



## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Charlie Sturdavant

### **Frahm "B" #1-21**

#### **21-10s-34w Thomas,KS**

Start Date: 2012.04.22 @ 08:25:00

End Date: 2012.04.22 @ 17:33:45

Job Ticket #: 45947                      DST #: 1

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

Printed: 2012.05.02 @ 14:29:21



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45947

**DST#: 1**

ATTN: Charlie Sturdavant

Test Start: 2012.04.22 @ 08:25:00

## GENERAL INFORMATION:

Formation: **Lansing "A-B"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:11:30

Time Test Ended: 17:33:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Jace McKinney

Unit No: 46

**Interval: 4150.00 ft (KB) To 4195.00 ft (KB) (TVD)**

Reference Elevations: 3247.00 ft (KB)

Total Depth: 4195.00 ft (KB) (TVD)

3236.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8675**

**Inside**

Press @ Run Depth: 562.62 psig @ 4151.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.04.22

End Date:

2012.04.22

Last Calib.:

2012.04.22

Start Time: 08:25:01

End Time:

17:33:45

Time On Btm:

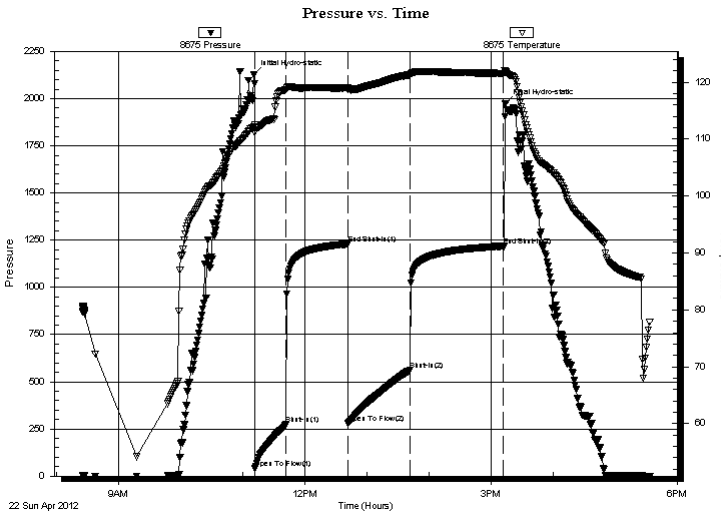
2012.04.22 @ 11:10:15

Time Off Btm:

2012.04.22 @ 15:14:00

**TEST COMMENT:** B.O.B. in 7 min.  
Bled off for 5 min. No return blow  
B.O.B in 8 min.  
Bled off for 5 min. No return blow

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2125.40         | 112.07       | Initial Hydro-static |
| 2           | 42.02           | 111.11       | Open To Flow (1)     |
| 32          | 273.71          | 118.68       | Shut-In(1)           |
| 92          | 1230.01         | 119.08       | End Shut-In(1)       |
| 92          | 281.12          | 118.68       | Open To Flow (2)     |
| 152         | 562.62          | 121.30       | Shut-In(2)           |
| 242         | 1219.37         | 121.53       | End Shut-In(2)       |
| 244         | 1972.55         | 121.74       | Final Hydro-static   |

## Recovery

| Length (ft) | Description    | Volume (bbl) |
|-------------|----------------|--------------|
| 926.00      | 100%Water      | 11.35        |
| 248.00      | mcw 30%M 70%W  | 3.48         |
| 236.00      | w cm 40%W 60%M | 3.31         |
|             |                |              |
|             |                |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45947

**DST#: 1**

ATTN: Charlie Sturdavant

Test Start: 2012.04.22 @ 08:25:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3953.24 ft | Diameter: 3.80 inches | Volume: 55.45 bbl              | Tool Weight: 1500.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer: 30000.00 lb  |
| Drill Collar:             | Length: 180.32 ft  | Diameter: 2.25 inches | Volume: 0.89 bbl               | Weight to Pull Loose: 78000.00 lb  |
|                           |                    |                       | <u>Total Volume: 56.34 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 11.06 ft           |                       |                                | String Weight: Initial 68000.00 lb |
| Depth to Top Packer:      | 4150.00 ft         |                       |                                | Final 73000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 45.00 ft           |                       |                                |                                    |
| Tool Length:              | 72.50 ft           |                       |                                |                                    |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                                    |

Tool Comments: Had to reload coff. on one recorder wouldnt download.

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths                |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub  | 1.00        |            |          | 4123.50    |                               |
| Shut In Tool     | 5.00        |            |          | 4128.50    |                               |
| Hydraulic tool   | 5.00        |            |          | 4133.50    |                               |
| Jars             | 5.00        |            |          | 4138.50    |                               |
| Safety Joint     | 2.50        |            |          | 4141.00    |                               |
| Packer           | 5.00        |            |          | 4146.00    | 27.50 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4150.00    |                               |
| Stubb            | 1.00        |            |          | 4151.00    |                               |
| Recorder         | 0.00        | 8675       | Inside   | 4151.00    |                               |
| Recorder         | 0.00        | 8650       | Outside  | 4151.00    |                               |
| Perforations     | 8.00        |            |          | 4159.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4160.00    |                               |
| Drill Pipe       | 31.00       |            |          | 4191.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4192.00    |                               |
| Bullnose         | 3.00        |            |          | 4195.00    | 45.00 Bottom Packers & Anchor |

**Total Tool Length: 72.50**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45947

**DST#: 1**

ATTN: Charlie Sturdavant

Test Start: 2012.04.22 @ 08:25:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 46.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 9000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description    | Volume<br>bbl |
|--------------|----------------|---------------|
| 926.00       | 100%Water      | 11.347        |
| 248.00       | mcw 30%M 70%W  | 3.479         |
| 236.00       | w cm 40%W 60%M | 3.310         |

Total Length: 1410.00 ft      Total Volume: 18.136 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .10 @ 80 F = 60,000

Serial #: 8675

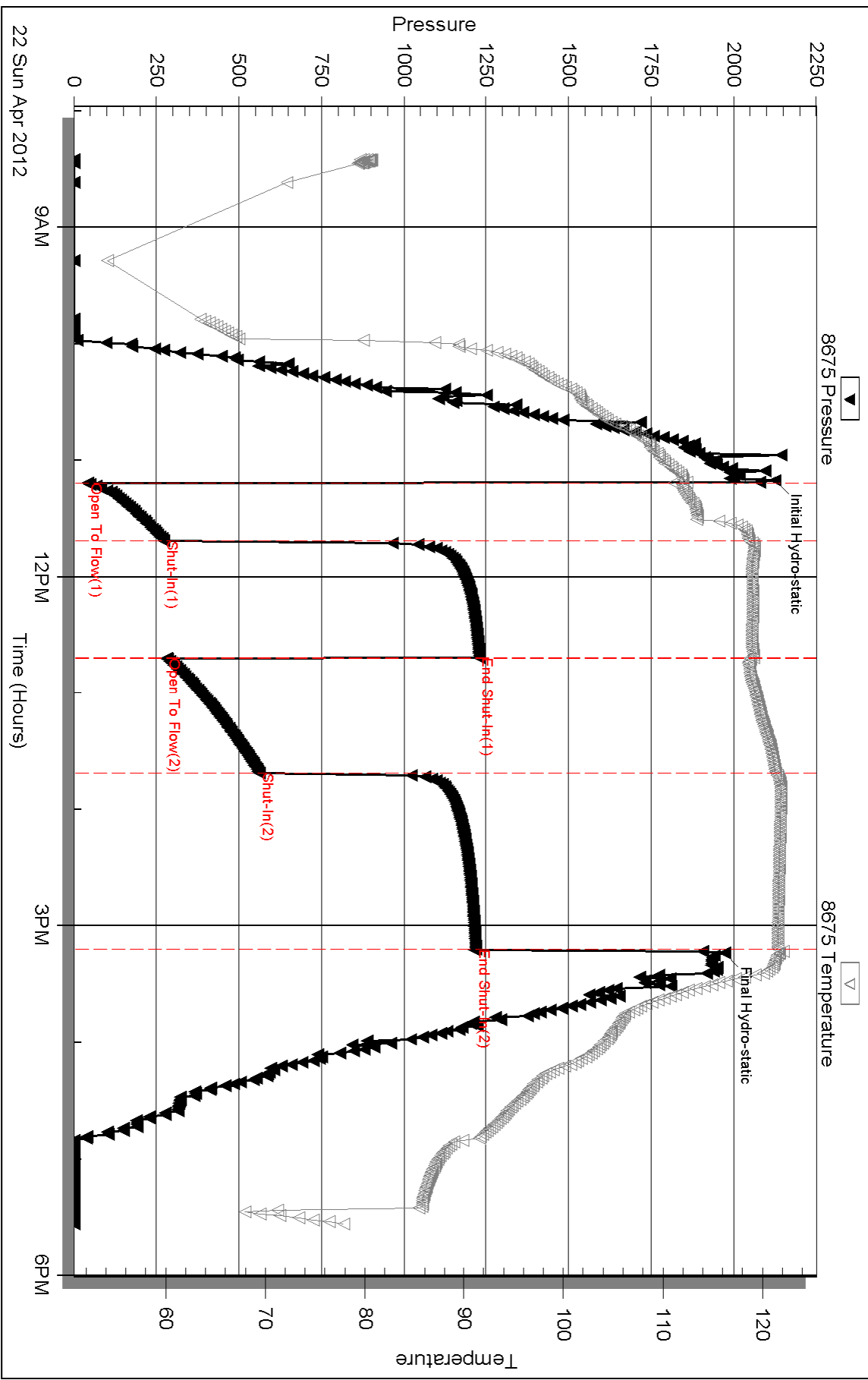
Inside

Murfin Drilling Co. Inc.

Frabm "B" #1-21

DST Test Number: 1

### Pressure vs. Time





## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Charlie Sturdavant

### **Frahm "B" #1-21**

#### **21-10s-34w Thomas,KS**

Start Date: 2012.04.23 @ 04:10:00

End Date: 2012.04.23 @ 12:43:00

Job Ticket #: 45948                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.05.02 @ 14:28:44



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45948

**DST#: 2**

ATTN: Charlie Sturdavant

Test Start: 2012.04.23 @ 04:10:00

## GENERAL INFORMATION:

Formation: **Kansas City "E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:07:45

Time Test Ended: 12:43:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4230.00 ft (KB) To 4255.00 ft (KB) (TVD)**

Reference Elevations: 3247.00 ft (KB)

Total Depth: 4255.00 ft (KB) (TVD)

3236.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8675**

**Inside**

Press @ Run Depth: 837.07 psig @ 4231.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.04.23

End Date:

2012.04.23

Last Calib.:

2012.04.23

Start Time: 04:10:01

End Time:

12:43:00

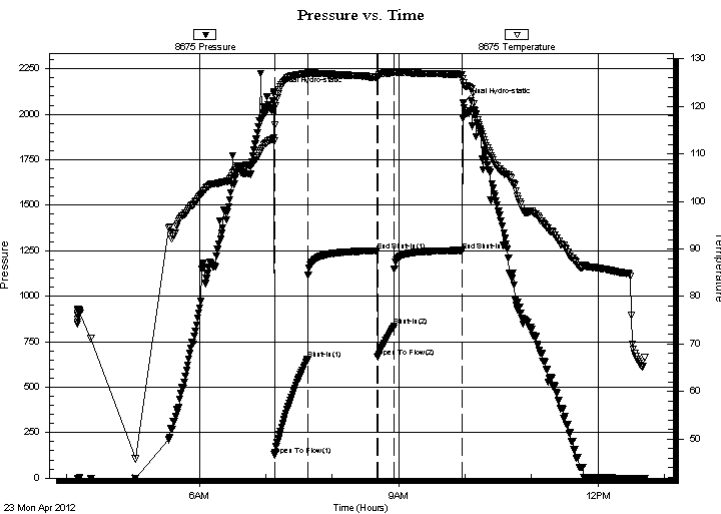
Time On Btm:

2012.04.23 @ 07:07:30

Time Off Btm:

2012.04.23 @ 09:58:30

**TEST COMMENT:** B.O.B. in 2 min.  
Bled off for 5 min. No return blow  
B.O.B. in 3 min.  
Bled off for 5 min. No return blow



