

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

## DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N #700  
Wichita, KS 67278  
ATTN: Max Lovely

**32-28S-23W Ford**

**Arch 3**

Job Ticket: 44134

**DST#: 1**

Test Start: 2012.01.06 @ 09:50:04

### GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:21:34

Time Test Ended: 18:10:49

Test Type: Conventional Bottom Hole (Initial)

Tester: Leal Cason

Unit No: 45

**Interval: 4996.00 ft (KB) To 5025.00 ft (KB) (TVD)**

Reference Elevations: 2518.00 ft (KB)

Total Depth: 5025.00 ft (KB) (TVD)

2507.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 6798 Inside**

Press@RunDepth: 93.32 psig @ 4997.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.01.06

End Date:

2012.01.06

Last Calib.: 2012.01.06

Start Time: 09:50:05

End Time:

18:10:49

Time On Btm: 2012.01.06 @ 12:15:04

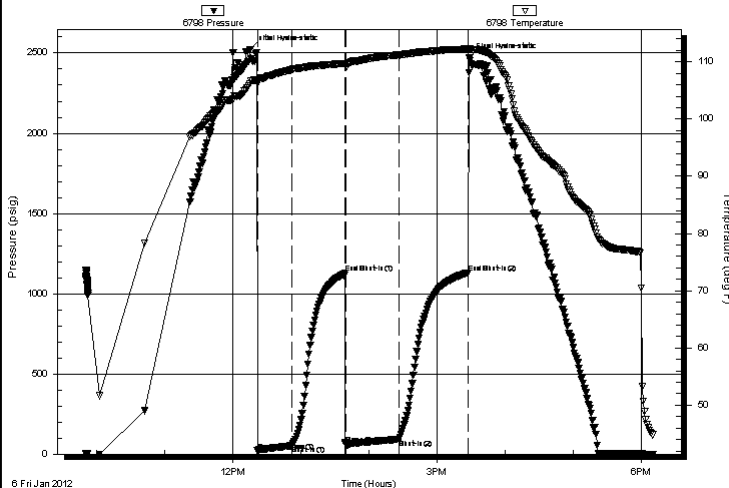
Time Off Btm: 2012.01.06 @ 15:28:34

TEST COMMENT: IF: Fair Blow , Built to 6 inches  
IS: No Blow back  
FF: Fair Blow , BOB in 18 minutes  
FS: No Blow back

### PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2523.29         | 106.16       | Initial Hydro-static |
| 7           | 20.81           | 106.29       | Open To Flow (1)     |
| 37          | 53.52           | 108.64       | Shut-In(1)           |
| 84          | 1127.87         | 109.74       | End Shut-In(1)       |
| 85          | 59.84           | 109.61       | Open To Flow (2)     |
| 132         | 93.32           | 111.20       | Shut-In(2)           |
| 193         | 1129.98         | 112.27       | End Shut-In(2)       |
| 194         | 2471.63         | 112.27       | Final Hydro-static   |

Pressure vs. Time

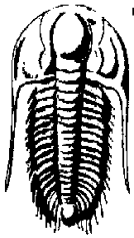


### Recovery

| Length (ft) | Description         | Volume (bbl) |
|-------------|---------------------|--------------|
| 0.00        | 300 Feet GIP        | 0.00         |
| 60.00       | GSOCM 40%G 2%O 58%M | 0.30         |
| 100.00      | SOCM 2%O 98%M       | 0.49         |
|             |                     |              |
|             |                     |              |
|             |                     |              |

### Gas Rates

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



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## DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N #700  
Wichita, KS 67278  
ATTN: Max Lovely

**32-28S-23W Ford**

**Arch 3**

Job Ticket: 44134

**DST#: 1**

Test Start: 2012.01.06 @ 09:50:04

### GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:21:34

Time Test Ended: 18:10:49

Test Type: Conventional Bottom Hole (Initial)

Tester: Leal Cason

Unit No: 45

**Interval: 4996.00 ft (KB) To 5025.00 ft (KB) (TVD)**

Reference Elevations: 2518.00 ft (KB)

Total Depth: 5025.00 ft (KB) (TVD)

2507.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8367 Outside**

Press@RunDepth: psig @ 4997.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.01.06

End Date:

2012.01.06

Last Calib.:

2012.01.06

Start Time: 09:50:05

End Time:

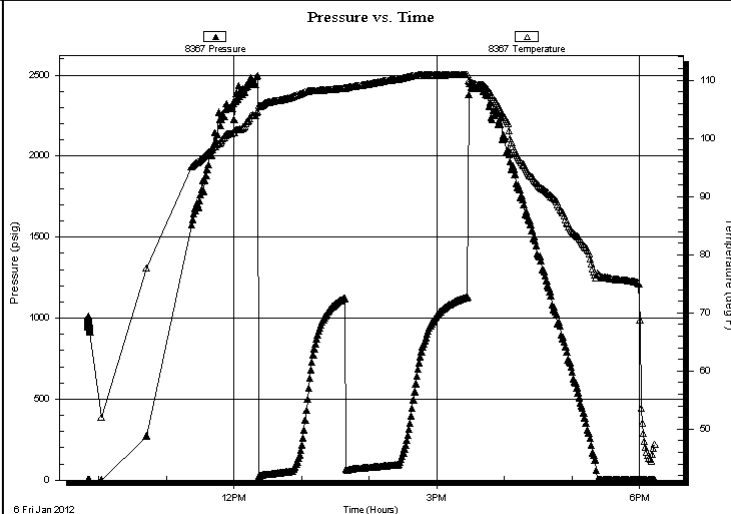
18:13:34

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: Fair Blow , Built to 6 inches  
IS: No Blow back  
FF: Fair Blow , BOB in 18 minutes  
FS: No Blow back

### PRESSURE SUMMARY



Time  
(Min.)

Pressure  
(psig)

Temp  
(deg F)

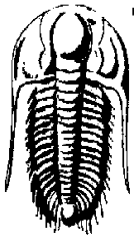
Annotation

### Recovery

| Length (ft) | Description         | Volume (bbl) |
|-------------|---------------------|--------------|
| 0.00        | 300 Feet GIP        | 0.00         |
| 60.00       | GSOCM 40%G 2%O 58%M | 0.30         |
| 100.00      | SOCM 2%O 98%M       | 0.49         |
|             |                     |              |
|             |                     |              |
|             |                     |              |

### Gas Rates

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



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## DRILL STEM TEST REPORT

### FLUID SUMMARY

Ritchie Exploration

**32-28S-23W Ford**

8100 E 22nd St N #700  
Wichita, KS 67278

**Arch 3**

Job Ticket: 44134

**DST#: 1**

ATTN: Max Lovely

Test Start: 2012.01.06 @ 09:50:04

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 56.00 sec/qt

Water Loss: 7.60 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 5300.00 ppm

Filter Cake: 0.20 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

### Recovery Information

Recovery Table

| Length<br>ft | Description         | Volume<br>bbl |
|--------------|---------------------|---------------|
| 0.00         | 300 Feet GIP        | 0.000         |
| 60.00        | GSOCM 40%G 2%O 58%M | 0.295         |
| 100.00       | SOCM 2%O 98%M       | 0.492         |

