



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water STE 300  
Wichita KS 67202

ATTN: Rocky Milford

**Ruda 'B' # 1-22**

**22-4s-33w Rawlins,KS**

Start Date: 2012.02.20 @ 15:16:00

End Date: 2012.02.20 @ 23:59:45

Job Ticket #: 45131                      DST #: 1

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

Printed: 2012.03.08 @ 14:35:56

Murfin Drilling Co. 22-4s-33w Rawlins,KS Ruda 'B' # 1-22 DST # 1 Toronto - Lansing "D" 2012.02.20



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co.  
 250 N. Water STE 300  
 Wichita KS 67202  
 ATTN: Rocky Milford

**22-4s-33w Rawlins, KS**  
**Ruda 'B' # 1-22**  
 Job Ticket: 45131 **DST#: 1**  
 Test Start: 2012.02.20 @ 15:16:00

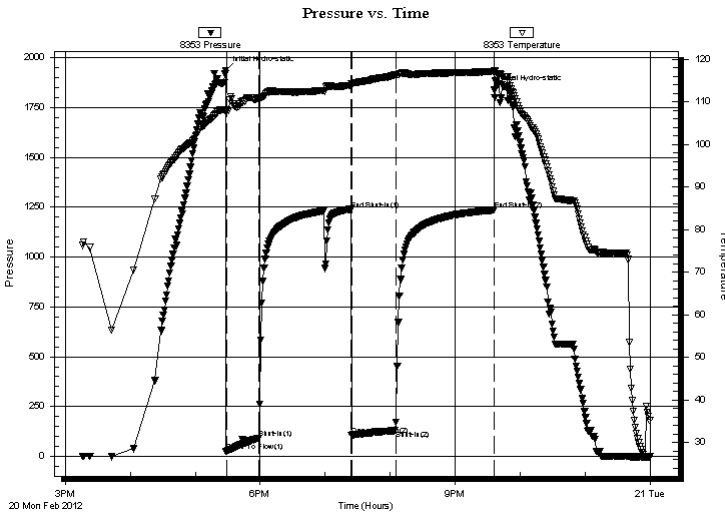
## GENERAL INFORMATION:

Formation: **Toronto - Lansing "D"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 17:29:15 Tester: Will MacLean  
 Time Test Ended: 23:59:45 Unit No: 55  
 Interval: **3860.00 ft (KB) To 3958.00 ft (KB) (TVD)** Reference Elevations: 2988.00 ft (KB)  
 Total Depth: 3958.00 ft (KB) (TVD) 2983.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 5.00 ft

**Serial #: 8353 Outside**  
 Press @ Run Depth: 130.31 psig @ 3861.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.20 End Date: 2012.02.20 Last Calib.: 2012.02.21  
 Start Time: 15:16:00 End Time: 23:59:45 Time On Btm: 2012.02.20 @ 17:28:15  
 Time Off Btm: 2012.02.20 @ 21:36:15

**TEST COMMENT:** IF- Surface Blow Built to 3 1/4"  
 IS- No Blow  
 FF- Weak Surface Blow in 28 min Built to 1 3/4"  
 FS- No Blow

## PRESSURE SUMMARY



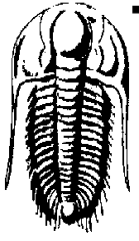
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1936.44	108.11	Initial Hydro-static
1	25.89	108.08	Open To Flow (1)
31	92.81	110.87	Shut-In(1)
116	1239.51	113.89	End Shut-In(1)
116	107.00	114.23	Open To Flow (2)
157	130.31	116.42	Shut-In(2)
248	1236.21	117.15	End Shut-In(2)
248	1838.03	117.43	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	WCM 20%w 80%m	0.59
60.00	WCM 3%w 97%m	0.30
62.00	100%m	0.82

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co.  
250 N. Water STE 300  
Wichita KS 67202  
ATTN: Rocky Milford

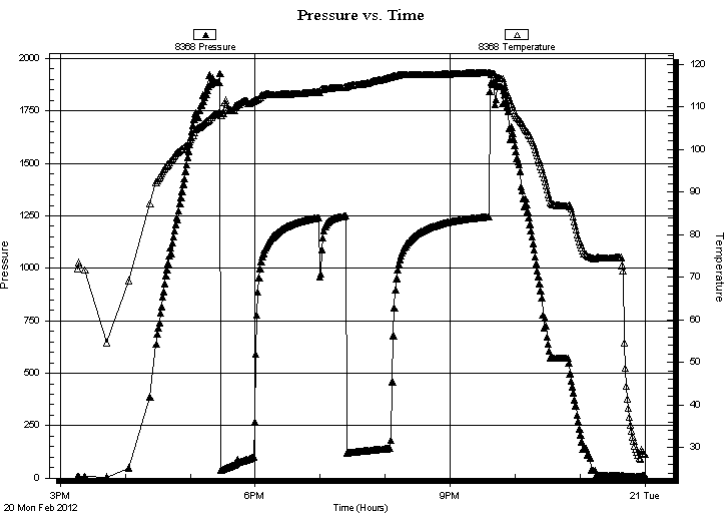
**22-4s-33w Rawlins,KS**  
**Ruda 'B' # 1-22**  
Job Ticket: 45131 **DST#: 1**  
Test Start: 2012.02.20 @ 15:16:00

## GENERAL INFORMATION:

Formation: **Toronto - Lansing "D"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 17:29:15  
 Time Test Ended: 23:59:45  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Will MacLean  
 Unit No: 55  
 Interval: **3860.00 ft (KB) To 3958.00 ft (KB) (TVD)**  
 Total Depth: 3958.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Reference Elevations: 2988.00 ft (KB)  
 2983.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8368** Inside  
 Press @ Run Depth: psig @ 3861.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.20 End Date: 2012.02.20 Last Calib.: 2012.02.21  
 Start Time: 15:16:00 End Time: 23:59:45 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF- Surface Blow Built to 3 1/4"  
 IS- No Blow  
 FF- Weak Surface Blow in 28 min Built to 1 3/4"  
 FS- No Blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	WCM 20%w 80%m	0.59
60.00	WCM 3%w 97%m	0.30
62.00	100%m	0.82

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 45131

**DST#: 1**

ATTN: Rocky Milford

Test Start: 2012.02.20 @ 15:16:00

## Tool Information

Drill Pipe:	Length: 3661.00 ft	Diameter: 3.80 inches	Volume: 51.35 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 8000.00 lb
			<u>Total Volume: 52.26 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3860.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	98.00 ft			
Tool Length:	125.00 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			3834.00	
Shut In Tool	5.00			3839.00	
Hydraulic tool	5.00			3844.00	
Jars	5.00			3849.00	
Safety Joint	2.00			3851.00	
Packer	5.00			3856.00	27.00 Bottom Of Top Packer
Packer	4.00			3860.00	
Stubb	1.00			3861.00	
Recorder	0.00	8353	Outside	3861.00	
Recorder	0.00	8368	Inside	3861.00	
Perforations	27.00			3888.00	
Change Over Sub	1.00			3889.00	
Drill Pipe	63.00			3952.00	
Change Over Sub	1.00			3953.00	
Bullnose	5.00			3958.00	98.00 Bottom Packers & Anchor

**Total Tool Length: 125.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 45131

**DST#: 1**

ATTN: Rocky Milford

Test Start: 2012.02.20 @ 15:16:00

## 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:

26500 ppm

Viscosity: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.57 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
120.00	WCM 20%w 80%m	0.590
60.00	WCM 3%w 97%m	0.295
62.00	100%m	0.815

Total Length: 242.00 ft      Total Volume: 1.700 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

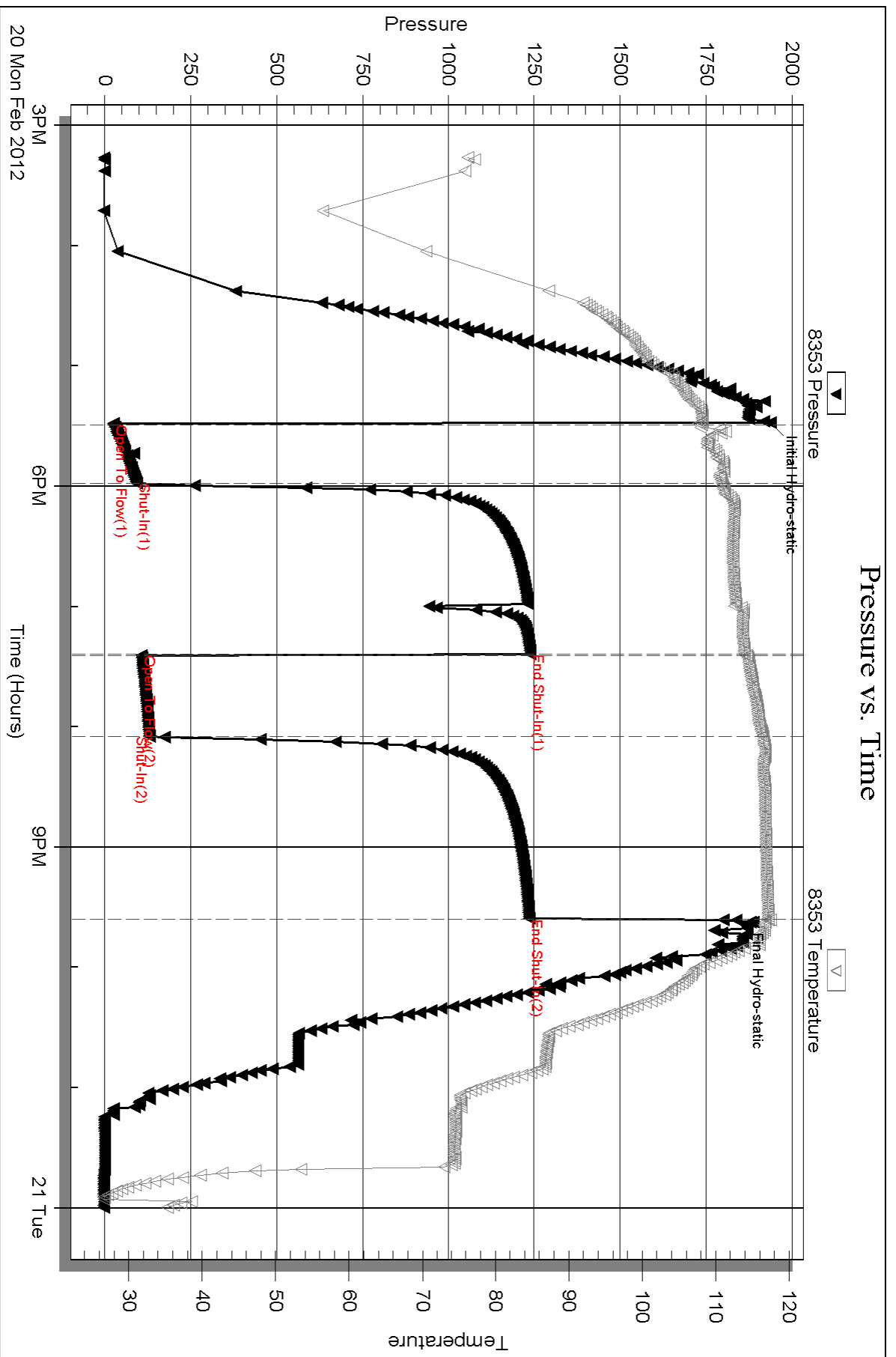
Recovery Comments: RW is .488 @ 36f = 26500