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2122.75         | 113.44       | Initial Hydro-static |
| 1           | 128.29          | 112.81       | Open To Flow (1)     |
| 31          | 652.06          | 126.89       | Shut-In(1)           |
| 93          | 1250.40         | 126.17       | End Shut-In(1)       |
| 94          | 666.83          | 126.10       | Open To Flow (2)     |
| 109         | 837.07          | 127.06       | Shut-In(2)           |
| 170         | 1252.01         | 126.76       | End Shut-In(2)       |
| 171         | 2063.53         | 125.06       | Final Hydro-static   |

## Recovery

| Length (ft) | Description   | Volume (bbl) |
|-------------|---------------|--------------|
| 1296.00     | 100% Water    | 16.54        |
| 360.00      | mcw 40%M 60%W | 5.05         |
|             |               |              |
|             |               |              |
|             |               |              |

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45948

**DST#: 2**

ATTN: Charlie Sturdavant

Test Start: 2012.04.23 @ 04:10:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 4047.03 ft | Diameter: 3.80 inches | Volume: 56.77 bbl              | Tool Weight: 1500.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer: 30000.00 lb  |
| Drill Collar:             | Length: 180.32 ft  | Diameter: 2.25 inches | Volume: 0.89 bbl               | Weight to Pull Loose: 78000.00 lb  |
|                           |                    |                       | <u>Total Volume: 57.66 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 24.85 ft           |                       |                                | String Weight: Initial 66000.00 lb |
| Depth to Top Packer:      | 4230.00 ft         |                       |                                | Final 70000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 25.00 ft           |                       |                                |                                    |
| Tool Length:              | 52.50 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        |            |          | 4203.50    |                               |
| Shut In Tool     | 5.00        |            |          | 4208.50    |                               |
| Hydraulic tool   | 5.00        |            |          | 4213.50    |                               |
| Jars             | 5.00        |            |          | 4218.50    |                               |
| Safety Joint     | 2.50        |            |          | 4221.00    |                               |
| Packer           | 5.00        |            |          | 4226.00    | 27.50 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4230.00    |                               |
| Stubb            | 1.00        |            |          | 4231.00    |                               |
| Recorder         | 0.00        | 8675       | Inside   | 4231.00    |                               |
| Recorder         | 0.00        | 8650       | Outside  | 4231.00    |                               |
| Perforations     | 21.00       |            |          | 4252.00    |                               |
| Change Over Sub  | 0.00        |            |          | 4252.00    |                               |
| Drill Pipe       | 0.00        |            |          | 4252.00    |                               |
| Change Over Sub  | 0.00        |            |          | 4252.00    |                               |
| Bullnose         | 3.00        |            |          | 4255.00    | 25.00 Bottom Packers & Anchor |

**Total Tool Length: 52.50**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45948

**DST#: 2**

ATTN: Charlie Sturdavant

Test Start: 2012.04.23 @ 04:10:00

### 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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 7600.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

| Length<br>ft | Description   | Volume<br>bbl |
|--------------|---------------|---------------|
| 1296.00      | 100% Water    | 16.537        |
| 360.00       | mcw 40%M 60%W | 5.050         |

Total Length: 1656.00 ft      Total Volume: 21.587 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

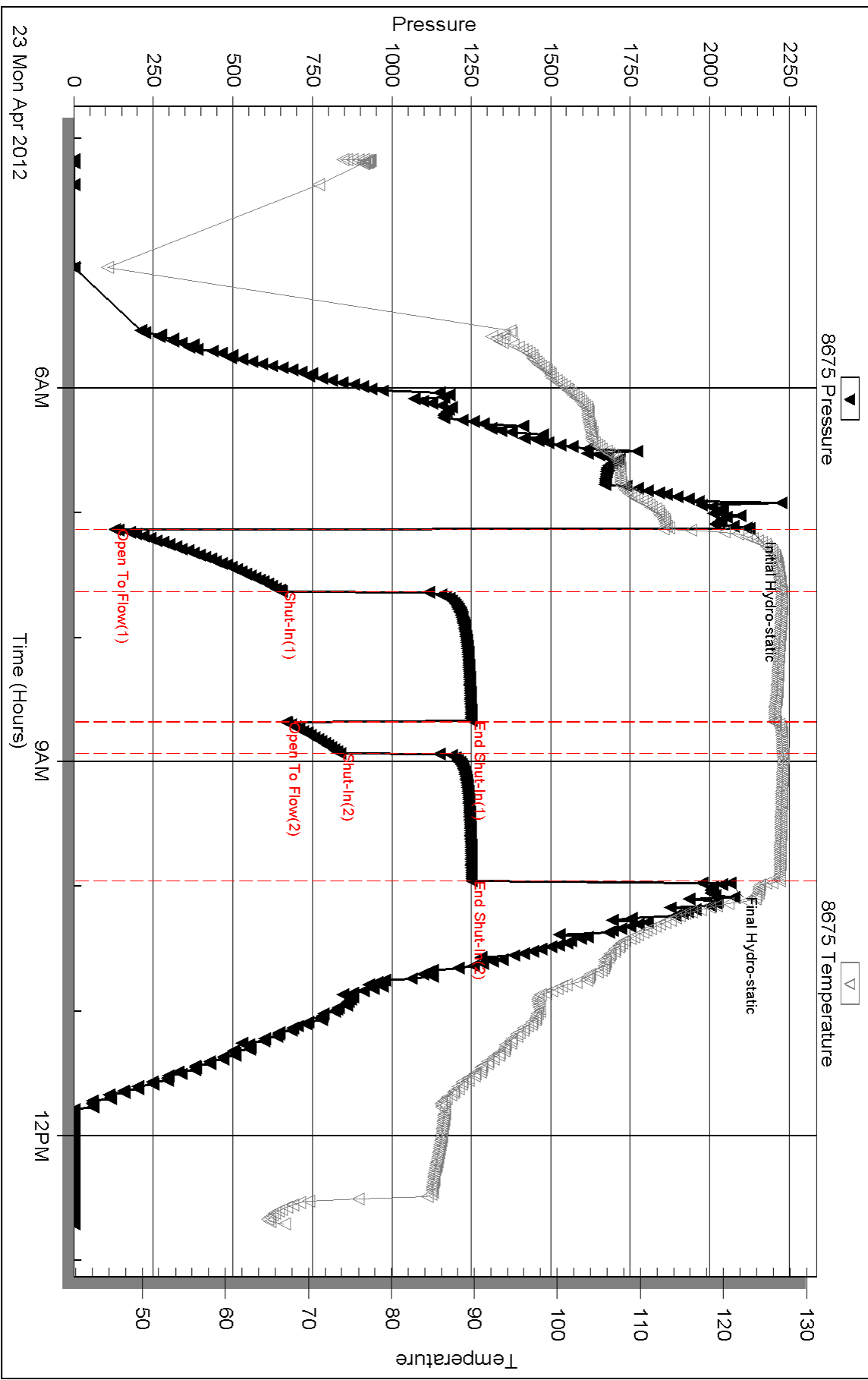
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .10 @ 65 F = 80,000

### Pressure vs. Time

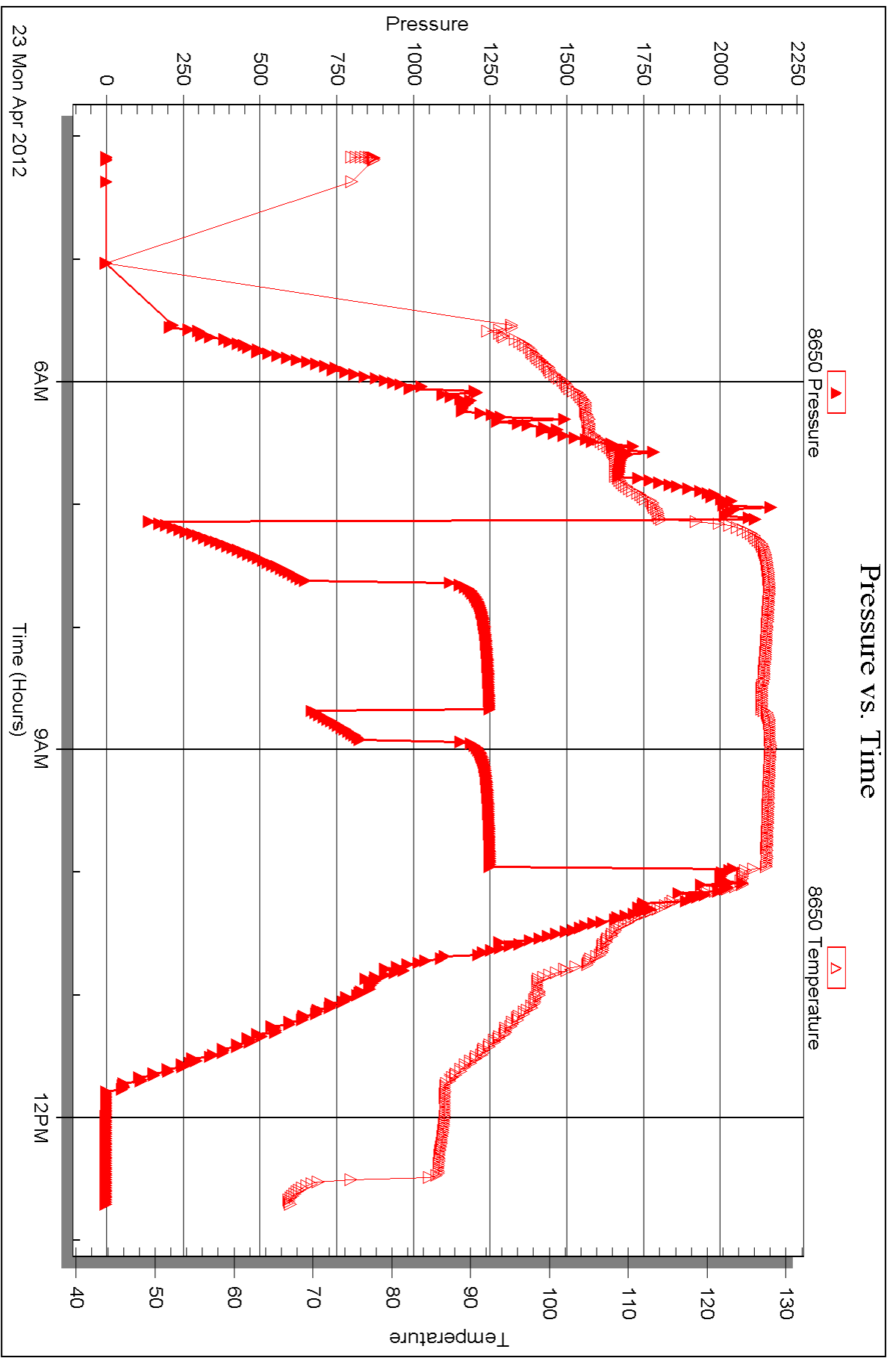


Serial #: 8650

Outside Murfin Drilling Co. Inc.

Frahm "B" #1-21

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 45948

Printed: 2012.05.02 @ 14:28:46



## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Charlie Sturdavant

**Frahm "B" #1-21**

**21-10s-34w Thomas,KS**

Start Date: 2012.04.24 @ 07:20:00

End Date: 2012.04.24 @ 15:27:00

Job Ticket #: 45949                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.05.02 @ 14:28:06

Murfin Drilling Co. Inc.