Total Length: 160.00 ft

Total Volume: 0.787 bbl

Num Fluid Samples: 0

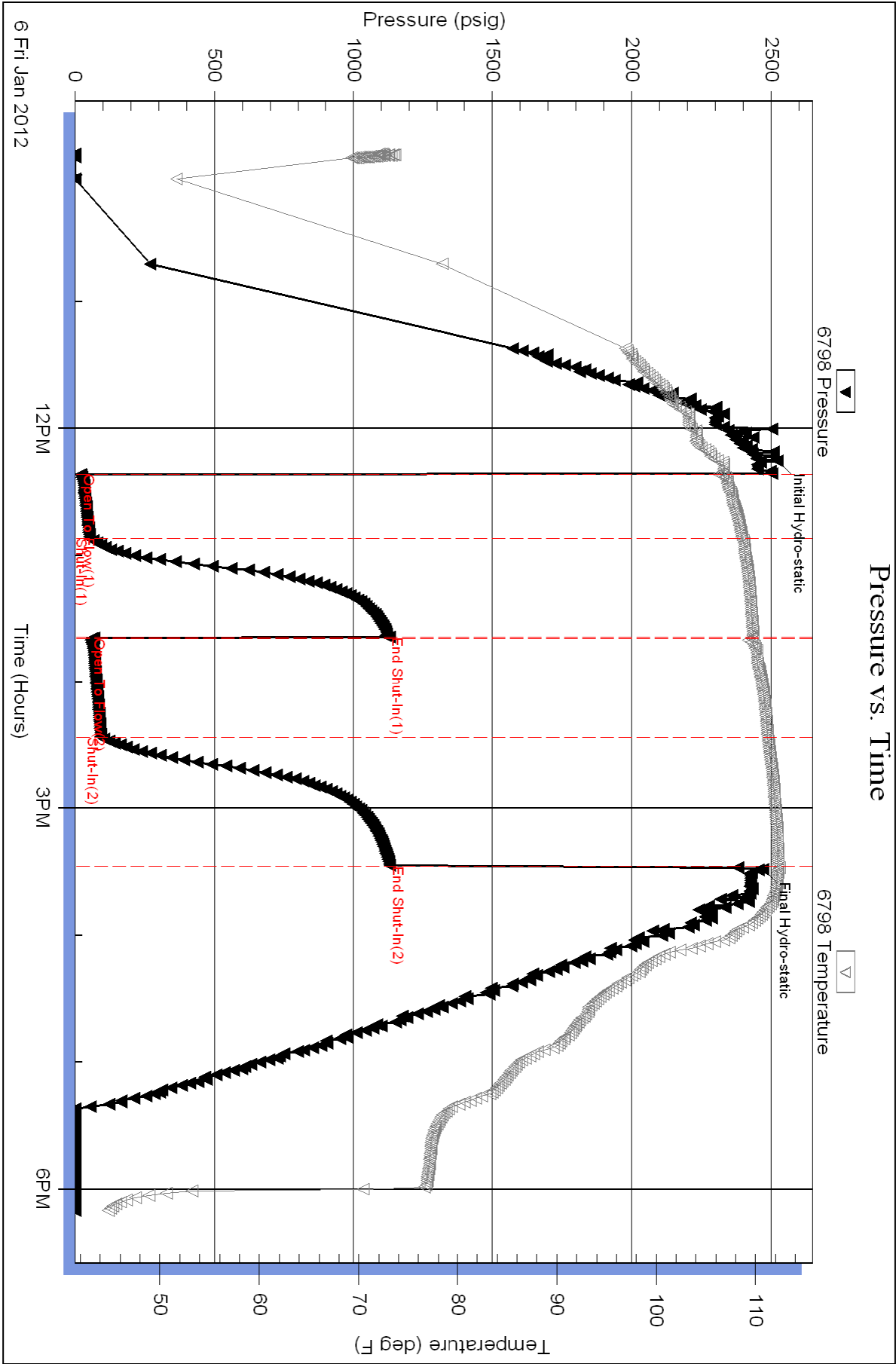
Num Gas Bombs: 0

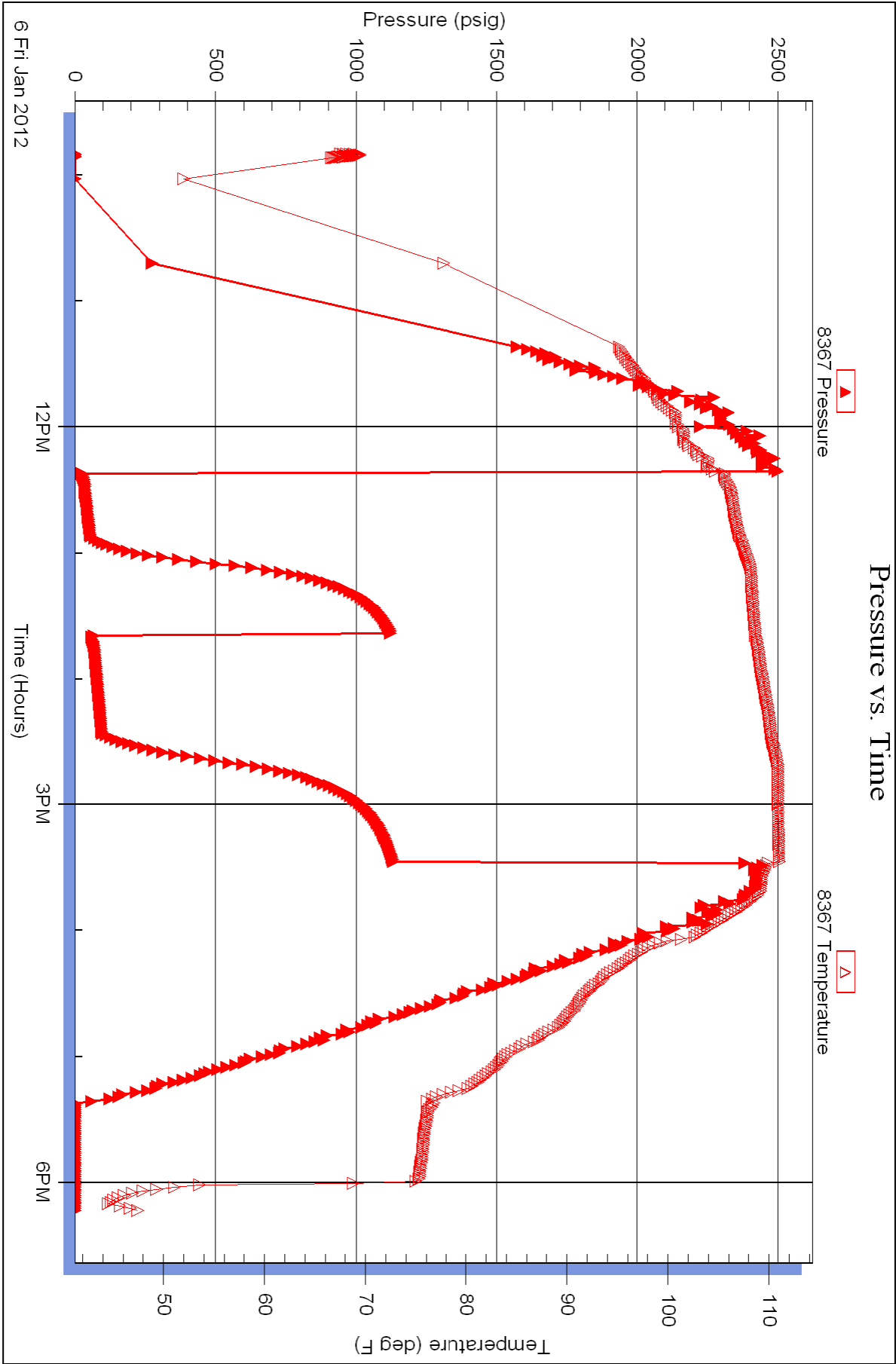
Serial #:

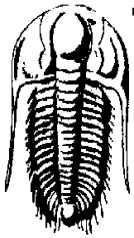
Laboratory Name:

Laboratory Location:

Recovery Comments:







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## DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N #700  
Wichita, KS 67278  
ATTN: Max Lovely

**32-28S-23W Ford**

**Arch 3**

Job Ticket: 44135

**DST#: 2**

Test Start: 2012.01.07 @ 13:25:54

### GENERAL INFORMATION:

Formation: **Huck**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:24:54

Time Test Ended: 21:38:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Leal Cason

Unit No: 45

**Interval: 5140.00 ft (KB) To 5165.00 ft (KB) (TVD)**

Total Depth: 5165.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2518.00 ft (KB)

2507.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 6798 Inside**

Press@RunDepth: 66.03 psig @ 5141.00 ft (KB)

Start Date: 2012.01.07

End Date:

2012.01.07

Start Time: 13:25:55

End Time:

21:38:09

Capacity: 8000.00 psig

Last Calib.: 2012.01.07

Time On Btm: 2012.01.07 @ 15:17:54

Time Off Btm: 2012.01.07 @ 19:14:54

**TEST COMMENT:** IF: Strong Blow , BOB in 45 seconds, GTS in 16 minutes, Caught Sample & Gauged Gas

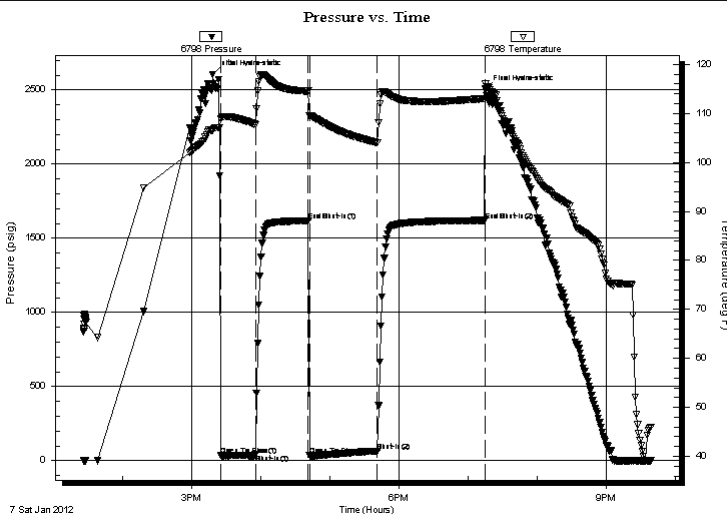
ISI: No Blow back

FF: Strong Blow , BOB & GTS immediate, Gauged Gas & Caught Sample

FSI: No Blow back

### PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2605.24         | 106.56       | Initial Hydro-static |
| 7           | 38.05           | 108.88       | Open To Flow (1)     |
| 37          | 43.01           | 107.74       | Shut-In(1)           |
| 83          | 1615.85         | 114.54       | End Shut-In(1)       |
| 85          | 34.42           | 109.53       | Open To Flow (2)     |
| 143         | 66.03           | 104.00       | Shut-In(2)           |
| 237         | 1620.47         | 113.05       | End Shut-In(2)       |
| 237         | 2505.95         | 116.04       | Final Hydro-static   |