Serial #: 8353

Outside Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 45131

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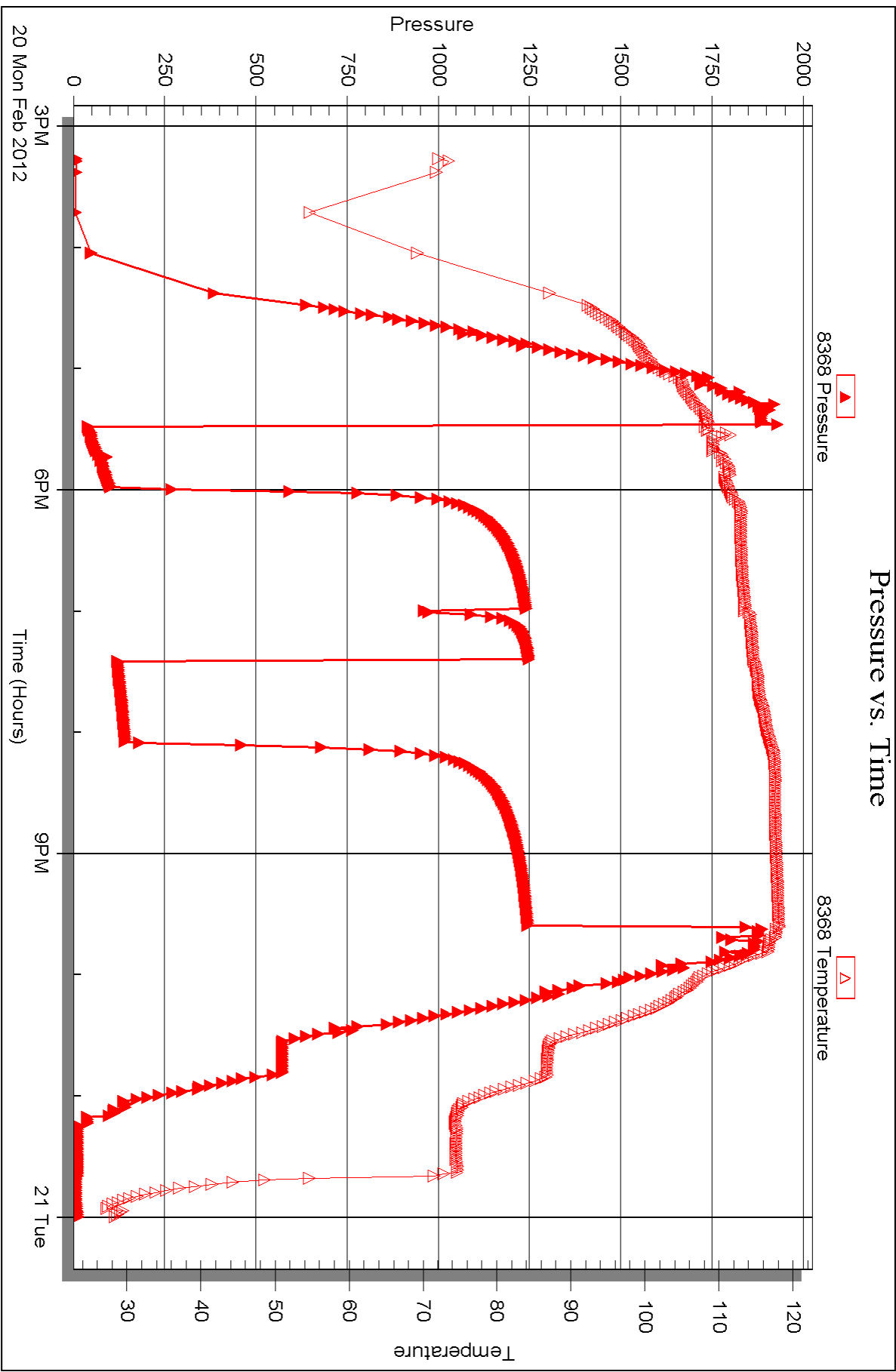
Serial #: 8368

Inside

Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 45131

Printed: 2012.03.08 @ 14:36:03



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water STE 300  
Wichita KS 67202

ATTN: Rocky Milford

**Ruda 'B' # 1-22**

**22-4s-33w Rawlins,KS**

Start Date: 2012.02.21 @ 11:59:00

End Date: 2012.02.21 @ 20:06:45

Job Ticket #: 45132                      DST #: 2

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

Printed: 2012.03.08 @ 14:33:57





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co.  
250 N. Water STE 300  
Wichita KS 67202  
ATTN: Rocky Milford

**22-4s-33w Rawlins, KS**  
**Ruda 'B' # 1-22**  
Job Ticket: 45132      **DST#: 2**  
Test Start: 2012.02.21 @ 11:59:00

## GENERAL INFORMATION:

Formation: **Lansing E-G**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 14:12:15  
Time Test Ended: 20:06:45  
Interval: **3956.00 ft (KB) To 4015.00 ft (KB) (TVD)**  
Total Depth: 4015.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Reference Elevations: 2988.00 ft (KB)  
2983.00 ft (CF)  
KB to GR/CF: 5.00 ft  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Will MacLean  
Unit No: 55

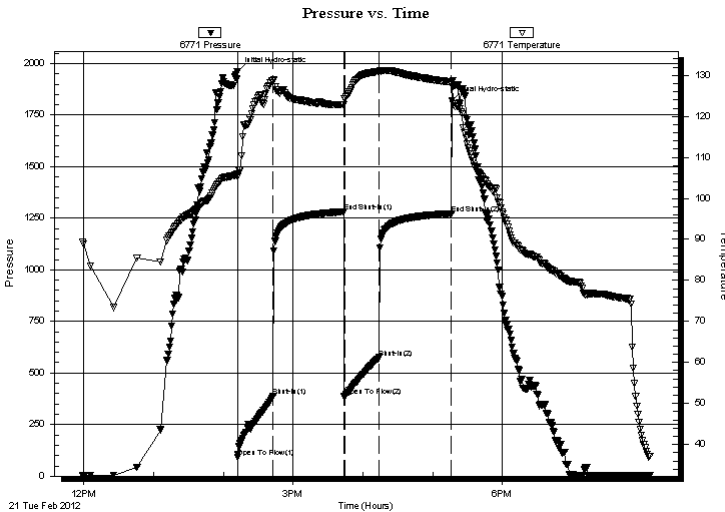
## Serial #: 6771

Inside

Press @ Run Depth: 574.19 psig @ 3957.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2012.02.21      End Date: 2012.02.21      Last Calib.: 2012.02.21  
Start Time: 11:59:00      End Time: 20:06:45      Time On Btm: 2012.02.21 @ 14:12:00  
Time Off Btm: 2012.02.21 @ 17:16:30

TEST COMMENT: IF- Surface Blow Built to BOB in 5 3/4min  
IS- No Blow  
FF- Surface Blow Built to BOB in 6 1/4  
FS- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1962.00	105.92	Initial Hydro-static
1	92.10	105.33	Open To Flow (1)
31	387.45	128.82	Shut-In(1)
92	1281.48	122.79	End Shut-In(1)
93	386.77	124.19	Open To Flow (2)
122	574.19	130.91	Shut-In(2)
184	1272.70	128.30	End Shut-In(2)
185	1820.48	128.52	Final Hydro-static

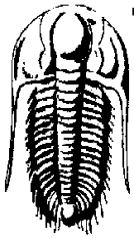
## Recovery

Length (ft)	Description	Volume (bbl)
248.00	MCW 5%w 95%w	1.78
434.00	MCW 20%w 80%w Skim of Oil on Top	6.09
186.00	WCM 8%w 92%w Skim of Oil on Top	2.61
288.00	WCM 4%w 96%w Skim of Oil on Top	4.04

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE**  
TESTING, INC

# DRILL STEM TEST REPORT

Murfin Drilling Co.  
250 N. Water STE 300  
Wichita KS 67202  
ATTN: Rocky Milford

**22-4s-33w Rawlins, KS**  
**Ruda 'B' # 1-22**  
Job Ticket: 45132 **DST#: 2**  
Test Start: 2012.02.21 @ 11:59:00

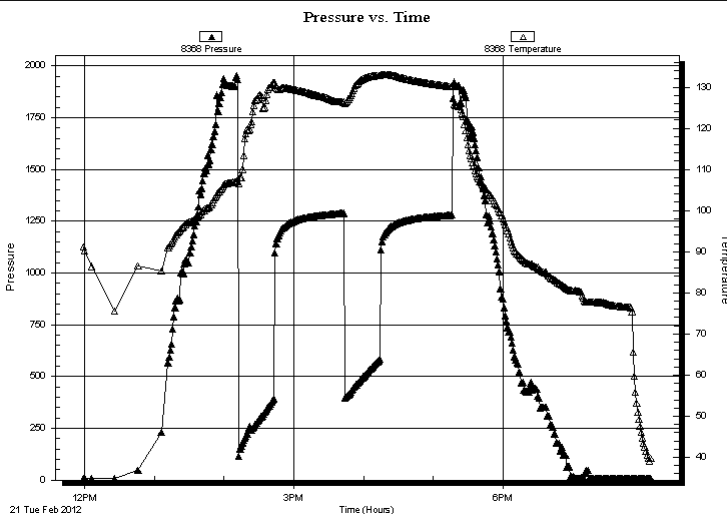
## GENERAL INFORMATION:

Formation: **Lansing E-G**  
 Deviated: No Whipstock:                      ft (KB)  
 Time Tool Opened: 14:12:15  
 Time Test Ended: 20:06:45  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Will MacLean  
 Unit No: 55  
**Interval: 3956.00 ft (KB) To 4015.00 ft (KB) (TVD)**  
 Total Depth: 4015.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Reference Elevations: 2988.00 ft (KB)  
    2983.00 ft (CF)  
    KB to GR/CF: 5.00 ft

**Serial #: 8368 Outside**  
 Press @ Run Depth:                      psig @ 3957.00 ft (KB)  
 Capacity: 8000.00 psig  
 Start Date: 2012.02.21 End Date: 2012.02.21 Last Calib.: 2012.02.21  
 Start Time: 11:59:15 End Time: 20:07:00 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF- Surface Blow Built to BOB in 5 3/4min  
 IS- No Blow  
 FF- Surface Blow Built to BOB in 6 1/4  
 FS- No Blow

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
248.00	MCW 5% <i>m</i> 95% <i>w</i>	1.78
434.00	MCW 20% <i>m</i> 80% <i>w</i> Skim of Oil on Top	6.09
186.00	WCM 8% <i>w</i> 92% <i>m</i> Skim of Oil on Top	2.61
288.00	WCM 4% <i>w</i> 96% <i>m</i> Skim of Oil on Top	4.04

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 45132

**DST#: 2**

ATTN: Rocky Milford

Test Start: 2012.02.21 @ 11:59:00

## Tool Information

Drill Pipe:	Length: 3764.00 ft	Diameter: 3.80 inches	Volume: 52.80 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 53.71 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3956.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	59.00 ft			
Tool Length:	79.00 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			3937.00	
Shut In Tool	5.00			3942.00	
Hydraulic tool	5.00			3947.00	
Packer	5.00			3952.00	20.00 Bottom Of Top Packer
Packer	4.00			3956.00	
Stubb	1.00			3957.00	
Recorder	0.00	6771	Inside	3957.00	
Recorder	0.00	8368	Outside	3957.00	
Perforations	20.00			3977.00	
Change Over Sub	1.00			3978.00	
Drill Pipe	31.00			4009.00	
Change Over Sub	1.00			4010.00	
Bullnose	5.00			4015.00	59.00 Bottom Packers & Anchor

**Total Tool Length: 79.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 45132

**DST#: 2**

ATTN: Rocky Milford

Test Start: 2012.02.21 @ 11:59:00

## 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:

51000 ppm

Viscosity: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.56 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
248.00	MCW 5%m 95%w	1.784
434.00	MCW 20%m 80%w Skim of Oil on Top	6.088
186.00	WCM 8%w 92%m Skim of Oil on Top	2.609
288.00	WCM 4%w 96%m Skim of Oil on Top	4.040

Total Length: 1156.00 ft      Total Volume: 14.521 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .233 @ 44f = 51000

