @ 11:25:00

End Date: 2012.02.24 @ 21:03:25

Job Ticket #: 45133                      DST #: 1

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

Printed: 2012.03.02 @ 11:34:58



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Mull Drilling Co.

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**14-17s-45w Kiowa, CO**

**TSA Unit #1-14**

Job Ticket: 45133

**DST#: 1**

Test Start: 2012.02.24 @ 11:25:00

### GENERAL INFORMATION:

Formation: **Lansing**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:26:55

Time Test Ended: 21:03:25

Test Type: Conventional Bottom Hole (Initial)

Tester: Will MacLean

Unit No: 60

**Interval: 4231.00 ft (KB) To 4243.00 ft (KB) (TVD)**

Total Depth: 4243.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 4140.00 ft (KB)

4129.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8356 Outside**

Press @ Run Depth: 213.23 psig @ 4233.00 ft (KB)

Start Date: 2012.02.24

End Date:

2012.02.24

Start Time: 11:25:00

End Time:

21:03:25

Capacity: 8000.00 psig

Last Calib.: 2012.02.24

Time On Btm: 2012.02.24 @ 14:26:25

Time Off Btm: 2012.02.24 @ 18:07:24

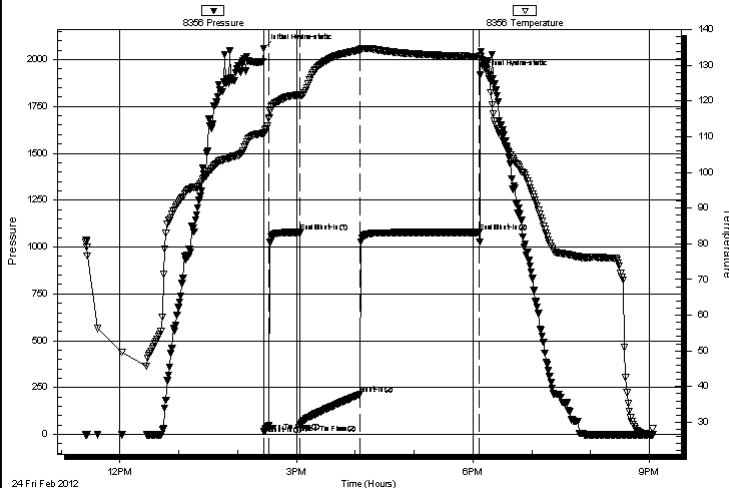
TEST COMMENT: IF- Surface Blow Built to 1"

ISI- No Blow

FF- Surface Blow Built to BOB in 24 min

FSI- Weak Surface Blow in 18 min Built to 4"

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2060.15	111.05	Initial Hydro-static
1	15.94	110.90	Open To Flow (1)
6	48.03	115.41	Shut-In(1)
38	1078.54	121.73	End Shut-In(1)
38	51.30	121.23	Open To Flow (2)
98	213.23	134.27	Shut-In(2)
220	1078.69	132.44	End Shut-In(2)
221	1917.93	132.70	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
180.00	OGMCW 2%oil 3%g 5%m 90%w	0.89
63.00	GOMCW 5%g 5%oil 10%m 80%w	0.88
63.00	GOMCW 5%g 10%oil 40%m 45%w	0.88
63.00	WMOCG 10%w 25%m 25%oil 40%g	0.88
113.00	MGCO 5%m 25%g 70% oil	1.59
0.00	388' of GIP	0.00

### Gas Rates

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

## DRILL STEM TEST REPORT

Mull Drilling Co.

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**14-17s-45w Kiowa, CO**

**TSA Unit #1-14**

Job Ticket: 45133

**DST#: 1**

Test Start: 2012.02.24 @ 11:25:00

### GENERAL INFORMATION:

Formation: **Lansing**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:26:55

Time Test Ended: 21:03:25

Test Type: Conventional Bottom Hole (Initial)

Tester: Will MacLean

Unit No: 60

**Interval: 4231.00 ft (KB) To 4243.00 ft (KB) (TVD)**

Total Depth: 4243.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 4140.00 ft (KB)

4129.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8373 Inside**

Press @ Run Depth: psig @ 4233.00 ft (KB)

Start Date: 2012.02.24

End Date:

2012.02.24

Start Time: 11:25:05

End Time:

21:03:30

Capacity: 8000.00 psig

Last Calib.: 2012.02.24

Time On Btm:

Time Off Btm:

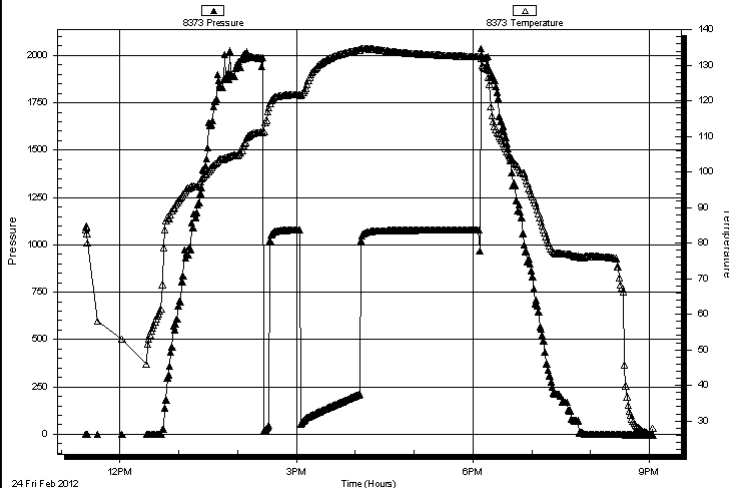
TEST COMMENT: IF- Surface Blow Built to 1"

ISI- No Blow

FF- Surface Blow Built to BOB in 24 min

FSI- Weak Surface Blow in 18 min Built to 4"

Pressure vs. Time



### PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
180.00	OGMCW 2%oil 3%g 5%m 90%w	0.89
63.00	GOMCW 5%g 5%oil 10%m 80%w	0.88
63.00	GOMCW 5%g 10%oil 40%m 45%w	0.88
63.00	WMOCG 10%w 25%m 25%oil 40%g	0.88
113.00	MGCO 5%m 25%g 70% oil	1.59
0.00	388' of GIP	0.00

### 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 Co.

**14-17s-45w Kiowa, CO**

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**TSA Unit #1-14**

Job Ticket: 45133

**DST#: 1**

Test Start: 2012.02.24 @ 11:25:00

### Tool Information

Drill Pipe:	Length:	4053.00 ft	Diameter:	3.80 inches	Volume:	56.85 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length:	179.00 ft	Diameter:	2.25 inches	Volume:	0.88 bbl	Weight to Pull Loose:	12000.00 lb
					Total Volume:	57.73 bbl	Tool Chased	ft
Drill Pipe Above KB:		21.00 ft					String Weight: Initial	62000.00 lb
Depth to Top Packer:		4231.00 ft					Final	64000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		12.00 ft						
Tool Length:		32.00 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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Stubb	1.00			4212.00	
Shut In Tool	5.00			4217.00	
Hydraulic tool	5.00			4222.00	
Packer	5.00			4227.00	20.00 Bottom Of Top Packer
Packer	4.00			4231.00	
Stubb	1.00			4232.00	
Perforations	1.00			4233.00	
Recorder	0.00	8373	Inside	4233.00	
Recorder	0.00	8356	Outside	4233.00	
Perforations	5.00			4238.00	
Bullnose	5.00			4243.00	12.00 Bottom Packers & Anchor

**Total Tool Length: 32.00**



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Mull Drilling Co.