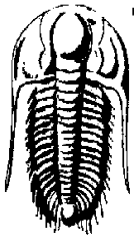
### Recovery

| Length (ft) | Description   | Volume (bbl) |
|-------------|---------------|--------------|
| 0.00        | 5130 Feet GIP | 0.00         |
| 10.00       | Mud           | 0.05         |
|             |               |              |
|             |               |              |
|             |               |              |
|             |               |              |

### Gas Rates

|                | Choke (inches) | Pressure (psig) | Gas Rate (Mcf/d) |
|----------------|----------------|-----------------|------------------|
| First Gas Rate | 0.25           | 4.00            | 29.35            |
| Last Gas Rate  | 0.25           | 42.00           | 89.63            |
| Max. Gas Rate  | 0.25           | 42.00           | 89.63            |

\* Recovery from multiple tests



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## DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N #700  
Wichita, KS 67278  
ATTN: Max Lovely

**32-28S-23W Ford**

**Arch 3**

Job Ticket: 44135

**DST#: 2**

Test Start: 2012.01.07 @ 13:25:54

### GENERAL INFORMATION:

Formation: **Huck**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:24:54

Time Test Ended: 21:38:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Leal Cason

Unit No: 45

**Interval: 5140.00 ft (KB) To 5165.00 ft (KB) (TVD)**

Total Depth: 5165.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2518.00 ft (KB)

2507.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8367 Outside**

Press@RunDepth: psig @ 5141.00 ft (KB)

Start Date: 2012.01.07

End Date:

2012.01.07

Start Time: 13:25:55

End Time:

21:37:54

Capacity: 8000.00 psig

Last Calib.: 2012.01.07

Time On Btm:

Time Off Btm:

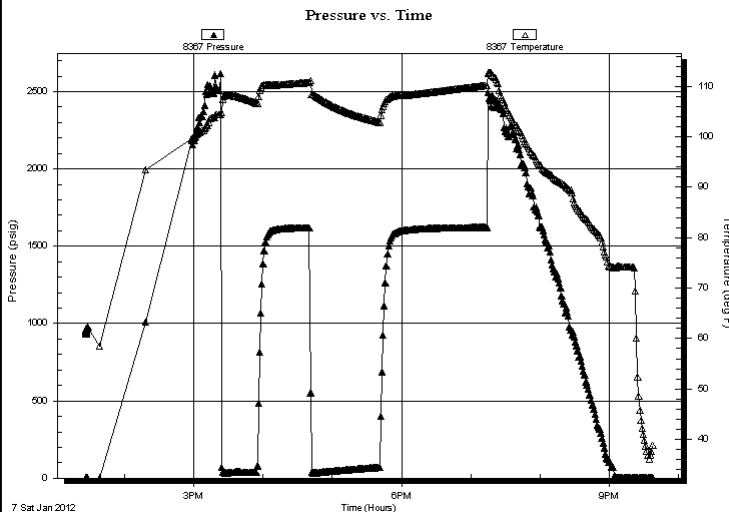
**TEST COMMENT:** IF: Strong Blow , BOB in 45 seconds, GTS in 16 minutes, Caught Sample & Gauged Gas

IS! No Blow back

FF: Strong Blow , BOB & GTS immediate, Gauged Gas & Caught Sample

FS! No Blow back

### PRESSURE SUMMARY



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

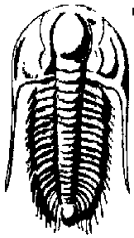
### Recovery

| Length (ft) | Description   | Volume (bbl) |
|-------------|---------------|--------------|
| 0.00        | 5130 Feet GIP | 0.00         |
| 10.00       | Mud           | 0.05         |
|             |               |              |
|             |               |              |
|             |               |              |
|             |               |              |

### Gas Rates

|                | Choke (inches) | Pressure (psig) | Gas Rate (Mcf/d) |
|----------------|----------------|-----------------|------------------|
| First Gas Rate | 0.25           | 4.00            | 29.35            |
| Last Gas Rate  | 0.25           | 42.00           | 89.63            |
| Max. Gas Rate  | 0.25           | 42.00           | 89.63            |

\* Recovery from multiple tests



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## DRILL STEM TEST REPORT

### FLUID SUMMARY

Ritchie Exploration

**32-28S-23W Ford**

8100 E 22nd St N #700  
Wichita, KS 67278

**Arch 3**

Job Ticket: 44135

**DST#: 2**

ATTN: Max Lovely

Test Start: 2012.01.07 @ 13:25:54

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 52.00 sec/qt

Water Loss: 9.19 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 6500.00 ppm

