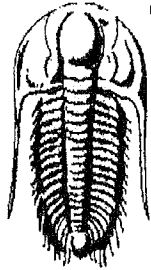


4-130-21W



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

**DRILL STEM TEST REPORT**

Prepared For: **DNOC**

Box 372  
Hays Ks 67601

ATTN: Ron Nelson

**4-13-21-Trego-Ks**

**Keller # 1-4**

Start Date: 2005.05.26 @ 07:20:14

End Date: 2005.05.26 @ 12:11:14

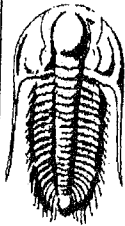
Job Ticket #: 22819      DST #: 1

15-195-22292-00-00

DNOC  
Keller # 1-4  
4-13-21-Trego-Ks  
DST # 1  
Topeka  
2005.05.26

RECEIVED  
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KCC WICHITA

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

DNOC

Box 372  
Hays Ks 67601

ATTN: Ron Nelson

Keller # 1-4

4-13-21-Trego-Ks

Job Ticket: 22819

DST#: 1

Test Start: 2005.05.26 @ 07:20:14

## GENERAL INFORMATION:

Formation: **Topeka**  
Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:52:44

Time Test Ended: 12:11:14

Interval: 3383.00 ft (KB) To 3400.00 ft (KB) (TVD)

Total Depth: 3400.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole

Tester: Dan Bangle

Unit No: 21

Reference Elevations: 2216.00 ft (KB)

2208.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 6799

Inside

Press@RunDepth: 44.69 psig @ 3384.00 ft (KB)

Start Date: 2005.05.26

End Date:

2005.05.26

Start Time: 07:20:15

End Time:

12:11:14

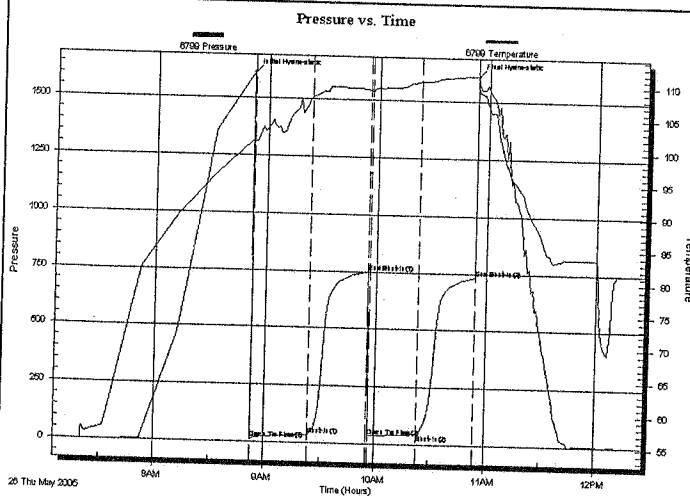
Capacity: 7000.00 psig

Last Calib.: 2005.05.26

Time On Btm: 2005.05.26 @ 08:52:14

Time Off Btm: 2005.05.26 @ 10:54:14

TEST COMMENT: IF-Weak building to 1 1/2"  
FF-Weak building to 1"  
Times-30-30-30-30



## PRESSURE SUMMARY

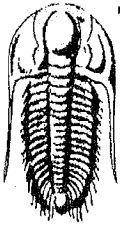
| Time (Mn.) | Pressure (psig) | Temp (deg F) | Annotation           |
|------------|-----------------|--------------|----------------------|
| 0          | 1609.35         | 101.31       | Initial Hydro-static |
| 1          | 13.15           | 100.91       | Open To Flow (1)     |
| 32         | 33.34           | 107.95       | Shut-In(1)           |
| 63         | 749.66          | 109.16       | End Shut-In(1)       |
| 64         | 34.12           | 108.81       | Open To Flow (2)     |
| 91         | 44.69           | 110.56       | Shut-In(2)           |
| 122        | 731.95          | 111.52       | End Shut-In(2)       |
| 122        | 1608.43         | 109.85       | Final Hydro-static   |

## Recovery

| Length (ft) | Description                | Volume (bbl) |
|-------------|----------------------------|--------------|
| 45.00       | Wtr Rw .20 @ 79 = 63000ppm | 0.36         |
| 20.00       | OCM 7%o 93% m              | 0.28         |
| 5.00        | CO                         | 0.07         |
|             |                            |              |
|             |                            |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