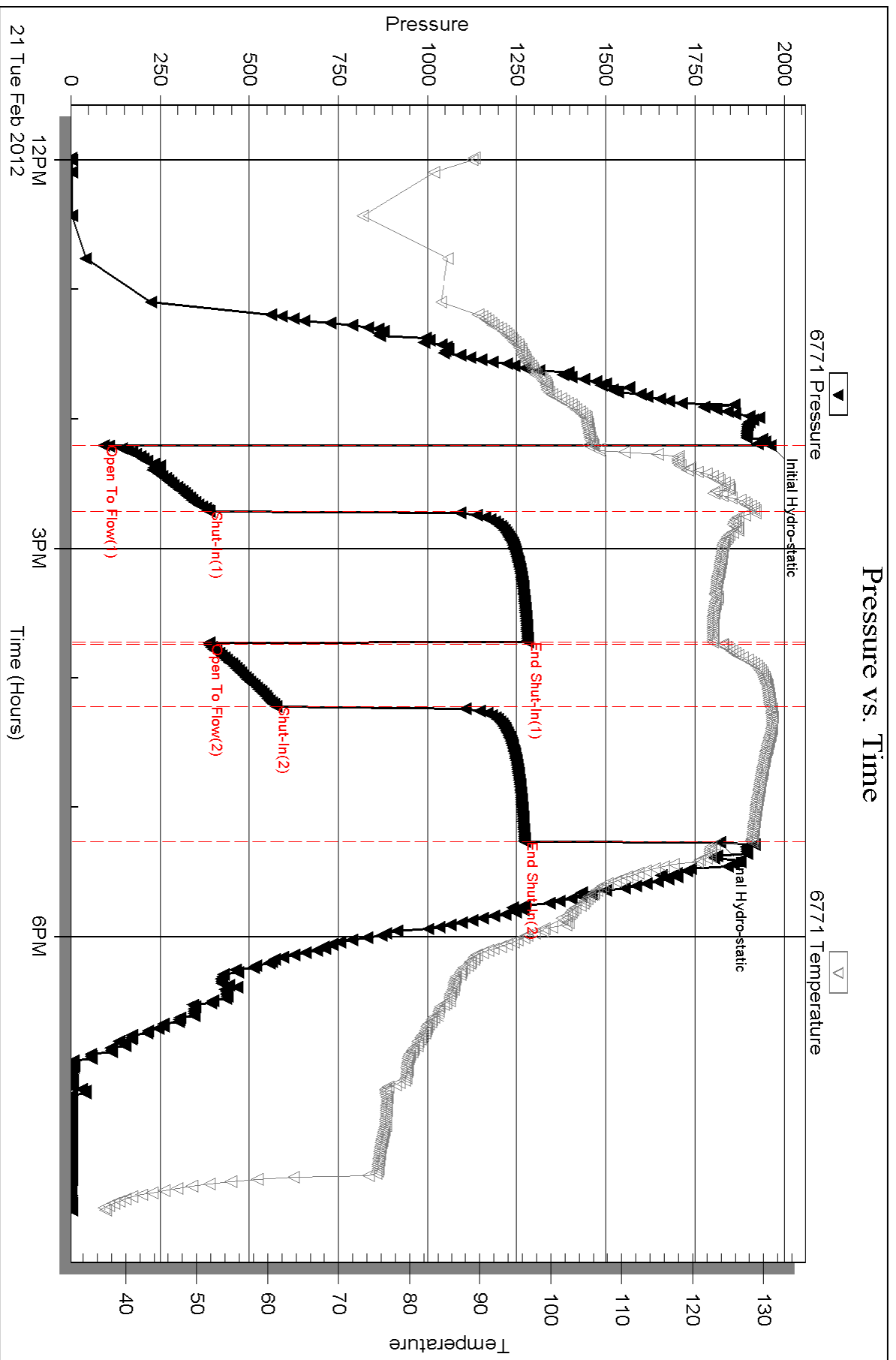
Serial #: 6771

Inside

Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 2

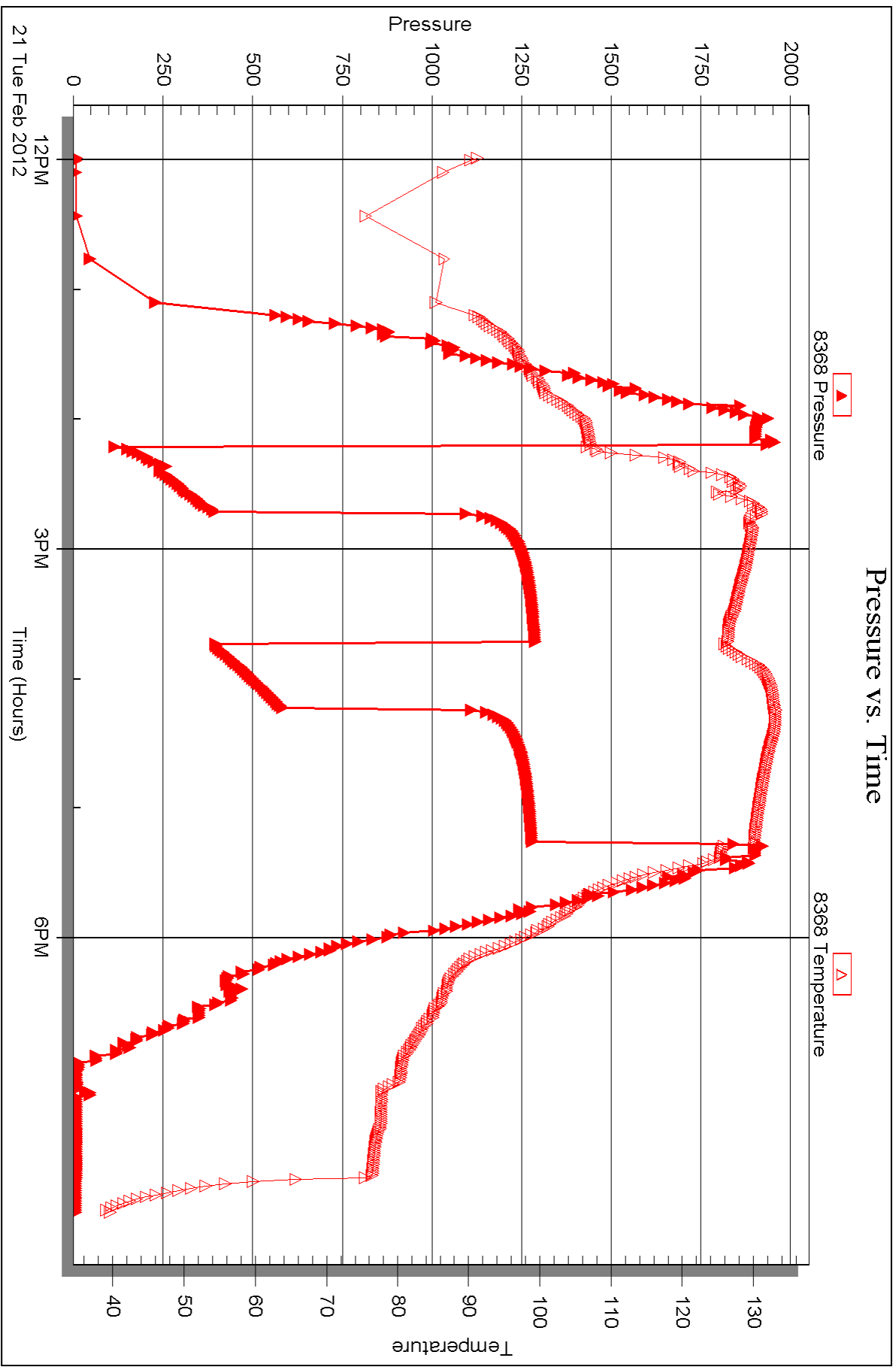


Serial #: 8368

Outside Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 2





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water STE 300  
Wichita KS 67202

ATTN: Rocky Milford

**Ruda 'B' # 1-22**

**22-4s-33w Rawlins,KS**

Start Date: 2012.02.22 @ 07:30:00

End Date: 2012.02.22 @ 15:47:00

Job Ticket #: 042043                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.03.08 @ 14:31:25



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co.  
250 N. Water STE 300  
Wichita KS 67202  
ATTN: Rocky Milford

**22-4s-33w Rawlins, KS**  
**Ruda 'B' # 1-22**  
Job Ticket: 042043 **DST#: 3**  
Test Start: 2012.02.22 @ 07:30:00

## GENERAL INFORMATION:

Formation: **LKC-H-J**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 09:40:30  
Time Test Ended: 15:47:00  
Interval: **4012.00 ft (KB) To 4088.00 ft (KB) (TVD)**  
Total Depth: 4088.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Chuck Kreuzer Jr.  
Unit No: 36  
Reference Elevations: 2988.00 ft (KB)  
2983.00 ft (CF)  
KB to GR/CF: 5.00 ft

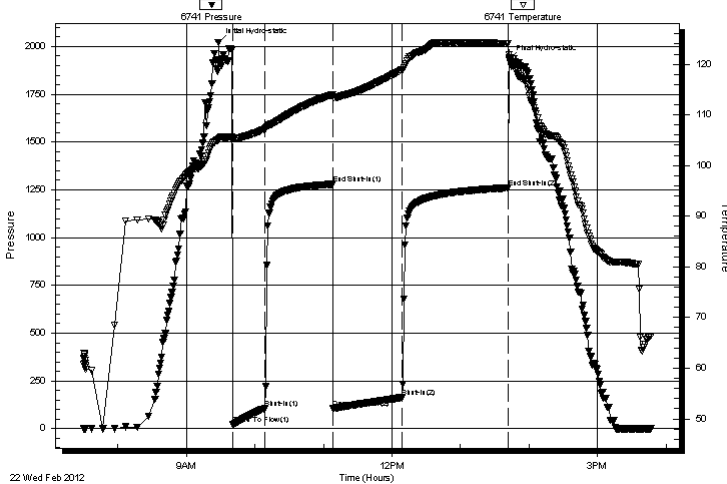
## Serial #: 6741

Inside

Press @ Run Depth: 162.60 psig @ 4016.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2012.02.22 End Date: 2012.02.22 Last Calib.: 2012.02.22  
Start Time: 07:30:05 End Time: 15:46:59 Time On Btm: 2012.02.22 @ 09:28:00  
Time Off Btm: 2012.02.22 @ 13:43:00

**TEST COMMENT:** IF: Weak blow, Built to 5 in. over 30 mins.  
IS: No blow back over 60 mins.  
FF: Weak blow, Built to 7 in. over 60 mins.  
FS: No blow back over 90 mins.

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2021.59	105.03	Initial Hydro-static
13	21.52	105.32	Open To Flow (1)
41	104.70	107.21	Shut-In(1)
100	1279.72	113.96	End Shut-In(1)
101	106.62	113.55	Open To Flow (2)
161	162.60	118.83	Shut-In(2)
254	1260.23	124.12	End Shut-In(2)
255	1932.73	121.19	Final Hydro-static

## Recovery

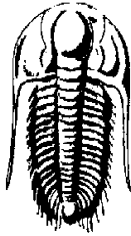
Length (ft)	Description	Volume (bbl)
120.00	mcw -20% m 80% w	0.59
120.00	w cm-25% w 75% m	1.08
10.00	mud-100% m	0.14

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE**  
TESTING, INC

## DRILL STEM TEST REPORT

Murfin Drilling Co.

**22-4s-33w Rawlins, KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 042043

**DST#: 3**

ATTN: Rocky Milford

Test Start: 2012.02.22 @ 07:30:00

### GENERAL INFORMATION:

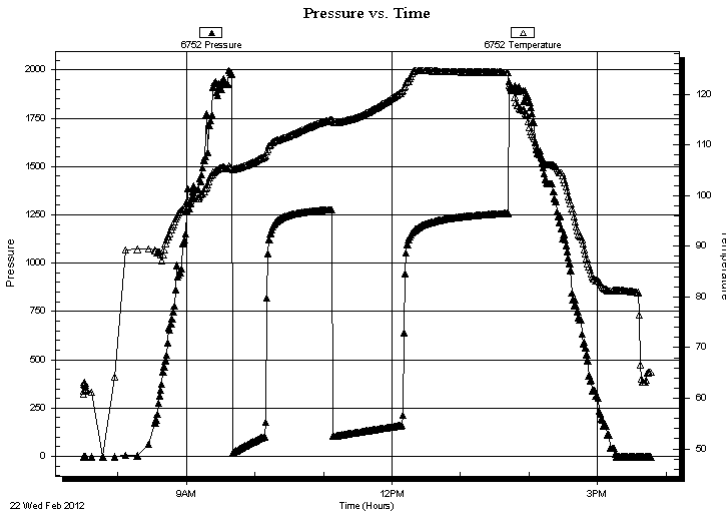
Formation: **LKC-H-J**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 09:40:30  
 Time Test Ended: 15:47:00  
 Interval: **4012.00 ft (KB) To 4088.00 ft (KB) (TVD)**  
 Total Depth: 4088.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Chuck Kreutzer Jr.  
 Unit No: 36  
 Reference Elevations: 2988.00 ft (KB)  
 2983.00 ft (CF)  
 KB to GR/CF: 5.00 ft

### Serial #: 6752 Outside

Press @ Run Depth: psig @ 4016.00 ft (KB)  
 Capacity: 8000.00 psig  
 Start Date: 2012.02.22 End Date: 2012.02.22 Last Calib.: 2012.02.22  
 Start Time: 07:30:05 End Time: 15:46:59 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF: Weak blow, Built to 5 in. over 30 mins.  
 IS: No blow back over 60 mins.  
 FF: Weak blow, Built to 7 in. over 60 mins.  
 FS: No blow back over 90 mins.

