



## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc.**

PO Box 83188  
Wichita, KS 67278

ATTN: Max Lovely

### **Kuhn Unit #1**

#### **19-12s-28w Gove,KS**

Start Date: 2014.10.02 @ 15:00:00

End Date: 2014.10.02 @ 20:44:20

Job Ticket #: 57395                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.10.07 @ 15:22:38



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57395

**DST#: 1**

ATTN: Max Lovely

Test Start: 2014.10.02 @ 15:00:00

## GENERAL INFORMATION:

Formation: **LKC E-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:34:20

Time Test Ended: 20:44:20

Test Type: Conventional Bottom Hole (Initial)

Tester: Chuck Smith

Unit No: 61

**Interval: 3985.00 ft (KB) To 4016.00 ft (KB) (TVD)**

Reference Elevations: 2762.00 ft (KB)

Total Depth: 4016.00 ft (KB) (TVD)

2757.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8357**

**Inside**

Press@RunDepth: 71.40 psig @ 3989.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.10.02

End Date:

2014.10.02

Last Calib.: 2014.10.02

Start Time: 15:00:02

End Time:

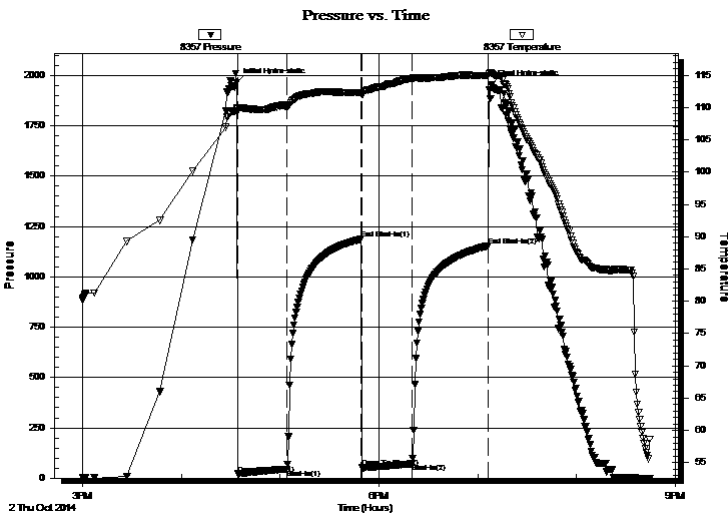
20:44:19

Time On Btm: 2014.10.02 @ 16:33:30

Time Off Btm: 2014.10.02 @ 19:08:20

**TEST COMMENT:** 30- 2" Blow .  
45- No return.  
30- 1/2" Blow .  
45- No return.

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1966.21         | 109.83       | Initial Hydro-static |
| 1           | 20.40           | 109.44       | Open To Flow (1)     |
| 31          | 45.01           | 110.19       | Shut-In(1)           |
| 76          | 1187.20         | 112.30       | End Shut-In(1)       |
| 76          | 51.76           | 111.95       | Open To Flow (2)     |
| 107         | 71.40           | 114.52       | Shut-In(2)           |
| 153         | 1154.79         | 114.96       | End Shut-In(2)       |
| 155         | 1955.36         | 115.28       | Final Hydro-static   |

## Recovery

| Length (ft) | Description  | Volume (bbl) |
|-------------|--------------|--------------|
| 120.00      | OSWM 30w 70m | 0.59         |
|             |              |              |
|             |              |              |
|             |              |              |
|             |              |              |

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57395

**DST#: 1**

ATTN: Max Lovely

Test Start: 2014.10.02 @ 15:00:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3846.00 ft | Diameter: 3.80 inches | Volume: 53.95 bbl              | Tool Weight: 2300.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: inches      | Volume: 0.00 bbl               | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 120.00 ft  | Diameter: 2.25 inches | Volume: 0.59 bbl               | Weight to Pull Loose: 65000.00 lb  |
|                           |                    |                       | <u>Total Volume: 54.54 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 8.50 ft            |                       |                                | String Weight: Initial 54000.00 lb |
| Depth to Top Packer:      | 3985.00 ft         |                       |                                | Final 55000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 31.00 ft           |                       |                                |                                    |
| Tool Length:              | 58.50 ft           |                       |                                |                                    |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                                    |

Tool Comments:

## Tool Description

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

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths                |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub  | 1.00        |            |          | 3958.50    |                               |
| Shut In Tool     | 5.00        |            |          | 3963.50    |                               |
| Hydraulic tool   | 5.00        |            |          | 3968.50    |                               |
| Jars             | 5.00        |            |          | 3973.50    |                               |
| Safety Joint     | 2.50        |            |          | 3976.00    |                               |
| Packer           | 5.00        |            |          | 3981.00    | 27.50 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 3985.00    |                               |
| Stubb            | 1.00        |            |          | 3986.00    |                               |
| Perforations     | 3.00        |            |          | 3989.00    |                               |
| Recorder         | 0.00        | 8357       | Inside   | 3989.00    |                               |
| Recorder         | 0.00        | 8645       | Outside  | 3989.00    |                               |
| Perforations     | 24.00       |            |          | 4013.00    |                               |
| Bullnose         | 3.00        |            |          | 4016.00    | 31.00 Bottom Packers & Anchor |

**Total Tool Length: 58.50**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57395

**DST#: 1**

ATTN: Max Lovely

Test Start: 2014.10.02 @ 15:00:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

47000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.77 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2200.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description  | Volume<br>bbl |
|--------------|--------------|---------------|
| 120.00       | OSWM 30w 70m | 0.590         |

Total Length: 120.00 ft      Total Volume: 0.590 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

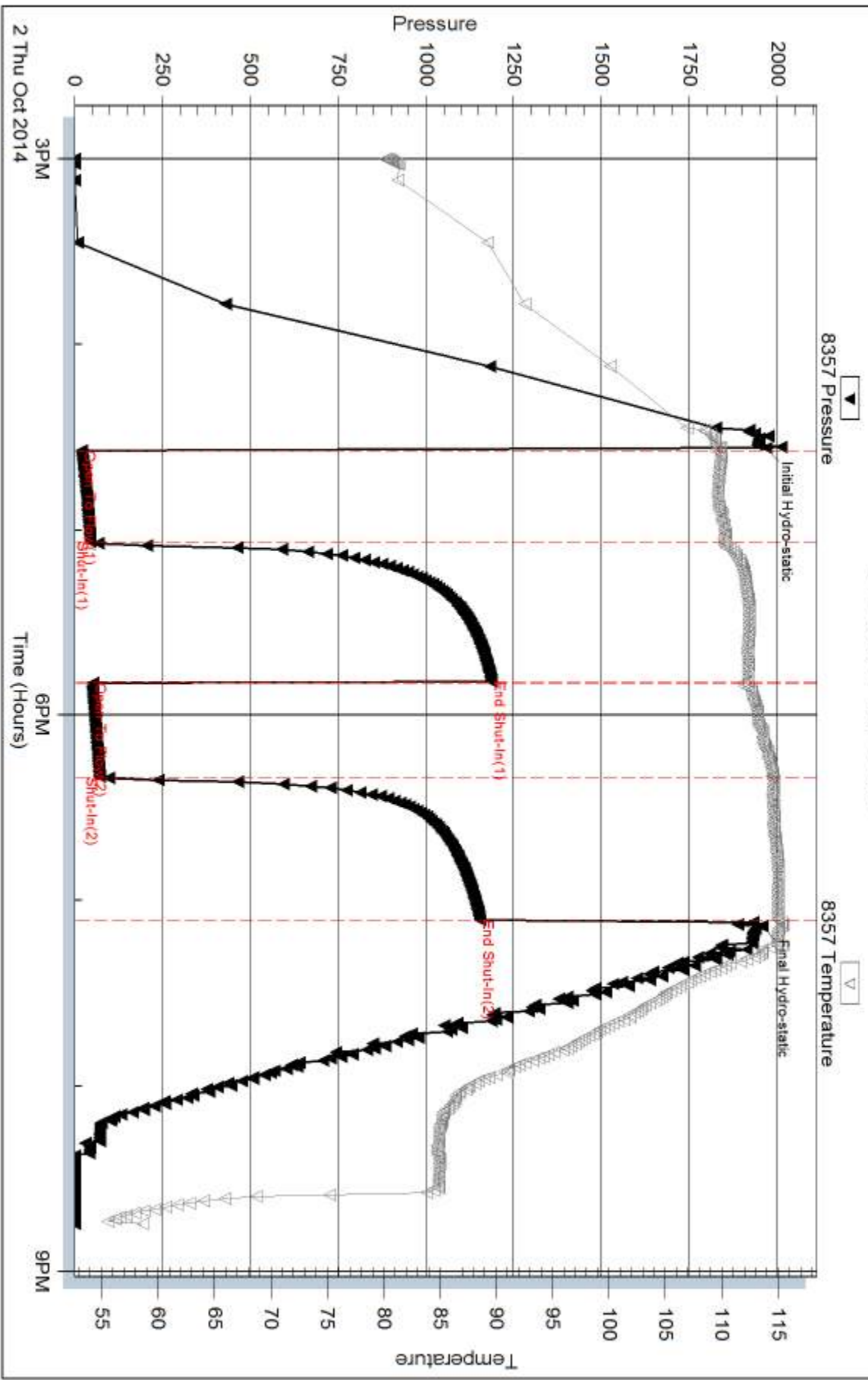
Serial #:

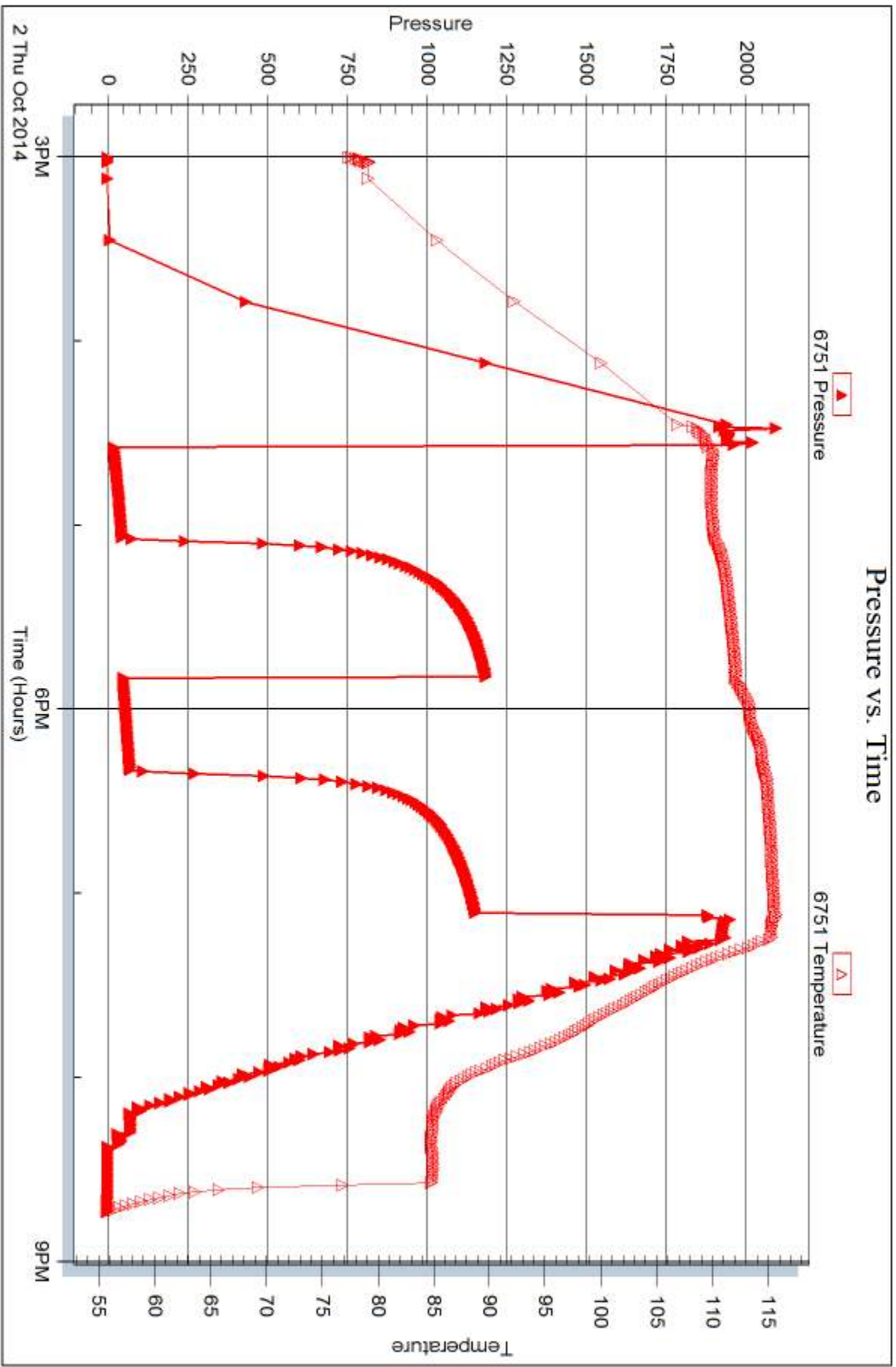
Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .225 @ 50 Degrees F = 47000 PPM

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc.**

PO Box 83188  
Wichita, KS 67278

ATTN: Max Lovely

### **Kuhn Unit #1**

#### **19-12s-28w Gove,KS**

Start Date: 2014.10.03 @ 04:00:00

End Date: 2014.10.03 @ 10:36:39

Job Ticket #: 57396                      DST #: 2

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.10.07 @ 15:22:15



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57396

**DST#: 2**

ATTN: Max Lovely

Test Start: 2014.10.03 @ 04:00:00

## GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:55:10

Time Test Ended: 10:36:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 61

**Interval: 4050.00 ft (KB) To 4073.00 ft (KB) (TVD)**

Reference Elevations: 2762.00 ft (KB)

Total Depth: 4073.00 ft (KB) (TVD)

2757.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8357**

**Inside**

Press@RunDepth: 100.07 psig @ 4054.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.10.03

End Date:

2014.10.03

Last Calib.: 2014.10.03

Start Time: 04:00:02

End Time:

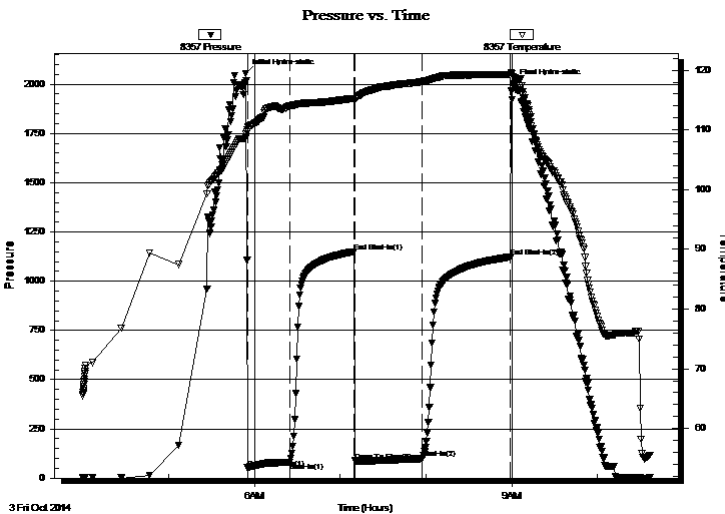
10:36:40

Time On Btm: 2014.10.03 @ 05:54:00

Time Off Btm: 2014.10.03 @ 09:01:10

**TEST COMMENT:** 30- 7" Blow . Tool slid on open, mud dropped 4 - 5'  
45- No return.  
45- 8" Blow .  
60- Weak surface return died @ 35 min.

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2055.65         | 108.74       | Initial Hydro-static |
| 2           | 51.98           | 109.97       | Open To Flow (1)     |
| 31          | 81.64           | 114.01       | Shut-In(1)           |
| 76          | 1150.15         | 115.28       | End Shut-In(1)       |
| 77          | 86.32           | 115.21       | Open To Flow (2)     |
| 124         | 100.07          | 118.09       | Shut-In(2)           |
| 186         | 1123.26         | 119.32       | End Shut-In(2)       |
| 188         | 2003.89         | 118.87       | Final Hydro-static   |

## Recovery

| Length (ft) | Description  | Volume (bbl) |
|-------------|--------------|--------------|
| 120.00      | OSWM 20w 80m | 0.59         |
| 40.00       | OCM 5o 95m   | 0.56         |
| 5.00        | CGO 5g 95o   | 0.07         |
| 0.00        | 75' Weak 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**

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57396

**DST#: 2**

ATTN: Max Lovely

Test Start: 2014.10.03 @ 04:00:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3909.00 ft | Diameter: 3.80 inches | Volume: 54.83 bbl              | Tool Weight: 2300.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: inches      | Volume: 0.00 bbl               | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 120.00 ft  | Diameter: 2.25 inches | Volume: 0.59 bbl               | Weight to Pull Loose: 65000.00 lb  |
|                           |                    |                       | <u>Total Volume: 55.42 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 6.50 ft            |                       |                                | String Weight: Initial 49000.00 lb |
| Depth to Top Packer:      | 4050.00 ft         |                       |                                | Final 51000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 23.00 ft           |                       |                                |                                    |
| Tool Length:              | 50.50 ft           |                       |                                |                                    |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                                    |

Tool Comments:

## Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths                |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub  | 1.00        |            |          | 4023.50    |                               |
| Shut In Tool     | 5.00        |            |          | 4028.50    |                               |
| Hydraulic tool   | 5.00        |            |          | 4033.50    |                               |
| Jars             | 5.00        |            |          | 4038.50    |                               |
| Safety Joint     | 2.50        |            |          | 4041.00    |                               |
| Packer           | 5.00        |            |          | 4046.00    | 27.50 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4050.00    |                               |
| Stubb            | 1.00        |            |          | 4051.00    |                               |
| Perforations     | 3.00        |            |          | 4054.00    |                               |
| Recorder         | 0.00        | 8357       | Inside   | 4054.00    |                               |
| Recorder         | 0.00        | 8645       | Outside  | 4054.00    |                               |
| Perforations     | 16.00       |            |          | 4070.00    |                               |
| Bullnose         | 3.00        |            |          | 4073.00    | 23.00 Bottom Packers & Anchor |

**Total Tool Length: 50.50**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57396

**DST#: 2**

ATTN: Max Lovely

Test Start: 2014.10.03 @ 04:00:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

50000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.76 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2200.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description  | Volume<br>bbbl |
|--------------|--------------|----------------|
| 120.00       | OSWM 20w 80m | 0.590          |
| 40.00        | OCM 5o 95m   | 0.561          |
| 5.00         | CGO 5g 95o   | 0.070          |
| 0.00         | 75' Weak GIP | 0.000          |