DNOC  
Box 372  
Hays Ks 67601  
  
ATTN: Ron Nelson

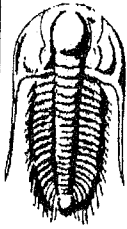
**Keller # 1-4**  
**4-13-21-Trego-Ks**  
Job Ticket: 22819      **DST#: 1**  
Test Start: 2005.05.26 @ 07:20:14

**Tool Information**

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3363.00 ft | Diameter: 3.80 inches | Volume: 47.17 bbl              | Tool Weight: 1500.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl               | Weight to Pull Loose: 45000.00 lb  |
|                           |                    |                       | <u>Total Volume: 47.32 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 31.00 ft           |                       |                                | String Weight: Initial 40000.00 lb |
| Depth to Top Packer:      | 3383.00 ft         |                       |                                | Final 40000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 17.00 ft           |                       |                                |                                    |
| Tool Length:              | 38.00 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         |            |          | 3363.00    |                                    |
| Shut In Tool              | 5.00         |            |          | 3368.00    |                                    |
| Hydraulic tool            | 5.00         |            |          | 3373.00    |                                    |
| Packer                    | 5.00         |            |          | 3378.00    | 21.00      Bottom Of Top Packer    |
| Packer                    | 5.00         |            |          | 3383.00    |                                    |
| Stubb                     | 1.00         |            |          | 3384.00    |                                    |
| Recorder                  | 0.00         | 6799       | Inside   | 3384.00    |                                    |
| Perforations              | 13.00        |            |          | 3397.00    |                                    |
| Recorder                  | 0.00         | 13254      | Outside  | 3397.00    |                                    |
| Bullhose                  | 3.00         |            |          | 3400.00    | 17.00      Bottom Packers & Anchor |
| <b>Total Tool Length:</b> | <b>38.00</b> |            |          |            |                                    |



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

DNOC

Keller # 1-4

Box 372  
Hays Ks 67601

4-13-21-Trego-Ks

Job Ticket: 22819

DST#: 1

ATTN: Ron Nelson

Test Start: 2005.05.26 @ 07:20:14

**Mud and Cushion Information**

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 60.00 sec/qt

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

Resistivity: ohm.m

Salinity: 6000.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API: deg API

Water Salinity: ppm

**Recovery Information**

Recovery Table

| Length<br>ft | Description                | Volume<br>bbl |
|--------------|----------------------------|---------------|
| 45.00        | Wtr Rw .20 @ 79 = 63000ppm | 0.358         |
| 20.00        | OCM 7% @ 93% m             | 0.281         |
| 5.00         | CO                         | 0.070         |

Total Length: 70.00 ft      Total Volume: 0.709 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