Filter Cake: 0.20 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

### Recovery Information

Recovery Table

| Length<br>ft | Description   | Volume<br>bbl |
|--------------|---------------|---------------|
| 0.00         | 5130 Feet GIP | 0.000         |
| 10.00        | Mud           | 0.049         |

Total Length: 10.00 ft

Total Volume: 0.049 bbl

Num Fluid Samples: 0

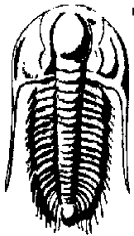
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



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## DRILL STEM TEST REPORT

### GAS RATES

Ritchie Exploration

**32-28S-23W Ford**

8100 E 22nd St N #700  
Wichita, KS 67278

**Arch 3**

Job Ticket: 44135

**DST#: 2**

ATTN: Max Lovely

Test Start: 2012.01.07 @ 13:25:54

### Gas Rates Information

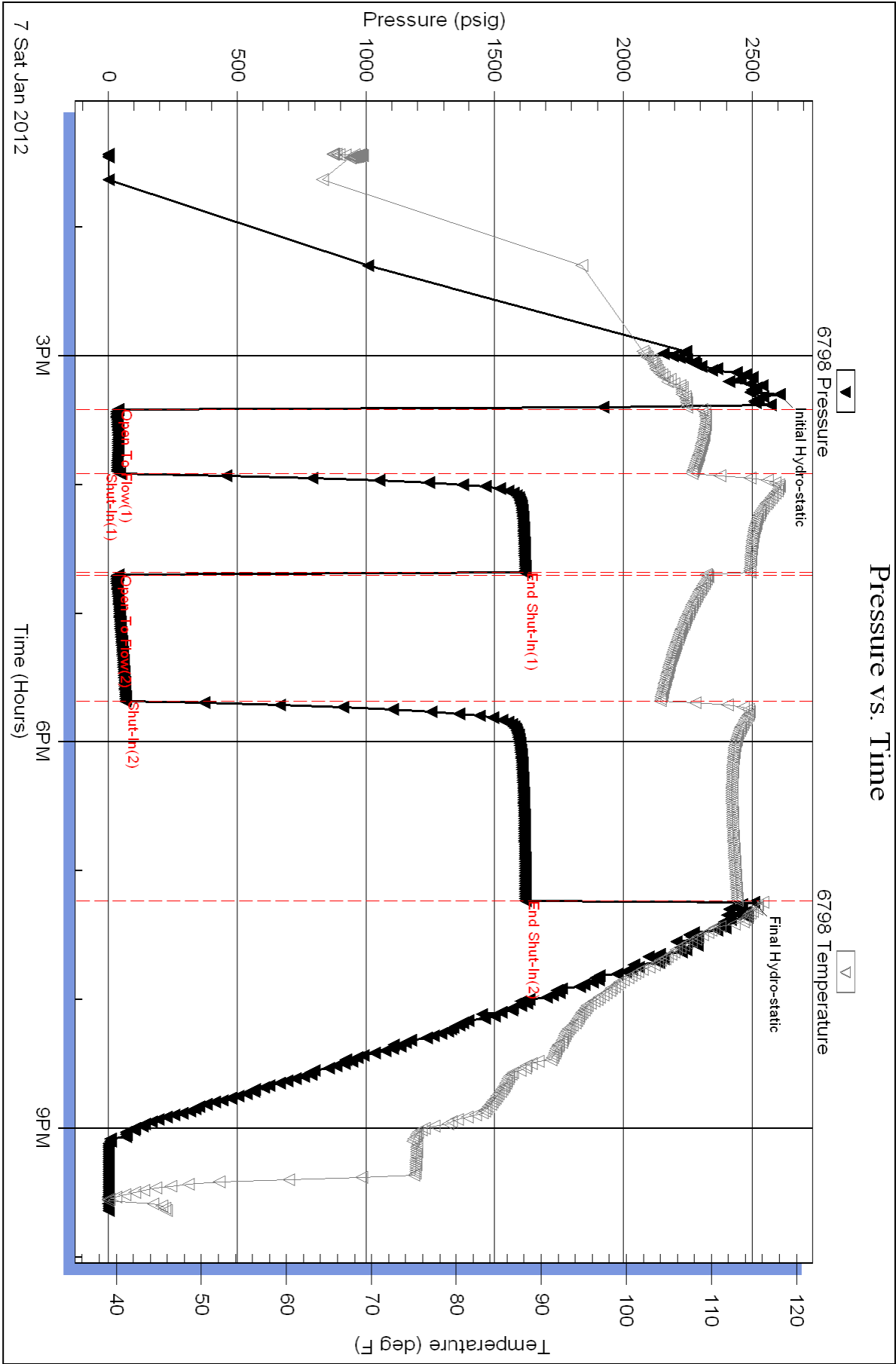
Temperature: 59 (deg F)