**14-17s-45w Kiowa, CO**

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**TSA Unit #1-14**

Job Ticket: 45133

**DST#: 1**

Test Start: 2012.02.24 @ 11:25:00

### Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 50.00 sec/qt  
Water Loss: 7.95 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 8300.00 ppm  
Filter Cake: 1.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: 30 deg API  
Water Salinity: 19000 ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
180.00	OGMCW 2%oil 3%g 5%m 90%w	0.894
63.00	GOMCW 5%g 5%oil 10%m 80%w	0.884
63.00	GOMCW 5%g 10%oil 40%m 45%w	0.884
63.00	WMOCG 10%w 25%m 25%oil 40%g	0.884
113.00	MGCO 5%m 25%g 70% oil	1.585
0.00	388' of GIP	0.000

Total Length: 482.00 ft      Total Volume: 5.131 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API is 27 @ 30f = 30

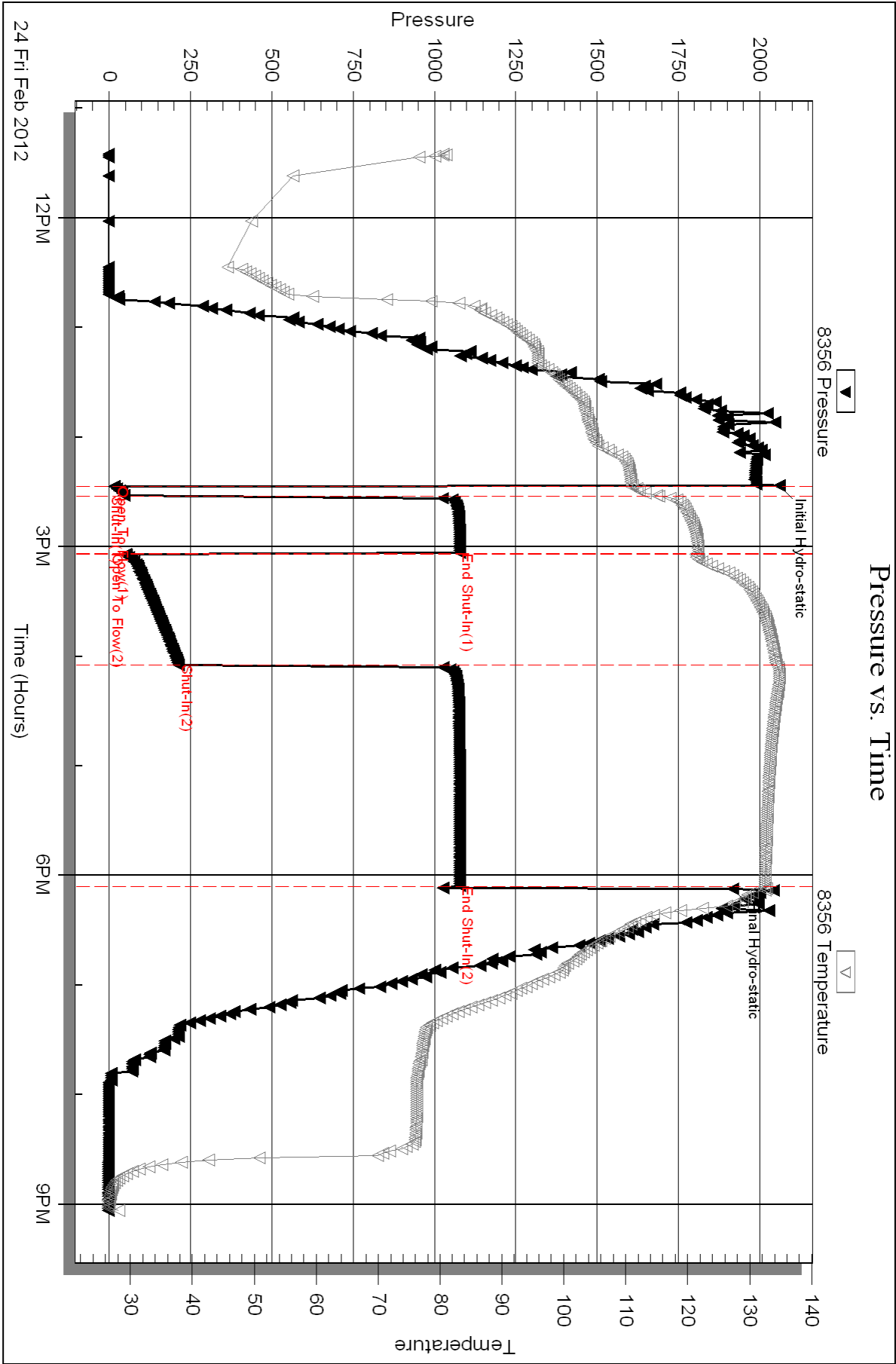
RW is .693 @ 34f = 19000

Serial #: 8356

Outside Mull Drilling Co.