21-10s-34w Thomas,KS

Frahm "B" #1-21

DST # 3

Kansas City "H-I-J"

2012.04.24



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

ATTN: Charlie Sturdavant

Job Ticket: 45949

**DST#: 3**

Test Start: 2012.04.24 @ 07:20:00

## GENERAL INFORMATION:

Formation: **Kansas City " H-I-J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:56:30

Time Test Ended: 15:27:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4302.00 ft (KB) To 4380.00 ft (KB) (TVD)**

Reference Elevations: 3247.00 ft (KB)

Total Depth: 4380.00 ft (KB) (TVD)

3236.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8675**

**Inside**

Press @ Run Depth: 392.91 psig @ 4303.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.04.24

End Date:

2012.04.24

Last Calib.:

2012.04.24

Start Time: 07:20:01

End Time:

15:27:00

Time On Btm:

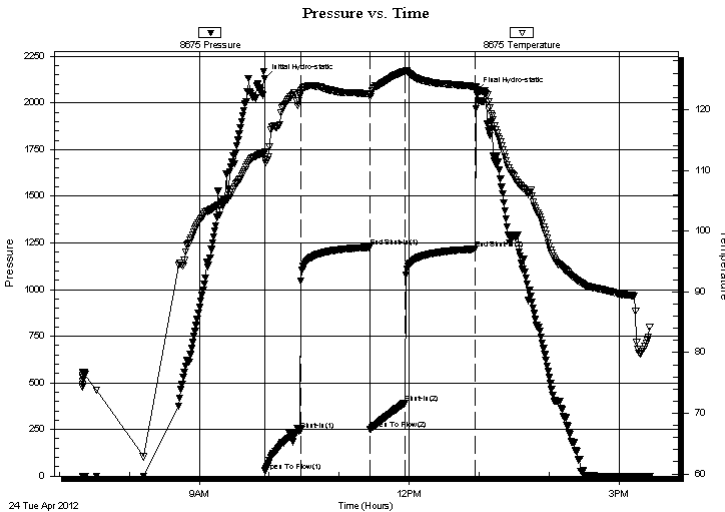
2012.04.24 @ 09:56:15

Time Off Btm:

2012.04.24 @ 12:57:30

**TEST COMMENT:** B.O.B. in 11 min.  
Bled off for 5 min. No return blow  
B.O.B. in 11 min.  
Bled off for 5 min. No return blow

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2131.18         | 112.96       | Initial Hydro-static |
| 1           | 28.04           | 111.93       | Open To Flow (1)     |
| 31          | 248.12          | 122.52       | Shut-In(1)           |
| 90          | 1227.31         | 122.53       | End Shut-In(1)       |
| 91          | 250.17          | 122.16       | Open To Flow (2)     |
| 121         | 392.91          | 126.25       | Shut-In(2)           |
| 181         | 1217.24         | 123.81       | End Shut-In(2)       |
| 182         | 2058.71         | 123.62       | Final Hydro-static   |

## Recovery

| Length (ft) | Description       | Volume (bbl) |
|-------------|-------------------|--------------|
| 368.00      | 100%W             | 3.52         |
| 248.00      | w cm 40%W 60%M    | 3.48         |
| 164.00      | w cm 20%W 80%M    | 2.30         |
| 0.00        | Oil spots in tool | 0.00         |
|             |                   |              |
|             |                   |              |

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45949

**DST#: 3**

ATTN: Charlie Sturdavant

Test Start: 2012.04.24 @ 07:20:00

## Tool Information

|                           |                    |                       |                                |                        |             |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe:               | Length: 4108.70 ft | Diameter: 3.80 inches | Volume: 57.63 bbl              | Tool Weight:           | 1500.00 lb  |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer:  | 30000.00 lb |
| Drill Collar:             | Length: 180.32 ft  | Diameter: 2.25 inches | Volume: 0.89 bbl               | Weight to Pull Loose:  | 80000.00 lb |
|                           |                    |                       | <u>Total Volume: 58.52 bbl</u> | Tool Chased            | 0.00 ft     |
| Drill Pipe Above KB:      | 14.52 ft           |                       |                                | String Weight: Initial | 70000.00 lb |
| Depth to Top Packer:      | 4302.00 ft         |                       |                                | Final                  | 75000.00 lb |
| Depth to Bottom Packer:   | ft                 |                       |                                |                        |             |
| Interval between Packers: | 78.00 ft           |                       |                                |                        |             |
| Tool Length:              | 105.50 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        |            |          | 4275.50    |                               |
| Shut In Tool     | 5.00        |            |          | 4280.50    |                               |
| Hydraulic tool   | 5.00        |            |          | 4285.50    |                               |
| Jars             | 5.00        |            |          | 4290.50    |                               |
| Safety Joint     | 2.50        |            |          | 4293.00    |                               |
| Packer           | 5.00        |            |          | 4298.00    | 27.50 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4302.00    |                               |
| Stubb            | 1.00        |            |          | 4303.00    |                               |
| Recorder         | 0.00        | 8675       | Inside   | 4303.00    |                               |
| Recorder         | 0.00        | 8650       | Outside  | 4303.00    |                               |
| Perforations     | 9.00        |            |          | 4312.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4313.00    |                               |
| Drill Pipe       | 63.00       |            |          | 4376.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4377.00    |                               |
| Bullnose         | 3.00        |            |          | 4380.00    | 78.00 Bottom Packers & Anchor |

**Total Tool Length: 105.50**





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45949

**DST#: 3**

ATTN: Charlie Sturdavant

Test Start: 2012.04.24 @ 07:20:00

## 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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 8300.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description       | Volume<br>bbbl |
|--------------|-------------------|----------------|
| 368.00       | 100%W             | 3.519          |
| 248.00       | w cm 40%W 60%M    | 3.479          |
| 164.00       | w cm 20%W 80%M    | 2.300          |
| 0.00         | Oil spots in tool | 0.000          |

Total Length: 780.00 ft      Total Volume: 9.298 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

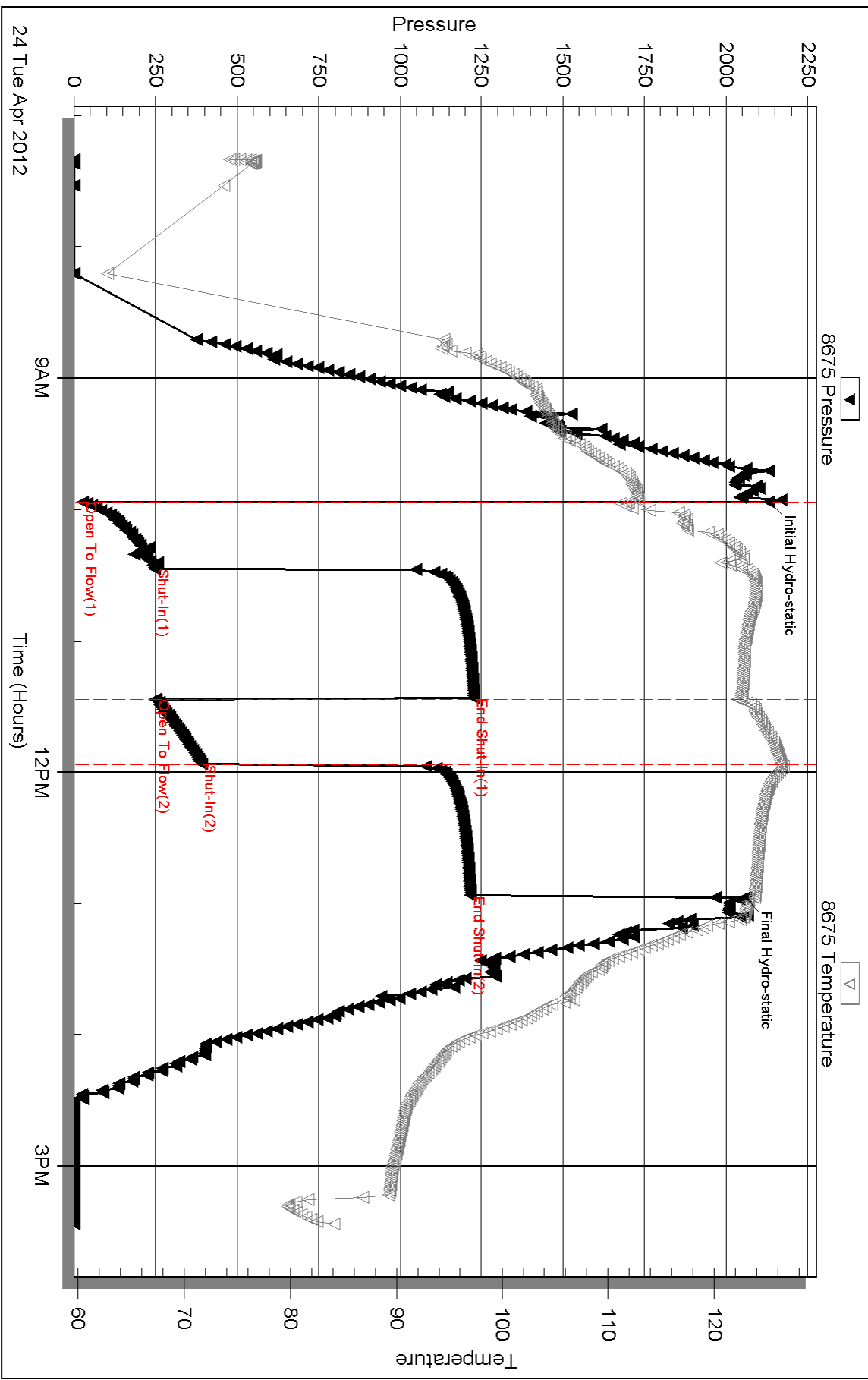
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .10 @ 75 F = 70,000

### Pressure vs. Time

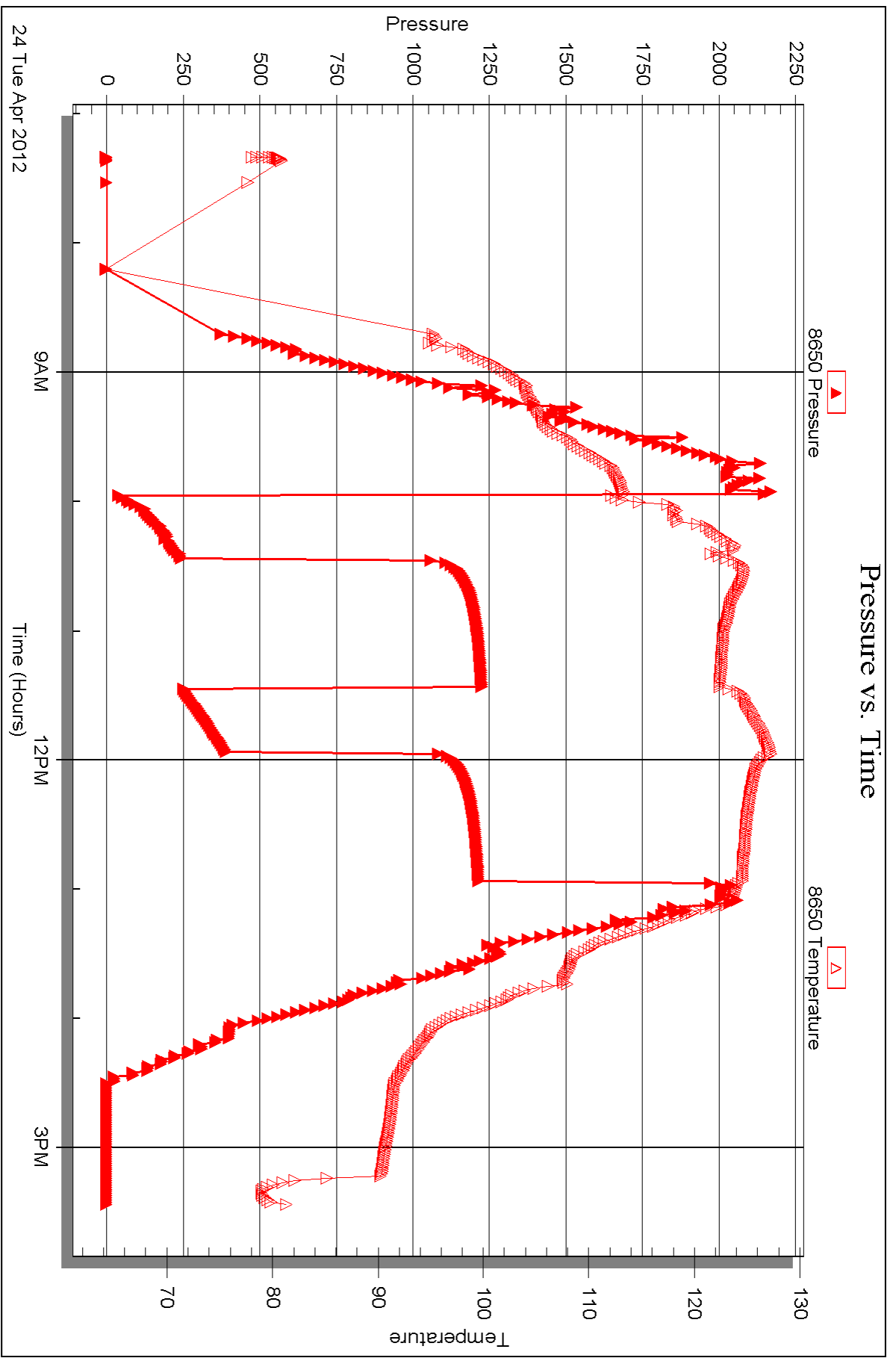


Serial #: 8650

Outside Murfin Drilling Co. Inc.