Total Length: 165.00 ft

Total Volume: 1.221 bbl

Num Fluid Samples: 0

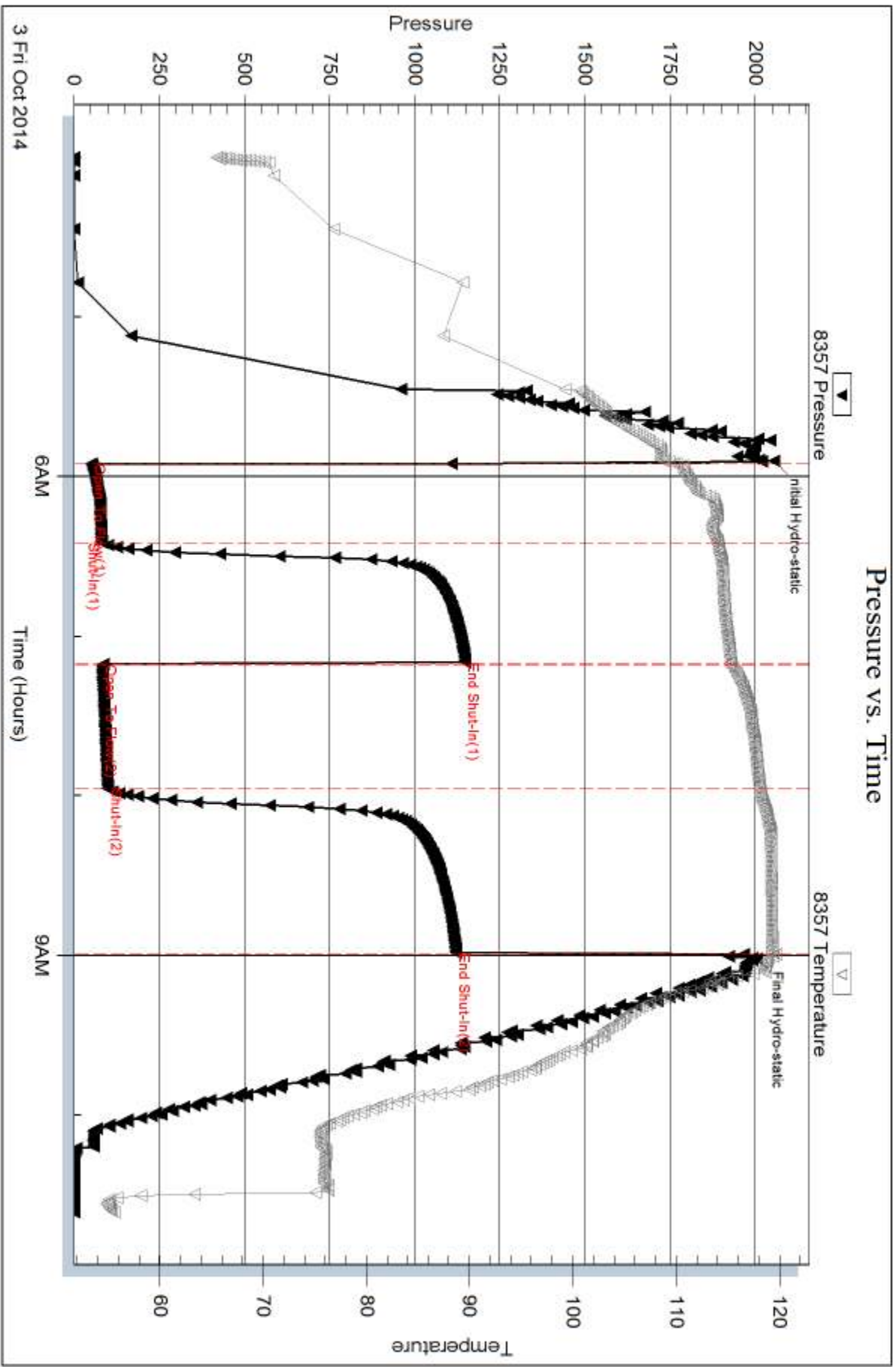
Num Gas Bombs: 0

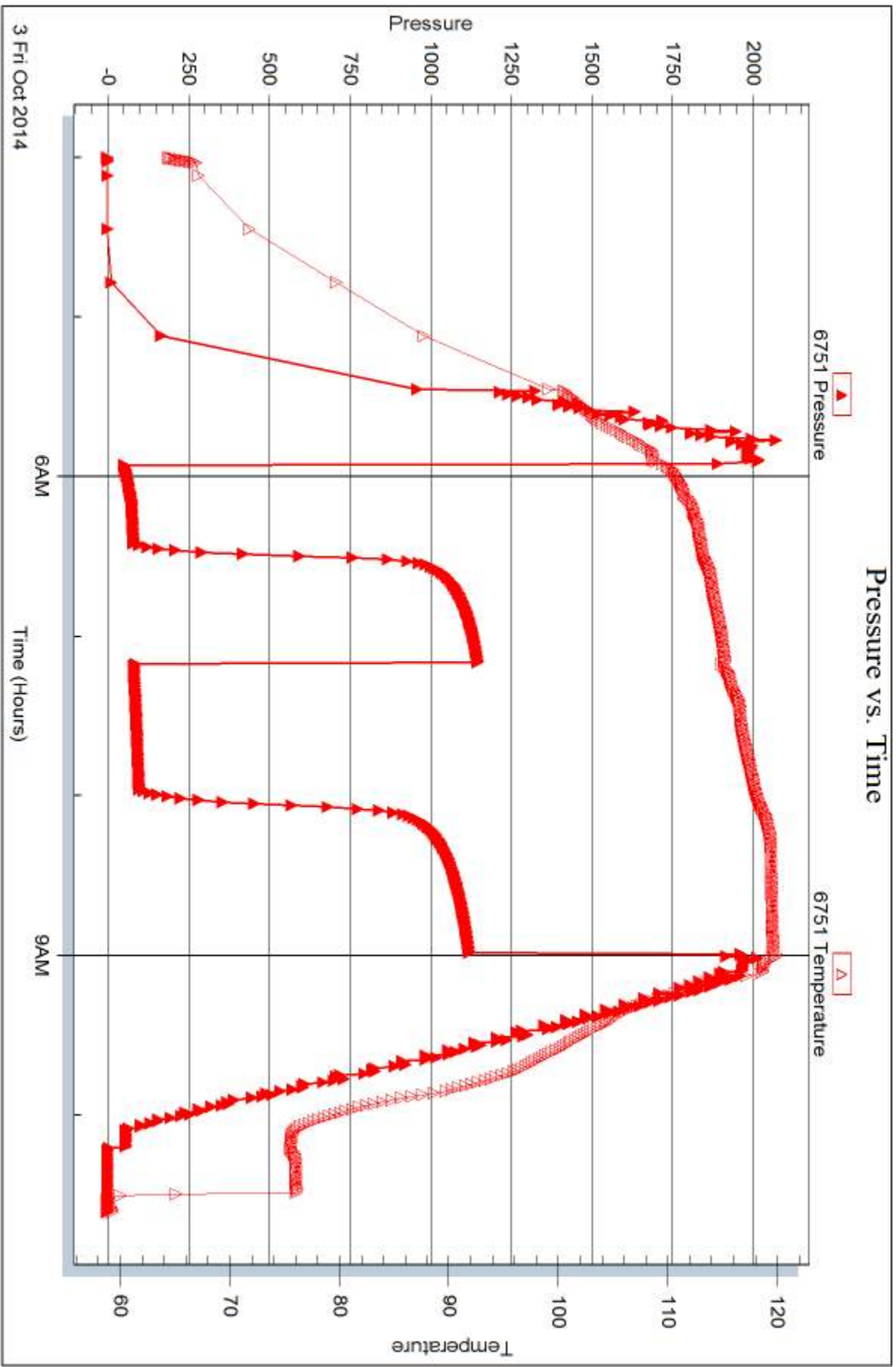
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API: 35 @ 60 Degrees F = 35. RW: .195 @ 56 Degrees F







## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc.**

PO Box 83188  
Wichita, KS 67278

ATTN: Max Lovely

### **Kuhn Unit #1**

#### **19-12s-28w Gove,KS**

Start Date: 2014.10.03 @ 18:22:00

End Date: 2014.10.04 @ 01:08:09

Job Ticket #: 57397                      DST #: 3

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.10.07 @ 15:21:52



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57397

**DST#: 3**

ATTN: Max Lovely

Test Start: 2014.10.03 @ 18:22:00

## GENERAL INFORMATION:

Formation: **LKC I**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:30:00

Time Test Ended: 01:08:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 61

**Interval: 4084.00 ft (KB) To 4109.00 ft (KB) (TVD)**

Reference Elevations: 2762.00 ft (KB)

Total Depth: 4109.00 ft (KB) (TVD)

2757.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8357**

**Inside**

Press@RunDepth: 22.86 psig @ 4086.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.10.03

End Date:

2014.10.04

Last Calib.: 2014.10.04

Start Time: 18:22:02

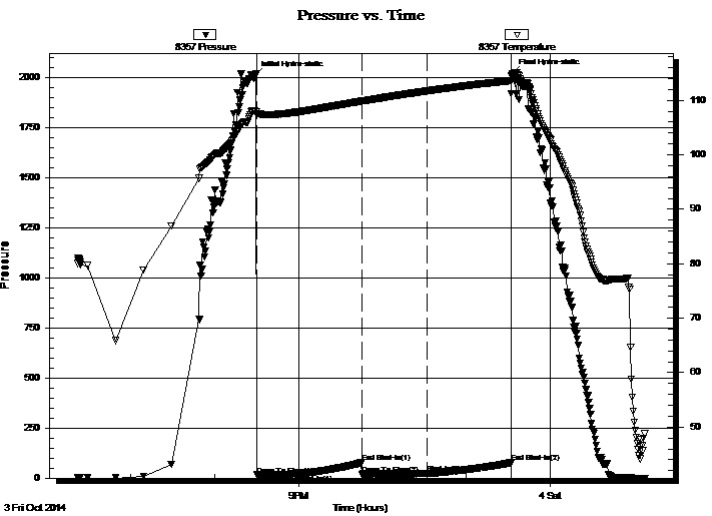
End Time:

01:08:10

Time On Btm: 2014.10.03 @ 20:28:50

Time Off Btm: 2014.10.03 @ 23:32:50

TEST COMMENT: 30- 1/2" Blow .  
45- No return.  
45- 1/2" Blow .  
60- No return.