TSA Unit #1-14

DST Test Number: 1



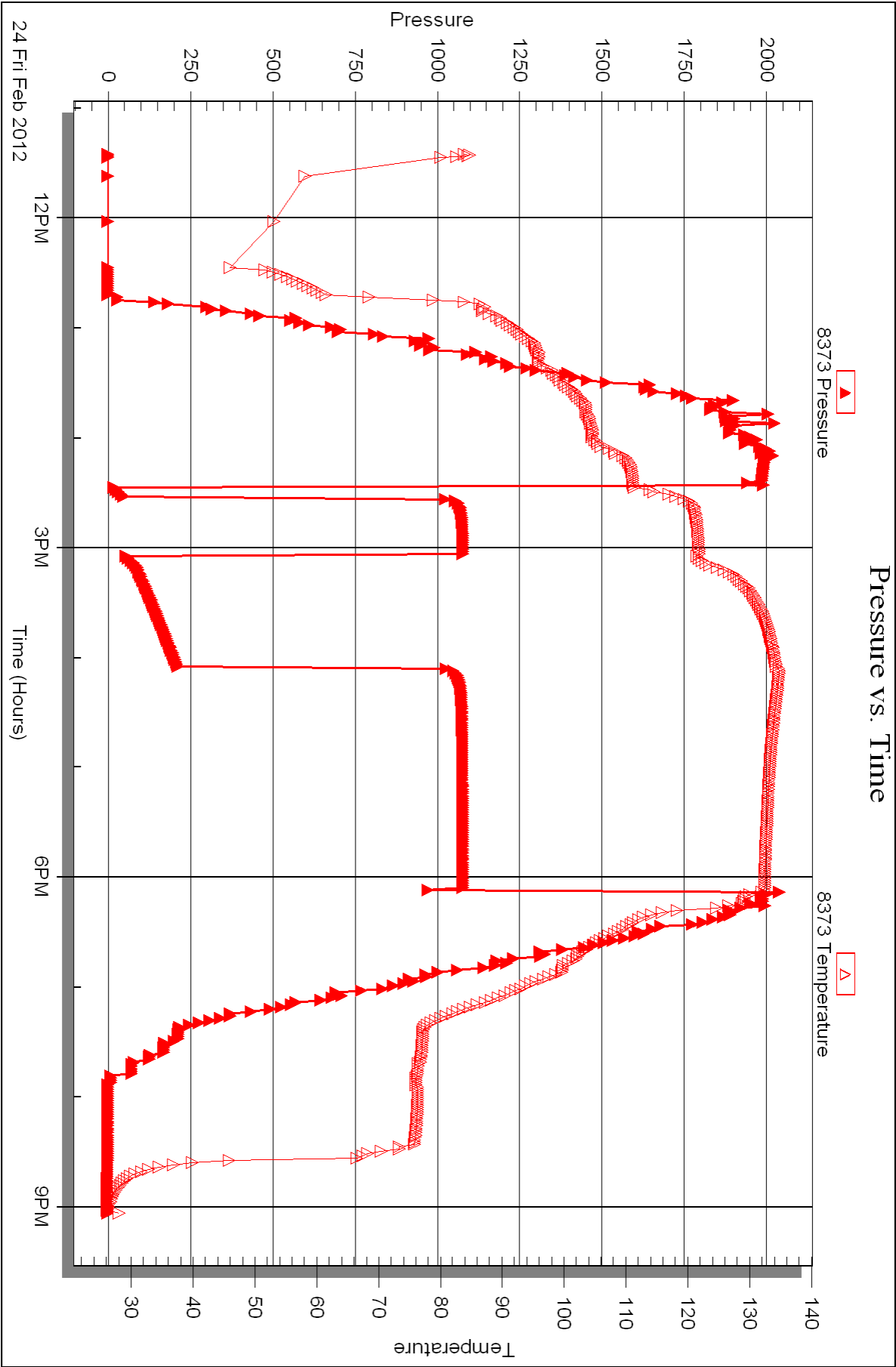
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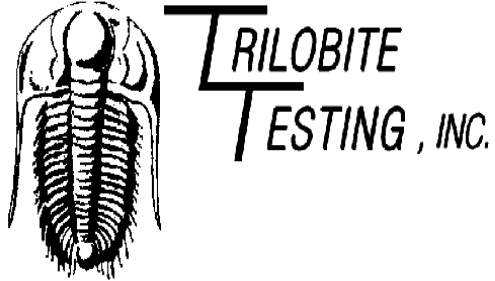
Inside

Mull Drilling Co.

TSA Unit #1-14

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Mull Drilling Co.**

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206

ATTN: Phil Askey

### **TSA Unit #1-14**

### **14-17s-45w Kiowa,CO**

Start Date: 2012.02.25 @ 14:26:00

End Date: 2012.02.25 @ 22:53:39

Job Ticket #: 45134                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.03.02 @ 11:30:48





**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Mull Drilling Co.

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**14-17s-45w Kiowa, CO**

**TSA Unit #1-14**

Job Ticket: 45134

**DST#: 2**

Test Start: 2012.02.25 @ 14:26:00

### GENERAL INFORMATION:

Formation: **Pleasanton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:19:40

Time Test Ended: 22:53:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 60

**Interval: 4357.00 ft (KB) To 4370.00 ft (KB) (TVD)**

Total Depth: 4370.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 4140.00 ft (KB)

4129.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8356 Outside**

Press @ Run Depth: 104.37 psig @ 4360.00 ft (KB)

Start Date: 2012.02.25

End Date:

2012.02.25

Start Time: 14:26:00

End Time:

22:53:39

Capacity: 8000.00 psig

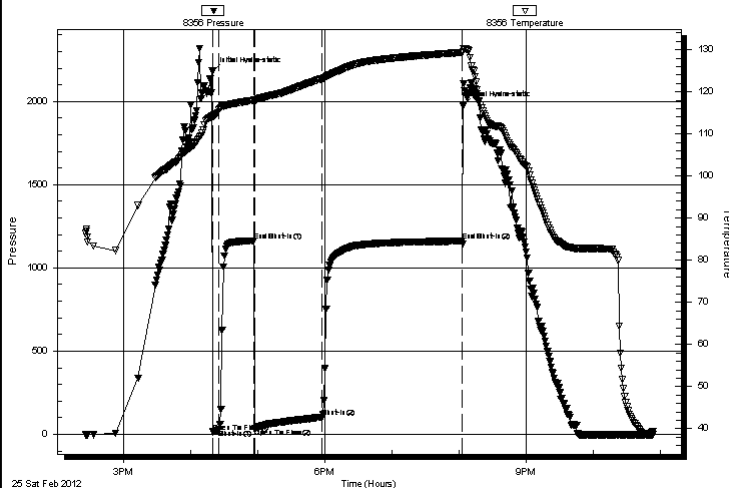
Last Calib.: 2012.02.25

Time On Btm: 2012.02.25 @ 16:19:10

Time Off Btm: 2012.02.25 @ 20:03:39

**TEST COMMENT:** IF- Surface Blow Built to 5 3/4"  
ISI- Weak Surface Blow in 8 min  
FF- Surface Blow Built to BOB in 7 1/4 min  
FSI- Weak Surface Blow in 4 1/2 min Built to 6"

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2181.46	114.25	Initial Hydro-static
1	15.03	114.01	Open To Flow (1)
7	28.36	115.74	Shut-In(1)
38	1163.44	118.04	End Shut-In(1)
39	35.45	117.93	Open To Flow (2)
99	104.37	123.15	Shut-In(2)
224	1161.06	129.36	End Shut-In(2)
225	1971.92	129.58	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOMCW 5%g 5%oil 10%m 80%w	0.30
60.00	OGMCW 2%oil 5%g 25%m 68%w	0.30
77.00	OGWCM 7%oil 15%g 18%w 60%m	0.54
15.00	MGCO 5%m 20%g 75%oil	0.21
0.00	1417' of GIP	0.00

### Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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\* Recovery from multiple tests



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## DRILL STEM TEST REPORT

Mull Drilling Co.