DST Test Number: 1

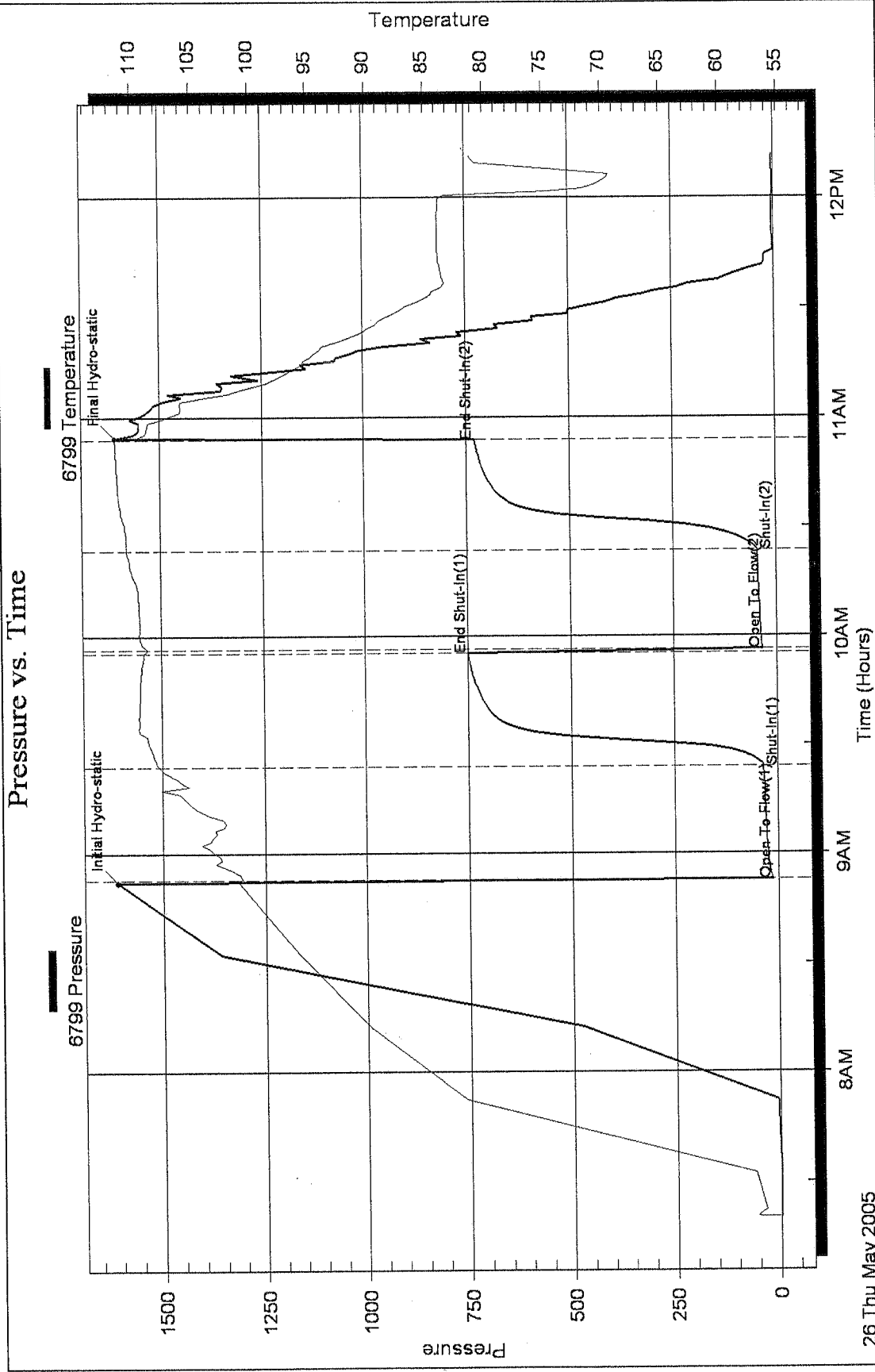
4-13-21-Trego-Ks

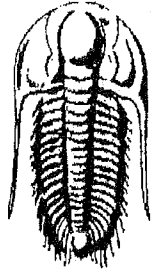
DNOC

Inside

Serial #: 6799

### Pressure vs. Time





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **DNOC**

Box 372  
Hays Ks 67601

ATTN: Ron Nelson

**4-13-21-Trego-Ks**

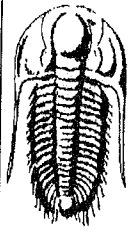
**Keller # 1-4**

Start Date: 2005.05.27 @ 08:32:18

End Date: 2005.05.27 @ 13:16:18

Job Ticket #: 22820                      DST #: 2

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

DNOC  
 Box 372  
 Hays Ks 67601  
 ATTN: Ron Nelson

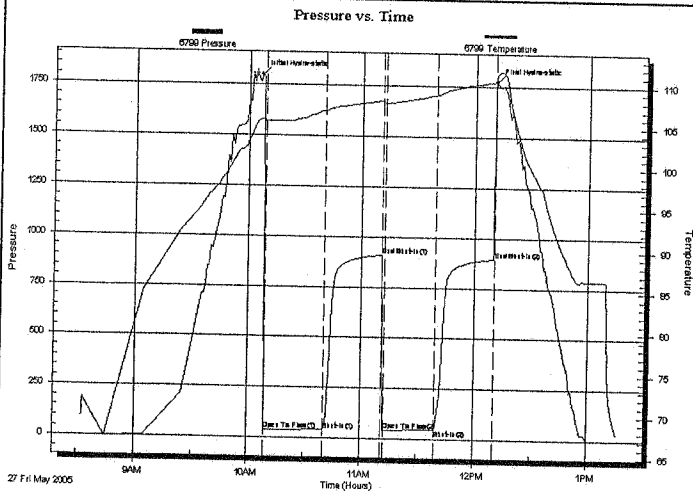
**Keller # 1-4**  
**4-13-21-Trego-Ks**  
 Job Ticket: 22820      DST#: 2  
 Test Start: 2005.05.27 @ 08:32:18