Frahm "B" #1-21

DST Test Number: 3





## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Charlie Sturdavant

### **Frahm "B" #1-21**

#### **21-10s-34w Thomas,KS**

Start Date: 2012.04.25 @ 01:10:00

End Date: 2012.04.25 @ 10:02:15

Job Ticket #: 45950                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.05.02 @ 14:27:23



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45950

**DST#: 4**

ATTN: Charlie Sturdavant

Test Start: 2012.04.25 @ 01:10:00

## GENERAL INFORMATION:

Formation: **Kansas City " K "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:00:00

Time Test Ended: 10:02:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4380.00 ft (KB) To 4415.00 ft (KB) (TVD)**

Reference Elevations: 3247.00 ft (KB)

Total Depth: 4415.00 ft (KB) (TVD)

3236.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8675**

**Inside**

Press @ Run Depth: 232.33 psig @ 4381.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.04.25

End Date:

2012.04.25

Last Calib.:

2012.04.25

Start Time: 01:29:01

End Time:

10:21:15

Time On Btm:

2012.04.25 @ 04:17:30

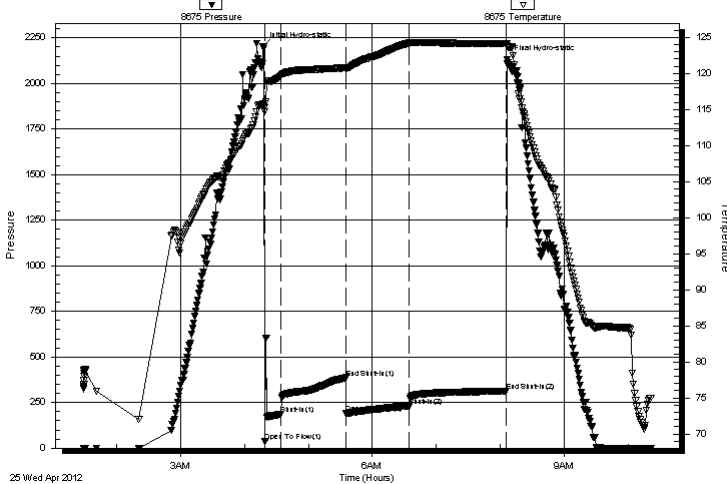
Time Off Btm:

2012.04.25 @ 08:06:30

## TEST COMMENT:

B.O.B. in 2 min.  
Bled off for 5 min. No return blow  
Built to 7" blow  
Bled off for 5 min. No return blow

Pressure vs. Time



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2200.92         | 115.77       | Initial Hydro-static |
| 2           | 36.18           | 114.66       | Open To Flow (1)     |
| 17          | 186.48          | 119.71       | Shut-In(1)           |
| 78          | 385.86          | 120.79       | End Shut-In(1)       |
| 78          | 190.02          | 120.70       | Open To Flow (2)     |
| 138         | 232.33          | 124.20       | Shut-In(2)           |
| 229         | 311.80          | 124.16       | End Shut-In(2)       |
| 229         | 2132.65         | 123.79       | Final Hydro-static   |

## Recovery

| Length (ft) | Description    | Volume (bbl) |
|-------------|----------------|--------------|
| 180.00      | mcw 30%M 70%W  | 0.89         |
| 270.00      | w cm 10%W 90%M | 3.78         |
|             |                |              |
|             |                |              |
|             |                |              |

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45950

**DST#: 4**

ATTN: Charlie Sturdavant

Test Start: 2012.04.25 @ 01:10:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 4204.40 ft | Diameter: 3.80 inches | Volume: 58.98 bbl              | Tool Weight: 1500.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer: 30000.00 lb  |
| Drill Collar:             | Length: 180.32 ft  | Diameter: 2.25 inches | Volume: 0.89 bbl               | Weight to Pull Loose: 82000.00 lb  |
|                           |                    |                       | <u>Total Volume: 59.87 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 32.22 ft           |                       |                                | String Weight: Initial 70000.00 lb |
| Depth to Top Packer:      | 4380.00 ft         |                       |                                | Final 71000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 35.00 ft           |                       |                                |                                    |
| Tool Length:              | 62.50 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        |            |          | 4353.50    |                               |
| Shut In Tool     | 5.00        |            |          | 4358.50    |                               |
| Hydraulic tool   | 5.00        |            |          | 4363.50    |                               |
| Jars             | 5.00        |            |          | 4368.50    |                               |
| Safety Joint     | 2.50        |            |          | 4371.00    |                               |
| Packer           | 5.00        |            |          | 4376.00    | 27.50 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4380.00    |                               |
| Stubb            | 1.00        |            |          | 4381.00    |                               |
| Recorder         | 0.00        | 8675       | Inside   | 4381.00    |                               |
| Recorder         | 0.00        | 8650       | Outside  | 4381.00    |                               |
| Perforations     | 31.00       |            |          | 4412.00    |                               |
| Change Over Sub  | 0.00        |            |          | 4412.00    |                               |
| Drill Pipe       | 0.00        |            |          | 4412.00    |                               |
| Change Over Sub  | 0.00        |            |          | 4412.00    |                               |
| Bullnose         | 3.00        |            |          | 4415.00    | 35.00 Bottom Packers & Anchor |

**Total Tool Length: 62.50**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45950

**DST#: 4**

ATTN: Charlie Sturdavant

Test Start: 2012.04.25 @ 01:10:00

## 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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 9500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description    | Volume<br>bbbl |
|--------------|----------------|----------------|
| 180.00       | mcw 30%M 70%W  | 0.885          |
| 270.00       | w cm 10%W 90%M | 3.784          |

Total Length: 450.00 ft      Total Volume: 4.669 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .15 @ 65 F = 50,000



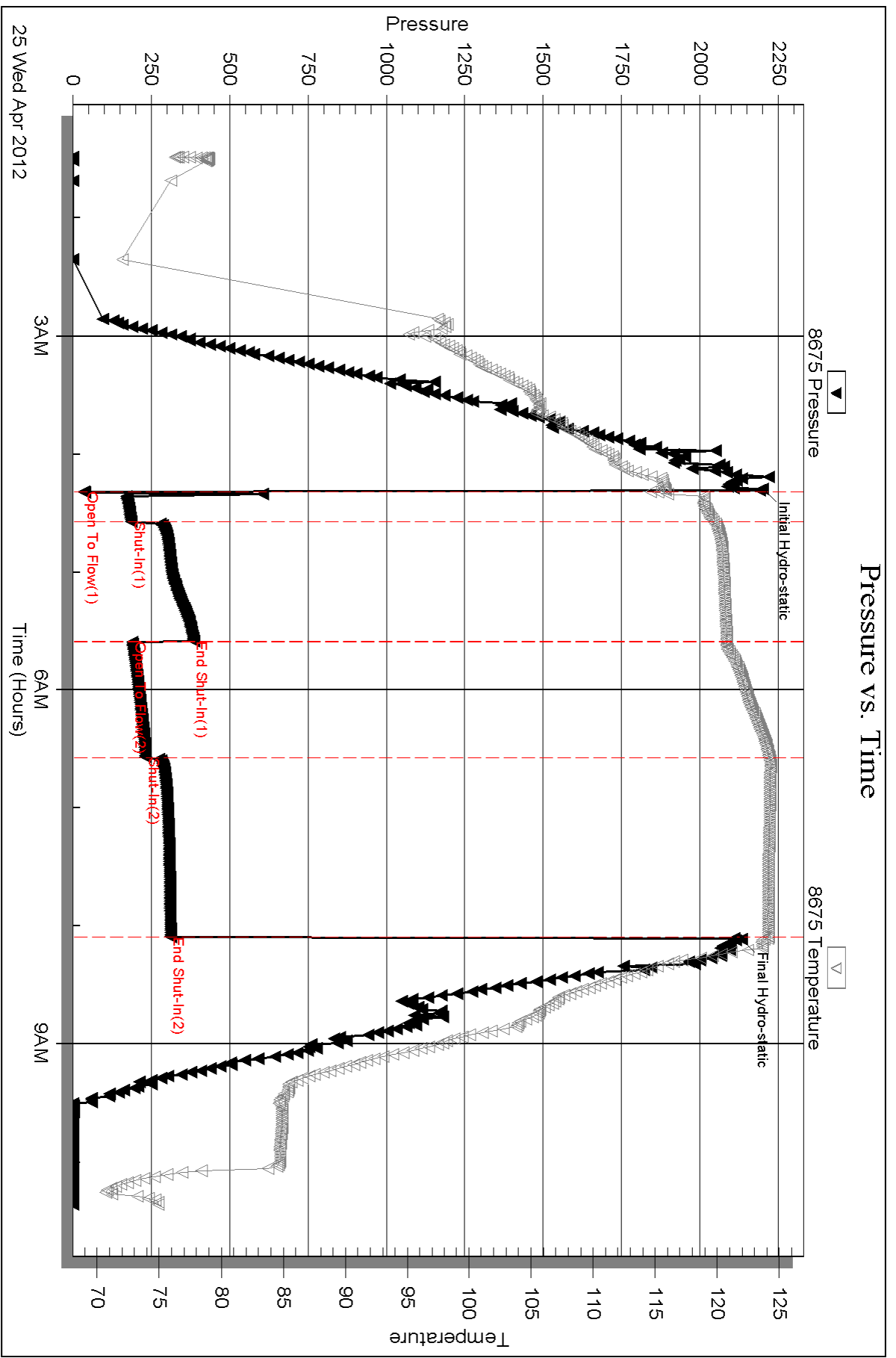
Serial #: 8675

Inside

Murfin Drilling Co. Inc.