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**14-17s-45w Kiowa, CO**

**TSA Unit #1-14**

Job Ticket: 45134

**DST#: 2**

Test Start: 2012.02.25 @ 14:26:00

### GENERAL INFORMATION:

Formation: **Pleasanton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:19:40

Time Test Ended: 22:53:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 60

**Interval: 4357.00 ft (KB) To 4370.00 ft (KB) (TVD)**

Total Depth: 4370.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 4140.00 ft (KB)

4129.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8373 Inside**

Press @ Run Depth: psig @ 4360.00 ft (KB)

Start Date: 2012.02.25

End Date:

2012.02.25

Start Time: 14:26:05

End Time:

22:53:44

Capacity: 8000.00 psig

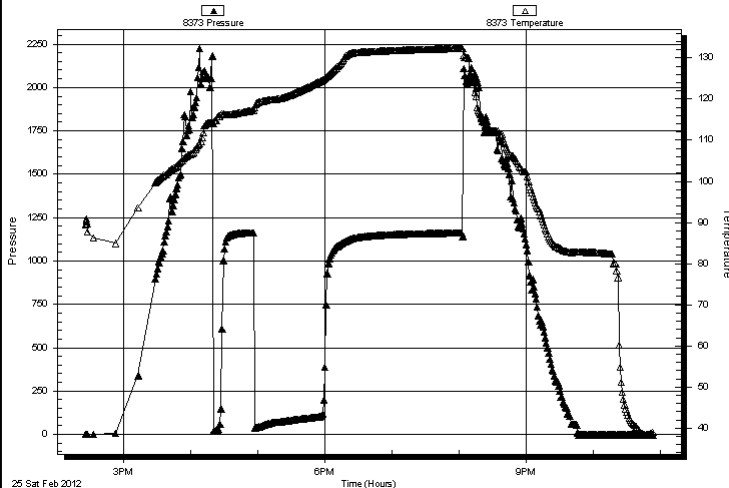
Last Calib.: 2012.02.25

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF- Surface Blow Built to 5 3/4"  
IS- Weak Surface Blow in 8 min  
FF- Surface Blow Built to BOB in 7 1/4 min  
FS- Weak Surface Blow in 4 1/2 min Built to 6"

Pressure vs. Time



### PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
60.00	GOMCW 5%g 5%oil 10%m 80%w	0.30
60.00	OGMCW 2%oil 5%g 25%m 68%w	0.30
77.00	OGWCM 7%oil 15%g 18%w 60%m	0.54
15.00	MGCO 5%m 20%g 75%oil	0.21
0.00	1417' of GIP	0.00

### Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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\* Recovery from multiple tests



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Mull Drilling Co.

**14-17s-45w Kiowa, CO**

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**TSA Unit #1-14**

Job Ticket: 45134

**DST#: 2**

Test Start: 2012.02.25 @ 14:26:00

### Tool Information

Drill Pipe:	Length: 4178.00 ft	Diameter: 3.80 inches	Volume: 58.61 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	4000.00 lb
		Total Volume:	59.49 bbl	Tool Chased	ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4357.00 ft			Final	66000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	13.00 ft				
Tool Length:	33.00 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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Stubb	1.00			4338.00	
Shut In Tool	5.00			4343.00	
Hydraulic tool	5.00			4348.00	
Packer	5.00			4353.00	20.00 Bottom Of Top Packer
Packer	4.00			4357.00	
Stubb	1.00			4358.00	
Perforations	2.00			4360.00	
Recorder	0.00	8373	Inside	4360.00	
Recorder	0.00	8356	Outside	4360.00	
Perforations	5.00			4365.00	
Bullnose	5.00			4370.00	13.00 Bottom Packers & Anchor

**Total Tool Length: 33.00**



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Mull Drilling Co.

**14-17s-45w Kiowa, CO**

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**TSA Unit #1-14**

Job Ticket: 45134

**DST#: 2**

Test Start: 2012.02.25 @ 14:26:00

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 50.00 sec/qt

Water Loss: 7.92 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 8300.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

35 deg API

ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	GOMCW 5%g 5%oil 10%m 80%w	0.295
60.00	OGMCW 2%oil 5%g 25%m 68%w	0.295
77.00	OGWCM 7%oil 15%g 18%w 60%m	0.543
15.00	MGCO 5%m 20%g 75%oil	0.210
0.00	1417' of GIP	0.000

Total Length: 212.00 ft      Total Volume: 1.343 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

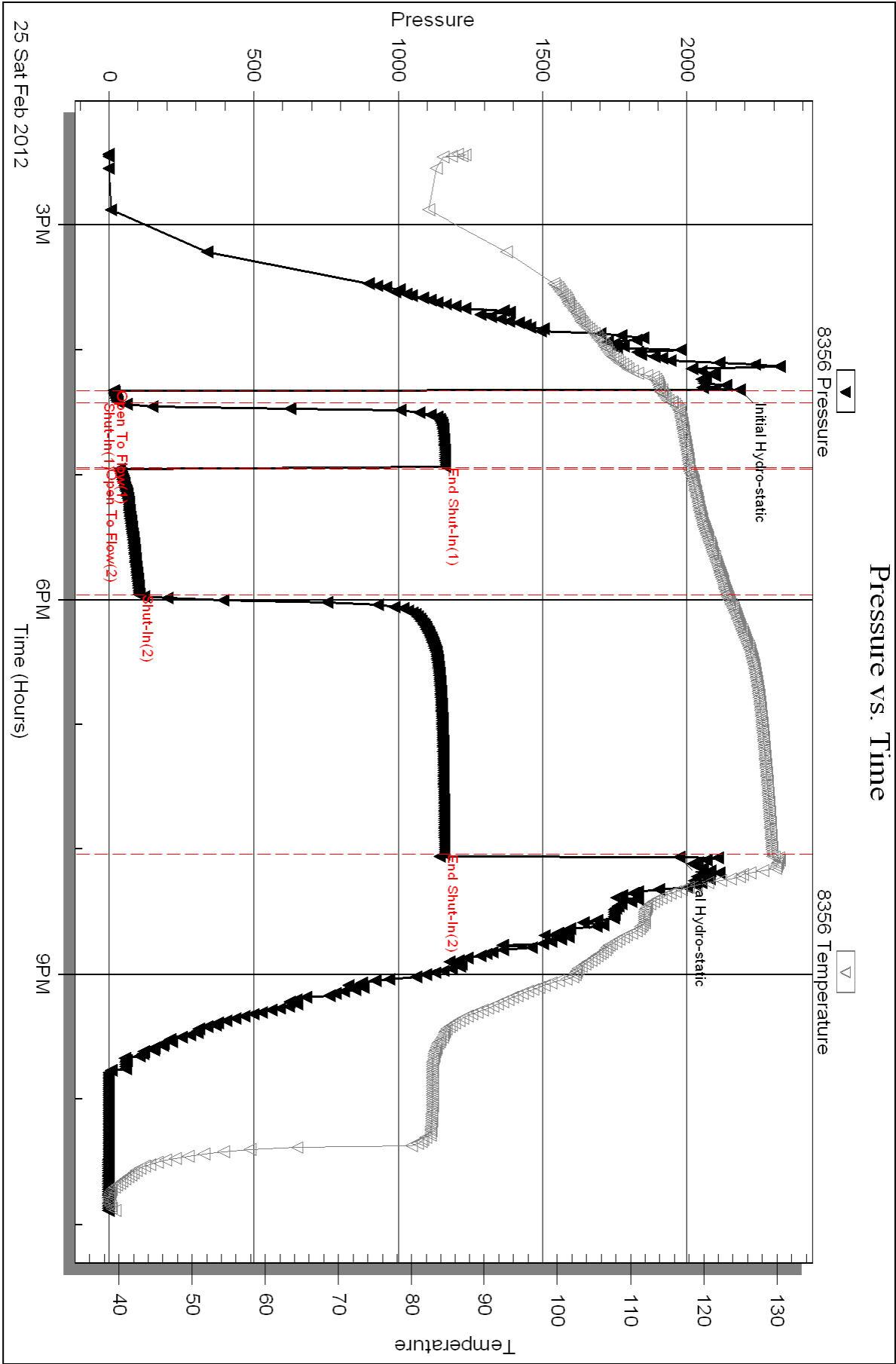
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API is 33 @ 40f = 35