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2013.30         | 108.05       | Initial Hydro-static |
| 2           | 16.61           | 107.32       | Open To Flow (1)     |
| 32          | 20.22           | 107.89       | Shut-In(1)           |
| 77          | 77.85           | 109.85       | End Shut-In(1)       |
| 77          | 19.08           | 109.85       | Open To Flow (2)     |
| 124         | 22.86           | 111.73       | Shut-In(2)           |
| 184         | 77.09           | 113.63       | End Shut-In(2)       |
| 184         | 2022.87         | 114.58       | Final Hydro-static   |

## Recovery

| Length (ft) | Description              | Volume (bbl) |
|-------------|--------------------------|--------------|
| 5.00        | OCM 10o 90m Oil in tool. | 0.02         |
|             |                          |              |
|             |                          |              |
|             |                          |              |
|             |                          |              |

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57397

**DST#: 3**

ATTN: Max Lovely

Test Start: 2014.10.03 @ 18:22:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3968.00 ft | Diameter: 3.80 inches | Volume: 55.66 bbl              | Tool Weight: 2000.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: inches      | Volume: 0.00 bbl               | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 120.00 ft  | Diameter: 2.25 inches | Volume: 0.59 bbl               | Weight to Pull Loose: 60000.00 lb  |
|                           |                    |                       | <u>Total Volume: 56.25 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 24.00 ft           |                       |                                | String Weight: Initial 55000.00 lb |
| Depth to Top Packer:      | 4084.00 ft         |                       |                                | Final 55000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 25.00 ft           |                       |                                |                                    |
| Tool Length:              | 45.00 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  |      |         | 4065.00 |                               |
| Hydraulic tool  | 5.00  |      |         | 4070.00 |                               |
| Hydraulic tool  | 5.00  |      |         | 4075.00 |                               |
| Packer          | 5.00  |      |         | 4080.00 | 20.00 Bottom Of Top Packer    |
| Packer          | 4.00  |      |         | 4084.00 |                               |
| Stubb           | 1.00  |      |         | 4085.00 |                               |
| Perforations    | 1.00  |      |         | 4086.00 |                               |
| Recorder        | 0.00  | 8357 | Inside  | 4086.00 |                               |
| Recorder        | 0.00  | 8645 | Outside | 4086.00 |                               |
| Perforations    | 20.00 |      |         | 4106.00 |                               |
| Bullnose        | 3.00  |      |         | 4109.00 | 25.00 Bottom Packers & Anchor |

**Total Tool Length: 45.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57397

**DST#: 3**

ATTN: Max Lovely

Test Start: 2014.10.03 @ 18:22:00

## 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: 58.00 sec/qt

Cushion Volume:

bbf

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2400.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description              | Volume<br>bbf |
|--------------|--------------------------|---------------|
| 5.00         | OCM 10o 90m Oil in tool. | 0.025         |

Total Length: 5.00 ft      Total Volume: 0.025 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8357

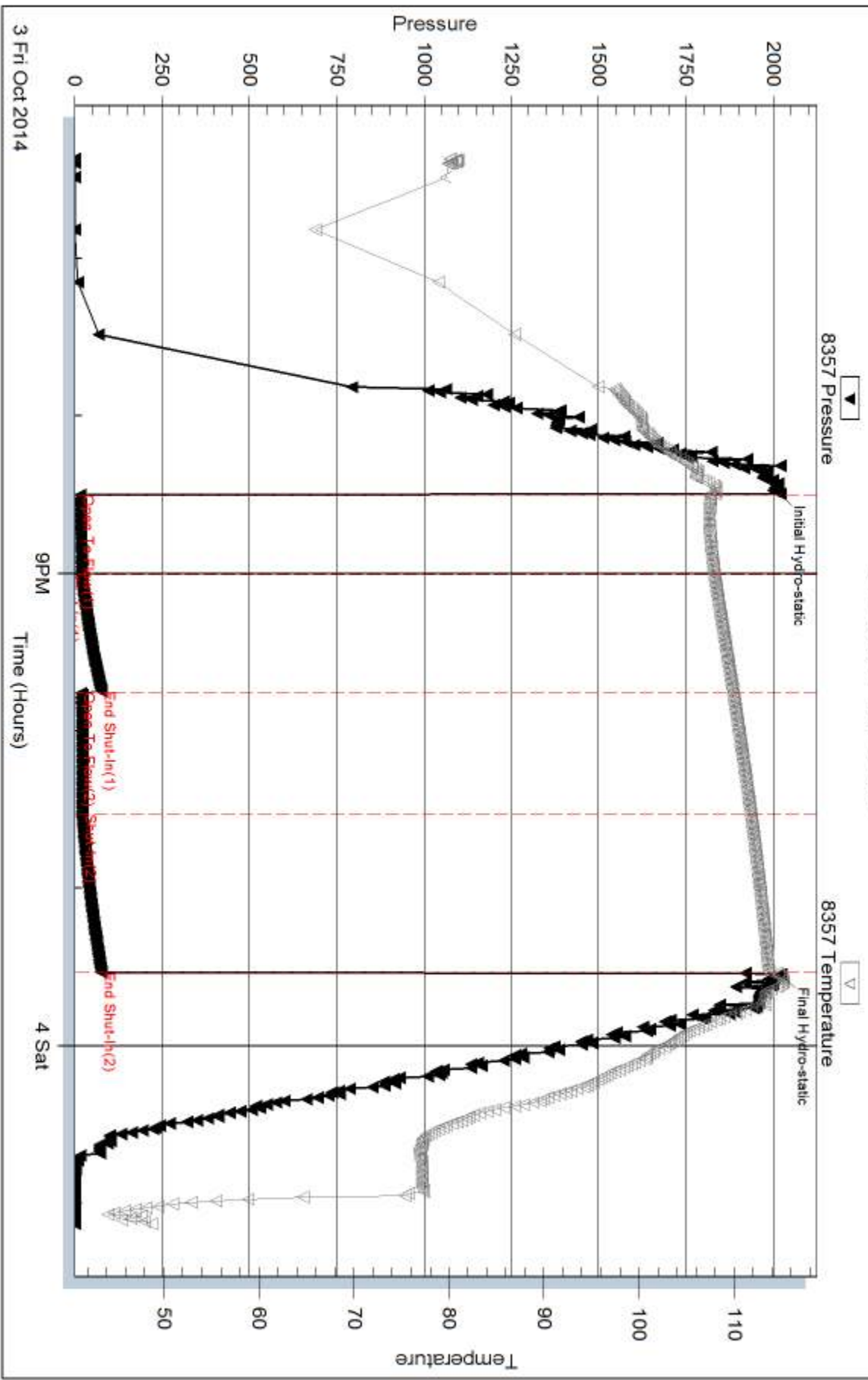
Inside

Richie Exploration, Inc.

Kuhn Unit #1

DST Test Number: 3

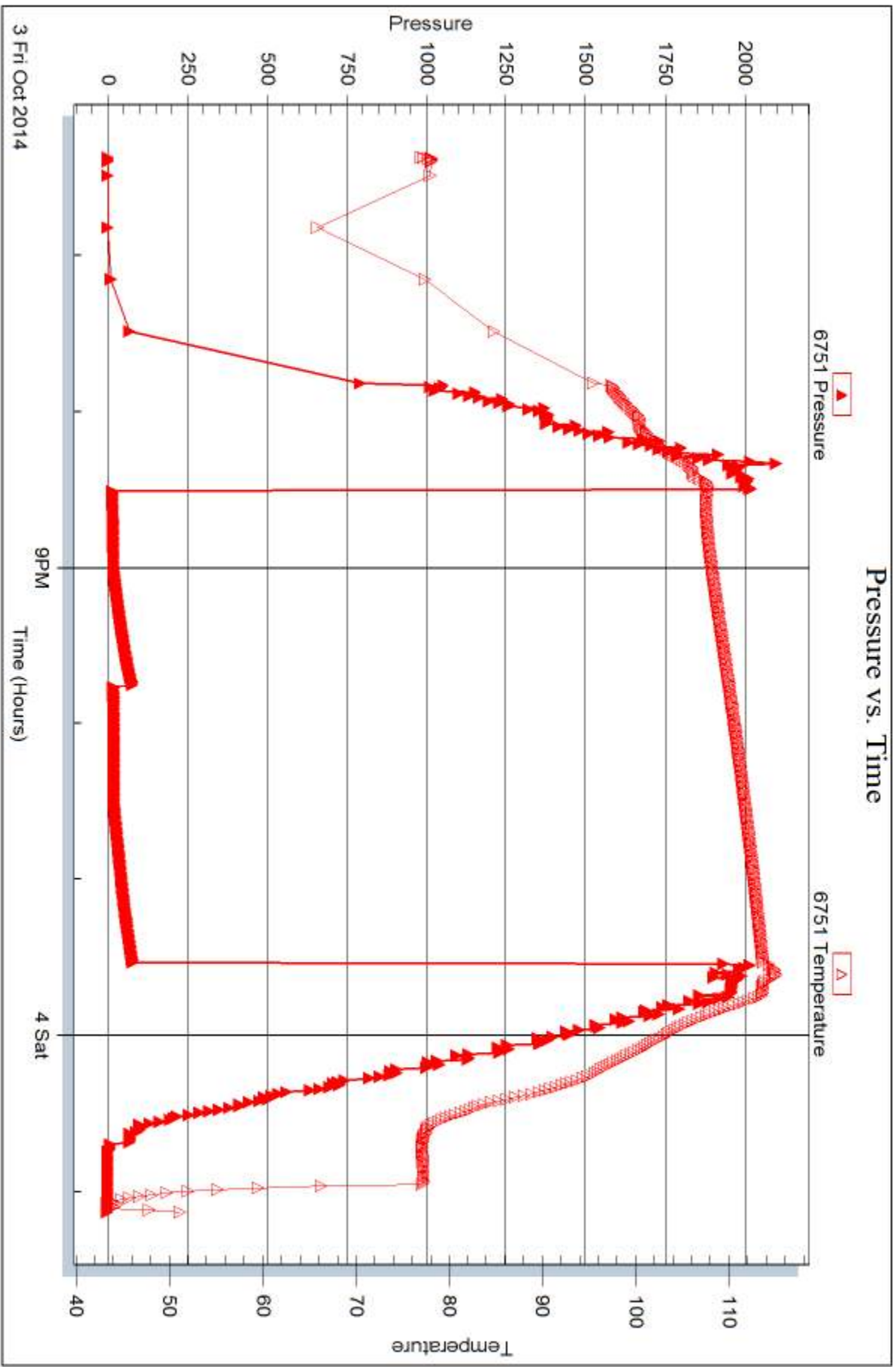
### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 57397

Printed: 2014, 10, 07 @ 15:21:53





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc.**

PO Box 83188  
Wichita, KS 67278

ATTN: Max Lovely

### **Kuhn Unit #1**

#### **19-12s-28w Gove,KS**

Start Date: 2014.10.04 @ 08:41:00

End Date: 2014.10.04 @ 14:52:30

Job Ticket #: 57398                      DST #: 4

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.10.07 @ 15:21:30



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57398

**DST#: 4**

ATTN: Max Lovely

Test Start: 2014.10.04 @ 08:41:00

## GENERAL INFORMATION:

Formation: **LKC J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:17:30

Time Test Ended: 14:52:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 61

**Interval: 4106.00 ft (KB) To 4142.00 ft (KB) (TVD)**

Reference Elevations: 2762.00 ft (KB)

Total Depth: 4142.00 ft (KB) (TVD)

2757.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8357**

**Inside**

Press@RunDepth: 25.65 psig @ 4109.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.10.04

End Date:

2014.10.04

Last Calib.: 2014.10.04

Start Time: 08:41:02

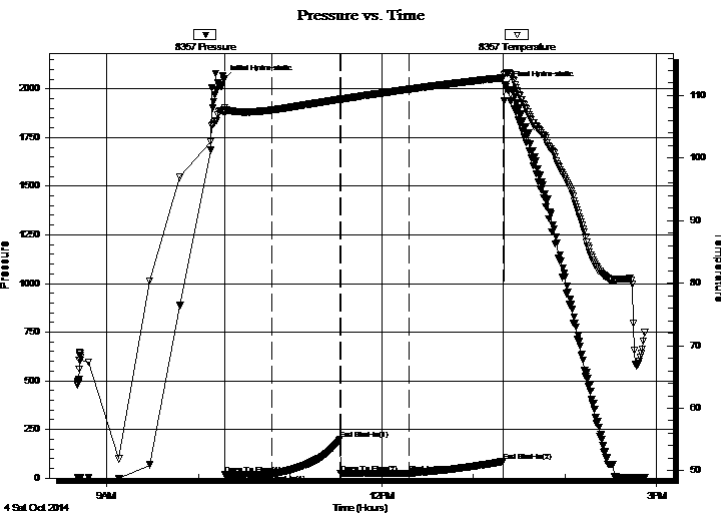
End Time:

14:52:30

Time On Btm: 2014.10.04 @ 10:16:40

Time Off Btm: 2014.10.04 @ 13:21:00

TEST COMMENT: 30- 1" Blow .  
45- No return.  
45- 1/2" Blow .  
60- No return.