Fahm "B" #1-21

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 45950

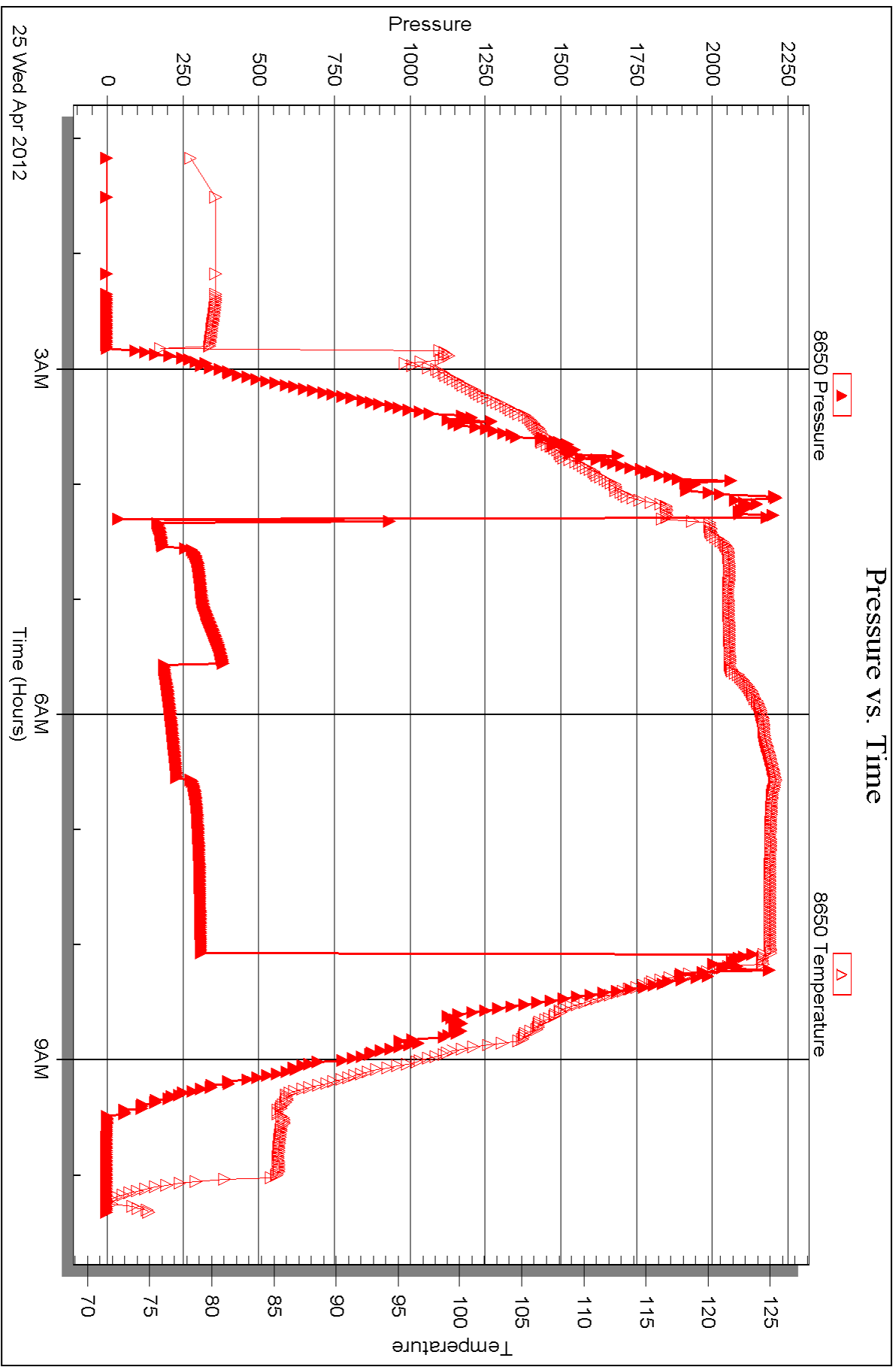
Printed: 2012.05.02 @ 14:27:25

Serial #: 8650

Outside Murfin Drilling Co. Inc.

Frahm "B" #1-21

DST Test Number: 4





## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Charlie Sturdavant

### **Frahm "B" #1-21**

#### **21-10s-34w Thomas,KS**

Start Date: 2012.04.26 @ 16:40:00

End Date: 2012.04.27 @ 01:49:00

Job Ticket #: 45951                      DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.05.02 @ 14:26:13

Murfin Drilling Co. Inc.

21-10s-34w Thomas,KS

Frahm "B" #1-21

DST # 5

Myric Station

2012.04.26



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Charlie Sturdavant

**21-10s-34w Thomas,KS**

**Frahm "B" #1-21**

Job Ticket: 45951

**DST#: 5**

Test Start: 2012.04.26 @ 16:40:00

## GENERAL INFORMATION:

Formation: **Myric Station**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:30:15

Time Test Ended: 01:49:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4594.00 ft (KB) To 4630.00 ft (KB) (TVD)**

Reference Elevations: 3247.00 ft (KB)

Total Depth: 4630.00 ft (KB) (TVD)

3236.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 101.02 psig @ 4595.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.04.26

End Date:

2012.04.27

Last Calib.: 2012.04.27

Start Time: 16:40:01

End Time:

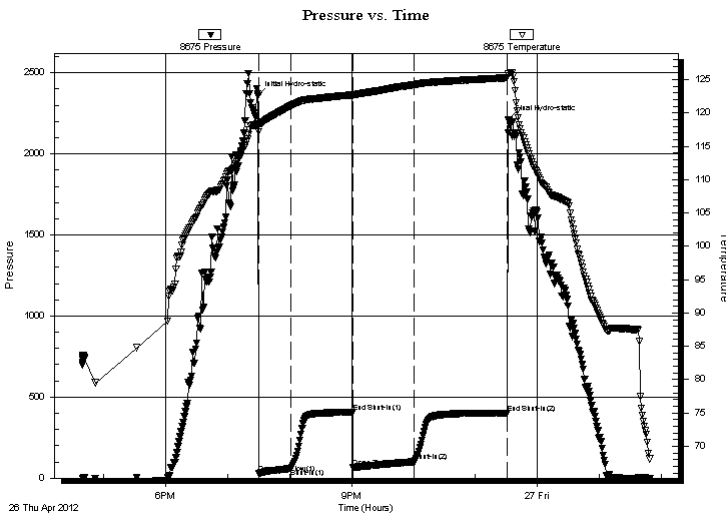
01:49:00

Time On Btm: 2012.04.26 @ 19:29:45

Time Off Btm: 2012.04.26 @ 23:31:45

**TEST COMMENT:** Built to 4" blow  
No return blow  
Built to 5" blow  
Built to 1" return blow, died to 1/4"

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2360.34         | 118.74       | Initial Hydro-static |
| 1           | 27.90           | 117.19       | Open To Flow (1)     |
| 32          | 60.42           | 121.10       | Shut-In(1)           |
| 92          | 406.73          | 122.71       | End Shut-In(1)       |
| 92          | 68.65           | 122.56       | Open To Flow (2)     |
| 151         | 101.02          | 124.23       | Shut-In(2)           |
| 241         | 401.84          | 125.27       | End Shut-In(2)       |
| 242         | 2208.68         | 125.95       | Final Hydro-static   |

## Recovery

| Length (ft) | Description                | Volume (bbl) |
|-------------|----------------------------|--------------|
| 0.00        | 62 Feet Gas In Pipe        | 0.00         |
| 10.00       | 100% Oil                   | 0.05         |
| 140.00      | gcow m 10%G 20%O 20%W 50%M | 0.69         |
|             |                            |              |
|             |                            |              |

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45951

**DST#: 5**

ATTN: Charlie Sturdavant

Test Start: 2012.04.26 @ 16:40:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 4393.69 ft | Diameter: 3.80 inches | Volume: 61.63 bbl              | Tool Weight: 1500.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer: 30000.00 lb  |
| Drill Collar:             | Length: 180.32 ft  | Diameter: 2.25 inches | Volume: 0.89 bbl               | Weight to Pull Loose: 85000.00 lb  |
|                           |                    |                       | <u>Total Volume: 62.52 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 7.51 ft            |                       |                                | String Weight: Initial 72000.00 lb |
| Depth to Top Packer:      | 4594.00 ft         |                       |                                | Final 73000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 36.00 ft           |                       |                                |                                    |
| Tool Length:              | 63.50 ft           |                       |                                |                                    |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                                    |

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

|                 |       |      |         |         |                               |
|-----------------|-------|------|---------|---------|-------------------------------|
| Change Over Sub | 1.00  |      |         | 4567.50 |                               |
| Shut In Tool    | 5.00  |      |         | 4572.50 |                               |
| Hydraulic tool  | 5.00  |      |         | 4577.50 |                               |
| Jars            | 5.00  |      |         | 4582.50 |                               |
| Safety Joint    | 2.50  |      |         | 4585.00 |                               |
| Packer          | 5.00  |      |         | 4590.00 | 27.50 Bottom Of Top Packer    |
| Packer          | 4.00  |      |         | 4594.00 |                               |
| Stubb           | 1.00  |      |         | 4595.00 |                               |
| Recorder        | 0.00  | 8675 | Inside  | 4595.00 |                               |
| Recorder        | 0.00  | 8650 | Outside | 4595.00 |                               |
| Perforations    | 32.00 |      |         | 4627.00 |                               |
| Change Over Sub | 0.00  |      |         | 4627.00 |                               |
| Drill Pipe      | 0.00  |      |         | 4627.00 |                               |
| Change Over Sub | 0.00  |      |         | 4627.00 |                               |
| Bullnose        | 3.00  |      |         | 4630.00 | 36.00 Bottom Packers & Anchor |

**Total Tool Length: 63.50**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45951

**DST#: 5**

ATTN: Charlie Sturdavant

Test Start: 2012.04.26 @ 16:40:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

32 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

50000 ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 10500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description                | Volume<br>bbl |
|--------------|----------------------------|---------------|
| 0.00         | 62 Feet Gas In Pipe        | 0.000         |
| 10.00        | 100% Oil                   | 0.049         |
| 140.00       | gcow m 10%G 20%O 20%W 50%M | 0.688         |

Total Length: 150.00 ft      Total Volume: 0.737 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API: .32 @ 60 F = 32

RW: .15 @ 65 F = 50,000

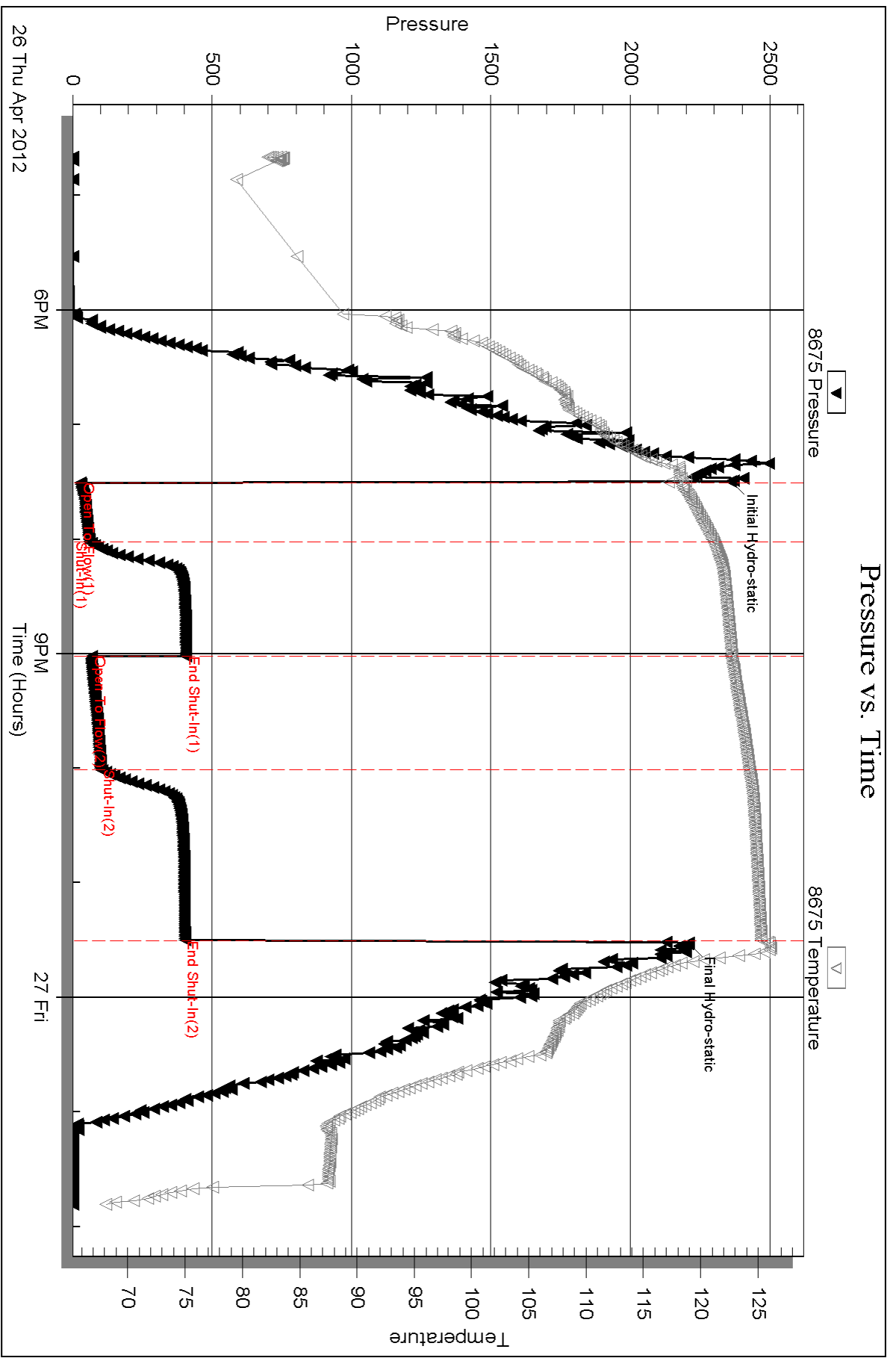
Serial #: 8675

Inside

Murfin Drilling Co. Inc.