### PRESSURE SUMMARY



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

### Recovery

Length (ft)	Description	Volume (bbl)
120.00	mcw -20% m80% w	0.59
120.00	w cm-25% w 75% m	1.08
10.00	mud-100% m	0.14

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 042043

**DST#: 3**

ATTN: Rocky Milford

Test Start: 2012.02.22 @ 07:30:00

## Tool Information

Drill Pipe:	Length: 3809.00 ft	Diameter: 3.80 inches	Volume: 53.43 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 54.34 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4012.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	76.48 ft			
Tool Length:	103.48 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			3986.00	
Shut In Tool	5.00			3991.00	
Hydraulic tool	5.00			3996.00	
Jars	5.00			4001.00	
Safety Joint	2.00			4003.00	
Packer	5.00			4008.00	27.00 Bottom Of Top Packer
Packer	4.00			4012.00	
Stubb	1.00			4013.00	
Perforations	3.00			4016.00	
Recorder	0.00	6752	Outside	4016.00	
Recorder	0.00	6741	Inside	4016.00	
Change Over Sub	0.60			4016.60	
Drill Pipe	63.28			4079.88	
Change Over Sub	0.60			4080.48	
Perforations	5.00			4085.48	
Bullnose	3.00			4088.48	76.48 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>103.48</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 042043

**DST#: 3**

ATTN: Rocky Milford

Test Start: 2012.02.22 @ 07:30:00

## 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: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 34000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	mcw -20% m80%w	0.590
120.00	w cm-25%w 75%m	1.082
10.00	mud-100%m	0.140

Total Length: 250.00 ft      Total Volume: 1.812 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

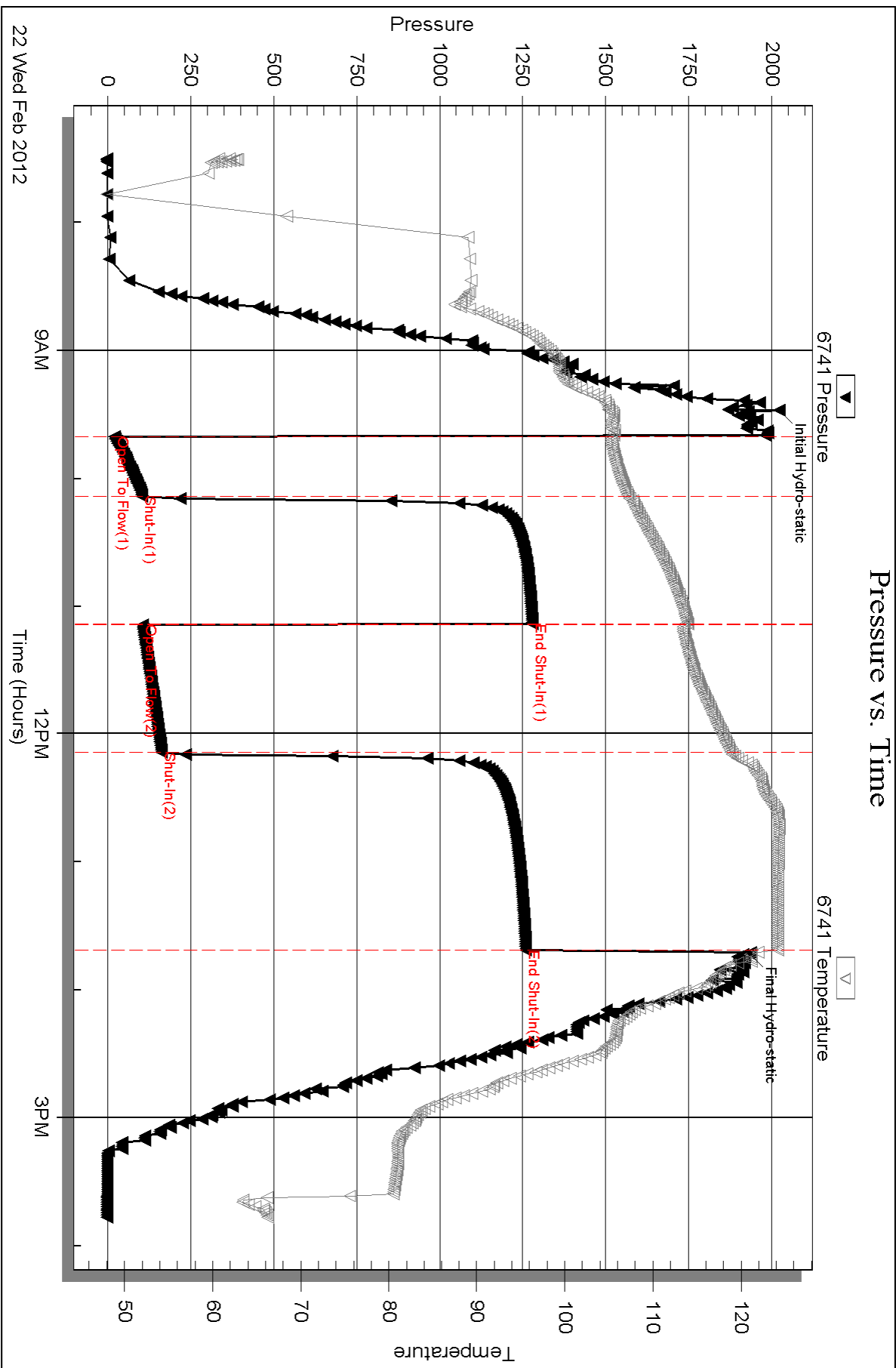
Serial #: 6741

Inside

Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 3

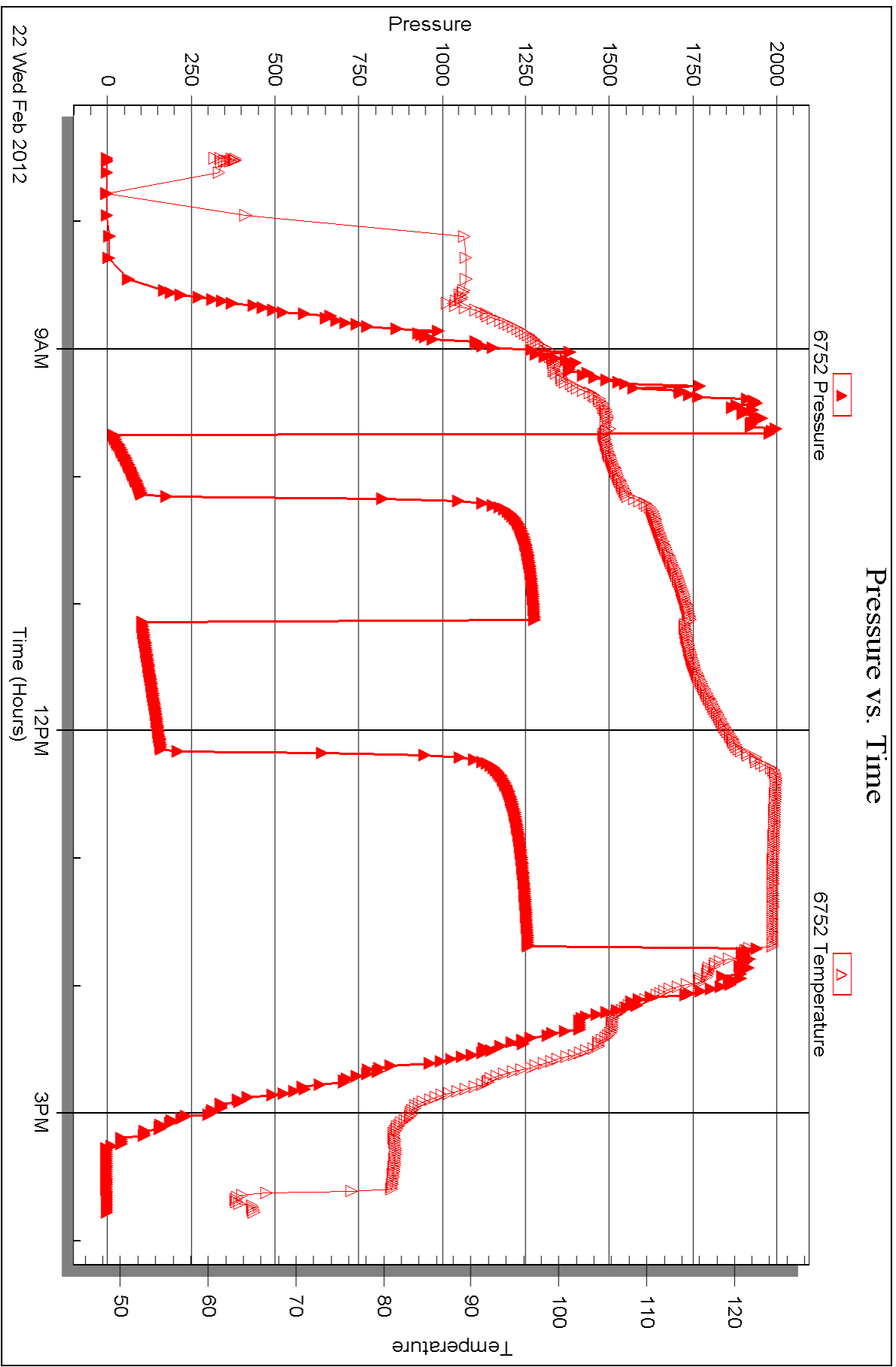


Serial #: 6752

Outside Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 3





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water STE 300  
Wichita KS 67202

ATTN: Rocky Milford

**Ruda 'B' # 1-22**

**22-4s-33w Rawlins,KS**

Start Date: 2012.02.23 @ 21:00:00

End Date: 2012.02.24 @ 06:18:30

Job Ticket #: 042044                      DST #: 4

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

Printed: 2012.03.08 @ 14:30:40



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co.  
250 N. Water STE 300  
Wichita KS 67202  
ATTN: Rocky Milford

**22-4s-33w Rawlins,KS**  
**Ruda 'B' # 1-22**  
Job Ticket: 042044 **DST#: 4**  
Test Start: 2012.02.23 @ 21:00:00

## GENERAL INFORMATION:

Formation: **Upper & lower Pawnee**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 23:14:30  
Time Test Ended: 06:18:30  
Interval: **4242.00 ft (KB) To 4321.00 ft (KB) (TVD)**  
Total Depth: 4321.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Chuck Kreuzer Jr.  
Unit No: 36  
Reference Elevations: 2988.00 ft (KB)  
2983.00 ft (CF)  
KB to GR/CF: 5.00 ft

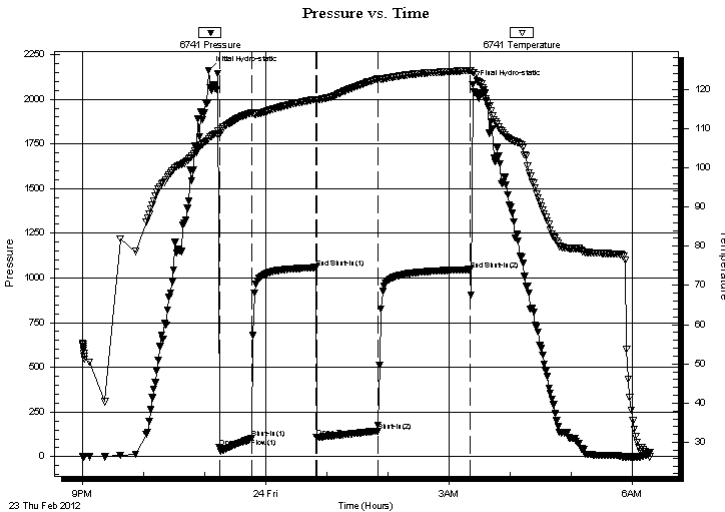
## Serial #: 6741

Outside

Press @ Run Depth: 143.83 psig @ 4246.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2012.02.23 End Date: 2012.02.24 Last Calib.: 2012.02.24  
Start Time: 21:00:05 End Time: 06:18:30 Time On Btm: 2012.02.23 @ 23:04:00  
Time Off Btm: 2012.02.24 @ 03:23:30

TEST COMMENT: IF: Weak blow, Built to 4 in. over 30 mins.  
IS: No blow back over 60 mins.  
FF: Weak blow, Built to 1 3/4 in. over 60 mins.  
FS: No blow back over 90 mins.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2161.58	107.38	Initial Hydro-static
11	50.42	108.38	Open To Flow (1)
42	103.68	113.97	Shut-In(1)
106	1058.64	117.42	End Shut-In(1)
106	107.83	117.10	Open To Flow (2)
166	143.83	122.54	Shut-In(2)
257	1047.63	124.78	End Shut-In(2)
260	2080.53	124.24	Final Hydro-static

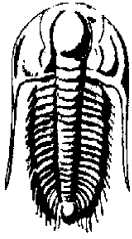
## Recovery

Length (ft)	Description	Volume (bbl)
122.00	Vsocmw -5%o45%m50%w	0.60
126.00	socw m-10%o5%w 85%m	1.18
2.00	oil-100%	0.03
0.00	1.1 @40=10000	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

Murfin Drilling Co.

**22-4s-33w Rawlins, KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 042044

**DST#: 4**

ATTN: Rocky Milford

Test Start: 2012.02.23 @ 21:00:00

### GENERAL INFORMATION:

Formation: **Upper & lower Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:14:30

Time Test Ended: 06:18:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Kreutzer Jr.

Unit No: 36

**Interval: 4242.00 ft (KB) To 4321.00 ft (KB) (TVD)**

Total Depth: 4321.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2988.00 ft (KB)

2983.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 6752 Inside**

Press @ Run Depth: psig @ 4246.00 ft (KB)

Start Date: 2012.02.23

End Date:

2012.02.24

Start Time: 21:00:05

End Time:

06:18:30

Capacity: 8000.00 psig

Last Calib.:

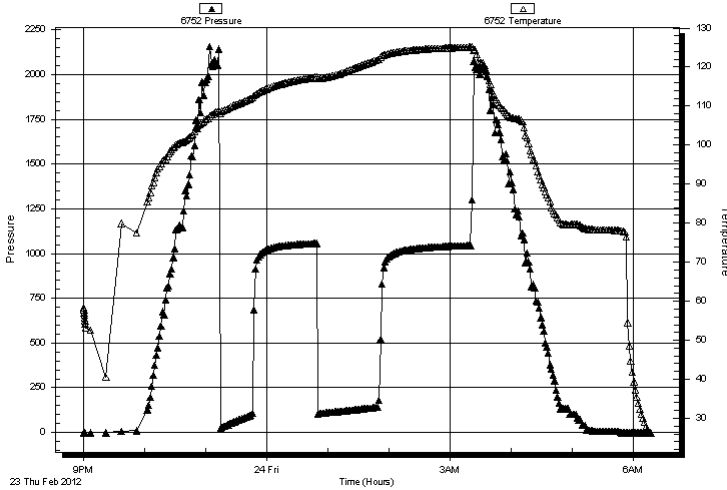
2012.02.24

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF: Weak blow , Built to 4 in. over 30 mins.  
IS: No blow back over 60 mins.  
FF: Weak blow , Built to 1 3/4 in. over 60 mins.  
FS: No blow back over 90 mins.