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2046.08         | 107.80       | Initial Hydro-static |
| 1           | 18.32           | 107.27       | Open To Flow (1)     |
| 32          | 21.57           | 107.68       | Shut-In(1)           |
| 76          | 198.07          | 109.43       | End Shut-In(1)       |
| 77          | 25.00           | 109.40       | Open To Flow (2)     |
| 121         | 25.65           | 111.01       | Shut-In(2)           |
| 183         | 86.34           | 112.86       | End Shut-In(2)       |
| 185         | 2019.00         | 113.51       | Final Hydro-static   |

## Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 5.00        | OCM 5o 95m  | 0.02         |
|             |             |              |
|             |             |              |
|             |             |              |
|             |             |              |

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57398

**DST#: 4**

ATTN: Max Lovely

Test Start: 2014.10.04 @ 08:41:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3967.00 ft | Diameter: 3.80 inches | Volume: 55.65 bbl              | Tool Weight: 2000.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: inches      | Volume: 0.00 bbl               | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 120.00 ft  | Diameter: 2.25 inches | Volume: 0.59 bbl               | Weight to Pull Loose: 65000.00 lb  |
|                           |                    |                       | <u>Total Volume: 56.24 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 1.00 ft            |                       |                                | String Weight: Initial 55000.00 lb |
| Depth to Top Packer:      | 4106.00 ft         |                       |                                | Final 55000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 36.00 ft           |                       |                                |                                    |
| Tool Length:              | 56.00 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  |      |         | 4087.00 |                               |
| Shut In Tool    | 5.00  |      |         | 4092.00 |                               |
| Hydraulic tool  | 5.00  |      |         | 4097.00 |                               |
| Packer          | 5.00  |      |         | 4102.00 | 20.00 Bottom Of Top Packer    |
| Packer          | 4.00  |      |         | 4106.00 |                               |
| Stubb           | 1.00  |      |         | 4107.00 |                               |
| Perforations    | 2.00  |      |         | 4109.00 |                               |
| Recorder        | 0.00  | 8357 | Inside  | 4109.00 |                               |
| Recorder        | 0.00  | 6751 | Outside | 4109.00 |                               |
| Perforations    | 30.00 |      |         | 4139.00 |                               |
| Bullnose        | 3.00  |      |         | 4142.00 | 36.00 Bottom Packers & Anchor |

**Total Tool Length: 56.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57398

**DST#: 4**

ATTN: Max Lovely

Test Start: 2014.10.04 @ 08:41:00

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2400.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

| Length<br>ft | Description | Volume<br>bbl |
|--------------|-------------|---------------|
| 5.00         | OCM 5o 95m  | 0.025         |

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

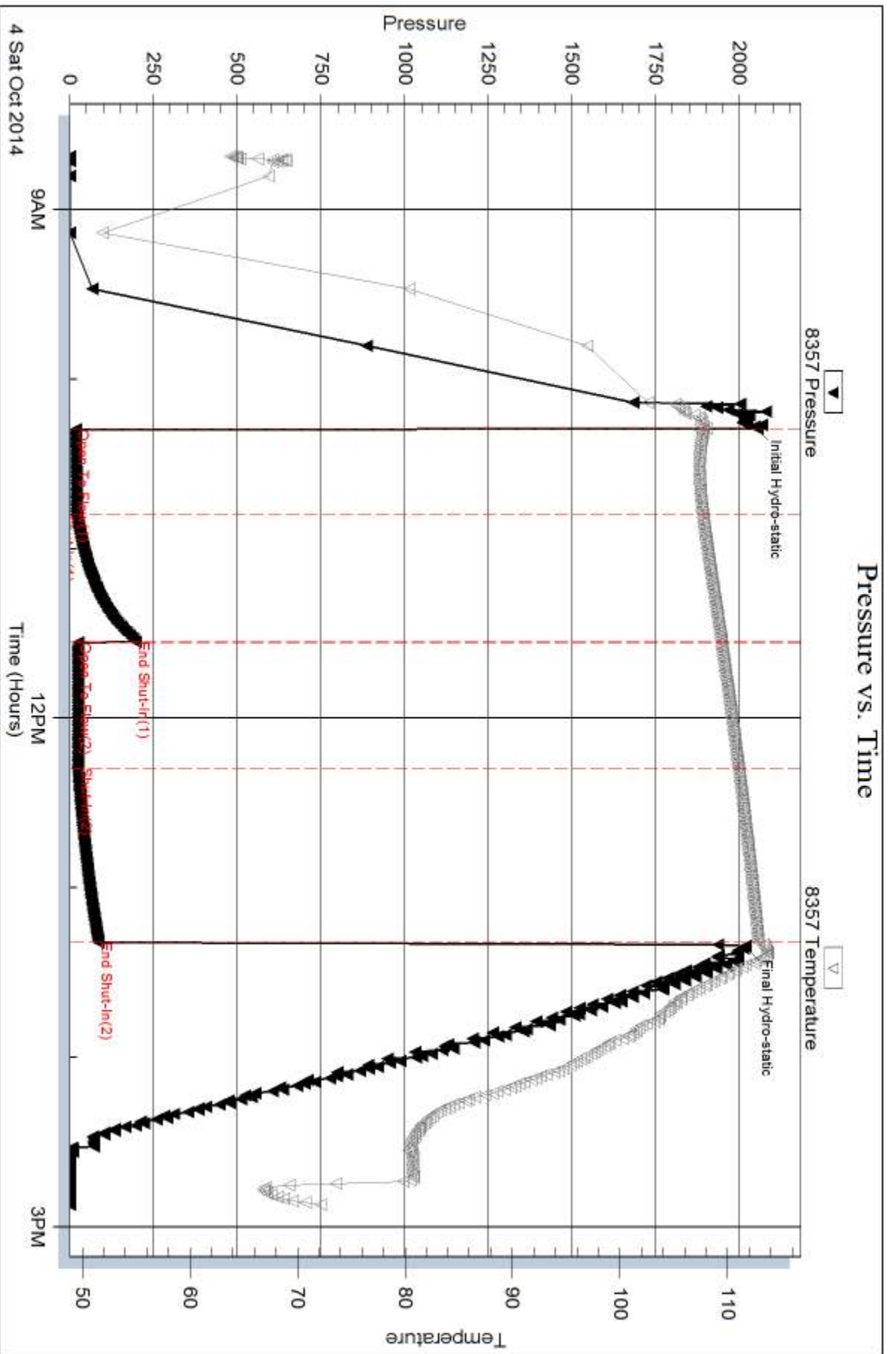
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

