



## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Nancy #1-4**

**4 13s 32w Logan,KS**

Start Date: 2014.01.13 @ 15:34:00

End Date: 2014.01.14 @ 00:43:45

Job Ticket #: 55684                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.23 @ 14:56:22



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc

**4 13s 32w Logan, KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55684

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2014.01.13 @ 15:34:00

## GENERAL INFORMATION:

Formation: **LKC - A & B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:42:30

Time Test Ended: 00:43:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Bradley Walter

Unit No: 69

**Interval: 4020.00 ft (KB) To 4070.00 ft (KB) (TVD)**

Reference Elevations: 3046.00 ft (KB)

Total Depth: 4070.00 ft (KB) (TVD)

3035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8522 Outside**

Press@RunDepth: 415.83 psig @ 4021.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.13

End Date:

2014.01.14

Last Calib.:

2014.01.14

Start Time: 15:34:05

End Time:

00:43:45

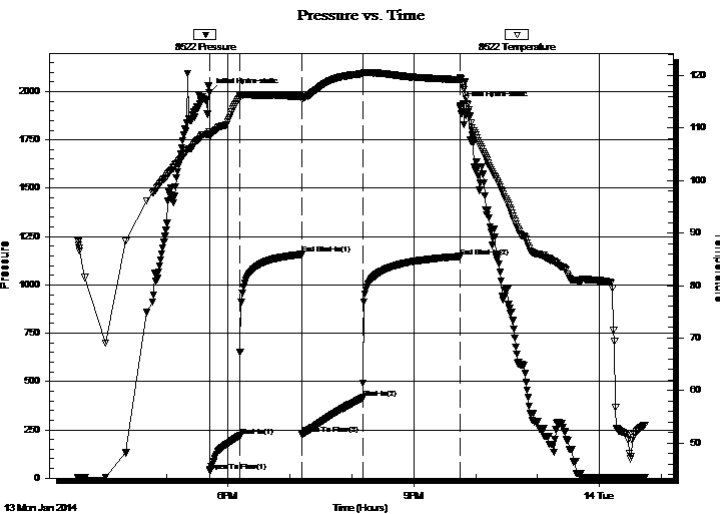
Time On Btm:

2014.01.13 @ 17:42:15

Time Off Btm:

2014.01.13 @ 21:45:00

TEST COMMENT: IF: BOB @ 8 min.  
IS: 1" return.  
FF: BOB @ 9 min.  
FSI 1" return.



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1995.65         | 109.26       | Initial Hydro-static |
| 1           | 37.81           | 108.41       | Open To Flow (1)     |
| 30          | 219.00          | 115.84       | Shut-In(1)           |
| 90          | 1158.36         | 116.00       | End Shut-In(1)       |
| 90          | 226.91          | 115.49       | Open To Flow (2)     |
| 149         | 415.83          | 120.31       | Shut-In(2)           |
| 243         | 1147.31         | 119.18       | End Shut-In(2)       |
| 243         | 1927.40         | 119.45       | Final Hydro-static   |

## Recovery

| Length (ft) | Description            | Volume (bbl) |
|-------------|------------------------|--------------|
| 490.00      | smcw 5m 95w (oil scum) | 4.71         |
| 180.00      | ow cm 20o 30w 50m      | 2.52         |
| 180.00      | go 40g 60o             | 2.52         |
| 0.00        | 210 GIP                | 0.00         |
|             |                        |              |
|             |                        |              |

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55684

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2014.01.13 @ 15:34:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3781.00 ft | Diameter: 3.80 inches | Volume: 53.04 bbl              | Tool Weight: 2500.00 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: 238.00 ft  | Diameter: 2.25 inches | Volume: 1.17 bbl               | Weight to Pull Loose: 85000.00 lb  |
|                           |                    |                       | <u>Total Volume: 54.21 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 26.00 ft           |                       |                                | String Weight: Initial 72000.00 lb |
| Depth to Top Packer:      | 4020.00 ft         |                       |                                | Final 73000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 50.00 ft           |                       |                                |                                    |
| Tool Length:              | 77.00 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        |            |          | 3994.00    |                               |
| Shut In Tool     | 5.00        |            |          | 3999.00    |                               |
| Hydraulic tool   | 5.00        |            |          | 4004.00    |                               |
| Jars             | 5.00        |            |          | 4009.00    |                               |
| Safety Joint     | 2.00        |            |          | 4011.00    |                               |
| Packer           | 5.00        |            |          | 4016.00    | 27.00 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4020.00    |                               |
| Stubb            | 1.00        |            |          | 4021.00    |                               |
| Recorder         | 0.00        | 8678       | Inside   | 4021.00    |                               |
| Recorder         | 0.00        | 8522       | Outside  | 4021.00    |                               |
| Perforations     | 13.00       |            |          | 4034.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4035.00    |                               |
| Drill Pipe       | 31.00       |            |          | 4066.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4067.00    |                               |
| Bullnose         | 3.00        |            |          | 4070.00    | 50.00 Bottom Packers & Anchor |

**Total Tool Length: 77.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55684

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2014.01.13 @ 15:34:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

33 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

84000 ppm

Viscosity: 71.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.93 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description            | Volume<br>bbl |
|--------------|------------------------|---------------|
| 490.00       | smcw 5m 95w (oil scum) | 4.705         |
| 180.00       | ow cm 20o 30w 50m      | 2.525         |
| 180.00       | go 40g 60o             | 2.525         |
| 0.00         | 210 GIP                | 0.000         |

Total Length: 850.00 ft      Total Volume: 9.755 bbl

Num Fluid Samples: 0

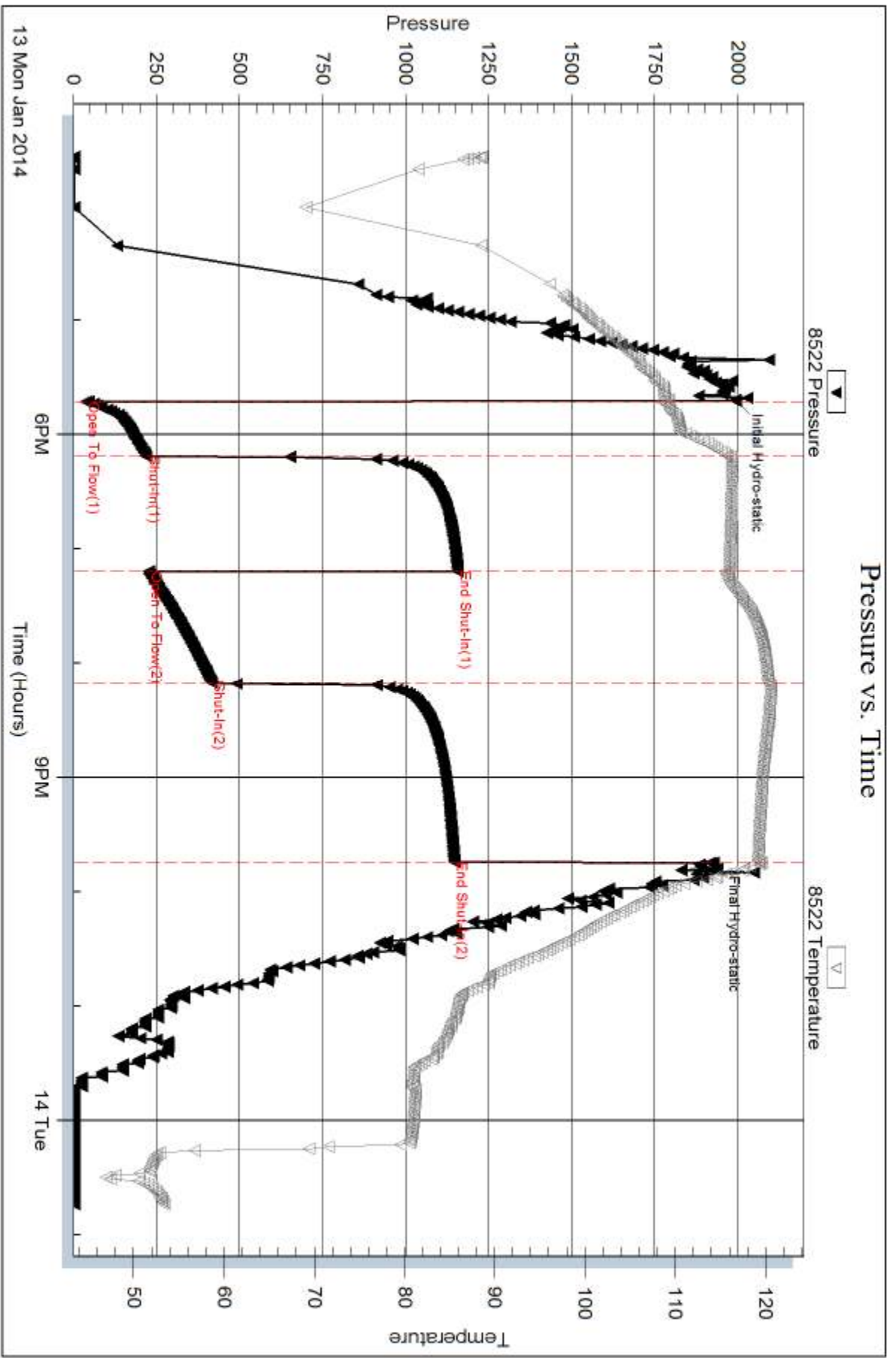
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: rw is .145 @ 45F = 84000ppm



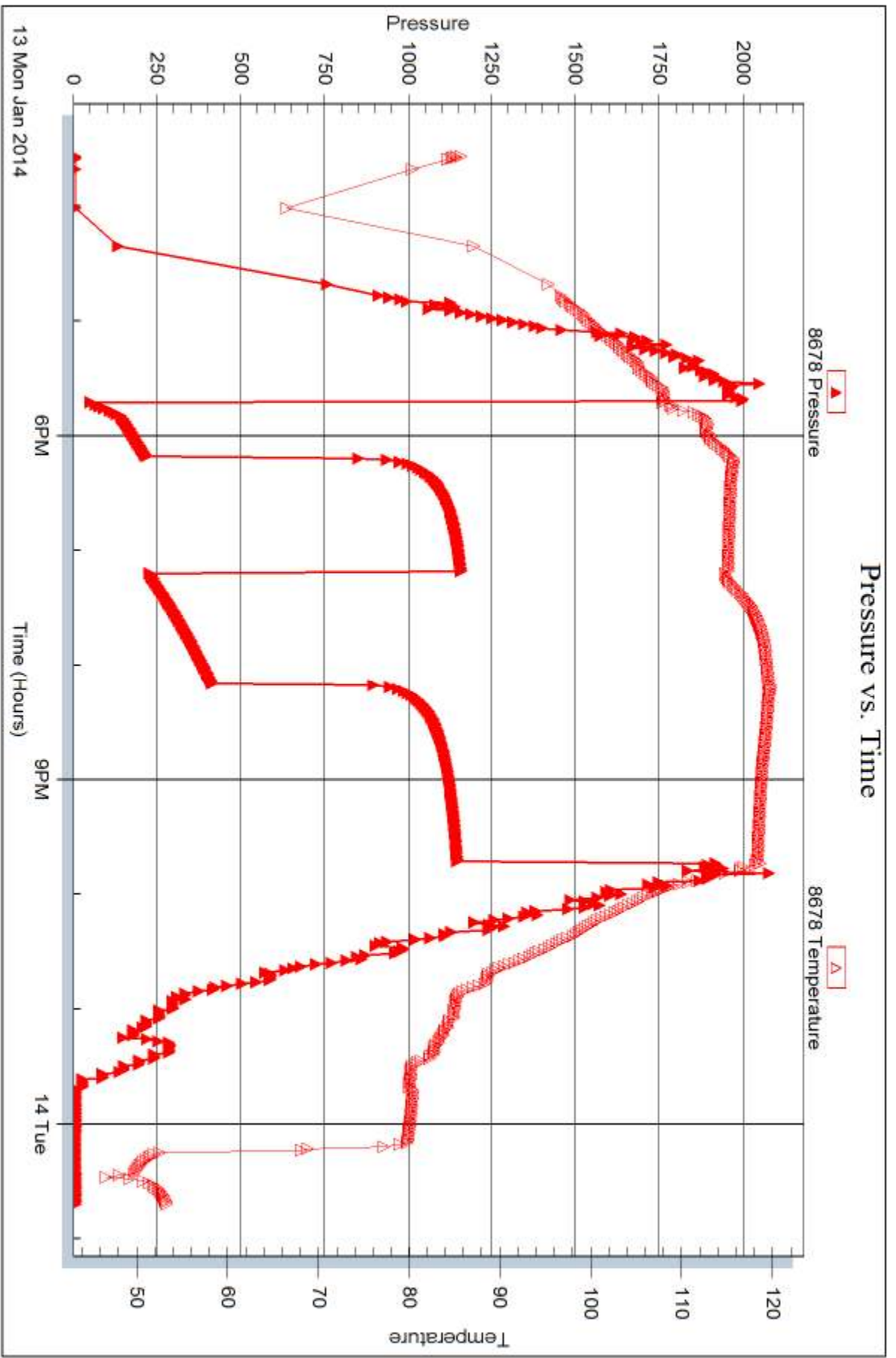
Serial #: 8678

Inside

Murfin Drilling Co, Inc

Nancy #1-4

DST Test Number: 1



Tribble Testing, Inc

Ref. No: 55684

Printed: 2014.01.23 @ 14:56:25



## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Nancy #1-4**

**4 13s 32w Logan,KS**

Start Date: 2014.01.14 @ 14:41:00

End Date: 2014.01.14 @ 23:24:15

Job Ticket #: 55685                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.23 @ 14:55:50





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55685

**DST#: 2**

ATTN: Saman Sharifaie

Test Start: 2014.01.14 @ 14:41:00

## GENERAL INFORMATION:

Formation: **LKC D-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:36:00

Time Test Ended: 23:24:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 69

**Interval: 4076.00 ft (KB) To 4134.00 ft (KB) (TVD)**

Reference Elevations: 3046.00 ft (KB)

Total Depth: 4134.00 ft (KB) (TVD)

3035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8522 Outside**

Press@RunDepth: 343.54 psig @ 4077.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.14

End Date:

2014.01.14

Last Calib.:

2014.01.14

Start Time: 14:41:05

End Time:

23:24:15

Time On Btm:

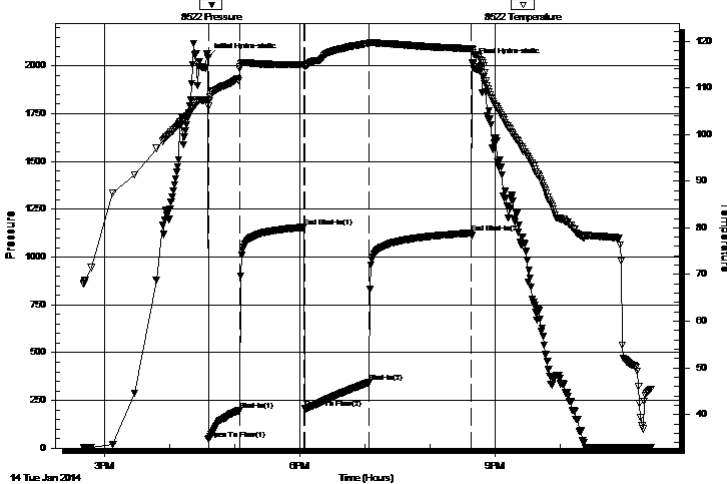
2014.01.14 @ 16:35:45

Time Off Btm:

2014.01.14 @ 20:39:30

TEST COMMENT: IF: BOB @ 10 min.  
IS: Surface return.  
FF: BOB @ 15 min.  
FS: 2" return.