RW is .524 @ 47f = 18,800



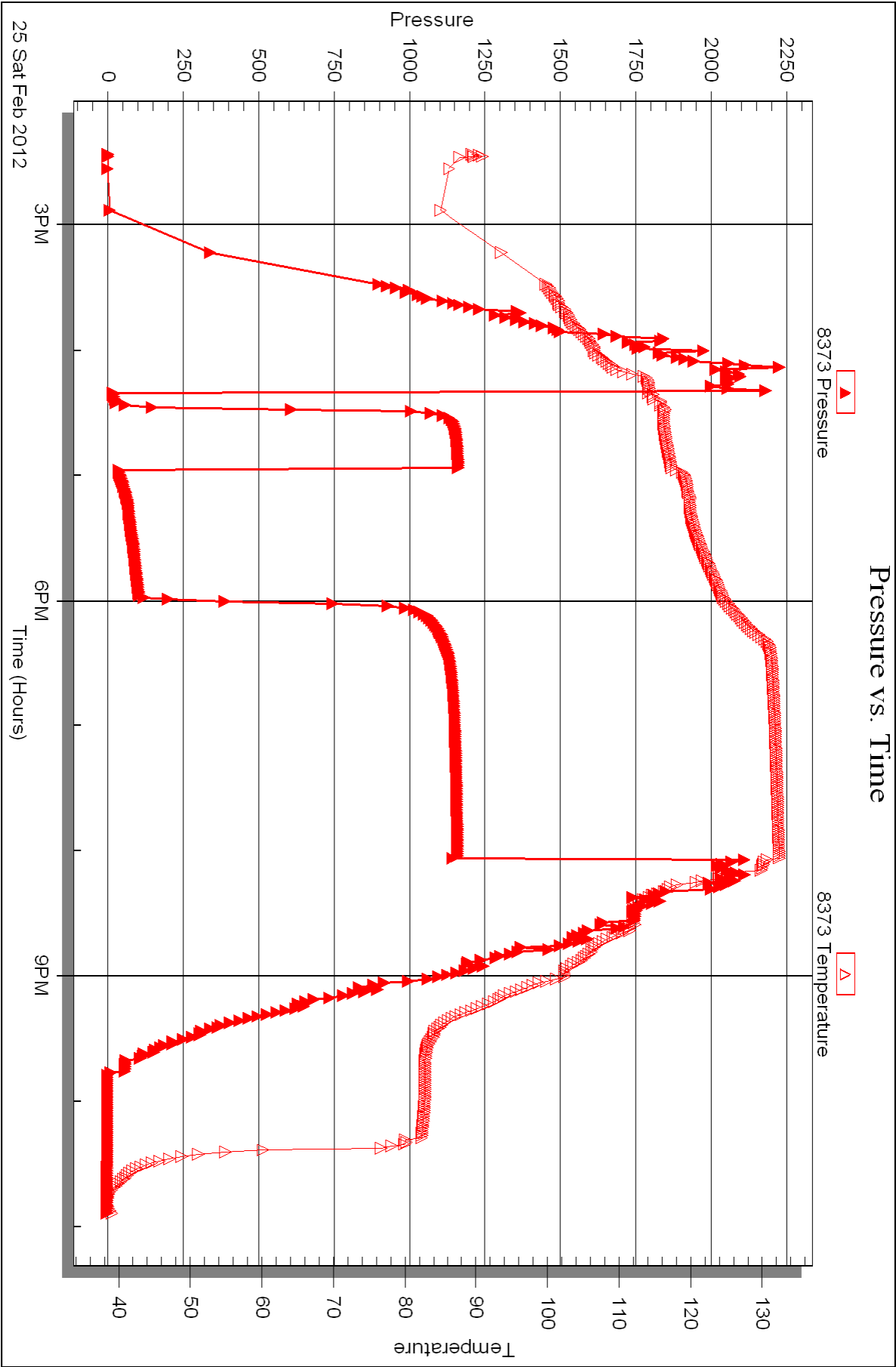
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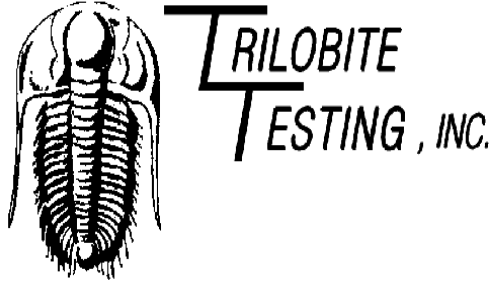
Inside

Mull Drilling Co.

TSA Unit #1-14

DST Test Number: 2





## DRILL STEM TEST REPORT

Prepared For: **Mull Drilling Co.**

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206

ATTN: Phil Askey

### **TSA Unit #1-14**

### **14-17s-45w Kiowa,CO**

Start Date: 2012.02.26 @ 12:42:15

End Date: 2012.02.26 @ 19:54:39

Job Ticket #: 45020                      DST #: 3

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

Printed: 2012.03.02 @ 11:34:21



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Mull Drilling Co.