Pressure vs. Time



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
122.00	Vsocmw -5%o45%m50%w	0.60
126.00	socw m-10%o5%w 85%m	1.18
2.00	oil-100%	0.03
0.00	1.1 @40=10000	0.00

### Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 042044

**DST#: 4**

ATTN: Rocky Milford

Test Start: 2012.02.23 @ 21:00:00

## Tool Information

Drill Pipe:	Length: 4041.00 ft	Diameter: 3.80 inches	Volume: 56.68 bbl	Tool Weight: 2600.00 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 57.59 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4242.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	79.38 ft			
Tool Length:	106.38 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			4216.00	
Shut In Tool	5.00			4221.00	
Hydraulic tool	5.00			4226.00	
Jars	5.00			4231.00	
Safety Joint	2.00			4233.00	
Packer	5.00			4238.00	27.00 Bottom Of Top Packer
Packer	4.00			4242.00	
Stubb	1.00			4243.00	
Perforations	3.00			4246.00	
Recorder	0.00	6741	Outside	4246.00	
Recorder	0.00	6752	Inside	4246.00	
Change Over Sub	1.00			4247.00	
Drill Pipe	63.38			4310.38	
Change Over Sub	1.00			4311.38	
Perforations	7.00			4318.38	
Bullnose	3.00			4321.38	79.38 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>106.38</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 042044

**DST#: 4**

ATTN: Rocky Milford

Test Start: 2012.02.23 @ 21:00:00

## 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:

10000 ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3400.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
122.00	Vsocmw -5%o45%m50%w	0.600
126.00	socw m-10%o5%w 85%m	1.184
2.00	oil-100%	0.028
0.00	1.1@40=10000	0.000

Total Length: 250.00 ft

Total Volume: 1.812 bbf

Num Fluid Samples: 0

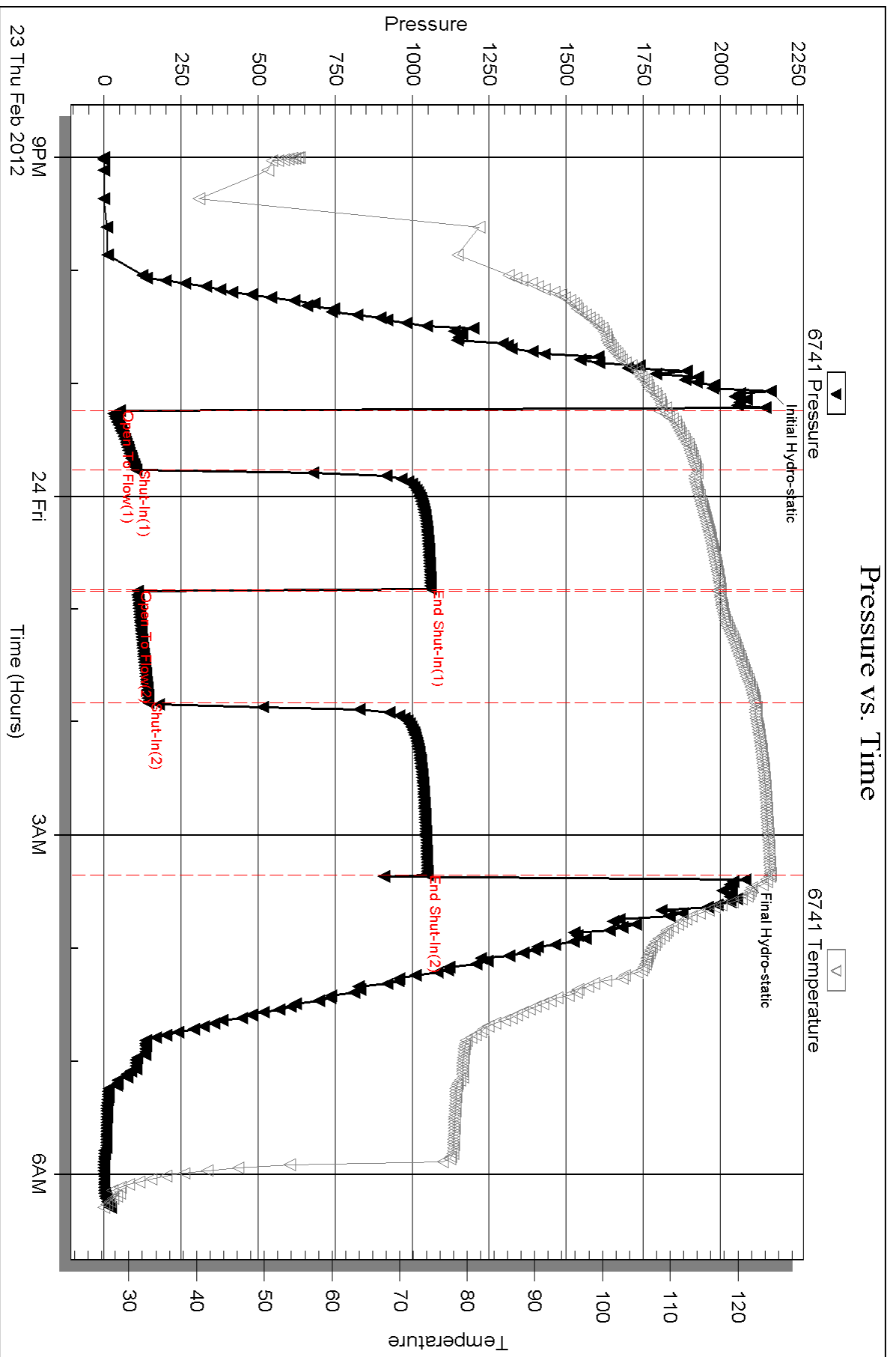
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



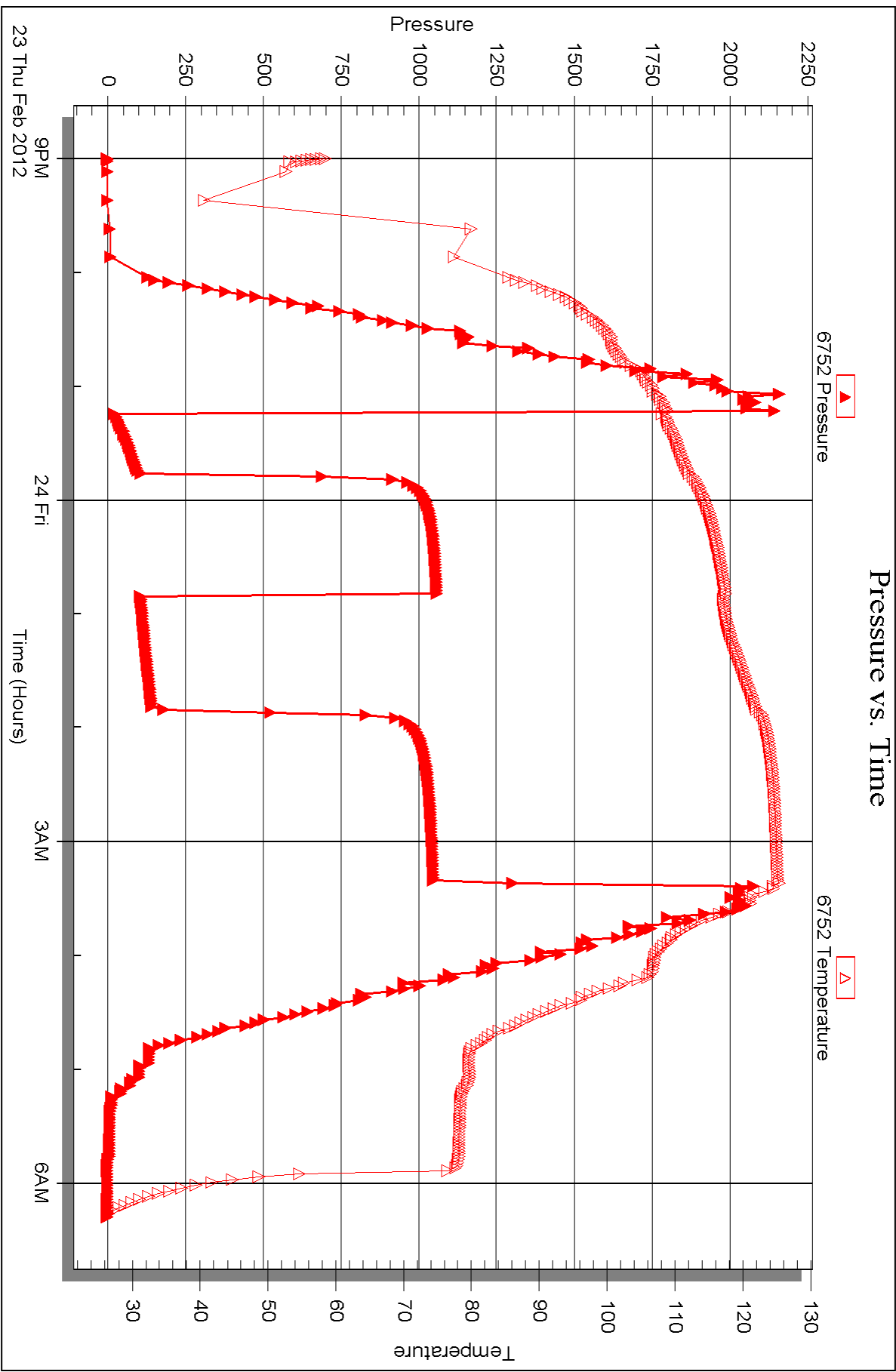
Serial #: 6752

Inside

Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 4





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water STE 300  
Wichita KS 67202

ATTN: Rocky Milford

**Ruda 'B' # 1-22**

**22-4s-33w Rawlins,KS**

Start Date: 2012.02.24 @ 15:50:00

End Date: 2012.02.24 @ 23:18:30

Job Ticket #: 042045                      DST #: 5

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

Printed: 2012.03.08 @ 14:30:03

Murfin Drilling Co. 22-4s-33w Rawlins,KS Ruda 'B' # 1-22 DST # 5 Ft.scott, Calia 2012.02.24



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co.  
 250 N. Water STE 300  
 Wichita KS 67202  
 ATTN: Rocky Milford

**22-4s-33w Rawlins, KS**  
**Ruda 'B' # 1-22**  
 Job Ticket: 042045 **DST#: 5**  
 Test Start: 2012.02.24 @ 15:50:00

## GENERAL INFORMATION:

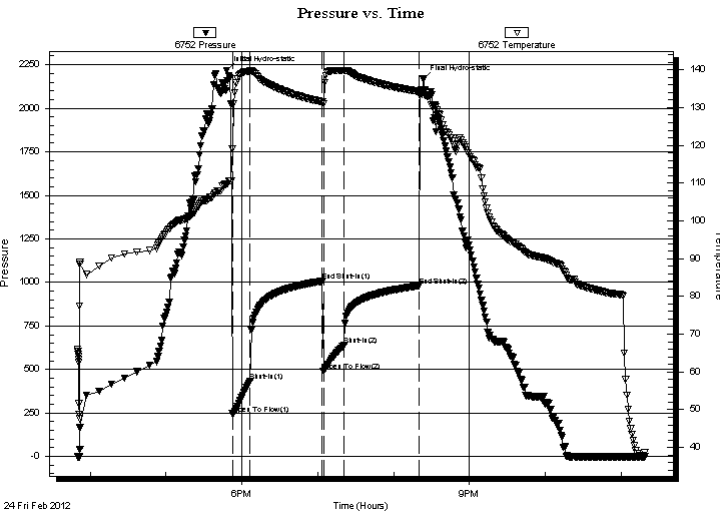
Formation: **Ft. scott, Celia**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 17:52:30 Tester: Chuck Kreuzer Jr.  
 Time Test Ended: 23:18:30 Unit No: 36  
 Interval: **4315.00 ft (KB) To 4370.00 ft (KB) (TVD)** Reference Elevations: 2988.00 ft (KB)  
 Total Depth: 4370.00 ft (KB) (TVD) 2983.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 5.00 ft

## Serial #: 6752

Inside

Press @ Run Depth: 641.96 psig @ 4319.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.24 End Date: 2012.02.24 Last Calib.: 2012.02.24  
 Start Time: 15:50:05 End Time: 23:18:29 Time On Btm: 2012.02.24 @ 17:48:00  
 Time Off Btm: 2012.02.24 @ 20:23:30