Pressure vs. Time



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2045.38         | 107.31       | Initial Hydro-static |
| 1           | 44.44           | 106.08       | Open To Flow (1)     |
| 30          | 198.80          | 114.40       | Shut-In(1)           |
| 89          | 1156.04         | 115.02       | End Shut-In(1)       |
| 89          | 205.95          | 114.61       | Open To Flow (2)     |
| 149         | 343.54          | 119.51       | Shut-In(2)           |
| 243         | 1125.29         | 118.36       | End Shut-In(2)       |
| 244         | 2018.18         | 118.18       | Final Hydro-static   |

## Recovery

| Length (ft) | Description             | Volume (bbl) |
|-------------|-------------------------|--------------|
| 400.00      | mcw 10m 90w (oil spots) | 3.44         |
| 240.00      | gomcw 20g 20o 20m 40w   | 3.37         |
| 90.00       | go 35g 65o              | 1.26         |
| 0.00        | 200' GIP                | 0.00         |
|             |                         |              |
|             |                         |              |

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55685

**DST#: 2**

ATTN: Saman Sharifaie

Test Start: 2014.01.14 @ 14:41:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3825.00 ft | Diameter: 3.80 inches | Volume: 53.65 bbl              | Tool Weight: 2500.00 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: 238.00 ft  | Diameter: 2.25 inches | Volume: 1.17 bbl               | Weight to Pull Loose: 85000.00 lb  |
|                           |                    |                       | <u>Total Volume: 54.82 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 14.00 ft           |                       |                                | String Weight: Initial 72000.00 lb |
| Depth to Top Packer:      | 4076.00 ft         |                       |                                | Final 74000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 58.00 ft           |                       |                                |                                    |
| Tool Length:              | 85.00 ft           |                       |                                |                                    |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                                    |

Tool Comments:

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

|                 |       |      |         |         |                               |
|-----------------|-------|------|---------|---------|-------------------------------|
| Change Over Sub | 1.00  |      |         | 4050.00 |                               |
| Shut In Tool    | 5.00  |      |         | 4055.00 |                               |
| Hydraulic tool  | 5.00  |      |         | 4060.00 |                               |
| Jars            | 5.00  |      |         | 4065.00 |                               |
| Safety Joint    | 2.00  |      |         | 4067.00 |                               |
| Packer          | 5.00  |      |         | 4072.00 | 27.00 Bottom Of Top Packer    |
| Packer          | 4.00  |      |         | 4076.00 |                               |
| Stubb           | 1.00  |      |         | 4077.00 |                               |
| Recorder        | 0.00  | 8678 | Inside  | 4077.00 |                               |
| Recorder        | 0.00  | 8522 | Outside | 4077.00 |                               |
| Perforations    | 21.00 |      |         | 4098.00 |                               |
| Change Over Sub | 1.00  |      |         | 4099.00 |                               |
| Drill Pipe      | 31.00 |      |         | 4130.00 |                               |
| Change Over Sub | 1.00  |      |         | 4131.00 |                               |
| Bullnose        | 3.00  |      |         | 4134.00 | 58.00 Bottom Packers & Anchor |

**Total Tool Length: 85.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55685

**DST#: 2**

ATTN: Saman Sharifaie

Test Start: 2014.01.14 @ 14:41:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

37 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

70000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.12 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description             | Volume<br>bbbl |
|--------------|-------------------------|----------------|
| 400.00       | mcw 10m 90w (oil spots) | 3.443          |
| 240.00       | gomcw 20g 20o 20m 40w   | 3.367          |
| 90.00        | go 35g 65o              | 1.262          |
| 0.00         | 200' GIP                | 0.000          |

Total Length: 730.00 ft      Total Volume: 8.072 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

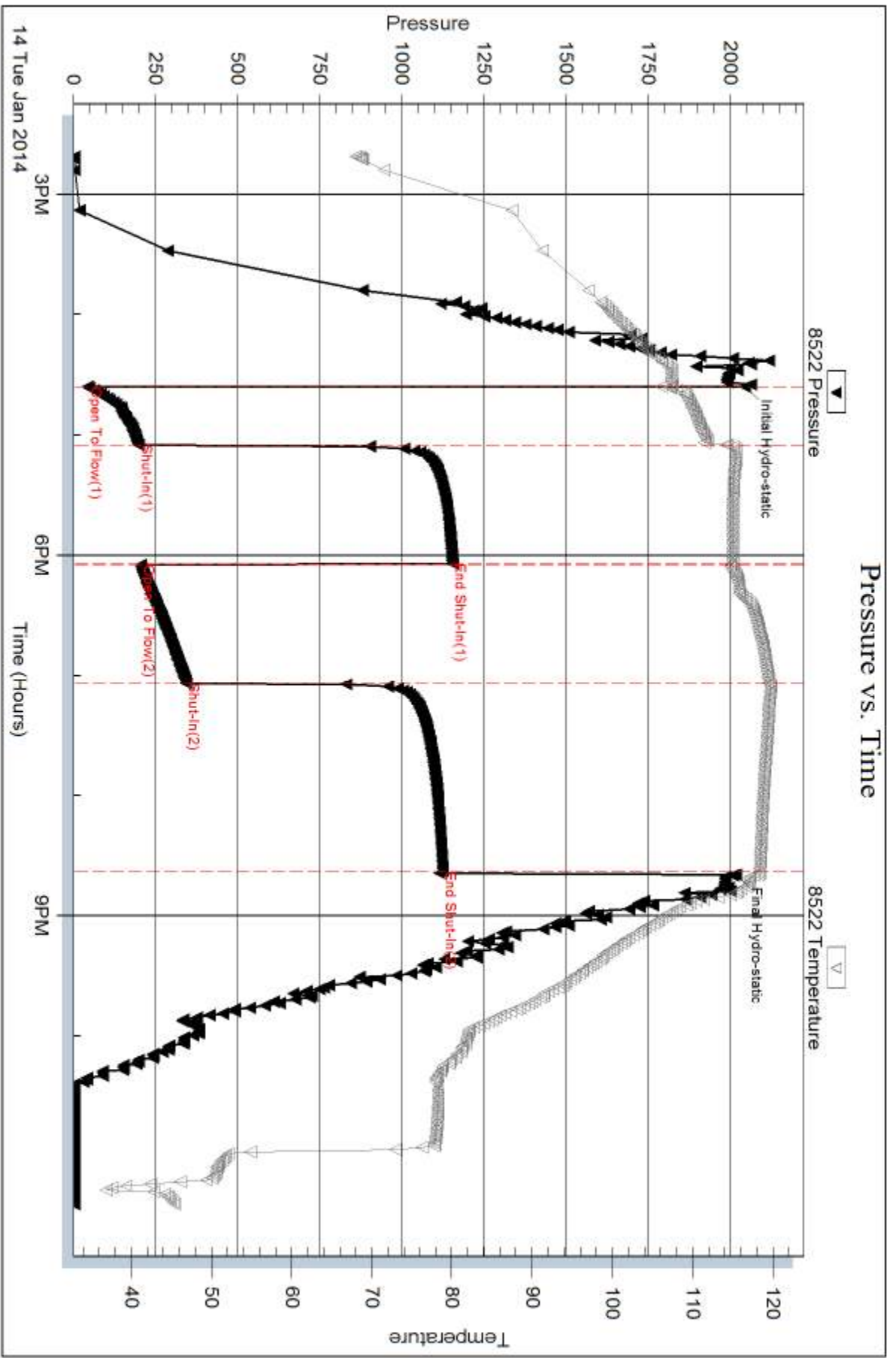
Recovery Comments: rw is .158 @ 40F = 70,000ppm

Serial #: 8522

Outside Marfin Drilling Co, Inc

Nancy #1-4

DST Test Number: 2



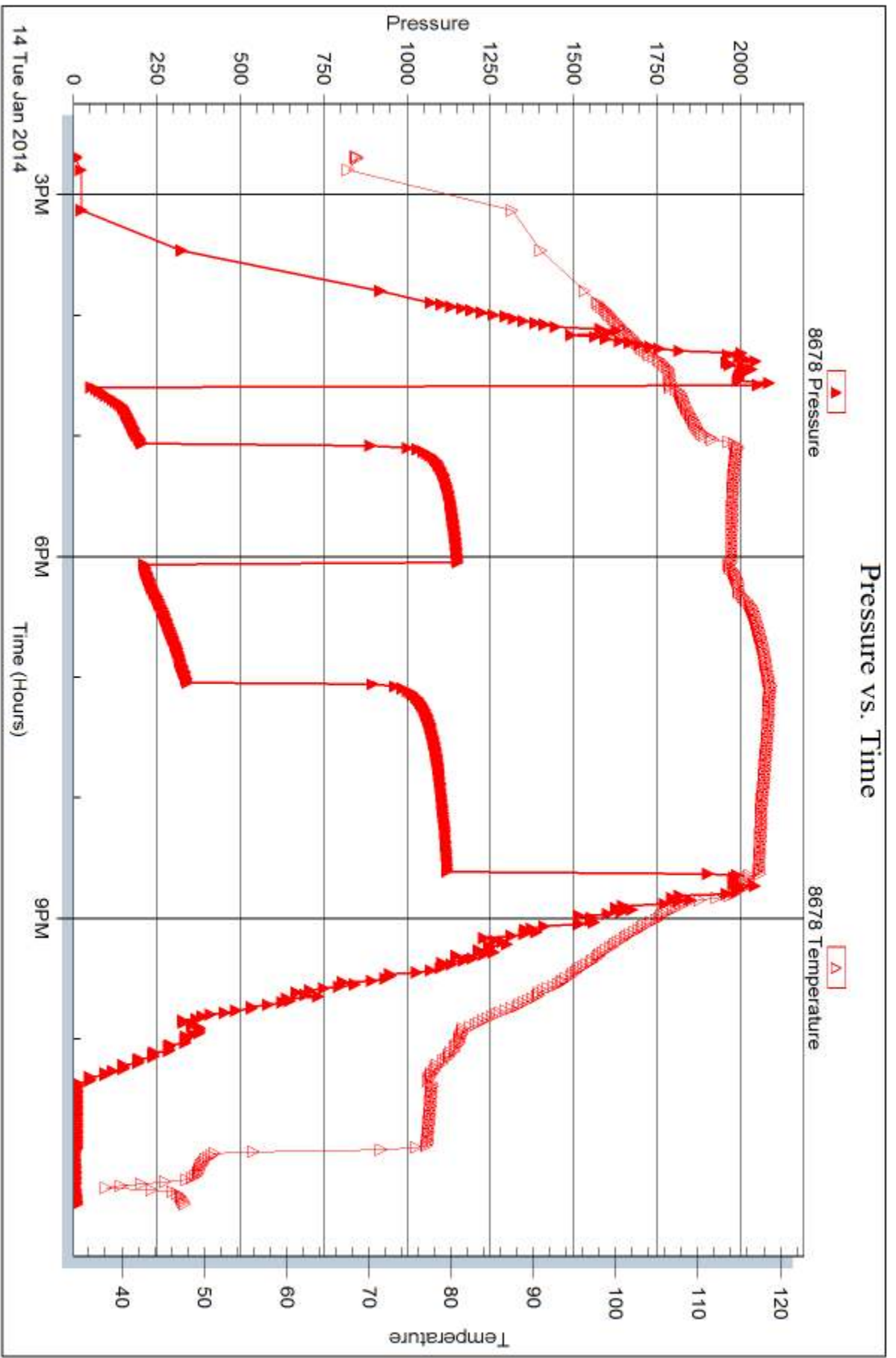
Serial #: 8678

Inside

Murfin Drilling Co, Inc

Nancy #1-4

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 55685

Printed: 2014.01.23 @ 14:55:52



## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Nancy #1-4**

**4 13s 32w Logan,KS**

Start Date: 2014.01.15 @ 18:31:00

End Date: 2014.01.16 @ 02:45:30

Job Ticket #: 54566                      DST #: 3

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

Printed: 2014.01.23 @ 14:55:22



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc

**4 13s 32w Logan, KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 54566

**DST#: 3**

ATTN: Saman Sharifaie

Test Start: 2014.01.15 @ 18:31:00

## GENERAL INFORMATION:

Formation: **LKC "H-I-J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:24:00

Time Test Ended: 02:45:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 69

**Interval: 4167.00 ft (KB) To 4260.00 ft (KB) (TVD)**

Reference Elevations: 3046.00 ft (KB)

Total Depth: 4260.00 ft (KB) (TVD)

3035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8678**

**Inside**

Press@RunDepth: 879.78 psig @ 4172.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.15

End Date:

2014.01.16

Last Calib.:

2014.01.16

Start Time: 18:31:05

End Time:

02:45:29

Time On Btm:

2014.01.15 @ 20:23:30

Time Off Btm:

2014.01.15 @ 22:56:30

## TEST COMMENT:

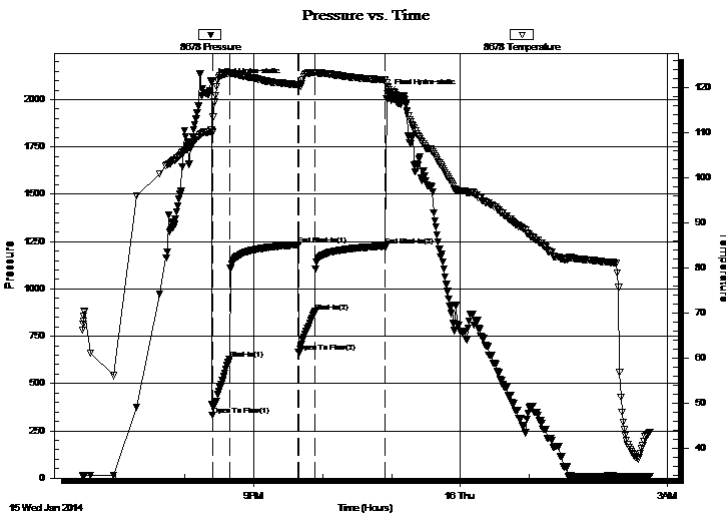
IF: B.o.b. in 1 min.