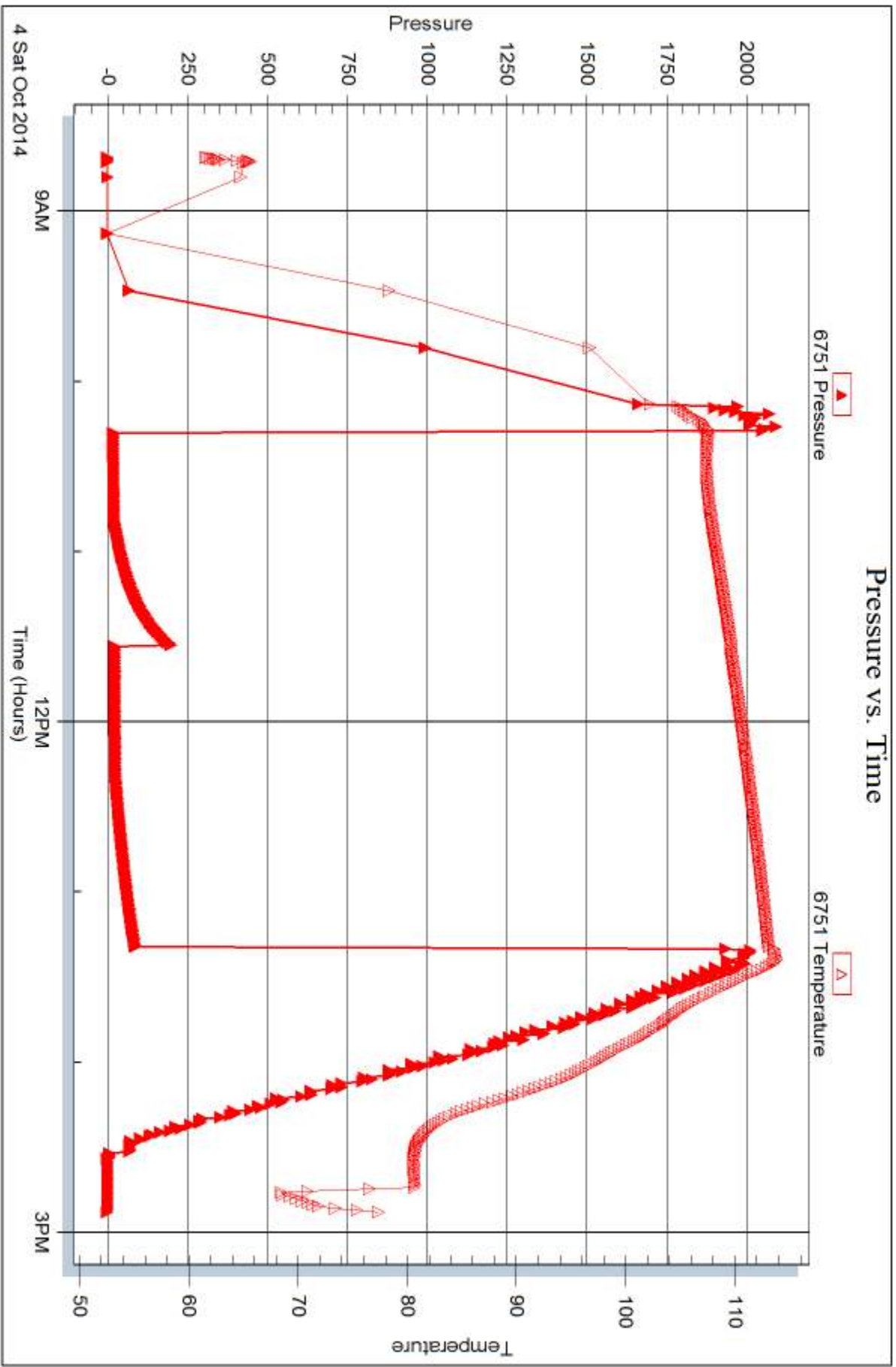


Serial #: 6751

Outside Ritchie Exploration, Inc.

Kuhn Unit #1

DST Test Number: 4





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc.**

PO Box 83188  
Wichita, KS 67278

ATTN: Max Lovely

### **Kuhn Unit #1**

#### **19-12s-28w Gove,KS**

Start Date: 2014.10.05 @ 02:46:00

End Date: 2014.10.05 @ 08:57:50

Job Ticket #: 57399                      DST #: 5

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.10.07 @ 15:20:20



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57399

**DST#: 5**

ATTN: Max Lovely

Test Start: 2014.10.05 @ 02:46:00

## GENERAL INFORMATION:

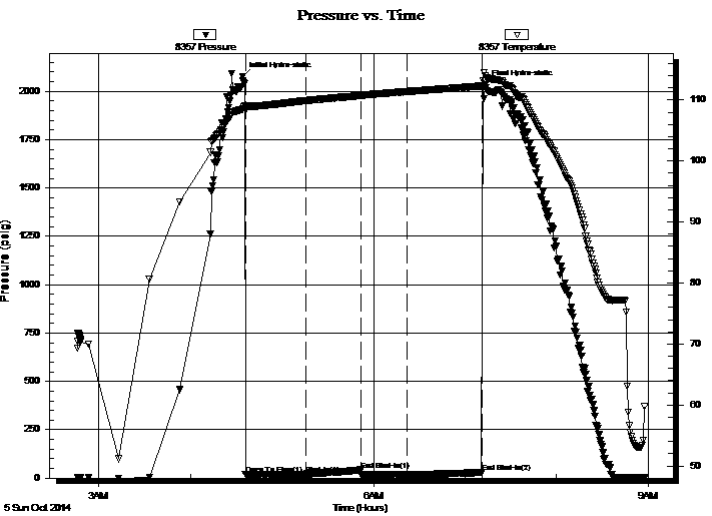
Formation: **LKC K-L**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 04:36:00  
 Tester: Chuck Smith  
 Time Test Ended: 08:57:50  
 Unit No: 61  
 Interval: **4138.00 ft (KB) To 4200.00 ft (KB) (TVD)**  
 Reference Elevations: 2762.00 ft (KB)  
 Total Depth: 4200.00 ft (KB) (TVD)  
 2757.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Good  
 KB to GR/CF: 5.00 ft

## Serial #: 8357

Inside

Press@RunDepth: 19.16 psig @ 4141.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.10.05 End Date: 2014.10.05 Last Calib.: 2014.10.05  
 Start Time: 02:46:02 End Time: 08:57:49 Time On Btm: 2014.10.05 @ 04:34:10  
 Time Off Btm: 2014.10.05 @ 07:13:00

TEST COMMENT: 30- 1/2" Blow .  
 45- No return.  
 30- No blow .  
 45- No return.



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2077.41         | 108.50       | Initial Hydro-static |
| 2           | 18.21           | 108.29       | Open To Flow (1)     |
| 42          | 20.98           | 109.91       | Shut-In(1)           |
| 78          | 43.04           | 110.73       | End Shut-In(1)       |
| 78          | 20.22           | 110.73       | Open To Flow (2)     |
| 108         | 19.16           | 111.39       | Shut-In(2)           |
| 157         | 29.57           | 112.30       | End Shut-In(2)       |
| 159         | 2032.55         | 113.94       | Final Hydro-static   |

## Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 1.00        | OSM 100m    | 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**

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57399

**DST#: 5**

ATTN: Max Lovely

Test Start: 2014.10.05 @ 02:46:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 4006.00 ft | Diameter: 3.80 inches | Volume: 56.19 bbl              | Tool Weight: 2000.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: inches      | Volume: 0.00 bbl               | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 120.00 ft  | Diameter: 2.25 inches | Volume: 0.59 bbl               | Weight to Pull Loose: 70000.00 lb  |
|                           |                    |                       | <u>Total Volume: 56.78 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 8.00 ft            |                       |                                | String Weight: Initial 60000.00 lb |
| Depth to Top Packer:      | 4138.00 ft         |                       |                                | Final 60000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 62.00 ft           |                       |                                |                                    |
| Tool Length:              | 82.00 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        |            |          | 4119.00    |                               |
| Shut In Tool     | 5.00        |            |          | 4124.00    |                               |
| Hydraulic tool   | 5.00        |            |          | 4129.00    |                               |
| Packer           | 5.00        |            |          | 4134.00    | 20.00 Bottom Of Top Packer    |
| Packer           | 4.00        |            |          | 4138.00    |                               |
| Stubb            | 1.00        |            |          | 4139.00    |                               |
| Perforations     | 2.00        |            |          | 4141.00    |                               |
| Recorder         | 0.00        | 8357       | Inside   | 4141.00    |                               |
| Recorder         | 0.00        | 6751       | Outside  | 4141.00    |                               |
| Perforations     | 23.00       |            |          | 4164.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4165.00    |                               |
| Drill Pipe       | 31.00       |            |          | 4196.00    |                               |
| Change Over Sub  | 1.00        |            |          | 4197.00    |                               |
| Bullnose         | 3.00        |            |          | 4200.00    | 62.00 Bottom Packers & Anchor |

**Total Tool Length: 82.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration, Inc.

**19-12s-28w Gove,KS**

PO Box 83188  
Wichita, KS 67278

**Kuhn Unit #1**

Job Ticket: 57399

**DST#: 5**

ATTN: Max Lovely

Test Start: 2014.10.05 @ 02:46:00

### 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: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2800.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

| Length<br>ft | Description | Volume<br>bbl |
|--------------|-------------|---------------|
| 1.00         | OSM 100m    | 0.005         |

Total Length: 1.00 ft      Total Volume: 0.005 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

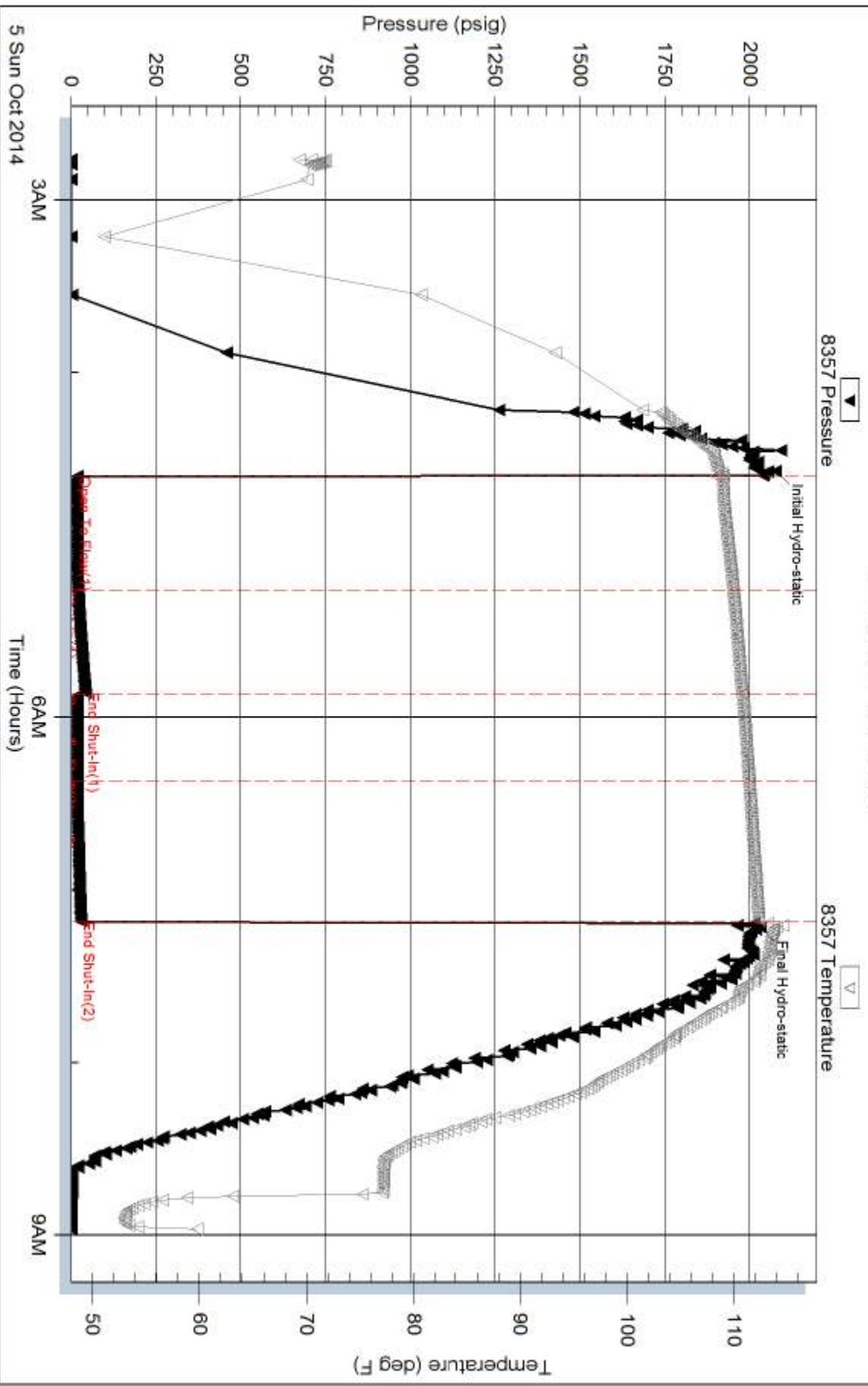
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time