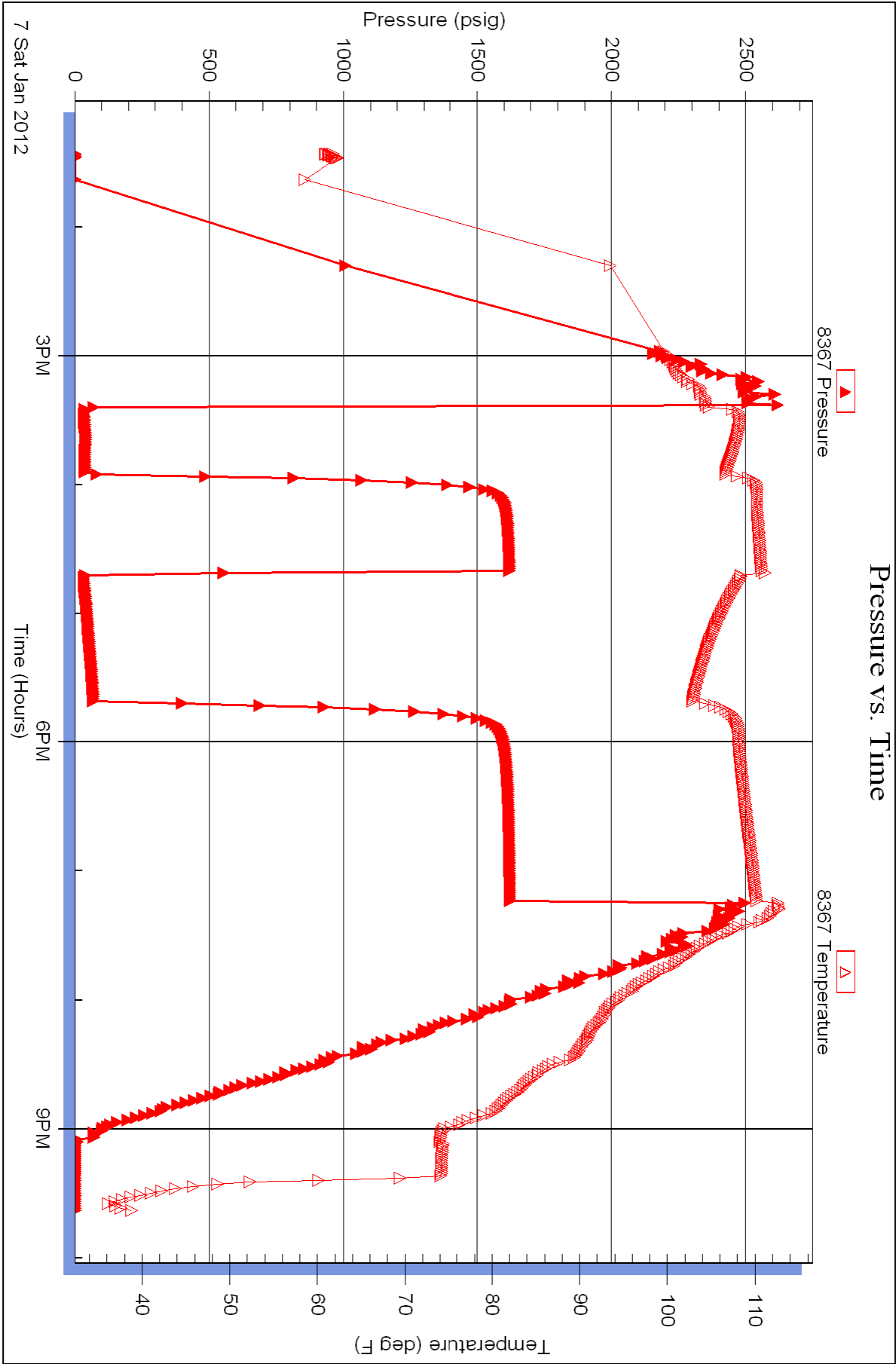
Relative Density: 0.65

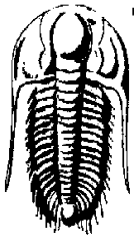
Z Factor: 0.8

Gas Rates Table

| Flow Period | Elapsed Time | Choke<br>(inches) | Pressure<br>(psig) | Gas Rate<br>(Mcf/d) |
|-------------|--------------|-------------------|--------------------|---------------------|
| 1           | 20           | 0.25              | 4.00               | 29.35               |
| 1           | 30           | 0.25              | 7.00               | 34.11               |
| 2           | 10           | 0.25              | 16.00              | 48.39               |
| 2           | 20           | 0.25              | 22.00              | 57.90               |
| 2           | 30           | 0.25              | 28.00              | 67.42               |
| 2           | 40           | 0.25              | 28.00              | 67.42               |
| 2           | 50           | 0.25              | 38.00              | 83.29               |
| 2           | 60           | 0.25              | 42.00              | 89.63               |