IS: Bled off in 4 1/2 mins.-Surface blow back after 1 min. shut in-built to 2 1/4-died back to 1 1/4 blow back

FF: B.o.b. in 1 min.

FS: Bled off in 1 1/2 mins.-No return

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2091.97         | 110.60       | Initial Hydro-static |
| 1           | 331.61          | 110.21       | Open To Flow (1)     |
| 16          | 629.76          | 123.12       | Shut-In(1)           |
| 76          | 1232.72         | 120.65       | End Shut-In(1)       |
| 76          | 665.85          | 120.38       | Open To Flow (2)     |
| 90          | 879.78          | 123.30       | Shut-In(2)           |
| 151         | 1225.84         | 121.69       | End Shut-In(2)       |
| 153         | 2033.54         | 120.17       | Final Hydro-static   |

## Recovery

| Length (ft) | Description           | Volume (bbl) |
|-------------|-----------------------|--------------|
| 248.00      | Mcw 10m 90w           | 1.31         |
| 378.00      | OgMcw 5o 15g 30m 50w  | 5.30         |
| 378.00      | OgMcw 10o 20g 20m 50w | 5.30         |
| 946.00      | GoWm 5g 15o 30w 50m   | 13.27        |
| 5.00        | Co 100o               | 0.07         |
| 0.00        | Rw .260@41=49000      | 0.00         |

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 54566

**DST#: 3**

ATTN: Saman Sharifaie

Test Start: 2014.01.15 @ 18:31:00

## Tool Information

|                           |                    |                       |                                |                        |             |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe:               | Length: 3916.00 ft | Diameter: 3.80 inches | Volume: 54.93 bbl              | Tool Weight:           | 2500.00 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: 238.00 ft  | Diameter: 2.25 inches | Volume: 1.17 bbl               | Weight to Pull Loose:  | 95000.00 lb |
|                           |                    |                       | <u>Total Volume: 56.10 bbl</u> | Tool Chased            | 0.00 ft     |
| Drill Pipe Above KB:      | 14.00 ft           |                       |                                | String Weight: Initial | 74000.00 lb |
| Depth to Top Packer:      | 4167.00 ft         |                       |                                | Final                  | 84000.00 lb |
| Depth to Bottom Packer:   | ft                 |                       |                                |                        |             |
| Interval between Packers: | 93.00 ft           |                       |                                |                        |             |
| Tool Length:              | 120.00 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          |            |          | 4141.00    |                               |
| Shut In Tool              | 5.00          |            |          | 4146.00    |                               |
| Hydraulic tool            | 5.00          |            |          | 4151.00    |                               |
| Jars                      | 5.00          |            |          | 4156.00    |                               |
| Safety Joint              | 2.00          |            |          | 4158.00    |                               |
| Packer                    | 5.00          |            |          | 4163.00    | 27.00 Bottom Of Top Packer    |
| Packer                    | 4.00          |            |          | 4167.00    |                               |
| Stubb                     | 1.00          |            |          | 4168.00    |                               |
| Perforations              | 4.00          |            |          | 4172.00    |                               |
| Recorder                  | 0.00          | 8678       | Inside   | 4172.00    |                               |
| Recorder                  | 0.00          | 8522       | Outside  | 4172.00    |                               |
| Perforations              | 19.00         |            |          | 4191.00    |                               |
| Change Over Sub           | 1.00          |            |          | 4192.00    |                               |
| Drill Pipe                | 63.00         |            |          | 4255.00    |                               |
| Change Over Sub           | 1.00          |            |          | 4256.00    |                               |
| Perforations              | 1.00          |            |          | 4257.00    |                               |
| Bullnose                  | 3.00          |            |          | 4260.00    | 93.00 Bottom Packers & Anchor |
| <b>Total Tool Length:</b> | <b>120.00</b> |            |          |            |                               |



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 54566

**DST#: 3**

ATTN: Saman Sharifaie

Test Start: 2014.01.15 @ 18:31:00

### 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:

49000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.95 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3200.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

| Length<br>ft | Description           | Volume<br>bbl |
|--------------|-----------------------|---------------|
| 248.00       | Mcw 10m 90w           | 1.311         |
| 378.00       | OgMcw 5o 15g 30m 50w  | 5.302         |
| 378.00       | OgMcw 10o 20g 20m 50w | 5.302         |
| 946.00       | GoWm 5g 15o 30w 50m   | 13.270        |
| 5.00         | Co 100o               | 0.070         |
| 0.00         | Rw .260@41=49000      | 0.000         |
| 0.00         | 105 GIP               | 0.000         |

Total Length: 1955.00 ft      Total Volume: 25.255 bbl

Num Fluid Samples: 0

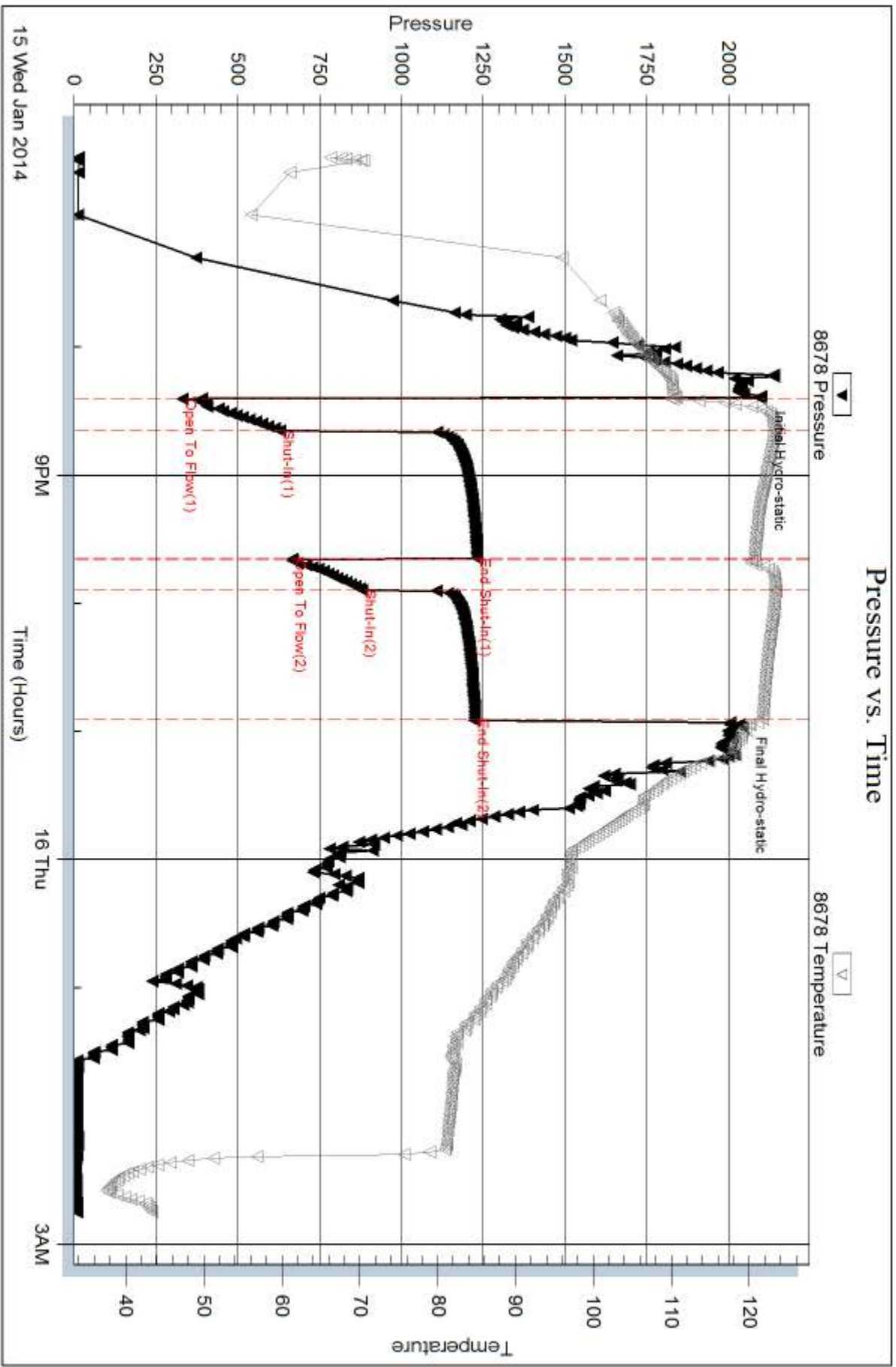
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 105 GIP

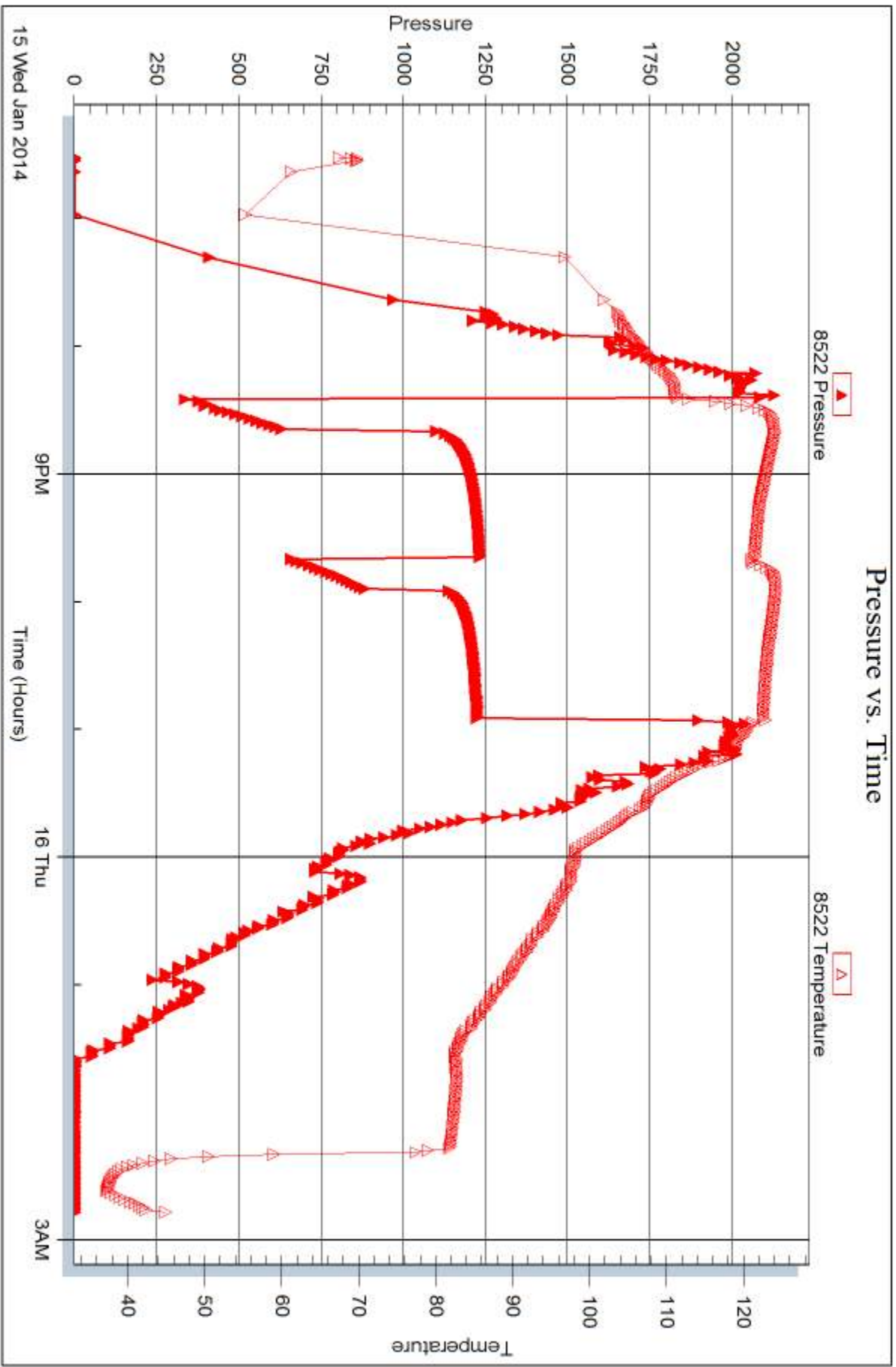


Serial #: 8522

Outside Murfin Drilling Co, Inc

Nancy #1-4

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 54566

Printed: 2014.01.23 @ 14:55:25



## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Nancy #1-4**

**4 13s 32w Logan,KS**

Start Date: 2014.01.17 @ 04:38:00

End Date: 2014.01.17 @ 14:05:00

Job Ticket #: 54567                      DST #: 4

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

Printed: 2014.01.23 @ 14:54:52



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc

**4 13s 32w Logan, KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 54567

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2014.01.17 @ 04:38:00

## GENERAL INFORMATION:

Formation: **X-Line-Lenapah-Marma**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:39:15

Time Test Ended: 14:05:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 69

**Interval: 4316.00 ft (KB) To 4446.00 ft (KB) (TVD)**

Reference Elevations: 3046.00 ft (KB)

Total Depth: 4446.00 ft (KB) (TVD)

3035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8678**

**Inside**

Press@RunDepth: 200.53 psig @ 4321.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.17

End Date:

2014.01.17

Last Calib.:

2014.01.17

Start Time: 04:38:05

End Time:

14:05:00

Time On Btm:

2014.01.17 @ 07:38:30

Time Off Btm:

2014.01.17 @ 11:40:15

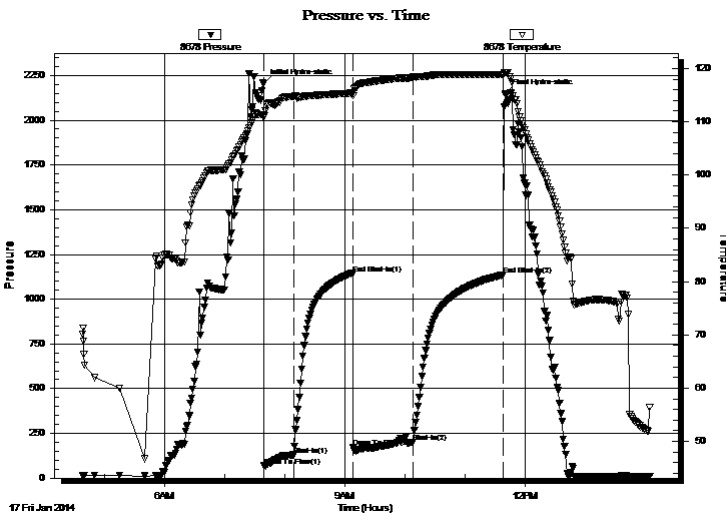
**TEST COMMENT:** IF: BOB in 11 1/2 mins.