## GENERAL INFORMATION:

Formation: **K-L LKC**  
 Deviated: **No Whipstock:**      ft (KB)  
 Time Tool Opened: 10:08:48  
 Time Test Ended: 13:16:18  
 Interval: **3696.00 ft (KB) To 3740.00 ft (KB) (TVD)**  
 Total Depth: **3740.00 ft (KB) (TVD)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Good**  
 Test Type: **Conventional Bottom Hole**  
 Tester: **Dan Bangle**  
 Unit No: **21**  
 Reference Elevations: **2216.00 ft (KB)**  
    **2208.00 ft (CF)**  
    **KB to GR/CF: 8.00 ft**

**Serial #: 6799      Inside**  
 Press@RunDepth: **46.76 psig @ 3699.00 ft (KB)**  
 Start Date: **2005.05.27**      End Date: **2005.05.27**  
 Start Time: **08:32:19**      End Time: **13:16:18**  
 Capacity: **7000.00 psig**  
 Last Calib.: **2005.05.27**  
 Time On Btm: **2005.05.27 @ 10:06:48**  
 Time Off Btm: **2005.05.27 @ 12:11:18**

**TEST COMMENT:** Hit bridge @ 3340 - spudded tool - went thru bridge  
 IF-Weak steady 1/2" blow  
 FF-Weak died in 5 min  
 Times-30-30-30-30



## PRESSURE SUMMARY

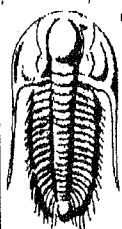
| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1799.14         | 105.74       | Initial Hydro-static |
| 2           | 37.05           | 105.43       | Open To Flow (1)     |
| 34          | 41.04           | 106.86       | Shut-In(1)           |
| 64          | 909.93          | 108.11       | End Shut-In(1)       |
| 66          | 43.81           | 107.82       | Open To Flow (2)     |
| 93          | 46.76           | 108.88       | Shut-In(2)           |
| 124         | 896.28          | 110.48       | End Shut-In(2)       |
| 125         | 1777.34         | 111.28       | Final Hydro-static   |

## Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 65.00       | DM          | 0.64         |
|             |             |              |
|             |             |              |
|             |             |              |
|             |             |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

DNOC  
Box 372  
Hays Ks 67601  
  
ATTN: Ron Nelson

**Keller # 1-4**  
**4-13-21-Trego-Ks**  
Job Ticket: 22820      **DST#: 2**  
Test Start: 2005.05.27 @ 08:32:18

### Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3675.00 ft | Diameter: 3.80 inches | Volume: 51.55 bbl              | Tool Weight: 2800.00 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: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl               | Weight to Pull Loose: 70000.00 lb  |
|                           |                    |                       | <u>Total Volume: 51.70 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 30.00 ft           |                       |                                | String Weight: Initial 42000.00 lb |
| Depth to Top Packer:      | 3696.00 ft         |                       |                                | Final 42000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 44.00 ft           |                       |                                |                                    |
| Tool Length:              | 65.00 ft           |                       |                                |                                    |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                                    |

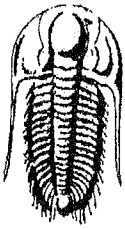
Tool Comments:

### Tool Description

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

|                 |       |       |         |         |                                    |
|-----------------|-------|-------|---------|---------|------------------------------------|
| Change Over Sub | 1.00  |       |         | 3676.00 |                                    |
| Shut In Tool    | 5.00  |       |         | 3681.00 |                                    |
| Hydraulic tool  | 5.00  |       |         | 3686.00 |                                    |
| Packer          | 5.00  |       |         | 3691.00 | 21.00      Bottom Of Top Packer    |
| Packer          | 5.00  |       |         | 3696.00 |                                    |
| Stubb           | 1.00  |       |         | 3697.00 |                                    |
| Perforations    | 1.00  |       |         | 3698.00 |                                    |
| Change Over Sub | 1.00  |       |         | 3699.00 |                                    |
| Recorder        | 0.00  | 6799  | Inside  | 3699.00 |                                    |
| Drill Pipe      | 31.00 |       |         | 3730.00 |                                    |
| Change Over Sub | 1.00  |       |         | 3731.00 |                                    |
| Recorder        | 0.00  | 13254 | Outside | 3731.00 |                                    |
| Perforations    | 6.00  |       |         | 3737.00 |                                    |
| Bullnose        | 3.00  |       |         | 3740.00 | 44.00      Bottom Packers & Anchor |