Frabm "B" #1-21

DST Test Number: 5



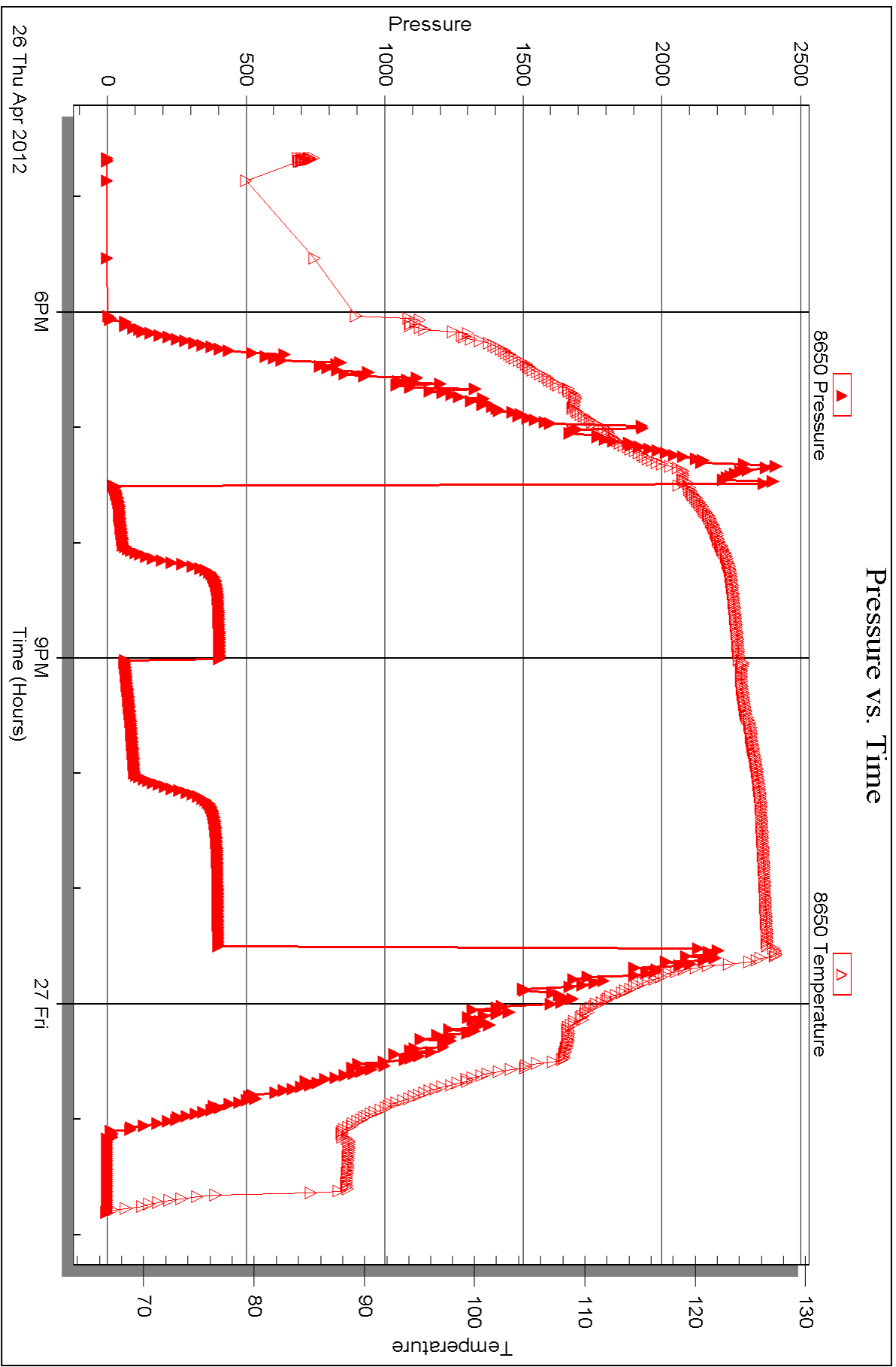


Serial #: 8650

Outside Murfin Drilling Co. Inc.

Fahm "B" #1-21

DST Test Number: 5





## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Charlie Sturdavant

### **Frahm "B" #1-21**

#### **21-10s-34w Thomas,KS**

Start Date: 2012.04.27 @ 20:35:00

End Date: 2012.04.28 @ 06:34:30

Job Ticket #: 45952                      DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.05.02 @ 14:25:28



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45952

**DST#: 6**

ATTN: Charlie Sturdavant

Test Start: 2012.04.27 @ 20:35:00

## GENERAL INFORMATION:

Formation: **Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:54:45

Time Test Ended: 06:34:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4702.00 ft (KB) To 4730.00 ft (KB) (TVD)**

Reference Elevations: 3247.00 ft (KB)

Total Depth: 4730.00 ft (KB) (TVD)

3236.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 102.00 psig @ 4703.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.04.27

End Date:

2012.04.28

Last Calib.:

2012.04.28

Start Time: 20:35:01

End Time:

06:34:30

Time On Btm:

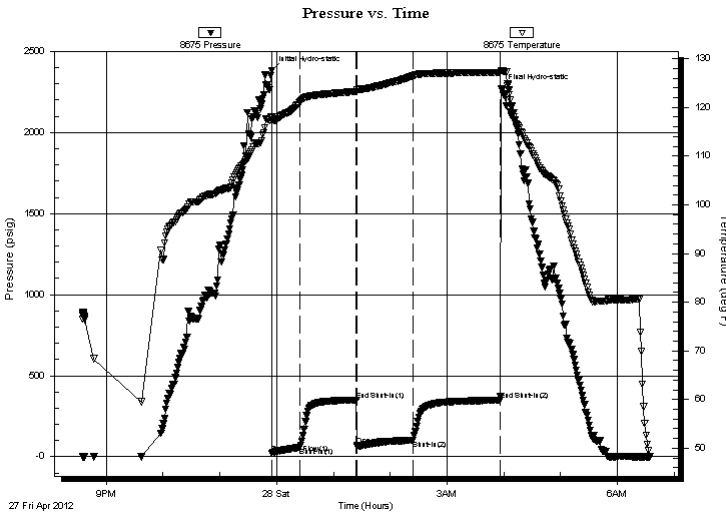
2012.04.27 @ 23:54:30

Time Off Btm:

2012.04.28 @ 03:57:15

**TEST COMMENT:** Built to 9" blow  
No return blow  
B.O.B. in 50 min.  
No return blow

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2383.15         | 117.98       | Initial Hydro-static |
| 1           | 23.34           | 117.24       | Open To Flow (1)     |
| 30          | 57.70           | 121.12       | Shut-In(1)           |
| 90          | 350.32          | 123.27       | End Shut-In(1)       |
| 90          | 67.67           | 123.17       | Open To Flow (2)     |
| 150         | 102.00          | 126.47       | Shut-In(2)           |
| 242         | 348.43          | 127.12       | End Shut-In(2)       |
| 243         | 2271.58         | 127.57       | Final Hydro-static   |

## Recovery

| Length (ft) | Description               | Volume (bbl) |
|-------------|---------------------------|--------------|
| 160.00      | w cgom 5%W 15%G 20%O 60%M | 0.79         |
| 40.00       | 100% Oil                  | 0.38         |
|             |                           |              |
|             |                           |              |
|             |                           |              |

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45952

**DST#: 6**

ATTN: Charlie Sturdavant

Test Start: 2012.04.27 @ 20:35:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 4522.57 ft | Diameter: 3.80 inches | Volume: 63.44 bbl              | Tool Weight: 1500.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer: 30000.00 lb  |
| Drill Collar:             | Length: 180.32 ft  | Diameter: 2.25 inches | Volume: 0.89 bbl               | Weight to Pull Loose: 85000.00 lb  |
|                           |                    |                       | <u>Total Volume: 64.33 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 28.39 ft           |                       |                                | String Weight: Initial 72000.00 lb |
| Depth to Top Packer:      | 4702.00 ft         |                       |                                | Final 72000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 28.00 ft           |                       |                                |                                    |
| Tool Length:              | 55.50 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        |            |          | 4675.50    |                               |
| Shut In Tool     | 5.00        |            |          | 4680.50    |                               |
| Hydraulic tool   | 5.00        |            |          | 4685.50    |                               |
| Jars             | 5.00        |            |          | 4690.50    |                               |
| Safety Joint     | 2.50        |            |          | 4693.00    |                               |
| Packer           | 5.00        |            |          | 4698.00    | 27.50 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4702.00    |                               |
| Stubb            | 1.00        |            |          | 4703.00    |                               |
| Recorder         | 0.00        | 8675       | Inside   | 4703.00    |                               |
| Recorder         | 0.00        | 8650       | Outside  | 4703.00    |                               |
| Perforations     | 24.00       |            |          | 4727.00    |                               |
| Change Over Sub  | 0.00        |            |          | 4727.00    |                               |
| Drill Pipe       | 0.00        |            |          | 4727.00    |                               |
| Change Over Sub  | 0.00        |            |          | 4727.00    |                               |
| Bullnose         | 3.00        |            |          | 4730.00    | 28.00 Bottom Packers & Anchor |

**Total Tool Length: 55.50**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**21-10s-34w Thomas,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Frahm "B" #1-21**

Job Ticket: 45952

**DST#: 6**

ATTN: Charlie Sturdavant

Test Start: 2012.04.27 @ 20:35:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

30 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 10800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description               | Volume<br>bbbl |
|--------------|---------------------------|----------------|
| 160.00       | w cgom 5%W 15%G 20%O 60%M | 0.787          |
| 40.00        | 100% Oil                  | 0.376          |

Total Length: 200.00 ft      Total Volume: 1.163 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API: 29 @ 50 F= 30

Serial #: 8675

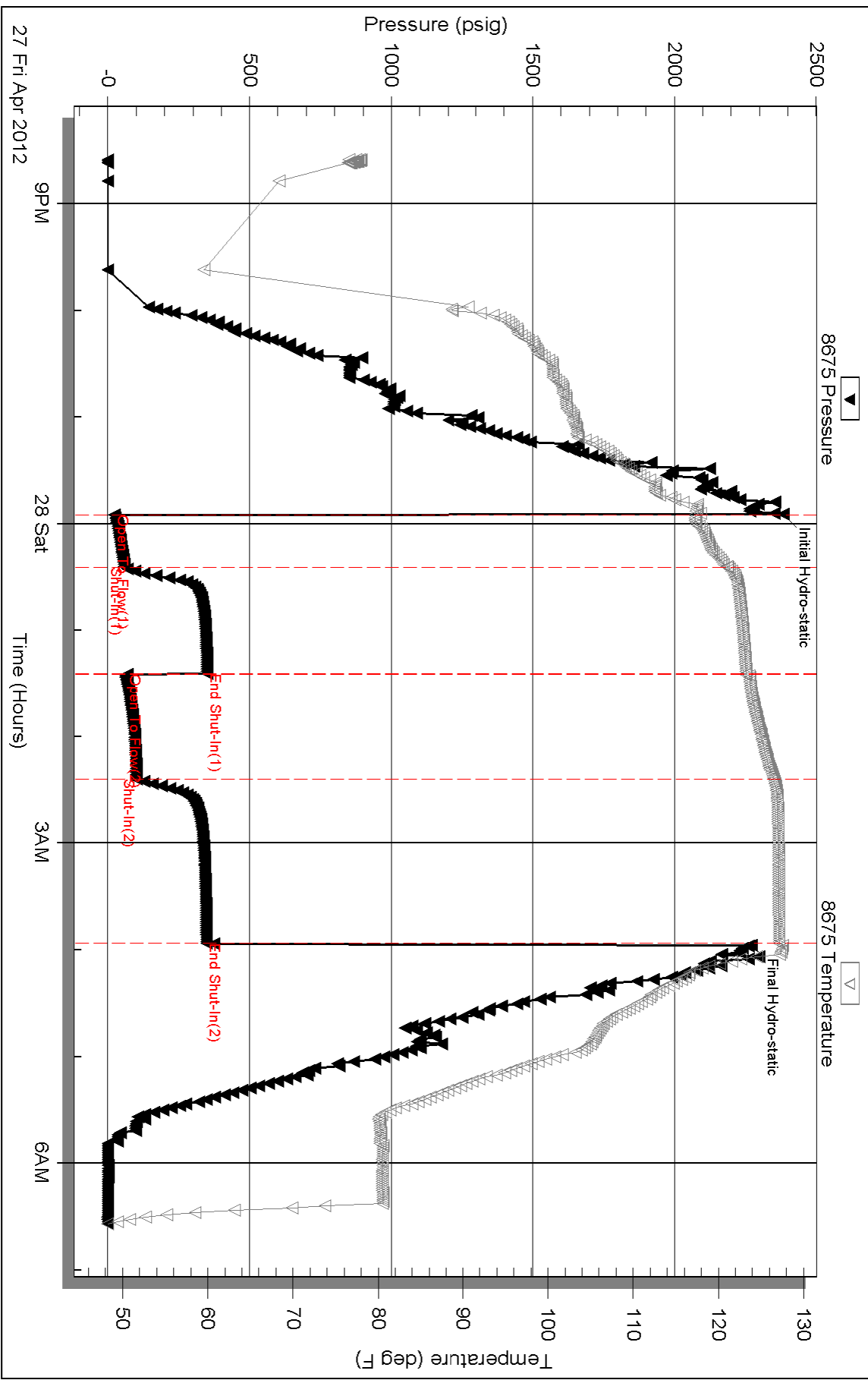
Inside

Murfin Drilling Co. Inc.