IS: Bled off in 2 mins.-5 1/2 of Blow back

FF: 6 in. Immediately- BOB. in 6 mins.

FS: Bled off in 2 mins.-7 1/4 in. of Blow back

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2203.40         | 111.24       | Initial Hydro-static |
| 1           | 68.74           | 110.80       | Open To Flow (1)     |
| 31          | 129.45          | 114.67       | Shut-In(1)           |
| 90          | 1142.21         | 115.38       | End Shut-In(1)       |
| 90          | 169.67          | 114.90       | Open To Flow (2)     |
| 150         | 200.53          | 118.39       | Shut-In(2)           |
| 240         | 1136.35         | 118.85       | End Shut-In(2)       |
| 242         | 2148.66         | 119.27       | Final Hydro-static   |

## Recovery

| Length (ft) | Description      | Volume (bbl) |
|-------------|------------------|--------------|
| 248.00      | Gocm 20g 20o 60m | 1.31         |
| 189.00      | Cgo 20g 80o      | 2.65         |
| 0.00        | 756 GIP          | 0.00         |
| 0.00        | Gravity 29@50=30 | 0.00         |
|             |                  |              |
|             |                  |              |

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 54567

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2014.01.17 @ 04:38:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 4075.00 ft | Diameter: 3.80 inches | Volume: 57.16 bbl              | Tool Weight: 2500.00 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: 238.00 ft  | Diameter: 2.25 inches | Volume: 1.17 bbl               | Weight to Pull Loose: 90000.00 lb  |
|                           |                    |                       | <u>Total Volume: 58.33 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 24.00 ft           |                       |                                | String Weight: Initial 76000.00 lb |
| Depth to Top Packer:      | 4316.00 ft         |                       |                                | Final 80000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 130.00 ft          |                       |                                |                                    |
| Tool Length:              | 157.00 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          |            |          | 4290.00    |                                |
| Shut In Tool              | 5.00          |            |          | 4295.00    |                                |
| Hydraulic tool            | 5.00          |            |          | 4300.00    |                                |
| Jars                      | 5.00          |            |          | 4305.00    |                                |
| Safety Joint              | 2.00          |            |          | 4307.00    |                                |
| Packer                    | 5.00          |            |          | 4312.00    | 27.00 Bottom Of Top Packer     |
| Packer                    | 4.00          |            |          | 4316.00    |                                |
| Stubb                     | 1.00          |            |          | 4317.00    |                                |
| Perforations              | 4.00          |            |          | 4321.00    |                                |
| Recorder                  | 0.00          | 8678       | Inside   | 4321.00    |                                |
| Recorder                  | 0.00          | 8522       | Outside  | 4321.00    |                                |
| Perforations              | 25.00         |            |          | 4346.00    |                                |
| Change Over Sub           | 1.00          |            |          | 4347.00    |                                |
| Drill Pipe                | 94.00         |            |          | 4441.00    |                                |
| Change Over Sub           | 1.00          |            |          | 4442.00    |                                |
| Perforations              | 1.00          |            |          | 4443.00    |                                |
| Bullnose                  | 3.00          |            |          | 4446.00    | 130.00 Bottom Packers & Anchor |
| <b>Total Tool Length:</b> | <b>157.00</b> |            |          |            |                                |



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 54567

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2014.01.17 @ 04:38:00

## 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: 6.36 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3400.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description      | Volume<br>bbl |
|--------------|------------------|---------------|
| 248.00       | Gocm 20g 20o 60m | 1.311         |
| 189.00       | Cgo 20g 80o      | 2.651         |
| 0.00         | 756 GIP          | 0.000         |
| 0.00         | Gravity 29@50=30 | 0.000         |

Total Length: 437.00 ft

Total Volume: 3.962 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

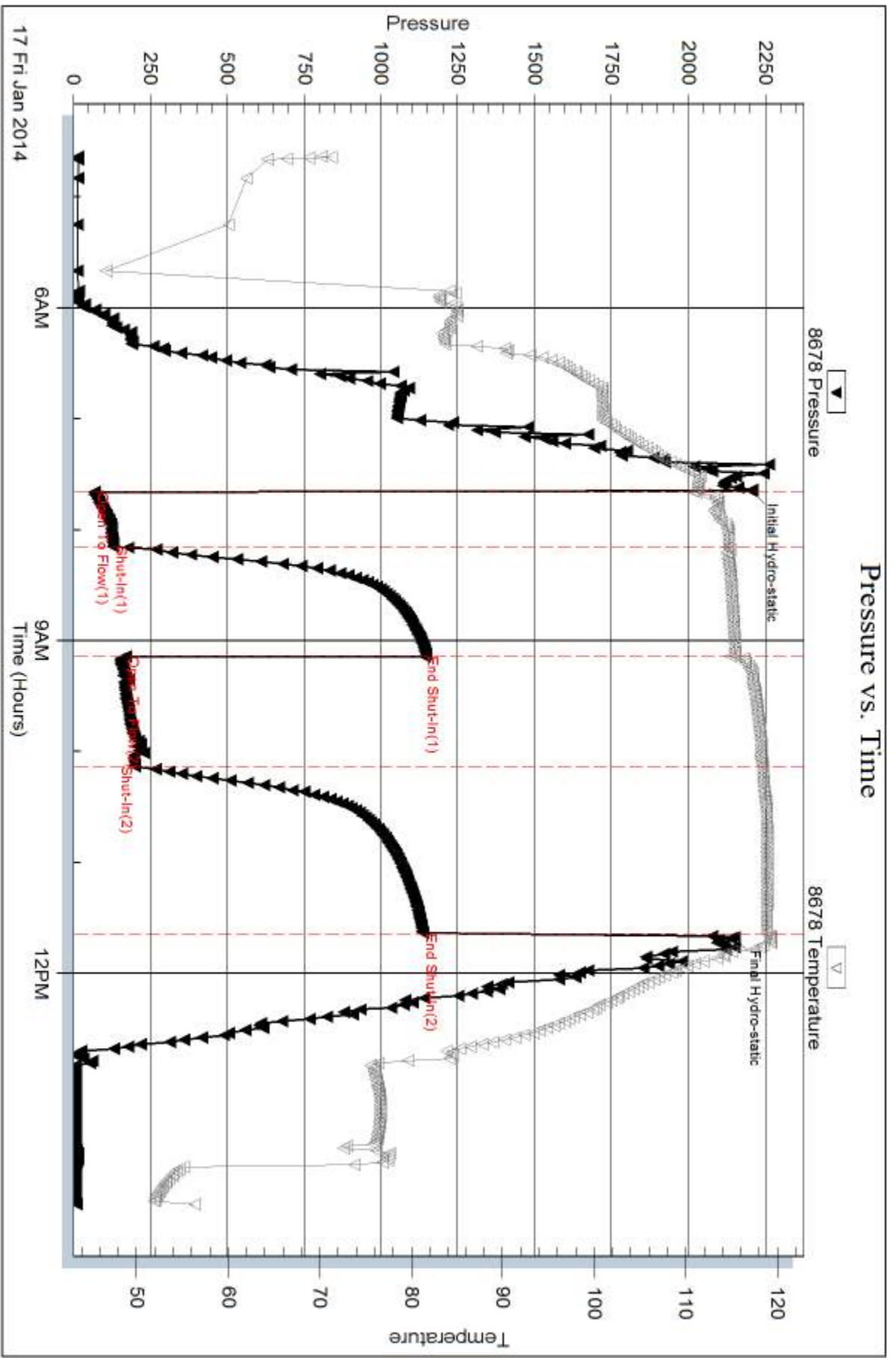
Serial #: 8678

Inside

Murfin Drilling Co, Inc

Nancy #1-4

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 54567

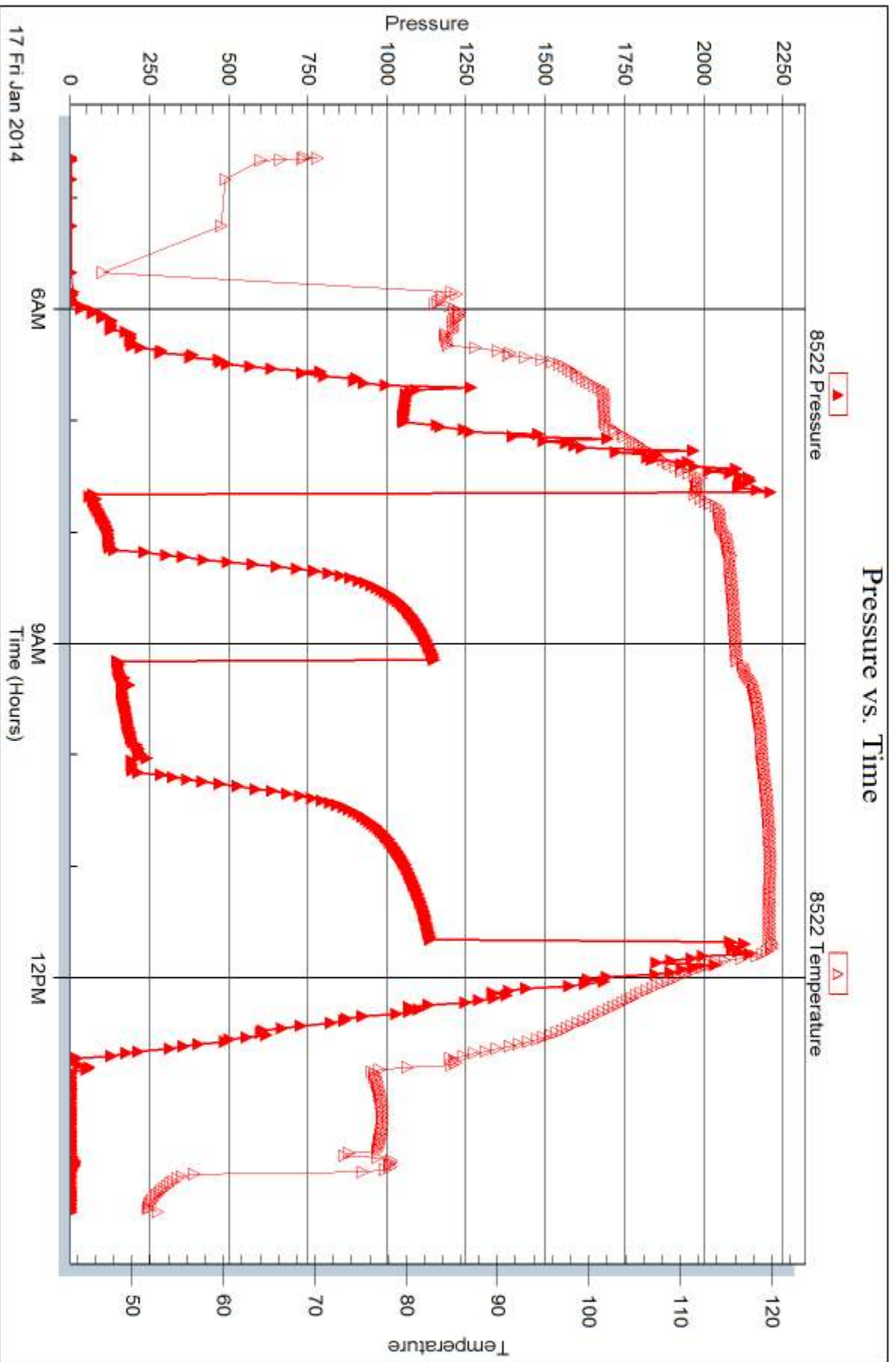
Printed: 2014.01.23 @ 14:54:54

Serial #: 8522

Outside Murfin Drilling Co, Inc

Nancy #1-4

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 54567

Printed: 2014.01.23 @ 14:54:54



## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Nancy #1-4**

**4 13s 32w Logan,KS**

Start Date: 2014.01.18 @ 05:34:00

End Date: 2014.01.18 @ 15:14:00

Job Ticket #: 54568                      DST #: 5

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

Printed: 2014.01.23 @ 14:54:04



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 54568

**DST#: 5**

ATTN: Saman Sharifaie

Test Start: 2014.01.18 @ 05:34:00

## GENERAL INFORMATION:

Formation: **Pawnee-Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:11:00

Time Test Ended: 15:14:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 69

**Interval: 4448.00 ft (KB) To 4534.00 ft (KB) (TVD)**

Reference Elevations: 3046.00 ft (KB)

Total Depth: 4534.00 ft (KB) (TVD)

3035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8678**

**Inside**

Press@RunDepth: 252.10 psig @ 4450.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.18

End Date:

2014.01.18

Last Calib.:

2014.01.18

Start Time:

05:34:05

End Time:

15:14:00

Time On Btm:

2014.01.18 @ 08:10:45

Time Off Btm:

2014.01.18 @ 12:11:45

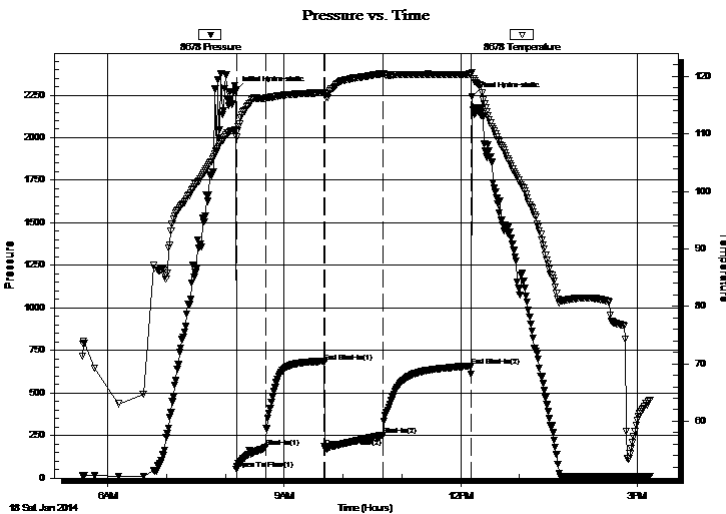
**TEST COMMENT:** IF: BOB in 7 mins. 45 sec.