**TEST COMMENT:** IF: Strong blow , Built to B.O.B In 1 min.  
 IS: Weak blow back 1/8 in. in 15 mins., Died to surface over 60 mins.  
 FF: Strong blow , Built to B.O.B in 30 sec.  
 FS: No blow back over 60 mins.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2217.76	109.80	Initial Hydro-static
5	244.88	119.19	Open To Flow (1)
19	432.70	139.64	Shut-In(1)
76	1006.60	131.56	End Shut-In(1)
77	489.17	131.12	Open To Flow (2)
93	641.96	139.81	Shut-In(2)
152	979.91	134.29	End Shut-In(2)
156	2167.66	133.92	Final Hydro-static

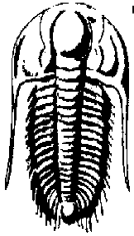
## Recovery

Length (ft)	Description	Volume (bbl)
1054.00	mcw -2% m98%w	13.09
310.00	mcw -15% m85%w	4.35
40.00	w cm-50%w 50%m	0.56
0.00	40.6@2.7=4400 Salinity	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co.  
250 N. Water STE 300  
Wichita KS 67202  
ATTN: Rocky Milford

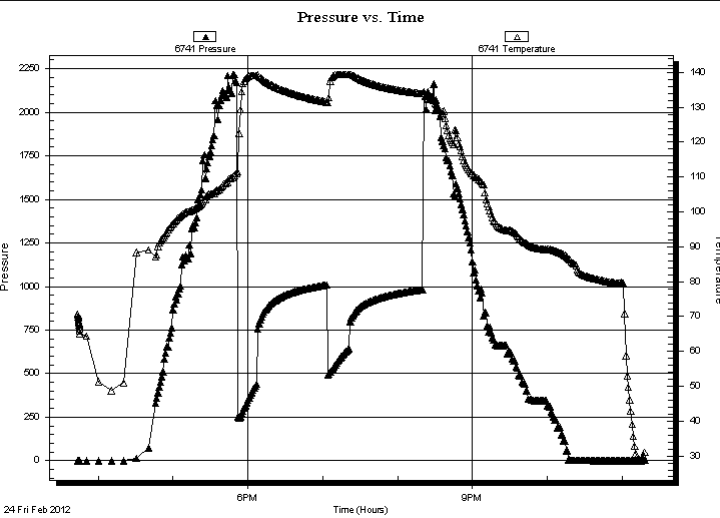
**22-4s-33w Rawlins, KS**  
**Ruda 'B' # 1-22**  
Job Ticket: 042045 **DST#: 5**  
Test Start: 2012.02.24 @ 15:50:00

## GENERAL INFORMATION:

Formation: **Ft. Scott, Celia**  
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 17:52:30 Tester: Chuck Kreutzer Jr.  
Time Test Ended: 23:18:30 Unit No: 36  
Interval: **4315.00 ft (KB) To 4370.00 ft (KB) (TVD)** Reference Elevations: 2988.00 ft (KB)  
Total Depth: 4370.00 ft (KB) (TVD) 2983.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 5.00 ft

**Serial #: 6741 Outside**  
Press @ Run Depth: psig @ 4319.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2012.02.24 End Date: 2012.02.24 Last Calib.: 2012.02.24  
Start Time: 15:43:35 End Time: 23:18:29 Time On Btm:  
Time Off Btm:

**TEST COMMENT:** IF: Strong blow , Built to B.O.B In 1 min.  
IS: Weak blow back 1/8 in. in 15 mins., Died to surface over 60 mins.  
FF: Strong blow , Built to B.O.B in 30 sec.  
FS: No blow back over 60 mins.



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
1054.00	mcw -2% m98% w	13.09
310.00	mcw -15% m85% w	4.35
40.00	w cm-50% w 50% m	0.56
0.00	40.6@2.7=4400 Salinity	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.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 042045

**DST#: 5**

ATTN: Rocky Milford

Test Start: 2012.02.24 @ 15:50:00

## Tool Information

Drill Pipe:	Length: 4107.00 ft	Diameter: 3.80 inches	Volume: 57.61 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: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.52 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4315.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.20 ft			
Tool Length:	82.20 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			4289.00	
Shut In Tool	5.00			4294.00	
Hydraulic tool	5.00			4299.00	
Jars	5.00			4304.00	
Safety Joint	2.00			4306.00	
Packer	5.00			4311.00	27.00 Bottom Of Top Packer
Packer	4.00			4315.00	
Stubb	1.00			4316.00	
Perforations	3.00			4319.00	
Recorder	0.00	6741	Outside	4319.00	
Recorder	0.00	6752	Inside	4319.00	
Change Over Sub	0.60			4319.60	
Drill Pipe	32.00			4351.60	
Change Over Sub	0.60			4352.20	
Perforations	15.00			4367.20	
Bullnose	3.00			4370.20	55.20 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>82.20</b>				





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 042045

**DST#: 5**

ATTN: Rocky Milford

Test Start: 2012.02.24 @ 15:50:00

## 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:

4400 ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3400.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
1054.00	mcw -2%m98%w	13.090
310.00	mcw -15%m85%w	4.348
40.00	w cm-50%w 50%m	0.561
0.00	40.6@2.7=4400 Salinity	0.000

Total Length: 1404.00 ft

Total Volume: 17.999 bbl

Num Fluid Samples: 0

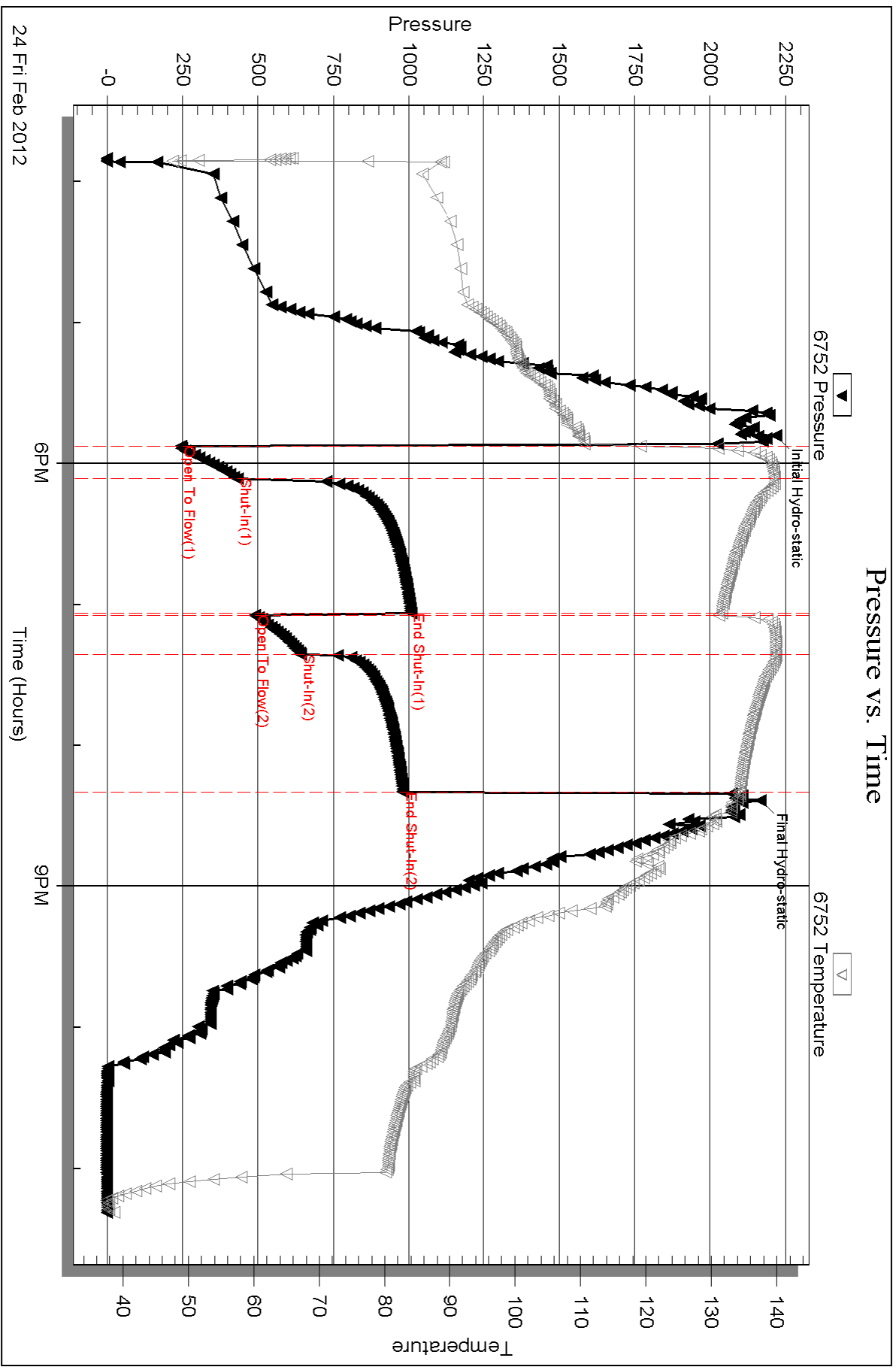
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



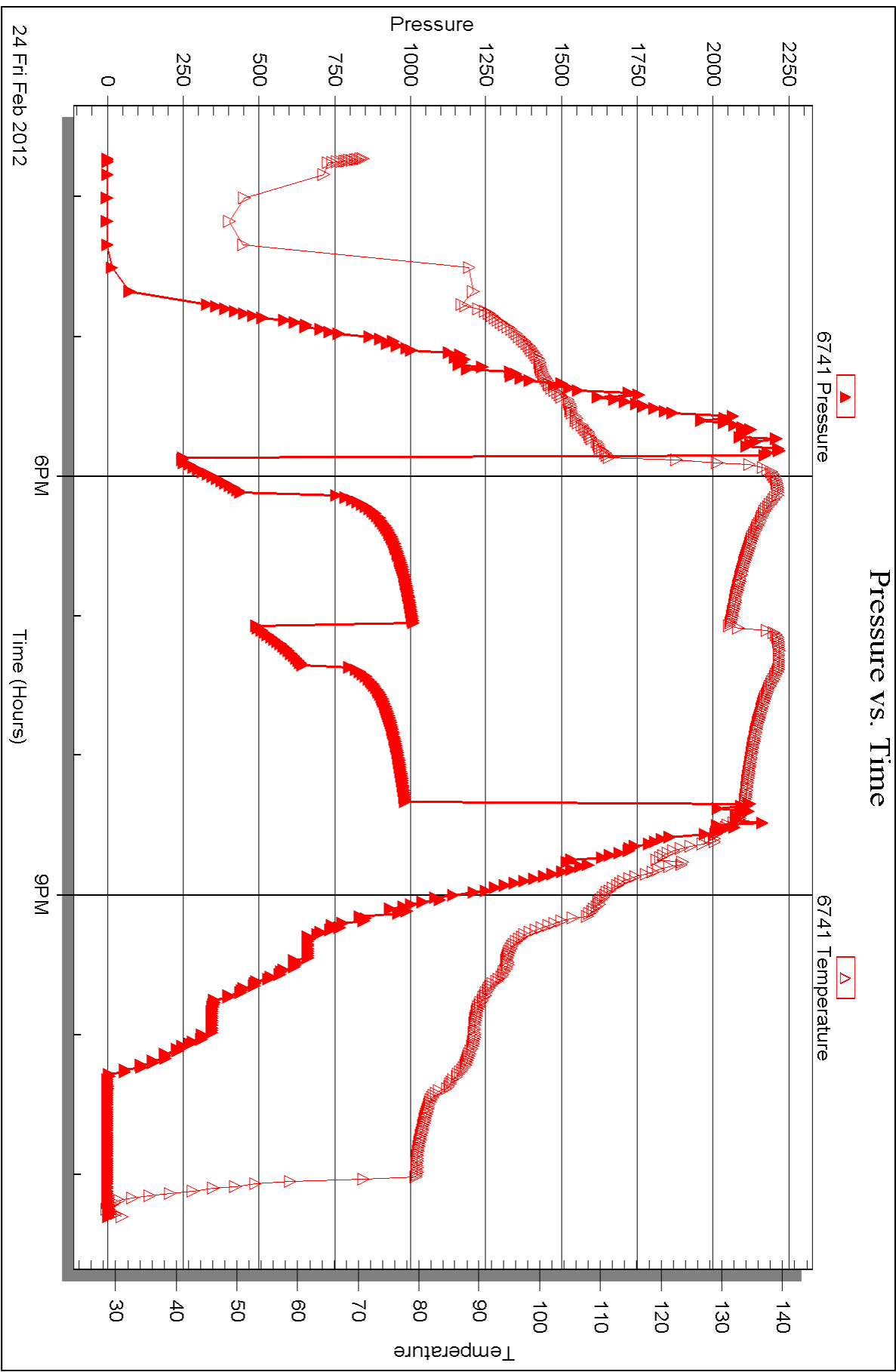
Serial #: 6741

Outside

Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 5



24 Fri Feb 2012

6PM

Time (Hours)