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**14-17s-45w Kiowa, CO**

**TSA Unit #1-14**

Job Ticket: 45020

**DST#: 3**

Test Start: 2012.02.26 @ 12:42:15

### GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:36:10

Time Test Ended: 19:54:39

Test Type: Conventional Bottom Hole (Reset)

Tester: BrandonTurley

Unit No: 60

**Interval: 4405.00 ft (KB) To 4440.00 ft (KB) (TVD)**

Total Depth: 4440.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 4140.00 ft (KB)

4129.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8373 Inside**

Press @ Run Depth: 126.28 psig @ 4406.00 ft (KB)

Start Date: 2012.02.26

End Date:

2012.02.26

Start Time: 12:42:15

End Time:

19:54:39

Capacity: 8000.00 psig

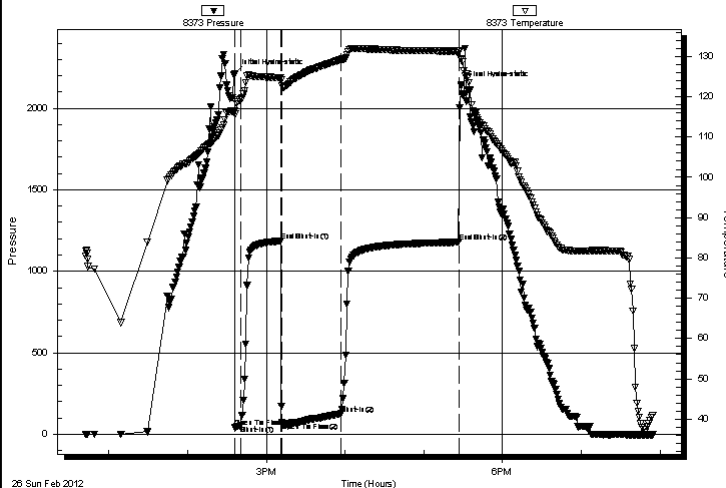
Last Calib.: 2012.02.26

Time On Btm: 2012.02.26 @ 14:35:55

Time Off Btm: 2012.02.26 @ 17:28:09

**TEST COMMENT:** IF: BOB in 1 min.  
IS: Surface blow.  
FF: BOB. Gas to surface in 30 min. To weak to gauge.  
FS: BOB in 7 min.

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2209.57	116.41	Initial Hydro-static
1	41.39	115.67	Open To Flow (1)
5	54.65	119.59	Shut-In(1)
36	1186.04	124.74	End Shut-In(1)
36	72.12	122.77	Open To Flow (2)
81	126.28	129.24	Shut-In(2)
171	1179.00	131.33	End Shut-In(2)
173	2141.99	129.56	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
124.00	w mcgo 28%g 40%o 2%w 30%m	0.61
124.00	mcgo 70%g 10%o 20%m	1.24
77.00	ocm 2%o 98%m	1.08

### Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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\* Recovery from multiple tests





## Test Start: 2012.02.26 @ 12:42:15

KB to GR/CF: 11.00 ft



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Mull Drilling Co.

**14-17s-45w Kiowa, CO**

1700 N. Waterfront PKWY  
B #1200  
Wichita KS. 67206  
ATTN: Phil Askey

**TSA Unit #1-14**

Job Ticket: 45020

**DST#: 3**

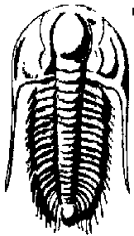
Test Start: 2012.02.26 @ 12:42:15

### Tool Information

Drill Pipe:	Length: 4211.00 ft	Diameter: 3.80 inches	Volume: 59.07 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 179.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 80000.00 lb
		Total Volume:	59.95 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4405.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	35.00 ft			
Tool Length:	55.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

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

Stubb	1.00			4386.00	
Shut In Tool	5.00			4391.00	
Hydraulic tool	5.00			4396.00	
Packer	5.00			4401.00	20.00 Bottom Of Top Packer
Packer	4.00			4405.00	
Stubb	1.00			4406.00	
Recorder	0.00	8373	Inside	4406.00	
Recorder	0.00	8356	Outside	4406.00	
Perforations	29.00			4435.00	
Bullnose	5.00			4440.00	35.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>55.00</b>				



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Mull Drilling Co.

**14-17s-45w Kiowa, CO**

1700 N. Waterfront PKWY

**TSA Unit #1-14**

B #1200

Job Ticket: 45020

**DST#: 3**

Wichita KS. 67206

Test Start: 2012.02.26 @ 12:42:15

ATTN: Phil Askey

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 46.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.98 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 8700.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	w mcgo 28%g 40%o 2%w 30%m	0.610
124.00	mcgo 70%g 10%o 20%m	1.238
77.00	ocm 2%o 98%m	1.080

Total Length: 325.00 ft

Total Volume: 2.928 bbl

Num Fluid Samples: 0

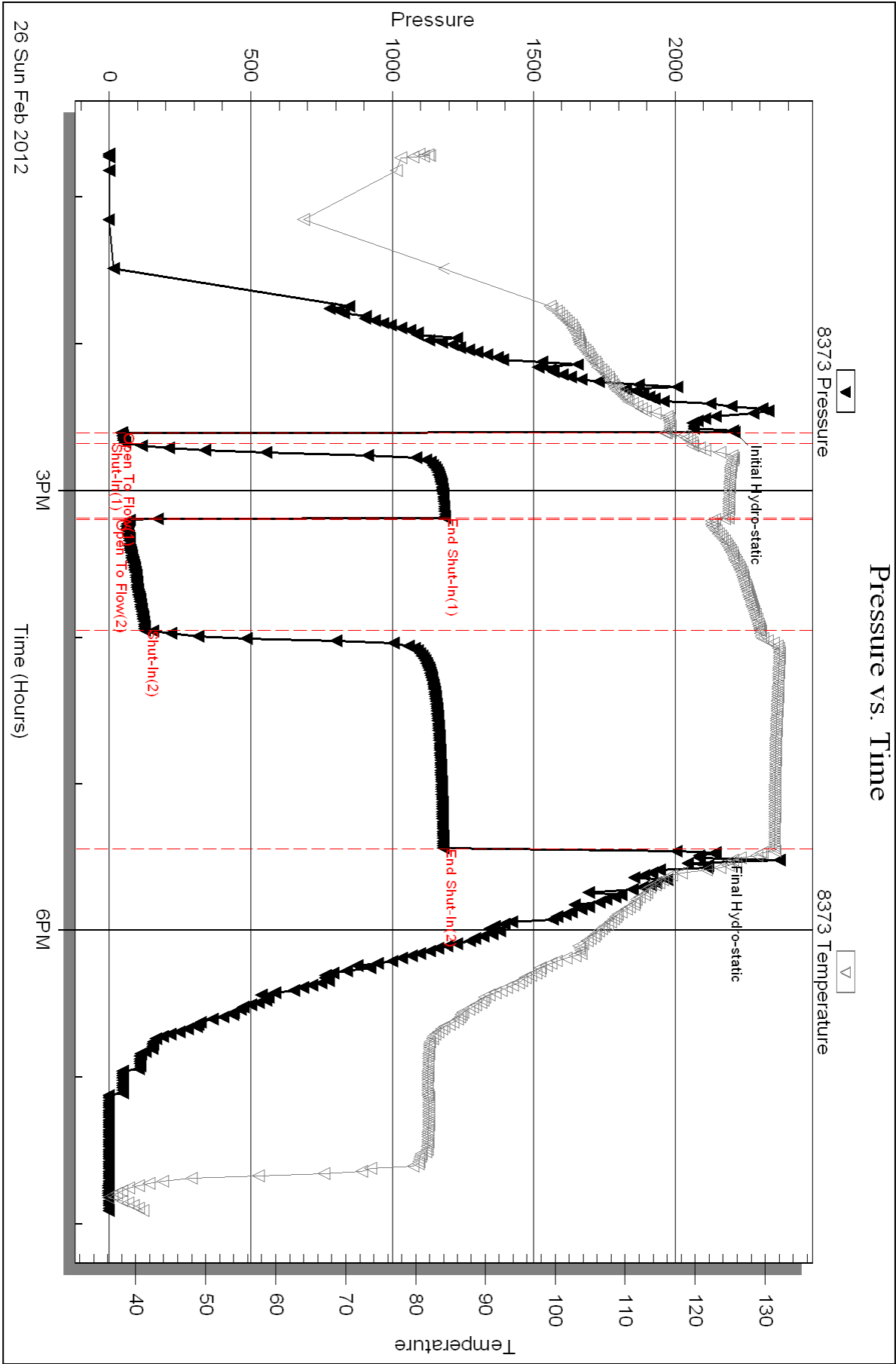
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