IS: Bled off in 2 mins.-2 3/4 in. of Blow back-Died back to 1 3/4 in

FF: BOB in 7 mins.

FS: Bled off in 2 1/2 mins.-BOB. in 21 mins.-Died back to 7 in.

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2279.09         | 110.70       | Initial Hydro-static |
| 1           | 50.54           | 109.41       | Open To Flow (1)     |
| 31          | 182.49          | 116.17       | Shut-In(1)           |
| 90          | 682.61          | 117.20       | End Shut-In(1)       |
| 91          | 183.33          | 116.95       | Open To Flow (2)     |
| 150         | 252.10          | 120.51       | Shut-In(2)           |
| 240         | 659.31          | 120.38       | End Shut-In(2)       |
| 241         | 2239.73         | 120.71       | Final Hydro-static   |

## Recovery

| Length (ft) | Description      | Volume (bbl) |
|-------------|------------------|--------------|
| 248.00      | Gocm 10g 40o 50m | 1.31         |
| 283.00      | Cgo 30g 70o      | 3.97         |
| 0.00        | GIP 599          | 0.00         |
| 0.00        | Gravity=30       | 0.00         |
|             |                  |              |
|             |                  |              |

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 54568

**DST#: 5**

ATTN: Saman Sharifaie

Test Start: 2014.01.18 @ 05:34:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 4200.00 ft | Diameter: 3.80 inches | Volume: 58.91 bbl              | Tool Weight: 2500.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer: 26000.00 lb  |
| Drill Collar:             | Length: 238.00 ft  | Diameter: 2.25 inches | Volume: 1.17 bbl               | Weight to Pull Loose: 90000.00 lb  |
|                           |                    |                       | <u>Total Volume: 60.08 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 17.00 ft           |                       |                                | String Weight: Initial 75000.00 lb |
| Depth to Top Packer:      | 4448.00 ft         |                       |                                | Final 78000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 86.00 ft           |                       |                                |                                    |
| Tool Length:              | 113.00 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          |            |          | 4422.00    |                               |
| Shut In Tool              | 5.00          |            |          | 4427.00    |                               |
| Hydraulic tool            | 5.00          |            |          | 4432.00    |                               |
| Jars                      | 5.00          |            |          | 4437.00    |                               |
| Safety Joint              | 2.00          |            |          | 4439.00    |                               |
| Packer                    | 5.00          |            |          | 4444.00    | 27.00 Bottom Of Top Packer    |
| Packer                    | 4.00          |            |          | 4448.00    |                               |
| Stubb                     | 1.00          |            |          | 4449.00    |                               |
| Perforations              | 1.00          |            |          | 4450.00    |                               |
| Recorder                  | 0.00          | 8678       | Inside   | 4450.00    |                               |
| Recorder                  | 0.00          | 8522       | Outside  | 4450.00    |                               |
| Perforations              | 15.00         |            |          | 4465.00    |                               |
| Change Over Sub           | 1.00          |            |          | 4466.00    |                               |
| Drill Pipe                | 63.00         |            |          | 4529.00    |                               |
| Change Over Sub           | 1.00          |            |          | 4530.00    |                               |
| Perforations              | 1.00          |            |          | 4531.00    |                               |
| Bullnose                  | 3.00          |            |          | 4534.00    | 86.00 Bottom Packers & Anchor |
| <b>Total Tool Length:</b> | <b>113.00</b> |            |          |            |                               |





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 54568

**DST#: 5**

ATTN: Saman Sharifaie

Test Start: 2014.01.18 @ 05:34:00

## 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: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description      | Volume<br>bbl |
|--------------|------------------|---------------|
| 248.00       | Gocm 10g 40o 50m | 1.311         |
| 283.00       | Cgo 30g 70o      | 3.970         |
| 0.00         | GIP 599          | 0.000         |
| 0.00         | Gravity=30       | 0.000         |

Total Length: 531.00 ft

Total Volume: 5.281 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

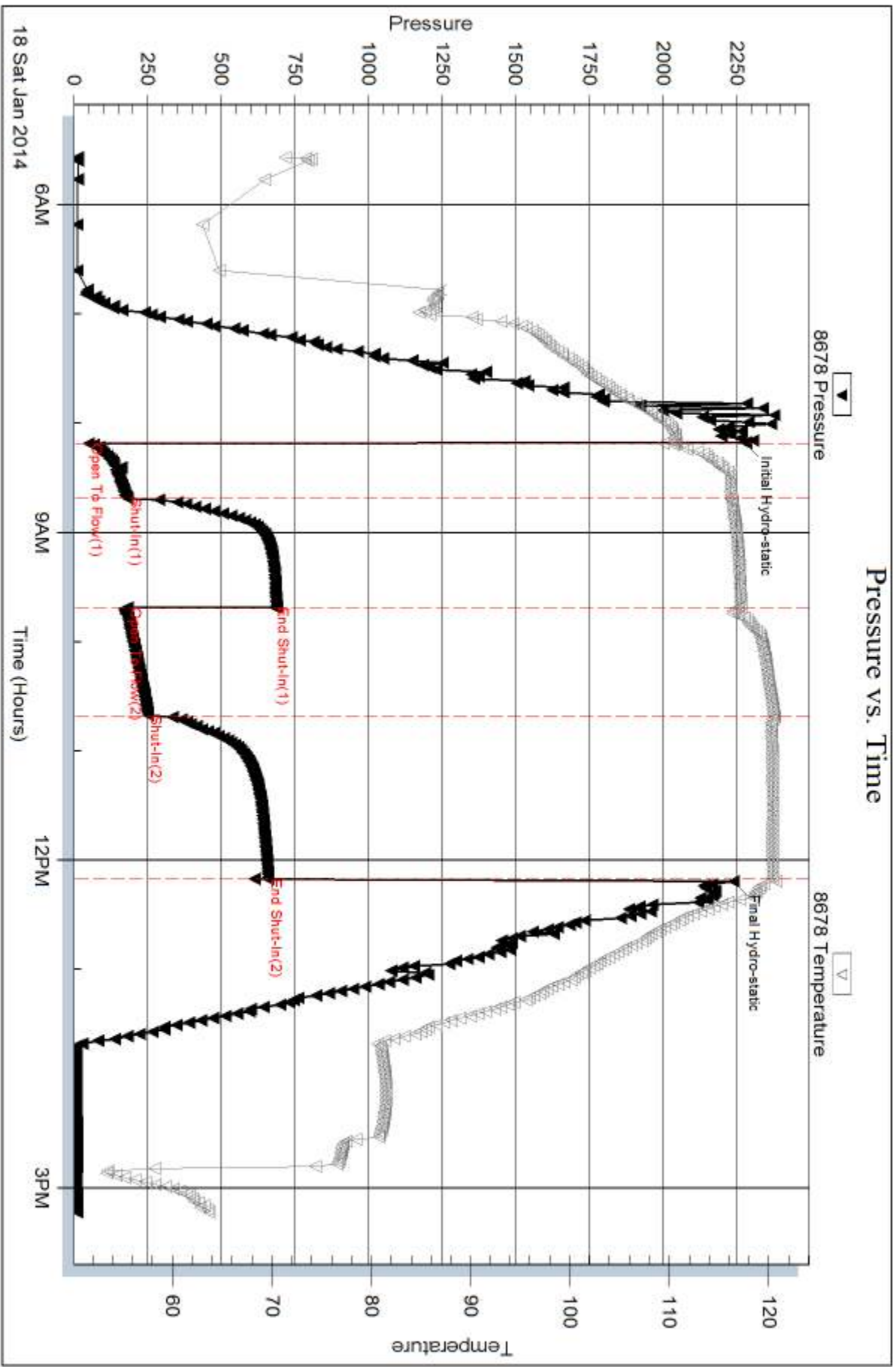
Serial #: 8678

Inside

Murfin Drilling Co, Inc

Nancy #1-4

DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 54568

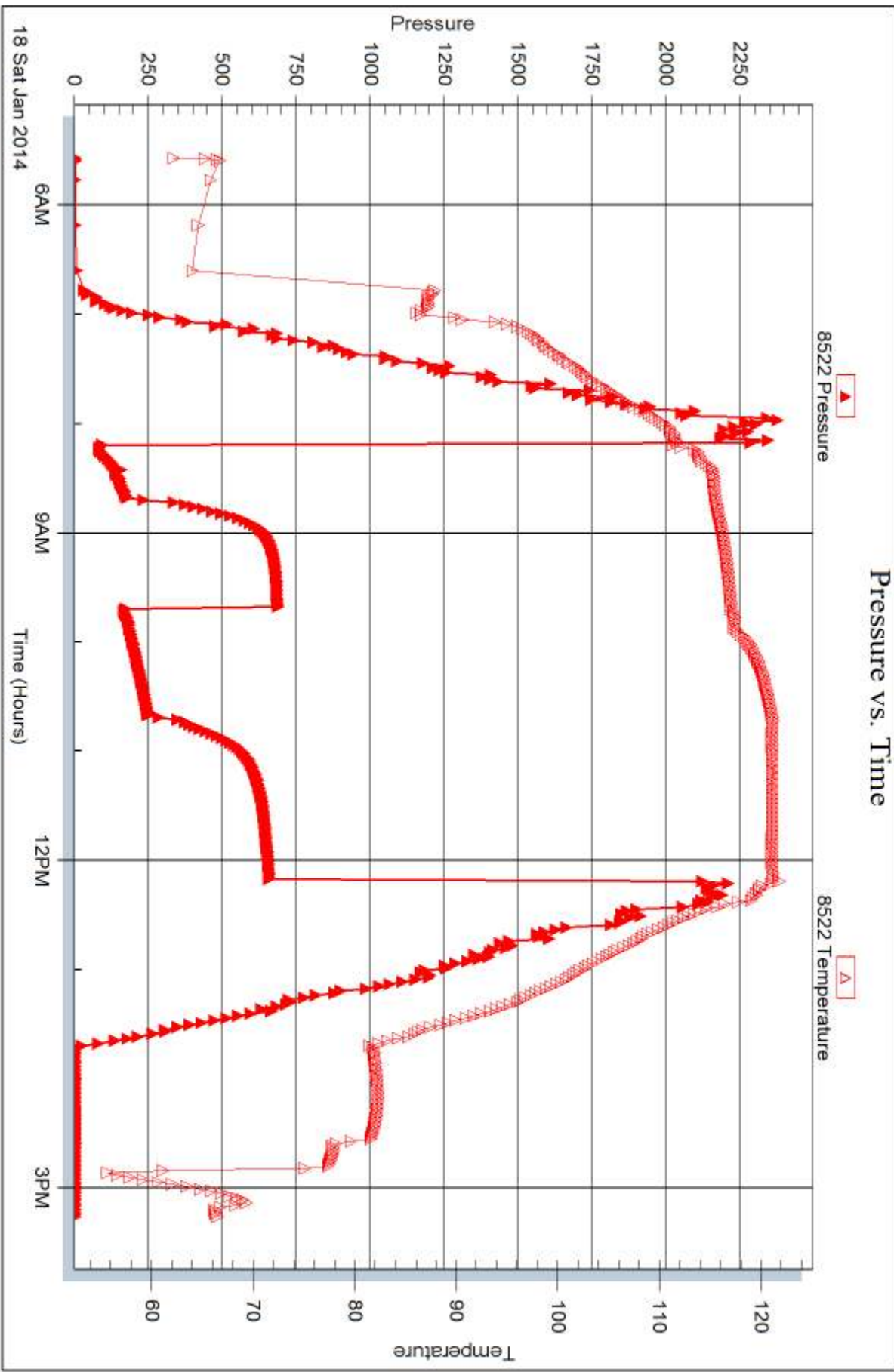
Printed: 2014.01.23 @ 14:54:06

Serial #: 8522

Outside Murfin Drilling Co, Inc

Nancy #1-4

DST Test Number: 5





## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Nancy #1-4**

**4 13s 32w Logan,KS**

Start Date: 2014.01.19 @ 08:27:00

End Date: 2014.01.19 @ 17:28:30

Job Ticket #: 55686                      DST #: 6

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

Printed: 2014.01.23 @ 14:53:35

Murfin Drilling Co, Inc  
4 13s 32w Logan,KS  
Nancy #1-4  
DST # 6  
Cherokee, Johnson, A  
2014.01.19



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc

**4 13s 32w Logan, KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55686

**DST#: 6**

ATTN: Saman Sharifaie

Test Start: 2014.01.19 @ 08:27:00

## GENERAL INFORMATION:

Formation: **Cherokee, Johnson, A**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:45:15

Time Test Ended: 17:28:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 69

**Interval: 4540.00 ft (KB) To 4632.00 ft (KB) (TVD)**

Reference Elevations: 3046.00 ft (KB)

Total Depth: 4632.00 ft (KB) (TVD)

3035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8522 Outside**

Press@RunDepth: 229.46 psig @ 4541.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.19

End Date:

2014.01.19

Last Calib.:

2014.01.19

Start Time: 08:27:05

End Time:

17:28:30

Time On Btm:

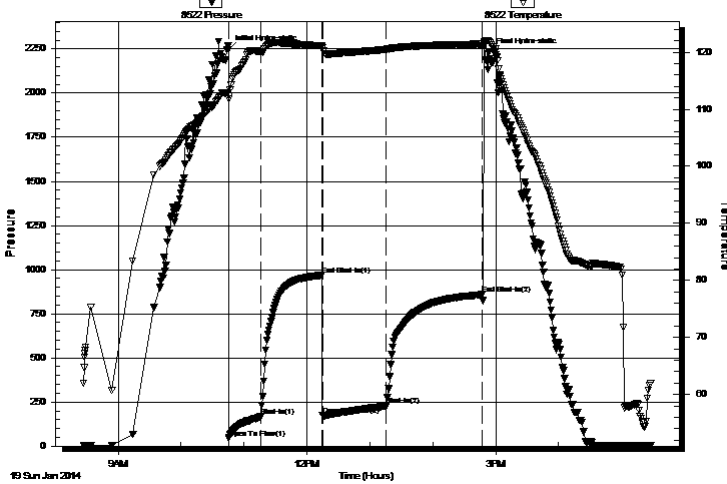
2014.01.19 @ 10:45:00

Time Off Btm:

2014.01.19 @ 14:53:45

TEST COMMENT: IF: 5" blow.  
IS: No return.  
FF: BOB @ 20 min.  
FS: 1 1/2" return.