Frahm "B" #1-21

DST Test Number: 6

# Pressure vs. Time



Triobite Testing, Inc

Ref. No: 45952

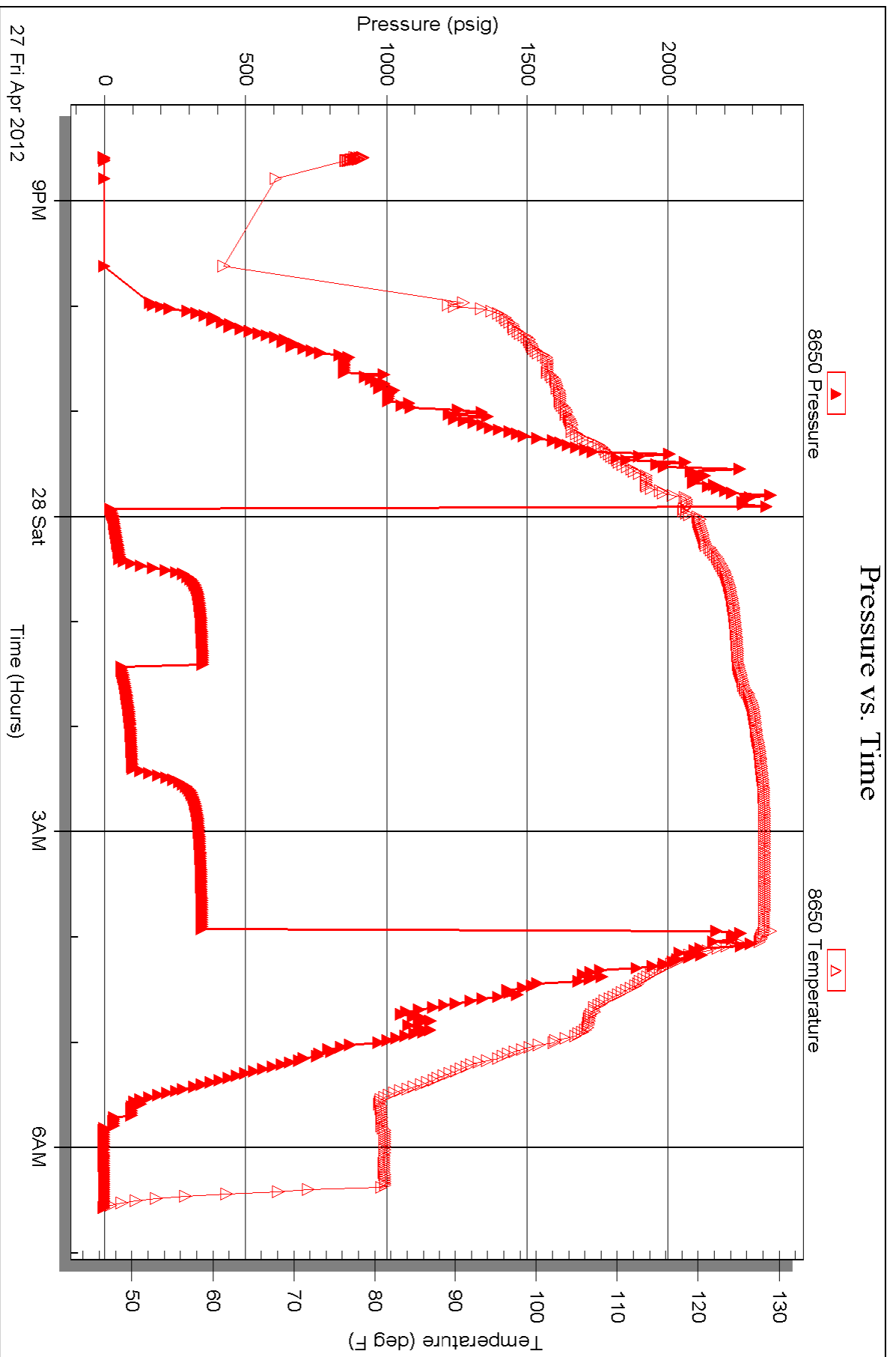
Printed: 2012.05.02 @ 14:25:30

Serial #: 8650

Outside Murfin Drilling Co. Inc.

Frahm "B" #1-21

DST Test Number: 6



Triobite Testing, Inc

Ref. No: 45952

Printed: 2012.05.02 @ 14:25:31





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## Test Ticket

NO. 45947

Well Name & No. Frahm 'B' 1-21 Test No. 1 Date 4/22/12  
 Company Murfin Drilling Co. Inc Elevation 3247 KB 3236 GL  
 Address 250 N Water STE 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Charlie Sturdavant Rig Murfin 20  
 Location: Sec. 21 Twp. 10s Rge. 34w Co. Thomas State KS

Interval Tested 4150-4195 Zone Tested Lansing "A-B"  
 Anchor Length 45 Drill Pipe Run 3953. Mud Wt. 9.1  
 Top Packer Depth 4146 Drill Collars Run 180 Vis 46  
 Bottom Packer Depth 4150 Wt. Pipe Run 0 WL 6.4  
 Total Depth 4195 Chlorides 9,000 ppm System LCM 10

Blow Description B.O.B. in 7 min.  
Bled off for 5 min. No return below  
B.O.B. in 8 min.

Bled off for 5 min. No return below

| Rec        | Feet of                            | %gas | %oil       | %water    | %mud |
|------------|------------------------------------|------|------------|-----------|------|
| <u>236</u> | <u>Feet of WCM</u>                 |      | <u>40</u>  | <u>60</u> |      |
| <u>248</u> | <u>Feet of MCW</u>                 |      | <u>70</u>  | <u>30</u> |      |
| <u>926</u> | <u>Feet of W</u>                   |      | <u>100</u> |           |      |
| <u>0</u>   | <u>Feet of spot of oil in tool</u> |      |            |           |      |

Rec Total 1410 BHT 122 Gravity — API RW 10 @ 80 °F Chlorides 60,000 ppm  
 (A) Initial Hydrostatic 2,125  Test 1250' T-On Location 7:25  
 (B) First Initial Flow 42  Jars 250- T-Started 8:25  
 (C) First Final Flow 274  Safety Joint 75' T-Open 11:12  
 (D) Initial Shut-In 1,230  Circ Sub N/C T-Pulled 15:12  
 (E) Second Initial Flow 281  Hourly Standby \_\_\_\_\_ T-Out 17:34  
 (F) Second Final Flow 563  Mileage 136 RT 210.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 1,219  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1,973  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Initial Open 30  Ruined Shale Packer \_\_\_\_\_  
 Initial Shut-In 60  Ruined Packer \_\_\_\_\_  
 Final Flow 60  Extra Copies \_\_\_\_\_  
 Final Shut-In 90  Sub Total 0  
 Sub Total 1785.80 Total 1785.80  
 MP/DST Disc't \_\_\_\_\_

Approved By Charlie Sturdavant Our Representative [Signature]  
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Test Ticket

NO. 45948

Well Name & No. Frahm 'B' 1-21 Test No. 2 Date 4/23/12  
 Company Murfin Drilling Co Inc Elevation 3247 KB 3236 GL  
 Address 250 N Water St E 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Charlie Sturdavant Rig Murfin 20  
 Location: Sec. 21 Twp. 10s Rge. 34w Co. Thomas State KS

Interval Tested 4230 - 4255 Zone Tested Kansas City "E"  
 Anchor Length 25 Drill Pipe Run 4047 Mud Wt. 9.1  
 Top Packer Depth 4226 Drill Collars Run 180 Vis 53  
 Bottom Packer Depth 4230 Wt. Pipe Run 0 Wt. 604  
 Total Depth 4255 Chlorides 7,600 ppm System LCM 10

Blow Description B.O.B. in 2 min.  
Bled off for 5 min. No return below  
B.O.B. in 3 min.  
Bled off for 5 min. No return below

| Rec             | Feet of          | %gas | %oil | %water | %mud |
|-----------------|------------------|------|------|--------|------|
| <del>1296</del> | <del>Water</del> |      |      |        |      |
| 360             | mcw              |      |      | 60     | 40   |
| 1296            | Water            |      |      | 100    |      |
|                 |                  |      |      |        |      |
|                 |                  |      |      |        |      |

Rec Total 11656 BHT 127 Gravity — API RW 10 @ 65 °F Chlorides 80,000 ppm  
 (A) Initial Hydrostatic 2,123  Test 1250 T-On Location 3:30  
 (B) First Initial Flow 128  Jars 250 T-Started 4:10  
 (C) First Final Flow 652  Safety Joint 75' T-Open 7:08  
 (D) Initial Shut-In 1,250  Circ Sub N/C T-Pulled 9:53  
 (E) Second Initial Flow 667  Hourly Standby \_\_\_\_\_ T-Out 12:43  
 (F) Second Final Flow 837  Mileage 136 BT 210.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 1,252  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2,064  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 15  
 Final Shut-In 60  
 Sub Total 1785.80  
 Total 1785.80  
 MP/DST Disc't \_\_\_\_\_

Approved By Charlie Sturdavant Our Representative [Signature]  
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## Test Ticket

BY: \_\_\_\_\_ NO. **45949**

Well Name & No. Frahm 'B' 1-21 Test No. 3 Date 4/24/12  
 Company Murfin Drilling Co. Inc. Elevation 3247 KB 3236 GL  
 Address 250 W Water STE 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Charlie Sturdavant Rig Murfin 20  
 Location: Sec. 21 Twp. 10S Rge. 34W Co. Thomas State K5

Interval Tested 4302 - 4380 Zone Tested Kansas City "H-I-J"  
 Anchor Length 78 Drill Pipe Run 4108 Mud Wt. 9.2  
 Top Packer Depth 4298 Drill Collars Run 180 Vis 55  
 Bottom Packer Depth 4302 Wt. Pipe Run 0 WL 6.4  
 Total Depth 4380 Chlorides 8,300 ppm System LCM 7#

Blow Description B.O.B. in 11 min.  
Bled off for 5 min. No return below  
B.O.B. in 11 min.  
Bled off for 5 min. No return below

| Rec        | Feet of                            | %gas | %oil | %water     | %mud        |
|------------|------------------------------------|------|------|------------|-------------|
| <u>164</u> | <u>Feet of w/cm</u>                |      |      | <u>20</u>  | <u>80</u>   |
| <u>284</u> | <u>Feet of w/cm</u>                |      |      | <u>40</u>  | <u>60</u>   |
| <u>368</u> | <u>Feet of w</u>                   |      |      | <u>100</u> | <u>%mud</u> |
| <u>0</u>   | <u>Feet of Spot of oil in tool</u> |      |      |            |             |
|            |                                    |      |      |            |             |