**Total Tool Length: 65.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

FLUID SUMMARY

DNOO

Keller # 1-4

Box 372  
Hays Ks 67601

4-13-21-Trego-Ks

Job Ticket: 22820

DST#: 2

ATTN: Ron Nelson

Test Start: 2005.05.27 @ 08:32:18

## 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: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4500.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

| Length<br>ft | Description | Volume<br>bbbl |
|--------------|-------------|----------------|
| 65.00        | DM          | 0.638          |

Total Length: 65.00 ft

Total Volume: 0.638 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

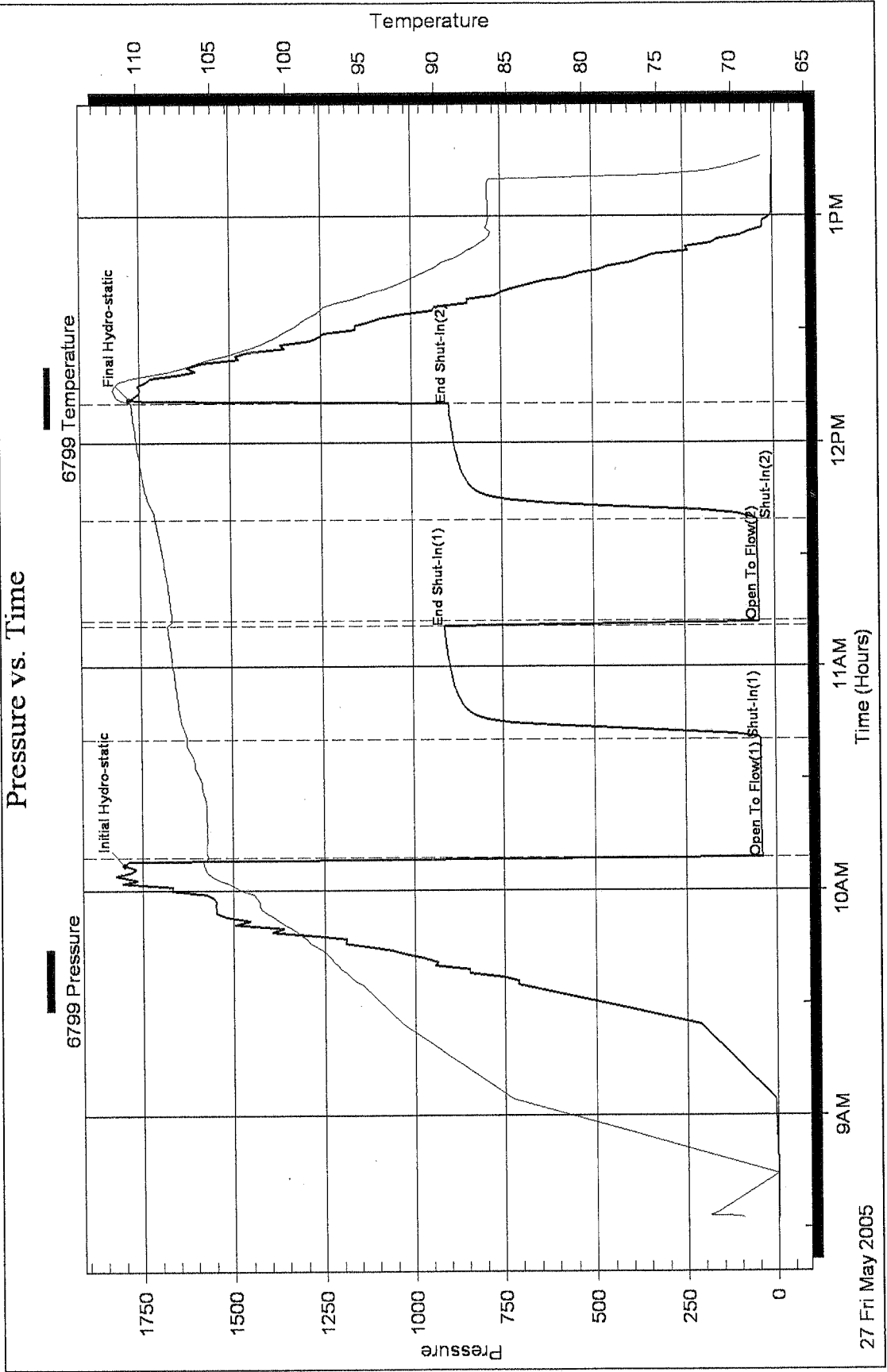
Serial #:

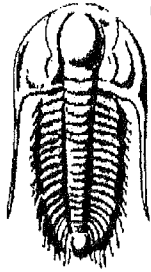
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time





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

## DRILL STEM TEST REPORT

Prepared For: **DNOC**

Box 372  
Hays Ks 67601

ATTN: Ron Nelson

**4-13-21-Trego-Ks**

**Keller # 1-4**

Start Date: 2005.05.27 @ 23:40:36

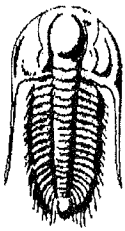
End Date: 2005.05.28 @ 05:59:36

Job Ticket #: 22821                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

DNOC  
 Box 372  
 Hays Ks 67601  
 ATTN: Ron Nelson

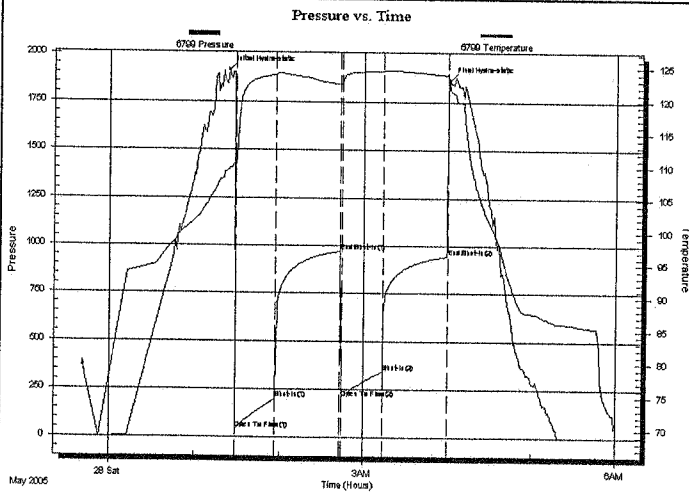
**Keller # 1-4**  
**4-13-21-Trego-Ks**  
 Job Ticket: 22821      DST#: 3  
 Test Start: 2005.05.27 @ 23:40:36

## GENERAL INFORMATION:

Formation: **Marmaton**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 01:29:06  
 Time Test Ended: 05:59:36  
 Interval: **3854.00 ft (KB) To 3885.00 ft (KB) (TVD)**  
 Total Depth: 3885.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole  
 Tester: Dan Bangle  
 Unit No: 21  
 Reference Elevations: 2216.00 ft (KB)  
 2208.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 6799 Inside**  
 Press@RunDepth: 340.80 psig @ 3855.00 ft (KB)  
 Start Date: 2005.05.27 End Date: 2005.05.28  
 Start Time: 23:40:37 End Time: 05:59:36  
 Capacity: 7000.00 psig  
 Last Calib.: 2005.05.28  
 Time On Btm: 2005.05.28 @ 01:24:06  
 Time Off Btm: 2005.05.28 @ 04:01:06

**TEST COMMENT:** Hit bridge @ 3340 - went thru  
 IF-Strong B-B in 6 min  
 FF-Strong B-B in 13 min  
 Times-30-45-30-45



## PRESSURE SUMMARY

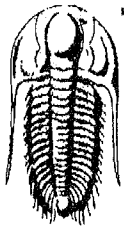
| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1914.86         | 109.51       | Initial Hydro-static |
| 5           | 40.26           | 110.27       | Open To Flow (1)     |
| 33          | 200.60          | 123.88       | Shut-In(1)           |
| 79          | 970.04          | 122.52       | End Shut-In(1)       |
| 80          | 206.85          | 122.37       | Open To Flow (2)     |
| 110         | 340.80          | 124.40       | Shut-In(2)           |
| 156         | 945.21          | 123.86       | End Shut-In(2)       |
| 157         | 1865.78         | 121.81       | Final Hydro-static   |