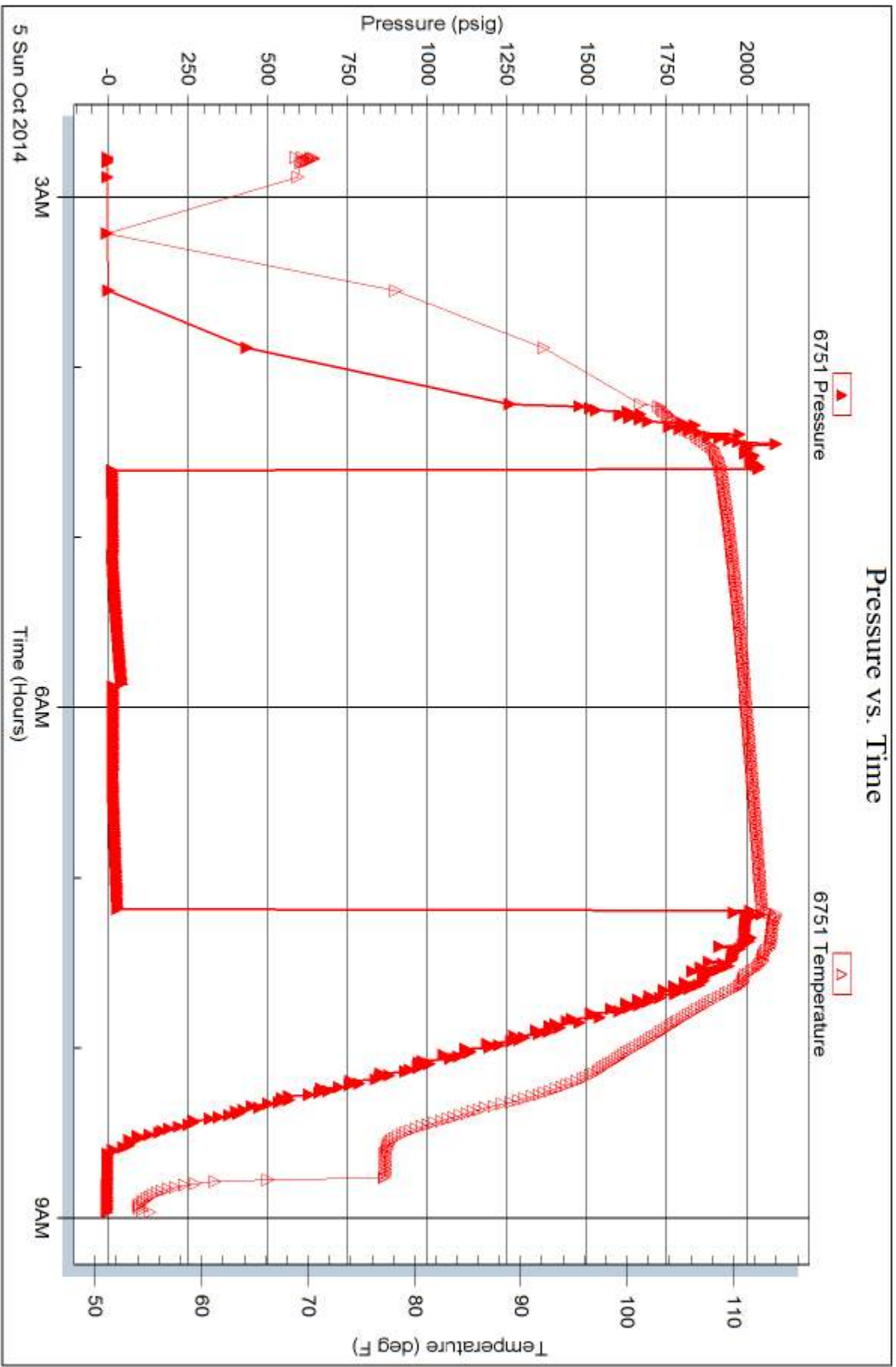


Serial #: 6751

Outside Ritchie Exploration, Inc.

Kuhn Unit #1

DST Test Number: 5





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 57395

4/10

Well Name & No. #1 Kuhn Unit Test No. 1 Date 10-2-14  
 Company Ritchie Exploration, Inc. Elevation 2762 KB 2757 GL  
 Address POB 83188 Wichita, KS 67278  
 Co. Rep / Geo. Max Lovely Rig WW# 8  
 Location: Sec. 19 Twp. 12S Rge. 28W Co. Gove State KS

Interval Tested 3985 - 4016 Zone Tested Lansing E+F  
 Anchor Length 31 Drill Pipe Run 3845 Mud Wt. 9.2  
 Top Packer Depth 3981 Drill Collars Run 120 Vis 53  
 Bottom Packer Depth 3985 Wt. Pipe Run 0 WL 8.8  
 Total Depth 4016 Chlorides 2200 ppm System LCM 1#  
 Blow Description 2" Blow.  
No return.  
1/2" Blow.  
No return.

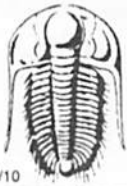
| Rec            | Feet of             | %gas | %oil | %water    | %mud      |
|----------------|---------------------|------|------|-----------|-----------|
| Rec <u>120</u> | Feet of <u>OSWM</u> |      |      | <u>30</u> | <u>70</u> |
| Rec            | Feet of             | %gas | %oil | %water    | %mud      |
| Rec            | Feet of             | %gas | %oil | %water    | %mud      |
| Rec            | Feet of             | %gas | %oil | %water    | %mud      |

Rec Total 120 BHT 115 Gravity — API RW 225 @ 50 ° F Chlorides 47000 ppm  
 (A) Initial Hydrostatic 1966  Test 1250 T-On Location 14:25  
 (B) First Initial Flow 20  Jars 250 T-Started 15:00  
 (C) First Final Flow 45  Safety Joint 75 T-Open 16:34  
 (D) Initial Shut-In 1187  Circ Sub NIC T-Pulled 19:06  
 (E) Second Initial Flow 52  Hourly Standby T-Out 20:44  
 (F) Second Final Flow 71  Mileage 118RT 182.90 Comments  
 (G) Final Shut-In 1156  Sampler  
 (H) Final Hydrostatic 1955  Straddle  Ruined Shale Packer  
 Shale Packer  Ruined Packer  
 Extra Packer  Extra Copies  
 Extra Recorder Sub Total 0  
 Day Standby Total 1757.90  
 Accessibility MP/DST Disc't  
 Sub Total 1757.90

Initial Open 30  
 Initial Shut-In 45  
 Final Flow 30  
 Final Shut-In 45

Approved By [Signature] Our Representative Chuck Smith

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. 57396

4/10

Well Name & No. #1 Kuhn Unit Test No. 2 Date 10-3-14  
 Company Ritchie Exploration, Inc. Elevation 2762 KB 2757 GL  
 Address POB 83188 Wichita, KS 67278  
 Co. Rep / Geo. Max Lovely Rig WW#8  
 Location: Sec. 19 Twp. 12s Rge. 28W Co. Gove State Ks

Interval Tested 4050 - 4073 Zone Tested Lansing H  
 Anchor Length 23 Drill Pipe Run 3909 Mud Wt. 9.3  
 Top Packer Depth 4046 Drill Collars Run 120 Vis 60  
 Bottom Packer Depth 4050 Wt. Pipe Run 0 WL 8.8  
 Total Depth 4073 Chlorides 2200 ppm System LCM 1  
 Blow Description 7' Blow. Tool slid on open, mud dripped 4-5'  
No return.  
8" Blow.  
Weak surface return died @ 35 min.

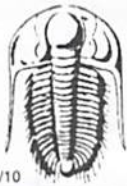
| Rec            | Feet of                     | %gas          | %oil           | %water           | %mud           |
|----------------|-----------------------------|---------------|----------------|------------------|----------------|
| Rec <u>5</u>   | Feet of <u>CGO</u>          | <u>5</u> %gas | <u>95</u> %oil | %water           | %mud           |
| Rec <u>40</u>  | Feet of <u>OCM</u>          | %gas          | <u>5</u> %oil  | %water           | <u>95</u> %mud |
| Rec <u>120</u> | Feet of <u>OSWM</u>         | %gas          | %oil           | <u>20</u> %water | <u>80</u> %mud |
| Rec            | Feet of <u>75' weak GIP</u> | %gas          | %oil           | %water           | %mud           |

Rec Total 165 BHT 119 Gravity 35 API RW 195 @ 56 °F Chlorides 50,000 ppm

(A) Initial Hydrostatic 2056  Test 1250 T-On Location 3:40  
 (B) First Initial Flow 52  Jars \_\_\_\_\_ T-Started 4:00  
 (C) First Final Flow 82  Safety Joint \_\_\_\_\_ T-Open 5:55  
 (D) Initial Shut-In 1150  Circ Sub NIC T-Pulled 8:59  
 (E) Second Initial Flow 86  Hourly Standby \_\_\_\_\_ T-Out 10:37  
 (F) Second Final Flow 100  Mileage 118RT 182.90 Comments \_\_\_\_\_  
 (G) Final Shut-In 1123  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2004  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 45  Day Standby \_\_\_\_\_ Total 1432.90  
 Final Flow 45  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 60 Sub Total 1432.90

Approved By Max Lovely Our Representative Chuck Smith

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. 57397

Well Name & No. #1 Kuhn Unit Test No. 3 Date 10-3-14  
 Company Ritchie Exploration, Inc. Elevation 2762 KB 2757 GL  
 Address POB 83188 Wichita, KS 67278  
 Co. Rep / Geo. Max Lovely Rig WW#8  
 Location: Sec. 19 Twp. 12s Rge. 28w Co. Gove State KS

Interval Tested 4084 - 4109 Zone Tested Lansing I  
 Anchor Length 25 Drill Pipe Run 3968 Mud Wt. 9.3  
 Top Packer Depth 4080 Drill Collars Run 120 Vis 58  
 Bottom Packer Depth 4084 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4109 Chlorides 2400 ppm System LCM 1"  
 Blow Description 1/2" Blow.  
No return.  
1/2" Blow.  
No return.