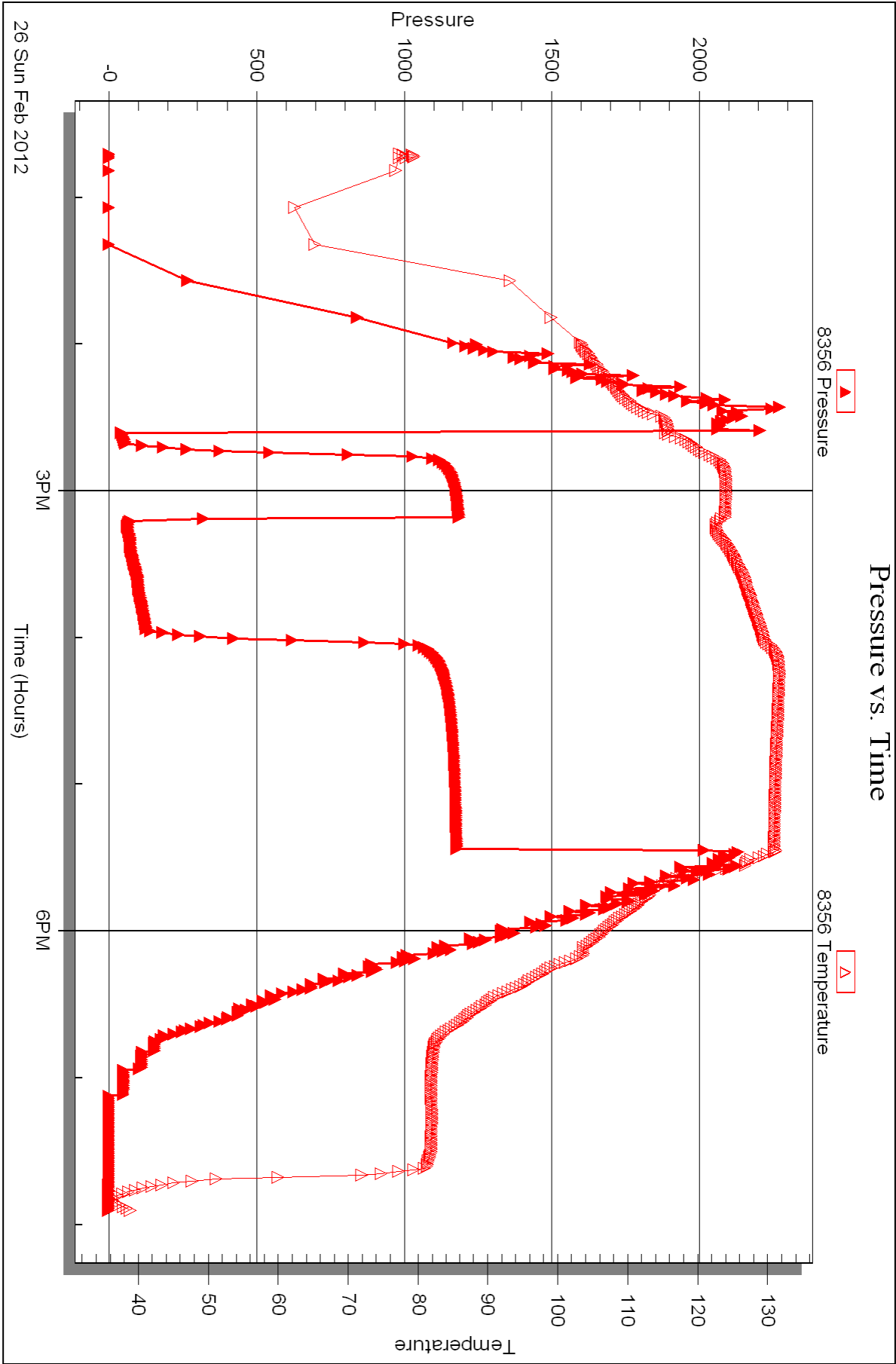


Serial #: 8356

Outside Mull Drilling Co.

TSA Unit #1-14

DST Test Number: 3





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**Test Ticket**

**NO. 45133**

BY: \_\_\_\_\_

Well Name & No. TSA Unit #1-14 Test No. DST #1 Date 2-24-12  
Company Mull Drilling Co. Elevation 4140 KB 4129 GL  
Address 1700 N. Waterfront PKWY B #1200 Wichita KS 67206  
Co. Rep / Geo. Phil Askey Rig Martin Rig #20  
Location: Sec. 14 Twp. 17s Rge. 45w Co. Kiowa State CO.