Pressure vs. Time



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2247.73         | 112.86       | Initial Hydro-static |
| 1           | 44.20           | 111.77       | Open To Flow (1)     |
| 31          | 166.37          | 120.12       | Shut-In(1)           |
| 90          | 968.19          | 121.09       | End Shut-In(1)       |
| 90          | 174.11          | 120.75       | Open To Flow (2)     |
| 151         | 229.46          | 120.48       | Shut-In(2)           |
| 243         | 858.71          | 121.42       | End Shut-In(2)       |
| 249         | 2229.04         | 121.76       | Final Hydro-static   |

## Recovery

| Length (ft) | Description             | Volume (bbl) |
|-------------|-------------------------|--------------|
| 120.00      | gow cm 10g 10o 15 w 65m | 0.59         |
| 180.00      | gocm 20g 25o 55m        | 1.45         |
| 200.00      | go 40g 60o              | 2.81         |
| 0.00        | 335 GIP                 | 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

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55686

**DST#: 6**

ATTN: Saman Sharifaie

Test Start: 2014.01.19 @ 08:27:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 4293.00 ft | Diameter: 3.80 inches | Volume: 60.22 bbl              | Tool Weight: 2500.00 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: 238.00 ft  | Diameter: 2.25 inches | Volume: 1.17 bbl               | Weight to Pull Loose: 100000.0 lb  |
|                           |                    |                       | <u>Total Volume: 61.39 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 18.00 ft           |                       |                                | String Weight: Initial 75000.00 lb |
| Depth to Top Packer:      | 4540.00 ft         |                       |                                | Final 76000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 92.00 ft           |                       |                                |                                    |
| Tool Length:              | 119.00 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        |            |          | 4514.00    |                               |
| Shut In Tool     | 5.00        |            |          | 4519.00    |                               |
| Hydraulic tool   | 5.00        |            |          | 4524.00    |                               |
| Jars             | 5.00        |            |          | 4529.00    |                               |
| Safety Joint     | 2.00        |            |          | 4531.00    |                               |
| Packer           | 5.00        |            |          | 4536.00    | 27.00 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4540.00    |                               |
| Stubb            | 1.00        |            |          | 4541.00    |                               |
| Recorder         | 0.00        | 8678       | Inside   | 4541.00    |                               |
| Recorder         | 0.00        | 8522       | Outside  | 4541.00    |                               |
| Perforations     | 23.00       |            |          | 4564.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4565.00    |                               |
| Drill Pipe       | 63.00       |            |          | 4628.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4629.00    |                               |
| Bullnose         | 3.00        |            |          | 4632.00    | 92.00 Bottom Packers & Anchor |

**Total Tool Length: 119.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55686

**DST#: 6**

ATTN: Saman Sharifaie

Test Start: 2014.01.19 @ 08:27:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

29 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 72.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

| Length<br>ft | Description             | Volume<br>bbbl |
|--------------|-------------------------|----------------|
| 120.00       | gow cm 10g 10o 15 w 65m | 0.590          |
| 180.00       | gocm 20g 25o 55m        | 1.450          |
| 200.00       | go 40g 60o              | 2.805          |
| 0.00         | 335 GIP                 | 0.000          |

Total Length: 500.00 ft

Total Volume: 4.845 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

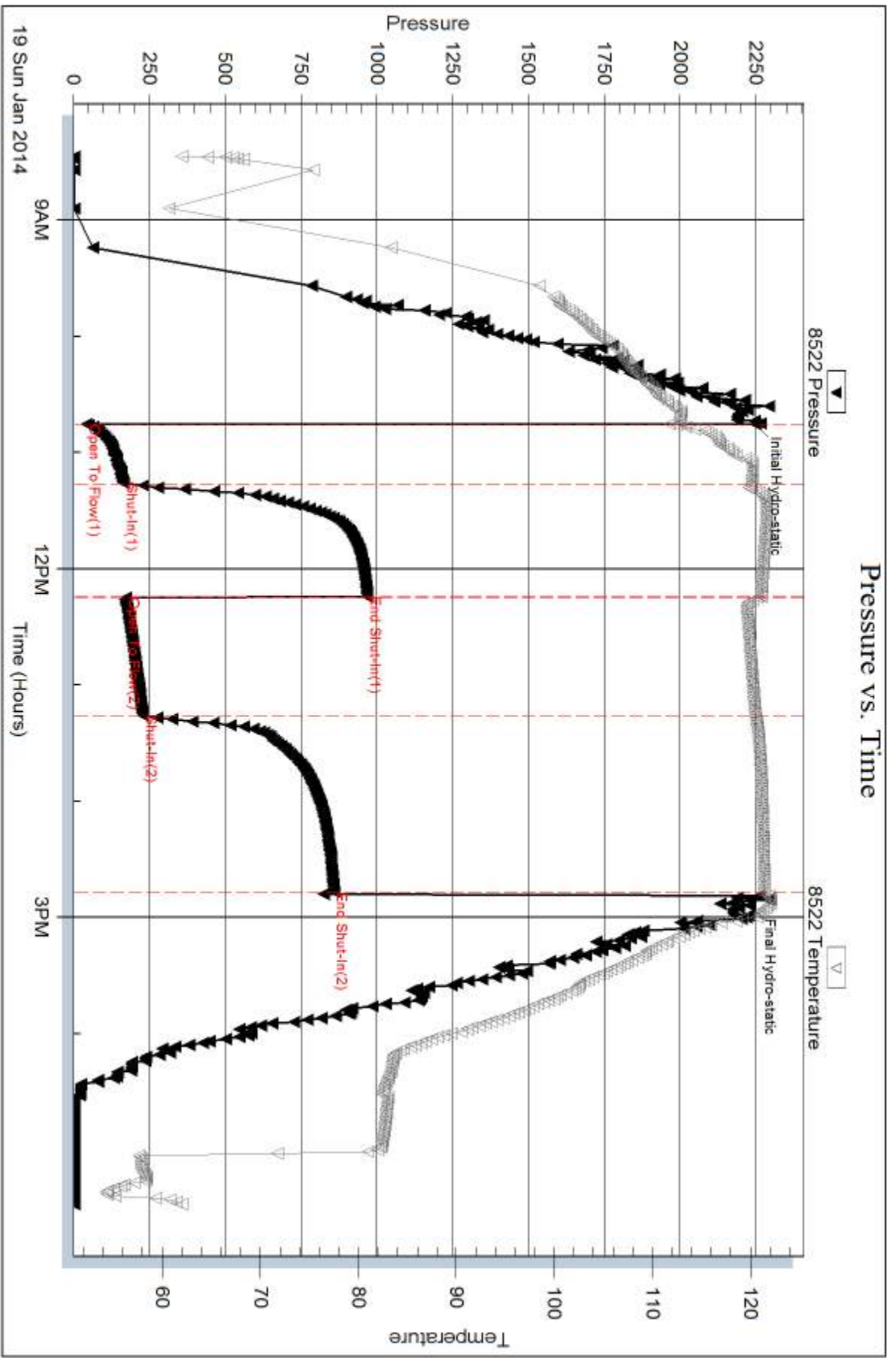
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





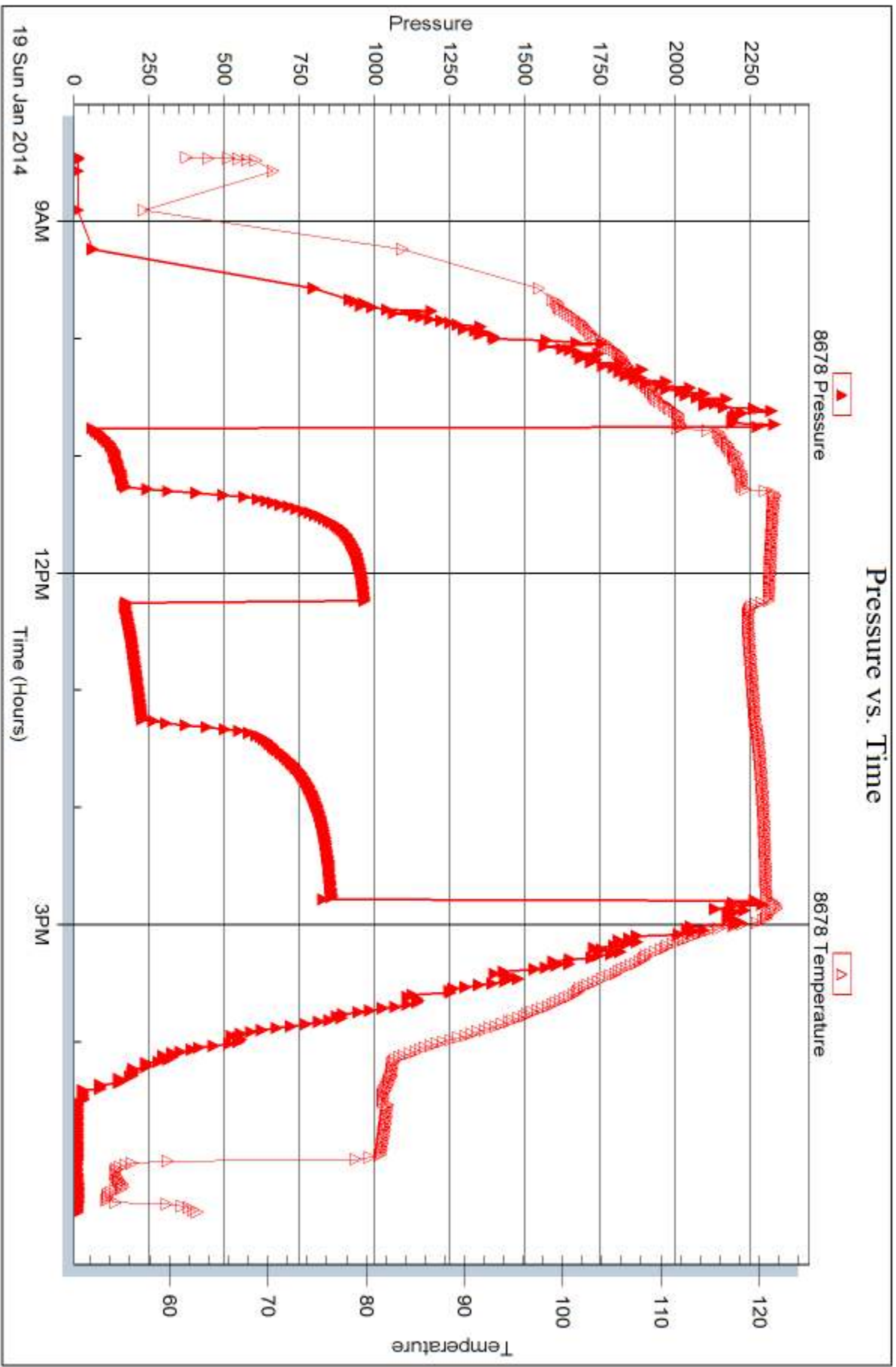
Serial #: 8678

Inside

Murfin Drilling Co, Inc

Nancy #1-4

DST Test Number: 6





## DRILL STEM TEST REPORT

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

250 N Water Ste 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Nancy #1-4**

**4 13s 32w Logan,KS**

Start Date: 2014.01.20 @ 00:40:00

End Date: 2014.01.20 @ 09:29:30

Job Ticket #: 55687                      DST #: 7

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

Printed: 2014.01.23 @ 14:48:09



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc

**4 13s 32w Logan, KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55687

**DST#: 7**

ATTN: Saman Sharifaie

Test Start: 2014.01.20 @ 00:40:00

## GENERAL INFORMATION:

Formation: **Morrow Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:07:15

Time Test Ended: 09:29:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 69

**Interval: 4617.00 ft (KB) To 4677.00 ft (KB) (TVD)**

Reference Elevations: 3046.00 ft (KB)

Total Depth: 4677.00 ft (KB) (TVD)

3035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8522 Outside**

Press@RunDepth: 127.91 psig @ 4618.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.20

End Date:

2014.01.20

Last Calib.:

2014.01.20

Start Time: 00:40:05

End Time:

09:29:30

Time On Btm:

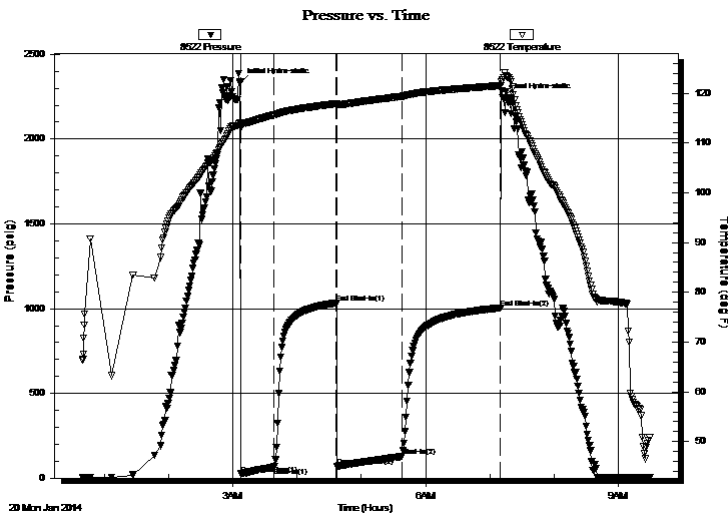
2014.01.20 @ 03:07:00

Time Off Btm:

2014.01.20 @ 07:11:45

TEST COMMENT: IF: 3" blow.  
IS: No return.  
FF: 4" blow.  
FS: No return.