## Recovery

| Length (ft) | Description                | Volume (bbl) |
|-------------|----------------------------|--------------|
| 800.00      | Wtr Rw .20 @ 78 = 48000ppm | 10.95        |
| 5.00        | CO                         | 0.07         |
| 0.00        | 124 GIP                    | 0.00         |
|             |                            |              |
|             |                            |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

DNOC  
Box 372  
Hays Ks 67601

ATTN: Ron Nelson

**Keller # 1-4**

**4-13-21-Trego-Ks**

Job Ticket: 22821

DST#: 3

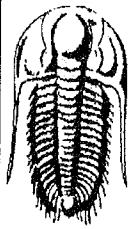
Test Start: 2005.05.27 @ 23:40:36

### Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3881.00 ft | Diameter: 3.80 inches | Volume: 54.44 bbl              | Tool Weight: 3000.00 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: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl               | Weight to Pull Loose: 50000.00 lb  |
|                           |                    |                       | <b>Total Volume: 54.59 bbl</b> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 78.00 ft           |                       |                                | String Weight: Initial 42000.00 lb |
| Depth to Top Packer:      | 3854.00 ft         |                       |                                | Final 48000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 31.00 ft           |                       |                                |                                    |
| Tool Length:              | 52.00 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         |            |          | 3834.00    |                               |
| Shut In Tool              | 5.00         |            |          | 3839.00    |                               |
| Hydraulic tool            | 5.00         |            |          | 3844.00    |                               |
| Packer                    | 5.00         |            |          | 3849.00    | 21.00 Bottom Of Top Packer    |
| Packer                    | 5.00         |            |          | 3854.00    |                               |
| Stubb                     | 1.00         |            |          | 3855.00    |                               |
| Recorder                  | 0.00         | 6799       | Inside   | 3855.00    |                               |
| Perforations              | 27.00        |            |          | 3882.00    |                               |
| Recorder                  | 0.00         | 13254      | Outside  | 3882.00    |                               |
| Bullnose                  | 3.00         |            |          | 3885.00    | 31.00 Bottom Packers & Anchor |
| <b>Total Tool Length:</b> | <b>52.00</b> |            |          |            |                               |



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

DNOC

**Keller # 1-4**

Box 372  
Hays Ks 67601

**4-13-21-Trego-Ks**

Job Ticket: 22821

**DST#: 3**

ATTN: Ron Nelson

Test Start: 2005.05.27 @ 23:40:36

**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:

48000 ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4500.00 ppm

Filter Cake: inches

**Recovery Information**

Recovery Table

| Length<br>ft | Description                | Volume<br>bbbl |
|--------------|----------------------------|----------------|
| 800.00       | Wtr Rw .20 @ 78 = 48000ppm | 10.949         |
| 5.00         | CO                         | 0.070          |
| 0.00         | 124 GIP                    | 0.000          |