Interval Tested 4231-4243 Zone Tested Lansing  
Anchor Length 12 Drill Pipe Run 4053 Mud Wt. 9.3  
Top Packer Depth 4227 Drill Collars Run 179 Vis 50  
Bottom Packer Depth 4231 Wt. Pipe Run 0 WL 8.0  
Total Depth 4243 Chlorides 8300 ppm System LCM 216  
Blow Description IF - Surface Blow Built to 1"

ISI - No Blow

FF - Surface Blow Built to B.O.B in 24 min

FSI - Weak Surface Blow in 18 min Built to 4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>113</u>	<u>MGCO</u>	<u>25</u>	<u>70</u>	<u>5</u>	<u>0</u>
<u>63</u>	<u>WMOCG</u>	<u>40</u>	<u>25</u>	<u>10</u>	<u>25</u>
<u>63</u>	<u>GOMCW</u>	<u>5</u>	<u>10</u>	<u>45</u>	<u>40</u>
<u>63</u>	<u>GOMCW</u>	<u>5</u>	<u>5</u>	<u>80</u>	<u>10</u>
<u>180</u>	<u>GOMCW</u>	<u>3</u>	<u>2</u>	<u>90</u>	<u>5</u>
Rec Total	<u>482</u>	BHT <u>128</u>	Gravity <u>30</u>	API RW <u>693</u>	@ <u>34</u> °F Chlorides <u>19000</u> ppm

(A) Initial Hydrostatic 2060 ☒ Test 1225 T-On Location 10:53 AM  
(B) First Initial Flow 15 ☐ Jars \_\_\_\_\_ T-Started 11:25 AM  
(C) First Final Flow 48 ☐ Safety Joint \_\_\_\_\_ T-Open 14:26  
(D) Initial Shut-In 1078 ☒ Circ Sub \_\_\_\_\_ T-Pulled 18:05  
(E) Second Initial Flow 51 ☐ Hourly Standby \_\_\_\_\_ T-Out 21:03  
(F) Second Final Flow 213 ☒ Mileage 194 R/T 271.60 Comments 388' of G-IP  
(G) Final Shut-In 1078 ☐ Sampler \_\_\_\_\_ API 15 27030F = 30  
(H) Final Hydrostatic 1917 ☐ Straddle \_\_\_\_\_ ☐ Ruined Shale Packer \_\_\_\_\_

Initial Open 5 ☐ Shale Packer \_\_\_\_\_ ☐ Ruined Packer \_\_\_\_\_  
Initial Shut-In 30 ☐ Extra Packer \_\_\_\_\_ ☐ Extra Copies \_\_\_\_\_  
Final Flow 60 ☐ Extra Recorder \_\_\_\_\_ Sub Total 0  
Final Shut-In 120 ☐ Day Standby \_\_\_\_\_ Total 1496.60  
☐ Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
Sub Total 1496.60

Approved By

Our Representative

TriLOBITE TESTING Inc. shall not be liable for damaged or 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. 45134

Well Name & No. TSA Unit #1-14 Test No. DST #2 Date 2-25-12  
Company Mull Drilling Co. Elevation 4140 KB 4129 GL  
Address 1700 N. Waterfront PKWY B #1200 Wichita KS 67206  
Co. Rep / Geo. Phil Askey Rig Murfin Rig #20  
Location: Sec. 14 Twp. 17s Rge. 45W Co. Kiowa State CO.

Interval Tested 4357-4370 Zone Tested Pleasanton  
Anchor Length 13 Drill Pipe Run 4178 Mud Wt. 9.3  
Top Packer Depth 4353 Drill Collars Run 179 Vis 47  
Bottom Packer Depth 4357 Wt. Pipe Run 0 WL 8.0  
Total Depth 4370 Chlorides 8200 ppm System LCM 2/b

Blow Description IF- Surface Blow Built to 5 3/4"  
ISI- Weak Surface Blow in 8 min  
FF- Surface Blow Built to BOB in 7 1/4 min  
FSI Weak Surface Blow in 4 1/2 min Built to 6"

Rec	Feet of	%gas	%oil	%water	%mud
15	MOCCO	20	75	5	
77	OGWCM	15	7	18	60
60	OGMCW	5	2	68	25
60	GOMCW	5	5	80	10
4	1417' of G-IP				

Rec Total 212 BHT 117 Gravity 35 API RW: 524 @ 47 °F Chlorides 18,800 ppm

(A) Initial Hydrostatic 2181 ☒ Test 1225 T-On Location 13:46  
(B) First Initial Flow 15 ☐ Jars 14:26  
(C) First Final Flow 28 ☐ Safety Joint 16:19  
(D) Initial Shut-In 1163 ☒ Circ Sub NIC T-Pulled 20:02  
(E) Second Initial Flow 35 ☐ Hourly Standby 22:53  
(F) Second Final Flow 104 ☒ Mileage 194 R/T 27160 Comments API is 33 @ 40f = 35  
(G) Final Shut-In 1161 ☐ Sampler  
(H) Final Hydrostatic 1971 ☐ Straddle ☐ Shale Packer ☐ Extra Packer ☐ Extra Recorder ☐ Day Standby ☐ Accessibility

Initial Open 5 ☐ Ruined Shale Packer  
Initial Shut-In 30 ☒ Ruined Packer 320  
Final Flow 60 ☐ Extra Copies  
Final Shut-In 120 Sub Total 320  
Total 1816 60  
MP/DST Disc't

Approved By Phil Askey Our Representative Jim Ma

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## Test Ticket

NO. 45020

BY: \_\_\_\_\_

Well Name & No. TSA Unit 1-14 Test No. 3 Date 2-26-12  
Company Mull Drilling Elevation 4140 KB 4129 GL  
Address \_\_\_\_\_  
Co. Rep / Geo. Phil Askey Rig Mullin 20  
Location: Sec. 14 Twp. 17S Rge. 45W Co. Kiowa State CO

Interval Tested 4465 4440 Zone Tested Marmaton  
Anchor Length 35 Drill Pipe Run 4211 Mud Wt. 9.3  
Top Packer Depth 4400 Drill Collars Run 179 Vis 46  
Bottom Packer Depth 4465 Wt. Pipe Run — WL 8.0  
Total Depth 4440 Chlorides 8700 ppm System LCM 2

Blow Description IFI BoB in 1 min.  
#5: Surface blow.  
FF: BoB 645 to surface in 30 min. Towerk to gauge  
F5: BoB in 7 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>77</u>	<u>0 cm</u>	<u>2</u>	<u>—</u>	<u>98</u>	<u>—</u>
<u>124</u>	<u>MC90</u>	<u>70</u>	<u>10</u>	<u>20</u>	<u>—</u>
<u>124</u>	<u>WMC90</u>	<u>28</u>	<u>40</u>	<u>2</u>	<u>30</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 325 BHT 131 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2209</u>	<input checked="" type="checkbox"/> Test <u>1225</u>	T-On Location <u>12:15</u>
(B) First Initial Flow <u>41</u>	<input type="checkbox"/> Jars	T-Started <u>12:42</u>
(C) First Final Flow <u>54</u>	<input type="checkbox"/> Safety Joint	T-Open <u>14:36</u>
(D) Initial Shut-In <u>1186</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIC</u>	T-Pulled <u>17:26</u>
(E) Second Initial Flow <u>72</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>20:00</u>
(F) Second Final Flow <u>126</u>	<input checked="" type="checkbox"/> Mileage <u>194-x2</u> <u>271</u> <sup>40</sup>	Comments
(G) Final Shut-In <u>1179</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2141</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>45</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Total <u>1496</u> <sup>60</sup>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1496</u> <sup>60</sup>	

Approved By Phil Askey Our Representative [Signature]

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