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2333.60         | 114.13       | Initial Hydro-static |
| 1           | 24.81           | 112.99       | Open To Flow (1)     |
| 32          | 64.02           | 115.61       | Shut-In(1)           |
| 90          | 1033.63         | 117.89       | End Shut-In(1)       |
| 91          | 70.54           | 117.64       | Open To Flow (2)     |
| 151         | 127.91          | 119.36       | Shut-In(2)           |
| 243         | 1004.37         | 121.52       | End Shut-In(2)       |
| 245         | 2243.01         | 122.79       | Final Hydro-static   |

## Recovery

| Length (ft) | Description      | Volume (bbl) |
|-------------|------------------|--------------|
| 180.00      | omcw 10o 40w 50m | 0.89         |
| 40.00       | ocm ocm 25o 75m  | 0.20         |
| 10.00       | oil              | 0.05         |
| 0.00        | 70' GIP          | 0.00         |
|             |                  |              |
|             |                  |              |

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55687

**DST#: 7**

ATTN: Saman Sharifaie

Test Start: 2014.01.20 @ 00:40:00

## Tool Information

|                           |                    |                       |                                |                        |             |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe:               | Length: 4356.00 ft | Diameter: 3.80 inches | Volume: 61.10 bbl              | Tool Weight:           | 2500.00 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: 238.00 ft  | Diameter: 2.25 inches | Volume: 1.17 bbl               | Weight to Pull Loose:  | 100000.0 lb |
|                           |                    |                       | <u>Total Volume: 62.27 bbl</u> | Tool Chased            | 0.00 ft     |
| Drill Pipe Above KB:      | 4.00 ft            |                       |                                | String Weight: Initial | 74000.00 lb |
| Depth to Top Packer:      | 4617.00 ft         |                       |                                | Final                  | 74000.00 lb |
| Depth to Bottom Packer:   | ft                 |                       |                                |                        |             |
| Interval between Packers: | 60.00 ft           |                       |                                |                        |             |
| Tool Length:              | 87.00 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        |            |          | 4591.00    |                               |
| Shut In Tool     | 5.00        |            |          | 4596.00    |                               |
| Hydraulic tool   | 5.00        |            |          | 4601.00    |                               |
| Jars             | 5.00        |            |          | 4606.00    |                               |
| Safety Joint     | 2.00        |            |          | 4608.00    |                               |
| Packer           | 5.00        |            |          | 4613.00    | 27.00 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4617.00    |                               |
| Stubb            | 1.00        |            |          | 4618.00    |                               |
| Recorder         | 0.00        | 8678       | Inside   | 4618.00    |                               |
| Recorder         | 0.00        | 8522       | Outside  | 4618.00    |                               |
| Perforations     | 23.00       |            |          | 4641.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4642.00    |                               |
| Drill Pipe       | 31.00       |            |          | 4673.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4674.00    |                               |
| Bullnose         | 3.00        |            |          | 4677.00    | 60.00 Bottom Packers & Anchor |

**Total Tool Length: 87.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co, Inc

**4 13s 32w Logan,KS**

250 N Water Ste 300  
Wichita, KS 67202

**Nancy #1-4**

Job Ticket: 55687

**DST#: 7**

ATTN: Saman Sharifaie

Test Start: 2014.01.20 @ 00:40:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

55000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

| Length<br>ft | Description      | Volume<br>bbl |
|--------------|------------------|---------------|
| 180.00       | omcw 10o 40w 50m | 0.885         |
| 40.00        | ocm ocm 25o 75m  | 0.197         |
| 10.00        | oil              | 0.049         |
| 0.00         | 70' GIP          | 0.000         |

Total Length: 230.00 ft      Total Volume: 1.131 bbl

Num Fluid Samples: 0

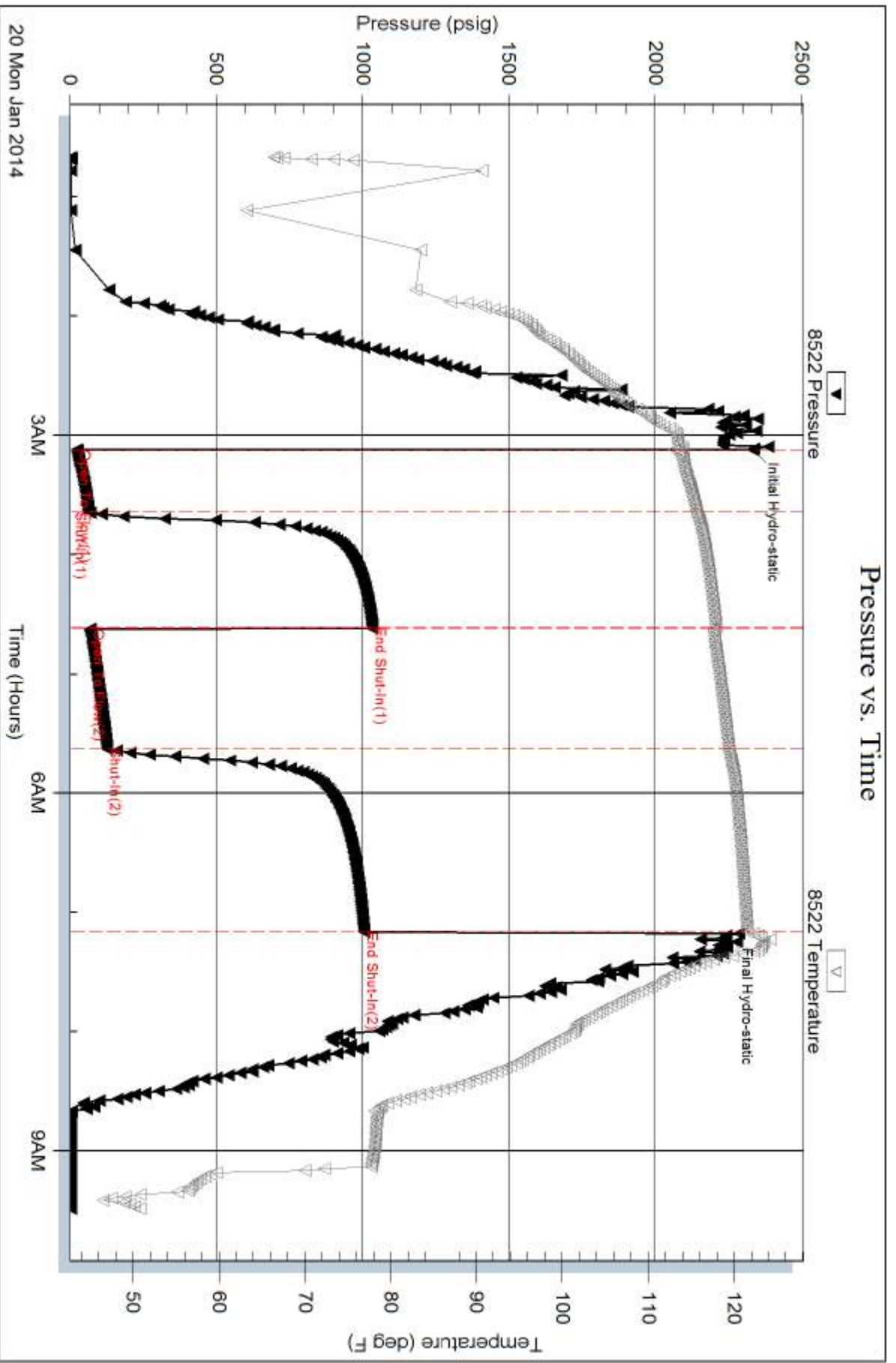
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: rw is .200 @ 49F = 55,000ppm





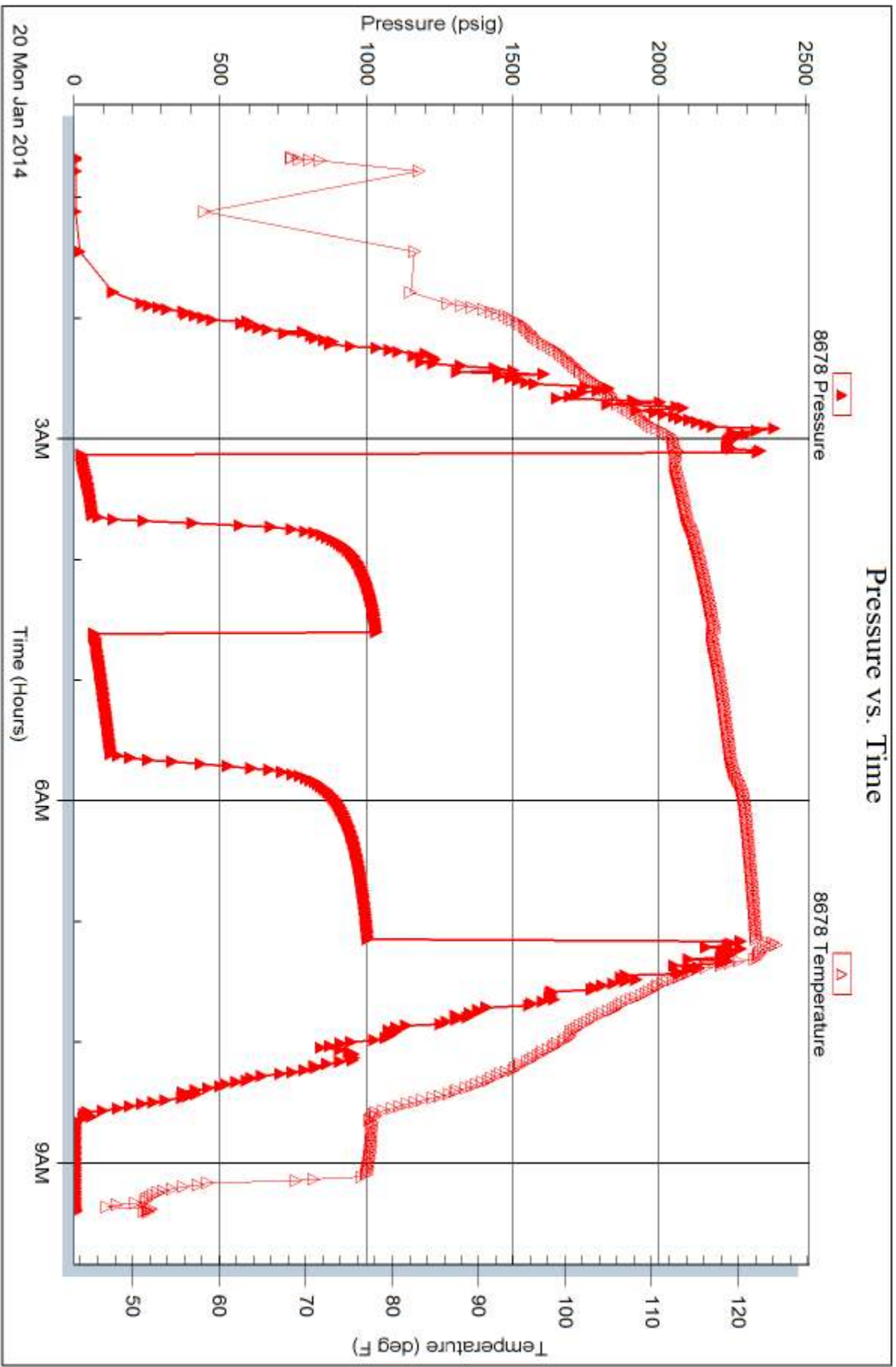
Serial #: 8678

Inside

Murfin Drilling Co, Inc

Nancy #1-4

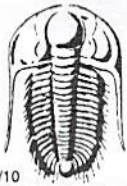
DST Test Number: 7



Trilobite Testing, Inc

Ref. No: 55687

Printed: 2014.01.23 @ 14:48:11



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **55684**

4/10

Well Name & No. Nancy #1-4 Test No. 1 Date 1/14/14  
 Company Murkin Drilling Co, Inc Elevation 3046 KB 3035 GL  
 Address 250 N Water Ste 300 Wichita, ks 67202  
 Co. Rep / Geo. Saman Sharifare Rig Murkin #22  
 Location: Sec. 4 Twp. 13s Rge. 32w Co. Logan State Ks

Interval Tested 4020 4070 Zone Tested Lke A-B  
 Anchor Length 50' Drill Pipe Run 3781 Mud Wt. 9.2  
 Top Packer Depth 4015 Drill Collars Run 238 Vis 71  
 Bottom Packer Depth 4020 Wt. Pipe Run 8 WL 6.0  
 Total Depth 4070 Chlorides 2500 ppm System LCM .5#

Blow Description IFI BOB @ 8min  
ISI 1" return  
FF: BOB @ 9min  
FSI: 1" return

| Rec | Feet of         | %gas | %oil | %water | %mud |
|-----|-----------------|------|------|--------|------|
| 180 | 60              | 40   | 60   |        |      |
| 180 | OWC M           |      | 20   | 30     | 50   |
| 490 | SMCW (OTL SCUM) |      |      | 95     | 5    |
|     |                 |      |      |        |      |
|     | 210' GIP        |      |      |        |      |

Rec Total 850 BHT 119 Gravity 33 API RW .145 @ 45 °F Chlorides 84000 ppm

(A) Initial Hydrostatic 1996  Test 1250 T-On Location 1430  
 (B) First Initial Flow 38  Jars 250 T-Started 1534  
 (C) First Final Flow 219  Safety Joint 75 T-Open 1742  
 (D) Initial Shut-In 1158  Circ Sub N/C T-Pulled 2142  
 (E) Second Initial Flow 227  Hourly Standby \_\_\_\_\_ T-Out 0042  
 (F) Second Final Flow 416  Mileage 76 R/T 117.80  
 (G) Final Shut-In 1147  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1927  Straddle \_\_\_\_\_

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

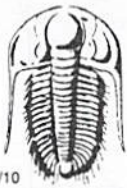
Initial Open 30  
 Initial Shut-In 66  
 Final Flow 60  
 Final Shut-In 90

Sub Total 1692.80

Sub Total 1692.80

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

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **55685**

Well Name & No. Nancy #1-4 Test No. 2 Date 1/14/14  
 Company Murkin Drilling Co, Inc Elevation 3046 KB 3035 GL  
 Address 250 N Water Ste 300 Wichita, KS 67202  
 Co. Rep / Geo. Samon Shari fure Rig Murkin 22  
 Location: Sec. 4 Twp. 13s Rge. 32 W Co. Logan State KS

Interval Tested 4076 - 4134 Zone Tested LKC D-F  
 Anchor Length 55' Drill Pipe Run 3822 Mud Wt. 9.1  
 Top Packer Depth 4071 Drill Collars Run 238 Vis 55  
 Bottom Packer Depth 4076 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4134 Chlorides 2800 ppm System LCM 0.5#  
 Blow Description IFI BOB @ 10 min  
ISFI: Surface return  
FFI BOB @ 15 min  
FSI: 2" return.

| Rec | Feet of         | %gas | %oil | %water | %mud |
|-----|-----------------|------|------|--------|------|
| 90  | 60              | 35   | 65   |        |      |
| 240 | 60 MCW          | 20   | 20   | 40     | 20   |
| 400 | MCW (OTL SPOTS) |      |      | 90     | 10   |
|     | 200' GIP        |      |      |        |      |