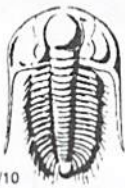
| Rec          | Feet of                         | %gas           | %oil           | %water           | %mud           |
|--------------|---------------------------------|----------------|----------------|------------------|----------------|
| Rec <u>5</u> | Feet of <u>OCM Oil in tool.</u> | %gas <u>10</u> | %oil <u>90</u> | %water <u>90</u> | %mud <u>90</u> |
| Rec          | Feet of                         | %gas           | %oil           | %water           | %mud           |
| Rec          | Feet of                         | %gas           | %oil           | %water           | %mud           |
| Rec          | Feet of                         | %gas           | %oil           | %water           | %mud           |

Rec Total 5 BHT 114 Gravity - API RW - @ - °F Chlorides - ppm

|                                     |   |  |
|-------------------------------------|---|--|
| (A) Initial Hydrostatic <u>2013</u> | <input checked="" type="checkbox"/> Test <u>1250</u>                      | T-On Location <u>18:18</u>                   |
| (B) First Initial Flow <u>17</u>    | <input type="checkbox"/> Jars   | T-Started <u>18:22</u>                       |
| (C) First Final Flow <u>20</u>      | <input type="checkbox"/> Safety Joint                                     | T-Open <u>20:29</u>                          |
| (D) Initial Shut-In <u>78</u>       | <input checked="" type="checkbox"/> Circ Sub <u>NIC</u>                   | T-Pulled <u>23:33</u>                        |
| (E) Second Initial Flow <u>19</u>   | <input type="checkbox"/> Hourly Standby                                   | T-Out <u>1:08</u>                            |
| (F) Second Final Flow <u>23</u>     | <input checked="" type="checkbox"/> Mileage <u>118RT 182<sup>90</sup></u> | Comments                                     |
| (G) Final Shut-In <u>77</u>         | <input type="checkbox"/> Sampler  |  |
| (H) Final Hydrostatic <u>2023</u>   | <input type="checkbox"/> Straddle   | <input type="checkbox"/> Ruined Shale Packer |
| Initial Open <u>30</u>              | <input type="checkbox"/> Shale Packer                                     | <input type="checkbox"/> Ruined Packer       |
| Initial Shut-In <u>45</u>           | <input type="checkbox"/> Extra Packer                                     | <input type="checkbox"/> Extra Copies        |
| Final Flow <u>45</u>                | <input type="checkbox"/> Extra Recorder                                   | Sub Total <u>0</u>                           |
| Final Shut-In <u>60</u>             | <input type="checkbox"/> Day Standby                                      | Total <u>1432.90</u>                         |
|                                     | <input type="checkbox"/> Accessibility                                    | MP/DST Disc't                                |
|                                     | Sub Total <u>1432.90</u>  |  |

Approved By [Signature] Our Representative Chuck Smith

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. 57398

4/10

Well Name & No. #1 Kuhn Unit Test No. 4 Date 10-4-14  
 Company Ritchie Exploration, Inc. Elevation 2762 KB 2757 GL  
 Address POB 83188 Wichita, KS 67278  
 Co. Rep / Geo. Max Lovely Rig WW#8  
 Location: Sec. 19 Twp. 12s Rge. 28w Co. Gove State KS

Interval Tested 4106-4142 Zone Tested Lansing 'J'  
 Anchor Length 36 Drill Pipe Run 3967 Mud Wt. 9.3  
 Top Packer Depth 4102 Drill Collars Run 120 Vis 60  
 Bottom Packer Depth 4106 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4142 Chlorides 2400 ppm System LCM 1"  
 Blow Description 1" Blow.  
No return.  
1/2" Blow.  
No return.

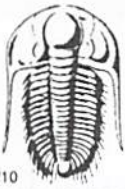
| Rec          | Feet of            | %gas | %oil          | %water | %mud           |
|--------------|--------------------|------|---------------|--------|----------------|
| Rec <u>5</u> | Feet of <u>OCM</u> | %gas | <u>5</u> %oil | %water | <u>95</u> %mud |
| Rec          | Feet of            | %gas | %oil          | %water | %mud           |
| Rec          | Feet of            | %gas | %oil          | %water | %mud           |
| Rec          | Feet of            | %gas | %oil          | %water | %mud           |

Rec Total 5 BHT 113 Gravity — API RW — @ — °F Chlorides — ppm

|                                     |   |  |
|-------------------------------------|---|--|
| (A) Initial Hydrostatic <u>2046</u> | <input checked="" type="checkbox"/> Test <u>1250</u>            | T-On Location <u>8:40</u>                    |
| (B) First Initial Flow <u>18</u>    | <input type="checkbox"/> Jars                                   | T-Started <u>8:41</u>                        |
| (C) First Final Flow <u>22</u>      | <input type="checkbox"/> Safety Joint                           | T-Open <u>10:18</u>                          |
| (D) Initial Shut-In <u>198</u>      | <input checked="" type="checkbox"/> Circ Sub <u>NIC</u>         | T-Pulled <u>13:19</u>                        |
| (E) Second Initial Flow <u>25</u>   | <input type="checkbox"/> Hourly Standby                         | T-Out <u>14:53</u>                           |
| (F) Second Final Flow <u>26</u>     | <input checked="" type="checkbox"/> Mileage <u>118RT</u> 182.90 | Comments                                     |
| (G) Final Shut-In <u>86</u>         | <input type="checkbox"/> Sampler                                |  |
| (H) Final Hydrostatic <u>2019</u>   | <input type="checkbox"/> Straddle                               | <input type="checkbox"/> Ruined Shale Packer |
| Initial Open <u>30</u>              | <input type="checkbox"/> Shale Packer                           | <input type="checkbox"/> Ruined Packer       |
| Initial Shut-In <u>45</u>           | <input type="checkbox"/> Extra Packer                           | <input type="checkbox"/> Extra Copies        |
| Final Flow <u>45</u>                | <input type="checkbox"/> Extra Recorder                         | Sub Total <u>0</u>                           |
| Final Shut-In <u>60</u>             | <input type="checkbox"/> Day Standby                            | Total <u>1432.90</u>                         |
|                                     | <input type="checkbox"/> Accessibility                          | MP/DST Disc't                                |
|                                     | Sub Total <u>1432.90</u>  |  |

Approved By \_\_\_\_\_ Our Representative Chuck Amish

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 57399

Well Name & No. #1 Kuhn Unit Test No. 5 Date 10-5-14  
 Company Ritchie Exploration, Inc. Elevation 2762 KB 2757 GL  
 Address POB 83188 Wichita, KS 67278  
 Co. Rep / Geo. Max Lovely Rig WW#8  
 Location: Sec. 19 Twp. 12s Rge. 28w Co. Gove State KS

Interval Tested 4138-4200 Zone Tested Lansing K+L  
 Anchor Length 62 Drill Pipe Run 4006 Mud Wt. 9.1  
 Top Packer Depth 4134 Drill Collars Run 120 Vis 52  
 Bottom Packer Depth 4138 Wt. Pipe Run 0 WL 7.6  
 Total Depth 4200 Chlorides 2800 ppm System LCM 1<sup>st</sup>  
 Blow Description 1/2" Blow.  
No return.  
No blow.  
No return.

| Rec            | Feet of             | %gas | %oil | %water | %mud       |
|----------------|---------------------|------|------|--------|------------|
| Rec <u>1 S</u> | Feet of <u>0.5M</u> |      |      |        | <u>100</u> |
| Rec            | Feet of             | %gas | %oil | %water | %mud       |
| Rec            | Feet of             | %gas | %oil | %water | %mud       |
| Rec            | Feet of             | %gas | %oil | %water | %mud       |

Rec Total 51 BHT 112 Gravity — API RW — @ — °F Chlorides — ppm

|                                     |   |  |
|-------------------------------------|---|--|
| (A) Initial Hydrostatic <u>2077</u> | <input checked="" type="checkbox"/> Test <u>1250</u>                | T-On Location <u>2:45</u>                    |
| (B) First Initial Flow <u>18</u>    | <input type="checkbox"/> Jars                                       | T-Started <u>2:46</u>                        |
| (C) First Final Flow <u>21</u>      | <input type="checkbox"/> Safety Joint                               | T-Open <u>4:34</u>                           |
| (D) Initial Shut-In <u>43</u>       | <input checked="" type="checkbox"/> Circ Sub <u>N/C</u>             | T-Pulled <u>7:13</u>                         |
| (E) Second Initial Flow <u>20</u>   | <input type="checkbox"/> Hourly Standby                             | T-Out <u>8:58</u>                            |
| (F) Second Final Flow <u>19</u>     | <input checked="" type="checkbox"/> Mileage <u>11BRT x 2</u> 182.90 | Comments <u>Picked up tools</u>              |
| (G) Final Shut-In <u>30</u>         | <input type="checkbox"/> Sampler 182.90                             | <u>10-6-14 @ 23:45 No test</u>               |
| (H) Final Hydrostatic <u>2033</u>   | <input type="checkbox"/> Straddle                                   | <input type="checkbox"/> Ruined Shale Packer |
| Initial Open <u>30</u>              | <input type="checkbox"/> Shale Packer                               | <input type="checkbox"/> Ruined Packer       |
| Initial Shut-In <u>45</u>           | <input type="checkbox"/> Extra Packer                               | <input type="checkbox"/> Extra Copies        |
| Final Flow <u>30</u>                | <input type="checkbox"/> Extra Recorder                             | Sub Total <u>800</u>                         |
| Final Shut-In <u>45</u>             | <input checked="" type="checkbox"/> Day Standby <u>1d 14.75h</u>    | Total <u>2415.80</u>                         |
|                                     | <input type="checkbox"/> Accessibility                              | MP/DST Disc't                                |
|                                     | Sub Total <u>1615.80</u>  |  |

Approved By Max Lovely Our Representative Chuck Smith

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