9PM



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water STE 300  
Wichita KS 67202

ATTN: Rocky Milford

**Ruda 'B' # 1-22**

**22-4s-33w Rawlins,KS**

Start Date: 2012.02.25 @ 18:45:00

End Date: 2012.02.26 @ 02:02:00

Job Ticket #: 42046                      DST #: 6

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

Printed: 2012.03.08 @ 14:29:26



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co.  
 250 N. Water STE 300  
 Wichita KS 67202  
 ATTN: Rocky Milford

**22-4s-33w Rawlins, KS**  
**Ruda 'B' # 1-22**  
 Job Ticket: 42046 **DST#: 6**  
 Test Start: 2012.02.25 @ 18:45:00

## GENERAL INFORMATION:

Formation: **Miss.**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 20:37:30  
 Time Test Ended: 02:02:00  
 Interval: **4515.00 ft (KB) To 4552.00 ft (KB) (TVD)**  
 Total Depth: 4552.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Chuck Kreuzer Jr.  
 Unit No: 36  
 Reference Elevations: 2988.00 ft (KB)  
 2983.00 ft (CF)  
 KB to GR/CF: 5.00 ft

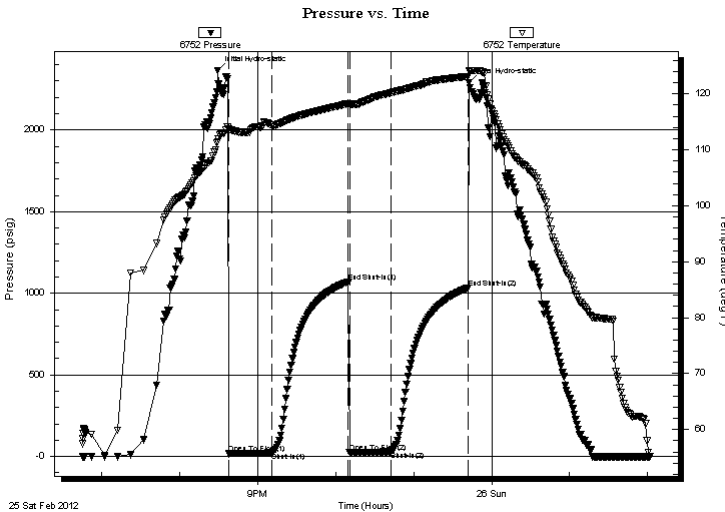
## Serial #: 6752

Inside

Press @ Run Depth: 29.45 psig @ 4516.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.25 End Date: 2012.02.26 Last Calib.: 2012.02.26  
 Start Time: 18:45:05 End Time: 02:01:59 Time On Btm: 2012.02.25 @ 20:29:00  
 Time Off Btm: 2012.02.25 @ 23:42:30

TEST COMMENT: IF: Weak blow, Surface blow Died in 5 1/2 mins.  
 IS: No Back over 60 mins.  
 FF: No blow over 30 mins.  
 FS: No blow back over 60 mins.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2365.25	111.43	Initial Hydro-static
9	16.85	113.71	Open To Flow (1)
42	23.40	114.41	Shut-In(1)
101	1070.64	118.26	End Shut-In(1)
102	23.93	118.10	Open To Flow (2)
134	29.45	120.22	Shut-In(2)
193	1033.13	123.15	End Shut-In(2)
194	2291.04	124.12	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.75	mud-100%	0.03

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 42046

**DST#: 6**

ATTN: Rocky Milford

Test Start: 2012.02.25 @ 18:45:00

## Tool Information

Drill Pipe:	Length: 4326.00 ft	Diameter: 3.80 inches	Volume: 60.68 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: 61.59 bbl</u>	Tool Chased	2.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial	64000.00 lb
Depth to Top Packer:	4515.00 ft			Final	64000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	37.00 ft				
Tool Length:	64.00 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			4489.00	
Shut In Tool	5.00			4494.00	
Hydraulic tool	5.00			4499.00	
Jars	5.00			4504.00	
Safety Joint	2.00			4506.00	
Packer	5.00			4511.00	27.00 Bottom Of Top Packer
Packer	4.00			4515.00	
Stubb	1.00			4516.00	
Recorder	0.00	6752	Inside	4516.00	
Recorder	0.00	6741	Outside	4516.00	
Perforations	33.00			4549.00	
Bullnose	3.00			4552.00	37.00 Bottom Packers & Anchor

**Total Tool Length: 64.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**22-4s-33w Rawlins,KS**

250 N. Water STE 300  
Wichita KS 67202

**Ruda 'B' # 1-22**

Job Ticket: 42046

**DST#: 6**

ATTN: Rocky Milford

Test Start: 2012.02.25 @ 18:45:00

## 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:

ppm

Viscosity: 76.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3900.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.75	mud-100%	0.028

Total Length: 5.75 ft      Total Volume: 0.028 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



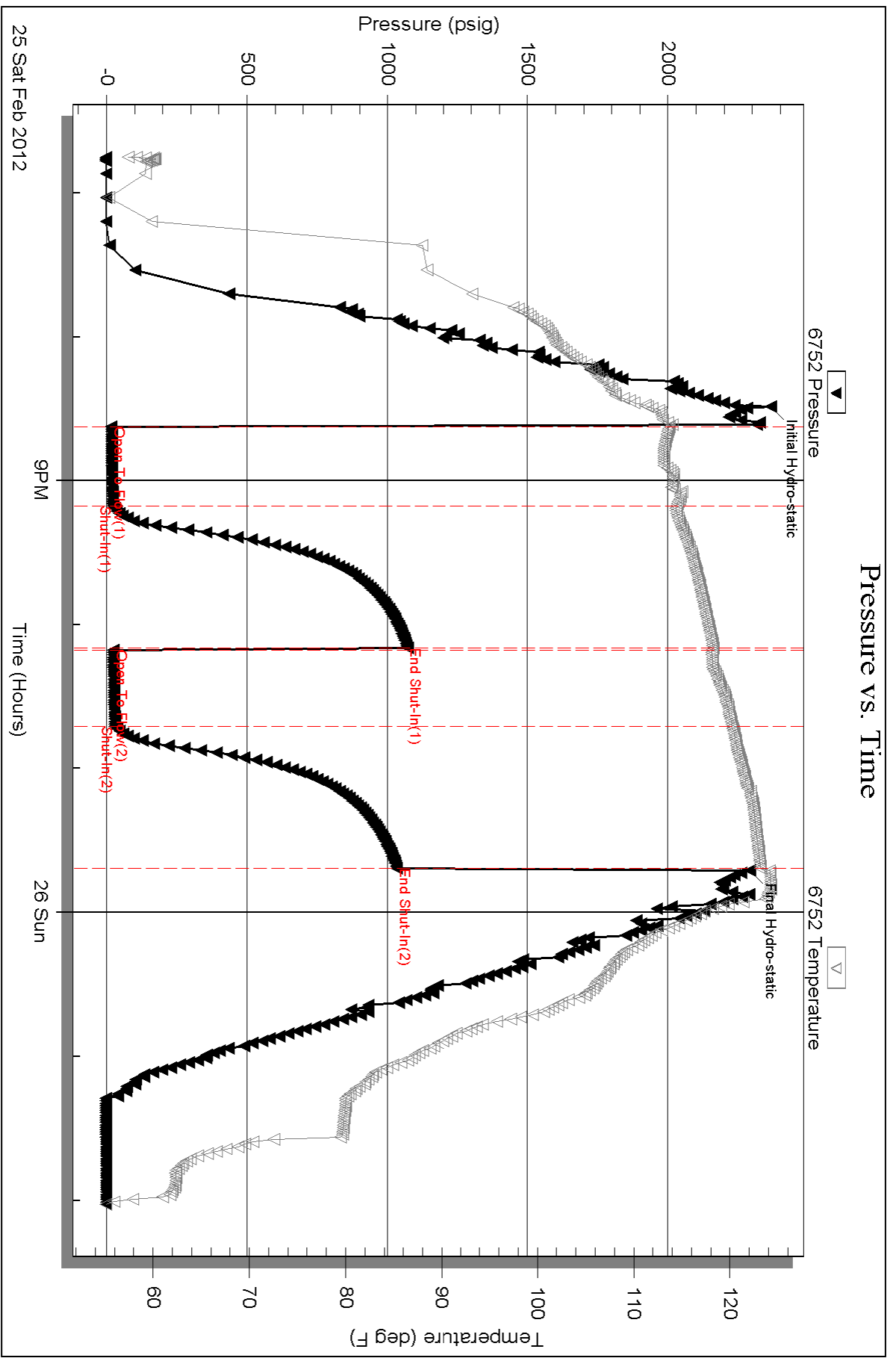
Serial #: 6752

Inside

Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 6

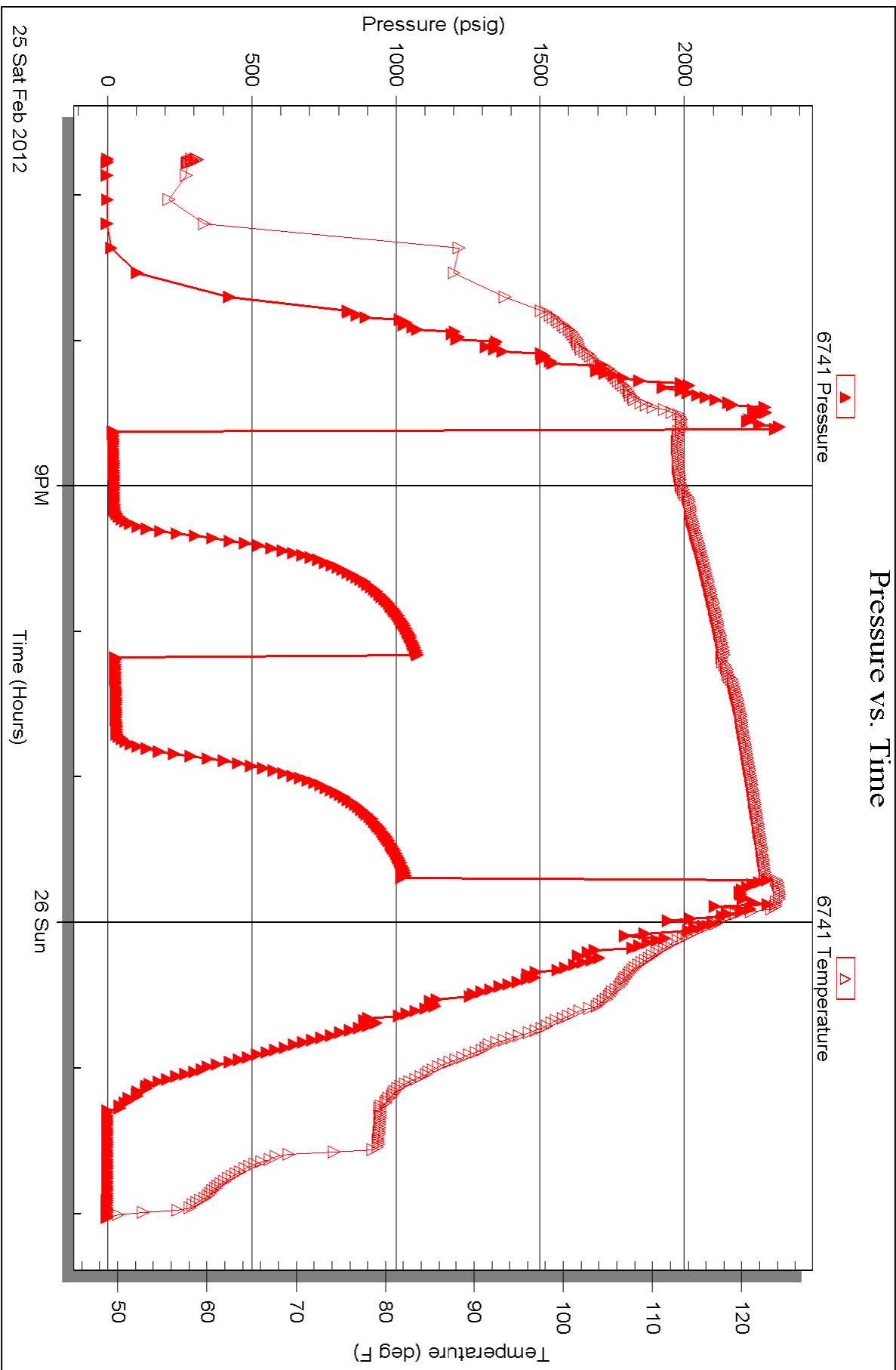


Serial #: 6741

Outside Murfin Drilling Co.