Rec Total 730 BHT 118 Gravity 37 API RW 158 @ 40 ° F Chlorides 79000 ppm

|                                     |  |  |
|-------------------------------------|--|--|
| (A) Initial Hydrostatic <u>2045</u> | <input checked="" type="checkbox"/> Test <u>1250</u>                   | T-On Location <u>1430</u>                    |
| (B) First Initial Flow <u>44</u>    | <input checked="" type="checkbox"/> Jars <u>250</u>                    | T-Started <u>1441</u>                        |
| (C) First Final Flow <u>199</u>     | <input checked="" type="checkbox"/> Safety Joint <u>75</u>             | T-Open <u>1634</u>                           |
| (D) Initial Shut-In <u>1156</u>     | <input checked="" type="checkbox"/> Circ Sub <u>4c</u>                 | T-Pulled <u>2054</u>                         |
| (E) Second Initial Flow <u>206</u>  | <input type="checkbox"/> Hourly Standby                                | T-Out <u>2324</u>                            |
| (F) Second Final Flow <u>344</u>    | <input checked="" type="checkbox"/> Mileage <u>76.41</u> <u>117.80</u> | Comments _____                               |
| (G) Final Shut-In <u>1125</u>       | <input type="checkbox"/> Sampler                                       | _____  |
| (H) Final Hydrostatic <u>2018</u>   | <input type="checkbox"/> Straddle                                      | <input type="checkbox"/> Ruined Shale Packer |
|                                     | <input type="checkbox"/> Shale Packer                                  | <input type="checkbox"/> Ruined Packer       |
| Initial Open <u>30</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>60</u>                | <input type="checkbox"/> Day Standby                                   | Total <u>1692.80</u>                         |
| Final Shut-In <u>90</u>             | <input type="checkbox"/> Accessibility                                 | MP/DST Disc't _____                          |
|                                     | Sub Total <u>1692.80</u>   |  |

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54566

Well Name & No. Nancy #1-4 Test No. D3 Date 1-15-14  
 Company Murfin Drilling Co. Inc Elevation 3046 KB 3035 GL  
 Address 250 N. Water Ste. #300 Wichita, KS 67202  
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #22  
 Location: Sec. 4 Twp. 13-S Rge. 32-W Co. Logan State KS

Interval Tested 4167 - 4260 Zone Tested LKC 'H-J'  
 Anchor Length 93' Drill Pipe Run 3916 Mud Wt. 9.3  
 Top Packer Depth 4163 Drill Collars Run 238 Vis 55  
 Bottom Packer Depth 4167 Wt. Pipe Run Ø WL 6.0  
 Total Depth 4260 Chlorides 3200 ppm System LCM#6

Blow Description IF: Bobin 1min.  
IST: Bled off in 4 1/2 min - surface Blowback after 1min. shut in - Built to 2 1/4 - Dred back to 1 1/4  
FF: B. ob in 1min.  
FST: Bled off in 1/2 min. - No Return

| Rec        | Feet of             | %gas      | %oil       | %water    | %mud      |
|------------|---------------------|-----------|------------|-----------|-----------|
| <u>248</u> | <u>Ø mcw</u>        |           |            | <u>90</u> | <u>10</u> |
| <u>378</u> | <u>Ø gmcw</u>       | <u>15</u> | <u>5</u>   | <u>50</u> | <u>30</u> |
| <u>378</u> | <u>Ø gmcw</u>       | <u>20</u> | <u>10</u>  | <u>50</u> | <u>20</u> |
| <u>946</u> | <u>Ø gwm</u>        | <u>5</u>  | <u>15</u>  | <u>30</u> | <u>50</u> |
| <u>5</u>   | <u>Co / 105 GIP</u> |           | <u>100</u> |           |           |

Rec Total 1955 BHT 120 Gravity — API RW 240 @ 41 °F Chlorides 49000 ppm

(A) Initial Hydrostatic 2091  Test 1250 T-On Location 18:20  
 (B) First Initial Flow 331  Jars 250 T-Started 18:31  
 (C) First Final Flow 629  Safety Joint 75 T-Open 20:24  
 (D) Initial Shut-In 1232  Circ Sub N/C T-Pulled 22:54  
 (E) Second Initial Flow 665  Hourly Standby \_\_\_\_\_ T-Out 02:47  
 (F) Second Final Flow 879  Mileage 76 R-T 117.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 1225  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2033  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_

Initial Open 15  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Shut-In 60  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Flow 15  Day Standby \_\_\_\_\_ Total 1692.80  
 Final Shut-In 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1692.80

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

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54567

Well Name & No. Nancy #1-4 Test No. 4 Date 1-17-14  
 Company Murfin Drilling Co. Inc Elevation 3046 KB 3035 GL  
 Address 250 N. Water St #300 - Wichita, KS 67202  
 Co. Rep / Geo. Saman Sharifade Rig Murfin #22  
 Location: Sec. 4 Twp. 13 S Rge. 32-W Co. Logan State KS

Interval Tested 4316 - 4446 Zone Tested XLine-Lenapah-Marmaton  
 Anchor Length 130' Drill Pipe Run 4075 Mud Wt. 9.4  
 Top Packer Depth 4312 Drill Collars Run 248 Vis 60  
 Bottom Packer Depth 4316 Wt. Pipe Run Ø WL 6.4  
 Total Depth 4446 Chlorides 3400 ppm System LCM #6

Blow Description IF: Bob in 1 1/2 min.  
ISI: Bled off in 2 mins - 5/2" of Blowback  
FF: 6 in Immediately - Bob in 6 min.  
FBI: Bled off in 2 mins - 7/4 in of Blowback

| Rec       | Feet of | %gas | %oil | %water | %mud |
|-----------|---------|------|------|--------|------|
| 2408      | 90CM    | 20   | 20   | 60     |      |
| 189       | CGO     | 20   | 80   |        |      |
|           | 756 GIP |      |      |        |      |
|           |         |      |      |        |      |
|           |         |      |      |        |      |
|           |         |      |      |        |      |
| Rec Total | 437     |      |      |        |      |

BHT 119 Gravity 30 API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic 2203  Test 1250 T-On Location 04:05  
 (B) First Initial Flow 684  Jars 250 T-Started 4:38  
 (C) First Final Flow 129  Safety Joint 75 T-Open 07:39  
 (D) Initial Shut-In 1142  Circ Sub N/C T-Pulled 11:39  
 (E) Second Initial Flow 1670  Hourly Standby Watt 1-16-14 T-Out 14:07  
 (F) Second Final Flow 200  Mileage 117.80 02:47 2HR Comments \_\_\_\_\_  
 (G) Final Shut-In 1136  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2148  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer 6" 320  
 Extra Recorder \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 30  Day Standby 1d 1.25h Sub Total 41.67  
 Initial Shut-In 60  Accessibility \_\_\_\_\_ Total 2054.47  
 Final Flow 60  Sub Total 1692.80 MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54568

Well Name & No. Nancy #1-4 Test No. 5 Date 1-18-14  
 Company Murfin Drilling Co. Inc. Elevation 3046 KB 3035 GL  
 Address 2500 N. Water Ste. #300 - Wichita, KS 67202  
 Co. Rep / Geo. Saman Sharifqie Rig Murfin #22  
 Location: Sec. 4 Twp. 13-5 Rge. 32-W Co. Logan State KS

Interval Tested 4448-4534 Zone Tested Pawnee - Ft. Scott  
 Anchor Length 86' Drill Pipe Run 4200' Mud Wt. 9.4  
 Top Packer Depth 4444 Drill Collars Run 238 Vis 60  
 Bottom Packer Depth 4448 Wt. Pipe Run 8 WL 6.0  
 Total Depth 4534 Chlorides 3,000 ppm System LCM #6

Blow Description IF B.o.b. in 7min 45 sec.  
ISI: Bled off in 2 mins. - 2 3/4 in of Blowback - Died back to 1 3/4 Blowback  
FF: B.o.b. in 7 mins.  
FST: Bled off in 2 1/2 mins. B.o.b. in 21 mins - Died back to 7 in of Blowback

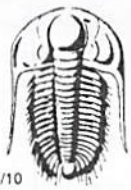
| Rec        | Feet of                | %gas      | %oil      | %water    | %mud |
|------------|------------------------|-----------|-----------|-----------|------|
| <u>248</u> | <u>90cm</u>            | <u>10</u> | <u>40</u> | <u>50</u> |      |
| <u>283</u> | <u>CGO</u>             | <u>30</u> | <u>70</u> |           |      |
| Rec        | Feet of                | %gas      | %oil      | %water    | %mud |
| Rec        | Feet of <u>GIP-599</u> | %gas      | %oil      | %water    | %mud |
| Rec        | Feet of                | %gas      | %oil      | %water    | %mud |

Rec Total \_\_\_\_\_ BHT 121 Gravity 30 API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2279  Test 1250 T-On Location 5:22  
 (B) First Initial Flow 51  Jars 250 T-Started 5:34  
 (C) First Final Flow 182  Safety Joint 75 T-Open 08:11  
 (D) Initial Shut-In 683  Circ Sub \_\_\_\_\_ T-Pulled 12:11  
 (E) Second Initial Flow 183  Hourly Standby \_\_\_\_\_ T-Out 15:15  
 (F) Second Final Flow 252  Mileage 117.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 659  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2240  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 1692.80  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1692.80

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **55686**

Well Name & No. Nancy #1-4 Test No. 6 Date 1/19/14  
 Company Mudlin Drilling Co Inc Elevation 3046 KB 3035 GL  
 Address 250 N Water Ste 300 Wichita, KS 67202  
 Co. Rep / Geo. Suman Sharif Ane Rig Mudlin 2 L  
 Location: Sec. 4 Twp. 13S Rge. 32W Co. logan State Ks

Interval Tested 4540 - 4632 Zone Tested Cherokee, Johnson, and Atoka  
 Anchor Length 92' Drill Pipe Run 4293 Mud Wt. \_\_\_\_\_  
 Top Packer Depth 4535 Drill Collars Run 238 Vis \_\_\_\_\_  
 Bottom Packer Depth 4540 Wt. Pipe Run 8 WL \_\_\_\_\_  
 Total Depth 4632 Chlorides 2600 ppm System LCM \_\_\_\_\_

Blow Description IFI 5" blow  
ISF: No return  
FF: BOB @ 20 min.  
FSF: 1 1/2" return.

| Rec        | Feet of         | %gas      | %oil      | %water    | %mud      |
|------------|-----------------|-----------|-----------|-----------|-----------|
| <u>200</u> | <u>00</u>       | <u>40</u> | <u>60</u> |           |           |
| <u>180</u> | <u>60 CM</u>    | <u>20</u> | <u>20</u> | <u>55</u> |           |
| <u>120</u> | <u>60 WCM</u>   | <u>10</u> | <u>10</u> | <u>15</u> | <u>65</u> |
|            | <u>335' GIP</u> |           |           |           |           |

Rec Total 500 BHT 121 Gravity 29 API RW - @ - °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2248  Test 1250 T-On Location 0745  
 (B) First Initial Flow 44  Jars 250 T-Started 0827  
 (C) First Final Flow 166  Safety Joint 75 T-Open 1044  
 (D) Initial Shut-In 969  Circ Sub 1/4 T-Pulled 1444  
 (E) Second Initial Flow 174  Hourly Standby \_\_\_\_\_ T-Out 1729  
 (F) Second Final Flow 229  Mileage 76 KT 117.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 859  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2229  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_

Initial Open 30  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Shut-In 66  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Flow 60  Day Standby \_\_\_\_\_ Total 1692.80  
 Final Shut-In 90  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1692.80

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **55687**

Well Name & No. Nancy #1-4 Test No. 7 Date 1/20/14  
 Company Murfin Drilling Co, Inc Elevation 3046 KB 3035 GL  
 Address 250 N Water Ste 300 Wichita, KS 67202  
 Co. Rep / Geo. Suman Sharifare Rig Murfin 22  
 Location: Sec. 4 Twp. 13S Rge. 32W Co. Logan State Ks

Interval Tested 4617-4677 Zone Tested Marrow Sand  
 Anchor Length 60 Drill Pipe Run 4356 Mud Wt. 9.2  
 Top Packer Depth 4612 Drill Collars Run 238 Vis 53  
 Bottom Packer Depth 4617 Wt. Pipe Run 0 WL 6.4  
 Total Depth 4677 Chlorides 2600 ppm System LCM 6\*

Blow Description IF: 3" blow  
ISI: No return  
FF: 4" blow  
FSI: No return.

| Rec        | Feet of        | %gas       | %oil      | %water    | %mud |
|------------|----------------|------------|-----------|-----------|------|
| <u>10</u>  | <u>Oil</u>     | <u>100</u> |           |           |      |
| <u>40</u>  | <u>OCM</u>     | <u>25</u>  | <u>75</u> |           |      |
| <u>180</u> | <u>OCM</u>     | <u>10</u>  | <u>40</u> | <u>50</u> |      |
|            | <u>70' GIP</u> |            |           |           |      |

Rec Total 230 BHT 122 Gravity — API RW .200 @ 49 °F Chlorides 55,000 ppm

|                                     |  |  |
|-------------------------------------|--|--|
| (A) Initial Hydrostatic <u>2334</u> | <input checked="" type="checkbox"/> Test <u>1250</u>                   | T-On Location <u>2330</u>                    |
| (B) First Initial Flow <u>25</u>    | <input checked="" type="checkbox"/> Jars <u>250</u>                    | T-Started <u>0048</u>                        |
| (C) First Final Flow <u>64</u>      | <input checked="" type="checkbox"/> Safety Joint <u>75</u>             | T-Open <u>0305</u>                           |
| (D) Initial Shut-In <u>1034</u>     | <input checked="" type="checkbox"/> Circ Sub <u>4/c</u>                | T-Pulled <u>0305</u>                         |
| (E) Second Initial Flow <u>71</u>   | <input type="checkbox"/> Hourly Standby                                | T-Out <u>0930</u>                            |
| (F) Second Final Flow <u>128</u>    | <input checked="" type="checkbox"/> Mileage <u>26 RT</u> <u>117.80</u> | Comments                                     |
| (G) Final Shut-In <u>1004</u>       | <input type="checkbox"/> Sampler                                       |  |
| (H) Final Hydrostatic <u>2243</u>   | <input type="checkbox"/> Straddle                                      |  |
| Initial Open <u>30</u>              | <input type="checkbox"/> Shale Packer                                  | <input type="checkbox"/> Ruined Shale Packer |
| Initial Shut-In <u>60</u>           | <input type="checkbox"/> Extra Packer                                  | <input type="checkbox"/> Ruined Packer       |
| Final Flow <u>60</u>                | <input type="checkbox"/> Extra Recorder                                | Sub Total <u>0</u>                           |
| Final Shut-In <u>90</u>             | <input type="checkbox"/> Day Standby                                   | Total <u>1692.80</u>                         |
|                                     | <input type="checkbox"/> Accessibility                                 | MP/DST Disc't                                |
|                                     | Sub Total <u>1692.80</u>   |  |

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