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## DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700  
Wichita, KS 67278

ATTN: Max Lovely

**32-28S-23W Ford**

**Arch 3**

Job Ticket: 44136

**DST#: 3**

Test Start: 2012.01.08 @ 10:37:48

### GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:31:48

Time Test Ended: 17:58:33

Test Type: Conventional Bottom Hole (Reset)

Tester: Leal Cason

Unit No: 45

**Interval: 5180.00 ft (KB) To 5238.00 ft (KB) (TVD)**

Reference Elevations: 2518.00 ft (KB)

Total Depth: 5238.00 ft (KB) (TVD)

2507.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 6798 Inside**

Press@RunDepth: 46.31 psig @ 5181.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.01.08

End Date:

2012.01.08

Last Calib.: 2012.01.08

Start Time: 10:37:49

End Time:

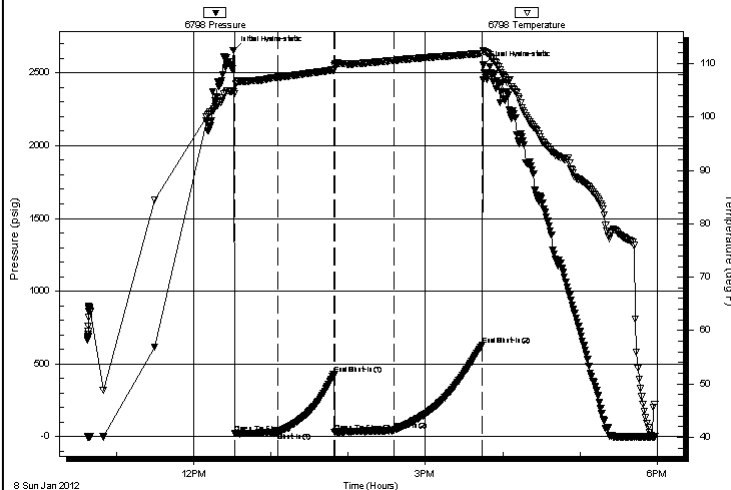
17:58:33

Time On Btm: 2012.01.08 @ 12:30:48

Time Off Btm: 2012.01.08 @ 15:45:03

**TEST COMMENT:** IF: Fair Blow , Built to 5 1/2 inches  
IS: Weak Surface Blow back  
FF: Fair Blow , Built to 6 inches  
FS: No Blow back

Pressure vs. Time



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2654.09         | 104.78       | Initial Hydro-static |
| 1           | 22.85           | 104.35       | Open To Flow (1)     |
| 35          | 29.86           | 107.41       | Shut-In(1)           |
| 78          | 427.97          | 108.78       | End Shut-In(1)       |
| 79          | 30.30           | 109.56       | Open To Flow (2)     |
| 125         | 46.31           | 110.57       | Shut-In(2)           |
| 193         | 629.60          | 111.87       | End Shut-In(2)       |
| 195         | 2552.96         | 112.38       | Final Hydro-static   |

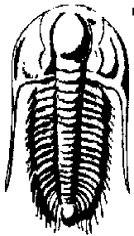
Recovery

| Length (ft) | Description   | Volume (bbl) |
|-------------|---------------|--------------|
| 50.00       | SOCM 5%O 95%M | 0.25         |
|             |               |              |
|             |               |              |
|             |               |              |
|             |               |              |
|             |               |              |

Gas Rates

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

\* Recovery from multiple tests



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## DRILL STEM TEST REPORT

### FLUID SUMMARY

Ritchie Exploration

**32-28S-23W Ford**

8100 E 22nd St N #700  
Wichita, KS 67278

**Arch 3**

Job Ticket: 44136

**DST#: 3**

ATTN: Max Lovely

Test Start: 2012.01.08 @ 10:37:48

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbl

Water Loss: 9.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6500.00 ppm

Filter Cake: 0.20 inches

### Recovery Information

Recovery Table

| Length<br>ft | Description   | Volume<br>bbl |
|--------------|---------------|---------------|
| 50.00        | SOCM 5%O 95%M | 0.246         |

Total Length: 50.00 ft

Total Volume: 0.246 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