Ruda 'B' # 1-22

DST Test Number: 6





# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

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FEB 23 2012

## Test Ticket

NO. 45131

4/10

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

Well Name & No. Ruda 'B' # 1-22 Test No. DST #1 Date 2-20-12  
 Company Murfin Drilling Co. Elevation 2988 KB 2983 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Rocky Milford Rig Murfin Rig #8  
 Location: Sec. 22 Twp. 4s Rge. 33w Co. Rawlins State KS

Interval Tested 3860-3958 Zone Tested Toronto - Lansing "D"  
 Anchor Length 98 Drill Pipe Run 3661 Mud Wt. 9.2  
 Top Packer Depth 3856 Drill Collars Run 186 Vis 47  
 Bottom Packer Depth 3860 Wt. Pipe Run 0 WL 7.6  
 Total Depth 3958 Chlorides 3500 ppm System LCM 616  
 Blow Description IF - Surface Blow Built to 3 1/4"  
ISI - No Blow  
FF - Weak Surface Blow in 28 min Built to 1 3/4"  
FSI - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>62</u>	<u>Mud</u>			<u>100</u>	
<u>60</u>	<u>WCM</u>			<u>3</u>	<u>97</u>
<u>120</u>	<u>WCM</u>			<u>20</u>	<u>80</u>

Rec Total 242 BHT 113 Gravity 11.25 API RW 488 @ 36 °F Chlorides 26500 ppm

(A) Initial Hydrostatic 1936  Test 11.25 T-On Location 12:36  
 (B) First Initial Flow 25  Jars 250 T-Started 15:16  
 (C) First Final Flow 92  Safety Joint 75 T-Open 17:29  
 (D) Initial Shut-In 1239  Circ Sub N/C T-Pulled 21:37  
 (E) Second Initial Flow 107  Hourly Standby 2 1/2 hrs 250 T-Out 23:59  
 (F) Second Final Flow 130  Mileage 80 R/T 12  Comments \_\_\_\_\_  
 (G) Final Shut-In 1236  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1838  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1812  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1812

Approved By Rocky Milford Our Representative Will Marshall

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FEB 23 2012

## Test Ticket

NO. 45132

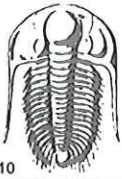
Well Name & No. Ruda 'B' #1-22 Test No. DST #2 Date 2-21-12  
 Company Murfin Drilling Co. Elevation 2988 KB 2983 GL  
 Address 250 N Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Rocky Milford Rig Murfin Rig #8  
 Location: Sec. 22 Twp. 4s Rge. 33w Co. Rawlins State KS

Interval Tested 3956-4015 Zone Tested Lansing E-G  
 Anchor Length 59 Drill Pipe Run 3764 Mud Wt. 9.1  
 Top Packer Depth 3952 Drill Collars Run 186 Vis 52  
 Bottom Packer Depth 3956 Wt. Pipe Run 0 WL 76  
 Total Depth 4015 Chlorides 3400 ppm System LCM 8.15  
 Blow Description IF- Surface Blow Built to BOB in 5 3/4 min  
ISI- No Blow  
FF- Surface Blow Built to BOB in 1 1/4 min  
FSI- No Blow

Rec	Feet of	SKIN of oil on top	%gas	%oil	%water	%mud
<u>288</u>	<u>WCM</u>	<u>SKIN of oil on top</u>		<u>4</u>	<u>96</u>	
<u>186</u>	<u>WCM</u>	<u>SKIN of oil</u>		<u>8</u>	<u>92</u>	
<u>434</u>	<u>MCW</u>	<u>SKIN of oil</u>		<u>80</u>	<u>20</u>	
<u>248</u>	<u>MCW</u>			<u>95</u>	<u>5</u>	

Rec Total 1156 BHT 123 Gravity 12.25 API RW 233@44 °F Chlorides 51000 ppm  
 (A) Initial Hydrostatic 1962  Test 12.25 T-On Location \_\_\_\_\_  
 (B) First Initial Flow 92  Jars \_\_\_\_\_ T-Started 11:59 AM  
 (C) First Final Flow 387  Safety Joint \_\_\_\_\_ T-Open 14:12  
 (D) Initial Shut-In 1281  Circ Sub NIC T-Pulled 17:16  
 (E) Second Initial Flow 386  Hourly Standby \_\_\_\_\_ T-Out 20:06  
 (F) Second Final Flow 574  Mileage 80 R/T 112 Comments \_\_\_\_\_  
 (G) Final Shut-In 1272  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1820  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1337  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1337

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

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RECEIVED  
FEB 27 2012

## Test Ticket

NO. 042043

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

Well Name & No. Ruda B 1-22 Test No. 3 Date 2-22-2012  
 Company Murphy Drilling Co. Elevation 2990 KB 2985 GL  
 Address 256 N. Water St. 300 Wichita KS. 67202  
 Co. Rep / Geo. Rocky Milford Rig Murphy #8  
 Location: Sec. 22 Twp. 4N Rge. 33w Co. Rawlins State Ks.

Interval Tested 4012 4088 Zone Tested LKC - H, J  
 Anchor Length 76 Drill Pipe Run 3809 Mud Wt. 9.1  
 Top Packer Depth 4007 Drill Collars Run 186 Vis 51  
 Bottom Packer Depth 4012 Wt. Pipe Run - 0 - WL 7.2  
 Total Depth 4088 Chlorides 3400 ppm System LCM 7#

Blow Description IF: weak blow, built to 5 in over 30 mins.  
ISI: No blow back over 60 mins  
FF: weak blow built to 7 in. over 60 mins  
FSI: No blow back over 90 mins.

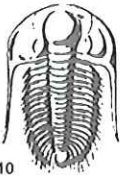
Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>mud</u>			<u>100</u>	
<u>120</u>	<u>WCAE</u>		<u>25</u>	<u>75</u>	
<u>120</u>	<u>MCW</u>		<u>20</u>	<u>80</u>	

Rec Total 250 BHT 124.1 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2022  Test 1225 T-On Location 6:30  
 (B) First Initial Flow 22  Jars \_\_\_\_\_ T-Started 7:30  
 (C) First Final Flow 105  Safety Joint \_\_\_\_\_ T-Open 9:40  
 (D) Initial Shut-In 1280  Circ Sub \_\_\_\_\_ T-Pulled 13:50  
 (E) Second Initial Flow 107  Hourly Standby \_\_\_\_\_ T-Out 15:47  
 (F) Second Final Flow 163  Mileage 40x2=80x1.40 112 Comments \_\_\_\_\_  
 (G) Final Shut-In 1260  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1933  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1337  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1337

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

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RECEIVED  
FEB 27 2012  
BY: \_\_\_\_\_

## Test Ticket

NO. 042044

Well Name & No. Ruda B 1-122 Test No. 4 Date 2-23-2012  
 Company MurFin Drilling Co. Elevation 2990 KB 2985 GL  
 Address 250 N. Water St 300 Wichita Ks. 67202  
 Co. Rep / Geo. Rocky Milford Rig MurFin #8  
 Location: Sec. 22 Twp. 4N Rge. 33W Co. Rawlins State Ks.

Interval Tested 4242 4321 Zone Tested Upper & Lower Pawnee  
 Anchor Length 79 Drill Pipe Run 4041 Mud Wt. 9.1  
 Top Packer Depth 4237 Drill Collars Run 186 Vis 51  
 Bottom Packer Depth 4242 Wt. Pipe Run -0- WL 7.2  
 Total Depth 4321 Chlorides 3400 ppm System LCM 7#

Blow Description IF: weak blow, built to 4 in. over 30 mins  
ISF: No blow back over 60 mins.  
FF: weak blow built to 1 3/4 in. over 60 mins.  
FSI: no blow

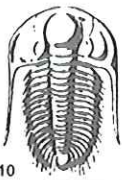
Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>oil</u>		<u>100%</u>		
<u>126</u>	<u>SOCCMAX</u>		<u>10%</u>	<u>5%</u>	<u>85%</u>
<u>122</u>	<u>USOCMW</u>		<u>5%</u>	<u>50%</u>	<u>45%</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 250 BHT 124.8 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic \_\_\_\_\_  Test 1225' T-On Location 20:25  
 (B) First Initial Flow \_\_\_\_\_  Jars 250' T-Started 21:00  
 (C) First Final Flow \_\_\_\_\_  Safety Joint 75' T-Open 23:14  
 (D) Initial Shut-In \_\_\_\_\_  Circ Sub \_\_\_\_\_ T-Pulled 3:20  
 (E) Second Initial Flow \_\_\_\_\_  Hourly Standby \_\_\_\_\_ T-Out 6:16  
 (F) Second Final Flow \_\_\_\_\_  Mileage 40x2 = 80x1.40 = 112' Comments \_\_\_\_\_  
 (G) Final Shut-In \_\_\_\_\_  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic \_\_\_\_\_  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1 hole 2'  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1 hole 2'

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

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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 27 2012

## Test Ticket

NO. 042045

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

Well Name & No. Rudax B 1-22 Test No. 5 Date 2-24-2012  
 Company Murfin Drilling Co. Elevation 2990 KB 2985 GL  
 Address 250 N. Water St. 300 Wichita KS,  
 Co. Rep / Geo. Rock & Milford Rig Murfin #3  
 Location: Sec. 22 Twp. 4N Rge. 33W Co. Rawlins State Ks

Interval Tested 4315 4370 Zone Tested Ft. Scott Celia  
 Anchor Length 55 Drill Pipe Run 4107 Mud Wt. 9.1  
 Top Packer Depth 4310 Drill Collars Run 186 Vis 69  
 Bottom Packer Depth 4315 Wt. Pipe Run -0- WL 5.6  
 Total Depth 4370 Chlorides 3,400 ppm System LCM 8#  
 Blow Description IF: Strong ~~weak~~ blow, Built to B.O.B in 1min.  
IST: Weak blowback, Built to 1/8 in. ~~in 15 mins~~, Died to surface over 60mins  
FF: Strong blow, Built to B.O.B in 15 mins  
FST: No blowback over 60 mins.

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>WCM</u>			<u>50%</u>	<u>50%</u>
<u>310</u>	<u>MCW</u>			<u>85%</u>	<u>15%</u>
<u>1054</u>	<u>MCW</u>			<u>98%</u>	<u>2%</u>

Rec Total 1404 BHT 134.3 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2218</u>	<input checked="" type="checkbox"/> Test <u>1225'</u>	T-On Location <u>15:20</u>
(B) First Initial Flow <u>245</u>	<input checked="" type="checkbox"/> Jars <u>250'</u>	T-Started <u>15:50</u>
(C) First Final Flow <u>433</u>	<input checked="" type="checkbox"/> Safety Joint <u>75'</u>	T-Open <u>17:52</u>
(D) Initial Shut-In <u>1007</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>20:25</u>
(E) Second Initial Flow <u>489</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>23:18</u>
(F) Second Final Flow <u>642</u>	<input checked="" type="checkbox"/> Mileage <u>40x2 = 80x1.40</u> 112	Comments _____
(G) Final Shut-In <u>980</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2168</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Open <u>15</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Flow <u>15</u>	<input type="checkbox"/> Day Standby _____	Total <u>11662</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>11662</u>	

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

Our Representative Chuck [Signature]

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# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
MAR 05 2012

## Test Ticket

NO. 042046

4/10

Well Name & No. Ruda B 1-22 BY: \_\_\_\_\_ Test No. 6 Date 2-25-2012  
 Company Murfin Drilling Co Elevation 2990 KB 2985 GL \_\_\_\_\_  
 Address 250 N. Water Ste, 300 Wichita KS.  
 Co. Rep / Geo. Rocky Milford Rig Murfin #B  
 Location: Sec. 22 Twp. 4N Rge. 33W Co. Lawrence State KS

Interval Tested 4515 4552 Zone Tested Miss.  
 Anchor Length \_\_\_\_\_ 37 Drill Pipe Run 4326 Mud Wt. 9.1  
 Top Packer Depth \_\_\_\_\_ 4510 Drill Collars Run 186 Vis 7.6  
 Bottom Packer Depth \_\_\_\_\_ 4515 Wt. Pipe Run -0- WL 6.0  
 Total Depth \_\_\_\_\_ 4552 Chlorides 3900 ppm System LCM 8#

Blow Description IF: Weak blow, Died in 5 1/2 mins.  
ISI: No blow back over 60 mins.  
FF: No blow over 30 mins.  
FBI: No blow back over 60 mins.

Rec	Feet of	%gas	%oil	%water	%mud
<u>5.75</u>	<u>mud</u>				<u>100%</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Rec Total 5.75 BHT 123 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2365  Test 1225 T-On Location 17:50  
 (B) First Initial Flow 17  Jars 250 T-Started 18:45  
 (C) First Final Flow 23  Safety Joint 75 T-Open 20:37  
 (D) Initial Shut-In 1076  Circ Sub \_\_\_\_\_ T-Pulled 23:40  
 (E) Second Initial Flow 24  Hourly Standby \_\_\_\_\_ T-Out 2:02  
 (F) Second Final Flow 29  Mileage 80 RT 112 Comments \_\_\_\_\_  
 (G) Final Shut-In 1033  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2291  Straddle \_\_\_\_\_  Ruined Shale Packer 350  
 Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

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

Sub Total 1102 Sub Total 350  
 Total 2012 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Chuck [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.