Rec Total 780 BHT 125 Gravity — API RW 10 @ 75 °F Chlorides 20,000 ppm  
 (A) Initial Hydrostatic 2,131  Test 1250 T-On Location 7:00  
 (B) First Initial Flow 28  Jars 250 T-Started 7:20  
 (C) First Final Flow 248  Safety Joint 75 T-Open 9:56  
 (D) Initial Shut-In 1,227  Circ Sub nk T-Pulled 12:56  
 (E) Second Initial Flow 250  Hourly Standby T-Out 15:27  
 (F) Second Final Flow 393  Mileage 136 RT 210.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 1,217  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2,059  Straddle \_\_\_\_\_

Initial Open 30  Ruined Shale Packer  
 Initial Shut-In 60  Ruined Packer  
 Final Flow 30  Extra Packer  
 Final Shut-In 60  Extra Recorder  
 Sub Total 1785.80  
 Total 1785.80  
 MP/DST Disc't \_\_\_\_\_

Approved By Charlie Sturdavant Our Representative [Signature]  
 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. 45950

Well Name & No. Frahm 'B' 1-21 Test No. 4 Date 4/25/12  
 Company Martin Drilling Company Inc. Elevation 3247 KB 3236 GL  
 Address 250 N Water STE 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Charlie Sturdivant Rig Martin 20  
 Location: Sec. 21 Twp. 10S Rge. 34w Co. Thomas State KS

Interval Tested 4380 - 4415 Zone Tested Kansas City "K"  
 Anchor Length 35 Drill Pipe Run 4204 Mud Wt. 9.1  
 Top Packer Depth 4376 Drill Collars Run 180 Vis 6.0  
 Bottom Packer Depth 4380 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4415 Chlorides 9,500 ppm System LCM B#

Blow Description B.O.B. in 2 min.  
Bled off for 5 min. No return below  
Built to 7" below

Bled off for 5 min. No return below

| Rec        | Feet of                              | %gas | %oil      | %water    | %mud |
|------------|--------------------------------------|------|-----------|-----------|------|
| <u>180</u> | <u>Feet of MOW</u>                   |      | <u>70</u> | <u>30</u> |      |
| <u>270</u> | <u>Feet of WCM</u>                   |      | <u>10</u> | <u>90</u> |      |
| <u>0</u>   | <u>Feet of Few oil spots in tool</u> |      |           |           |      |
|            |                                      |      |           |           |      |
|            |                                      |      |           |           |      |

|                                      |  |                            |                        |                            |     |
|--------------------------------------|--|----------------------------|------------------------|----------------------------|-----|
| Rec Total <u>450</u>                 | BHT <u>124</u>   | Gravity <u>—</u>           | API RW <u>.15 @ 65</u> | °F Chlorides <u>50,000</u> | ppm |
| (A) Initial Hydrostatic <u>2,201</u> | <input checked="" type="checkbox"/> Test <u>1250'</u>            | T-On Location <u>00:15</u> |                        |                            |     |
| (B) First Initial Flow <u>36</u>     | <input checked="" type="checkbox"/> Jars <u>250'</u>             | T-Started <u>1:10</u>      |                        |                            |     |
| (C) First Final Flow <u>186</u>      | <input checked="" type="checkbox"/> Safety Joint <u>75'</u>      | T-Open <u>4:00</u>         |                        |                            |     |
| (D) Initial Shut-In <u>386</u>       | <input checked="" type="checkbox"/> Circ Sub <u>N/C</u>          | T-Pulled <u>7:45</u>       |                        |                            |     |
| (E) Second Initial Flow <u>190</u>   | <input type="checkbox"/> Hourly Standby                          | T-Out <u>10:02</u>         |                        |                            |     |
| (F) Second Final Flow <u>232</u>     | <input checked="" type="checkbox"/> Mileage <u>136 RT 210.80</u> | Comments                   |                        |                            |     |
| (G) Final Shut-In <u>312</u>         | <input type="checkbox"/> Sampler                                 |                            |                        |                            |     |
| (H) Final Hydrostatic <u>2,133</u>   | <input type="checkbox"/> Straddle                                |                            |                        |                            |     |

|                            |   |   |
|----------------------------|---|---|
| Initial Open <u>15</u>     | <input type="checkbox"/> Shale Packer   | <input checked="" type="checkbox"/> Ruined Packer <u>320'</u> |
| Initial Shut-In <u>6.0</u> | <input type="checkbox"/> Extra Packer   | <input type="checkbox"/> Extra Copies                         |
| Final Flow <u>6.0</u>      | <input type="checkbox"/> Extra Recorder | Sub Total <u>320'</u>   |
| Final Shut-In <u>8.0</u>   | <input type="checkbox"/> Day Standby    | Total <u>2105.80</u>  |
|                            | <input type="checkbox"/> Accessibility  | MP/DST Disc't   |
|                            | Sub Total <u>1785.80</u>                |   |

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





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

## Test Ticket

NO. 45951

|                 |   |           |           |       |         |
|-----------------|---|-----------|-----------|-------|---------|
| Well Name & No. | Frahm 'B' 1-21                            | Test No.  | 5         | Date  | 4/26/12 |
| Company         | Murkin Drilling Company Inc.              | Elevation | 3247      | KB    | 3236    |
| Address         | 250 N Water STE 300 Wichita KS 67202-1216 | GL        |           |       |         |
| Co. Rep / Geo.  | Charlie Sturdavant                        | Rig       | Murkin 20 |       |         |
| Location: Sec.  | 21  | Twp.      | 10s       | Rge.  | 34w     |
|                 |   | Co.       | Thomas    | State | KS      |

|                     |             |                   |                   |
|---------------------|-------------|-------------------|-------------------|
| Interval Tested     | 4594 - 4630 | Zone Tested       | Myric Station     |
| Anchor Length       | 36          | Drill Pipe Run    | 4393              |
| Top Packer Depth    | 4590        | Drill Collars Run | 180               |
| Bottom Packer Depth | 4594        | Wt. Pipe Run      | 0                 |
| Total Depth         | 4630        | Chlorides         | 10,500 ppm System |
|                     |             |                   | LCM 8.0           |

Blow Description Built to 4" below  
 No return below  
 Built to 5" below  
 Built to 1" return below, died to 1/4"

| Rec | Feet of             | %gas | %oil | %water | %mud |
|-----|---------------------|------|------|--------|------|
| 10  | 100% oil            | 100  |      |        |      |
| 140 | 60.0 w m            | 10   | 20   | 20     | 50   |
| 0   | 62 Feet Gas In pipe |      |      |        |      |
|     |                     |      |      |        |      |
|     |                     |      |      |        |      |

|                         |       |                                   |               |               |       |        |            |           |            |
|-------------------------|-------|-----------------------------------|---------------|---------------|-------|--------|------------|-----------|------------|
| Rec Total               | 150   | BHT                               | 125           | Gravity       | 32    | API RW | 15 @ 65° F | Chlorides | 50,000 ppm |
| (A) Initial Hydrostatic | 2,360 | ✓ Test                            | 1250'         | T-On Location | 16:00 |        |            |           |            |
| (B) First Initial Flow  | 28    | ✓ Jars                            | 250'          | T-Started     | 16:40 |        |            |           |            |
| (C) First Final Flow    | 60    | ✓ Safety Joint                    | 75'           | T-Open        | 19:30 |        |            |           |            |
| (D) Initial Shut-In     | 407   | ✓ Circ Sub                        | N/C           | T-Pulled      | 23:30 |        |            |           |            |
| (E) Second Initial Flow | 69    | ✓ Hourly Standby                  | Letts         | T-Out         | 1:49  |        |            |           |            |
| (F) Second Final Flow   | 101   | ✓ Mileage                         | 136 RT 210.80 | Comments      |       |        |            |           |            |
| (G) Final Shut-In       | 402   | <input type="checkbox"/> Sampler  |               |               |       |        |            |           |            |
| (H) Final Hydrostatic   | 2,209 | <input type="checkbox"/> Straddle |               |               |       |        |            |           |            |

|                 |    |   |                |  |         |
|-----------------|----|---|----------------|--|---------|
| Initial Open    | 30 | <input type="checkbox"/> Shale Packer   |                | <input type="checkbox"/> Ruined Shale Packer |         |
| Initial Shut-In | 60 | <input type="checkbox"/> Extra Packer   |                | <input type="checkbox"/> Ruined Packer       |         |
| Final Flow      | 60 | <input type="checkbox"/> Extra Recorder |                | Sub Total                                    | 200.04  |
| Final Shut-In   | 90 | ✓ Day Standby                           | 1 day + 10 hrs | Total  | 1985.84 |
|                 |    | <input type="checkbox"/> Accessibility  |                | MP/DST Disc't                                |         |
|                 |    | Sub Total                               | 1785.80        |  |         |

Approved By Charlie Sturdavant Our Representative [Signature]  
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BY: \_\_\_\_\_

## Test Ticket

NO. 45952

Well Name & No. Frahm 'B' 1-21 Test No. 60 Date 4/27/12  
 Company Murfin Drilling Company Inc Elevation 3247 KB 3236 GL  
 Address 250 W Water STE 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Charlie Sturdavant Rig Murfin 20  
 Location: Sec. 21 Twp. 10s Rge. 34w Co. Thomas State KS

Interval Tested 4702 - 4730 Zone Tested Johnson  
 Anchor Length 28 Drill Pipe Run 4522 Mud Wt. 9.1  
 Top Packer Depth 4698 Drill Collars Run 180 Vis 60  
 Bottom Packer Depth 4702 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4730 Chlorides 10,800 ppm System LCM 8.0  
 Blow Description Built to 9" below  
No return below  
B.O.B. in 50 min.

| Rec        | Feet of         | %gas       | %oil      | %water   | %mud      |
|------------|-----------------|------------|-----------|----------|-----------|
| <u>40</u>  | <u>100% Oil</u> | <u>100</u> |           |          |           |
| <u>160</u> | <u>WCCOM</u>    | <u>15</u>  | <u>20</u> | <u>5</u> | <u>60</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 127 Gravity 30 API RW ✓ @ — °F Chlorides — ppm

|                                      |   |  |
|--------------------------------------|---|--|
| (A) Initial Hydrostatic <u>2,383</u> | <input checked="" type="checkbox"/> Test <u>1255</u>                      | T-On Location <u>20:00</u>                         |
| (B) First Initial Flow <u>23</u>     | <input checked="" type="checkbox"/> Jars <u>255</u>                       | T-Started <u>20:35</u>                             |
| (C) First Final Flow <u>58</u>       | <input checked="" type="checkbox"/> Safety Joint <u>75'</u>               | T-Open <u>23:55</u>                                |
| (D) Initial Shut-In <u>350</u>       | <input checked="" type="checkbox"/> Circ Sub <u>N/C</u>                   | T-Pulled <u>3:56</u>                               |
| (E) Second Initial Flow <u>68</u>    | <input checked="" type="checkbox"/> Hourly Standby <u>1 hr Standby 50</u> | T-Out <u>6:35</u>                                  |
| (F) Second Final Flow <u>102</u>     | <input checked="" type="checkbox"/> Mileage <u>136 RT 210.80</u>          | Comments _____                                     |
| (G) Final Shut-In <u>348</u>         | <input type="checkbox"/> Sampler _____                                    | <input type="checkbox"/> Ruined Shale Packer _____ |
| (H) Final Hydrostatic <u>2,272</u>   | <input type="checkbox"/> Straddle _____                                   | <input type="checkbox"/> Ruined Packer _____       |
| Initial Open <u>30</u>               | <input type="checkbox"/> Shale Packer _____                               | <input type="checkbox"/> Extra Copies _____        |
| Initial Shut-In <u>60</u>            | <input type="checkbox"/> Extra Packer _____                               | Sub Total _____                                    |
| Final Flow <u>60</u>                 | <input type="checkbox"/> Extra Recorder _____                             | Total _____  |
| Final Shut-In <u>90</u>              | <input type="checkbox"/> Day Standby _____                                | MP/DST Disc't _____                                |
|                                      | <input type="checkbox"/> Accessibility _____                              |  |
|                                      | Sub Total <u>1835.80</u>  |  |

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