Total Length: 805.00 ft

Total Volume: 11.019 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 6799

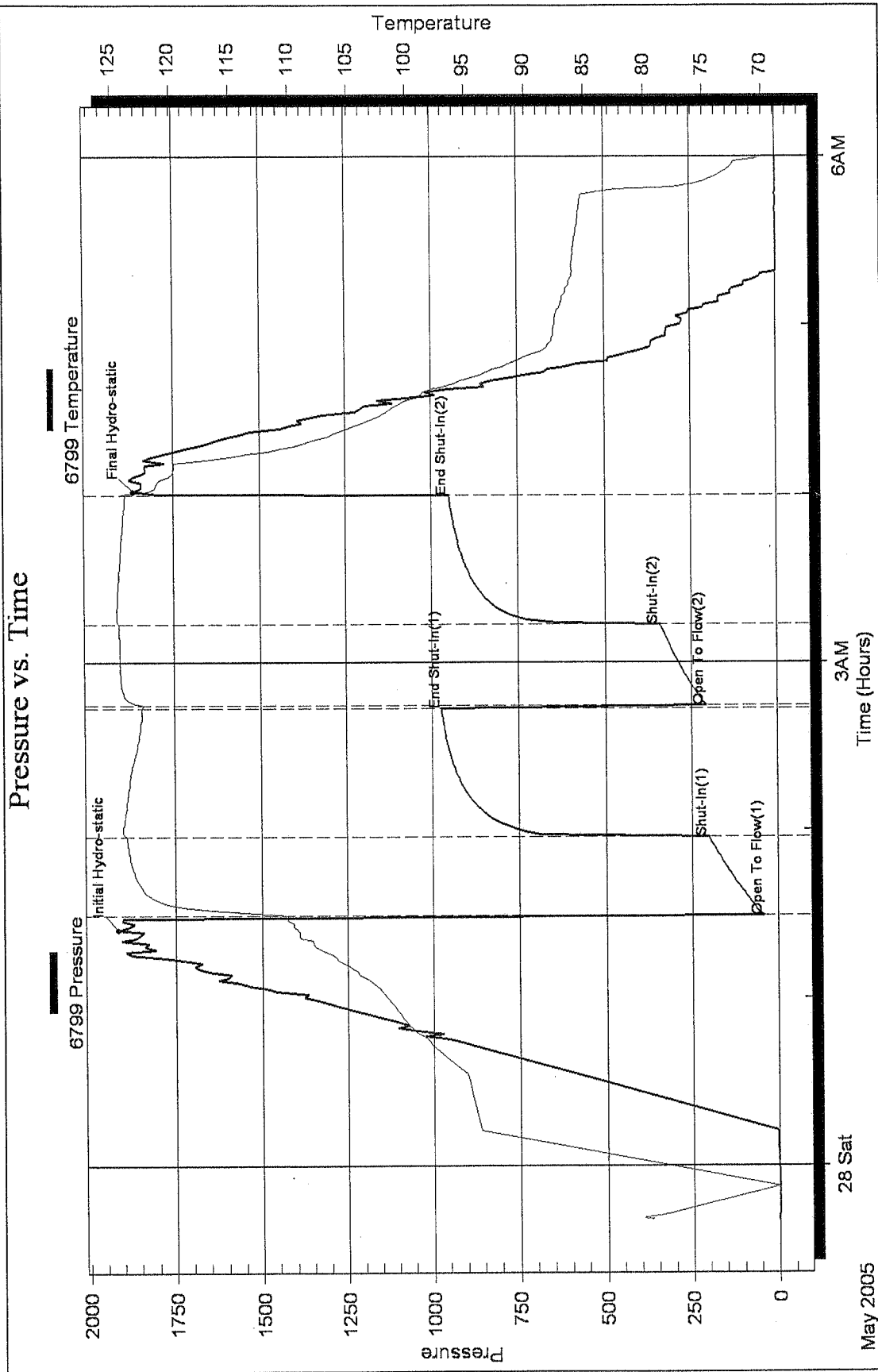
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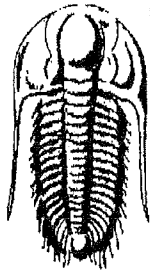
DNOC

4-13-21-Trego-Ks

DST Test Number: 3

### Pressure vs. Time





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **DNOC**

Box 372  
Hays Ks 67601

ATTN: Ron Nelson

**4-13-21-Trego-Ks**

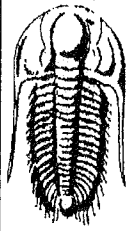
**Keller # 1-4**

Start Date: 2005.05.28 @ 13:37:39

End Date: 2005.05.28 @ 18:39:39

Job Ticket #: 22822                      DST #: 4

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

DNOC

Box 372  
Hays Ks 67601

ATTN: Ron Nelson

Keller # 1-4

4-13-21-Trego-Ks

Job Ticket: 22822

DST#: 4

Test Start: 2005.05.28 @ 13:37:39

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:15:09  
 Time Test Ended: 18:39:39

Test Type: Conventional Bottom Hole  
 Tester: Dan Bangle  
 Unit No: 21

Interval: **3880.00 ft (KB) To 3923.00 ft (KB) (TVD)**  
 Total Depth: 3923.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2216.00 ft (KB)  
 2208.00 ft (CF)  
 KB to GR/CF: 8.00 ft

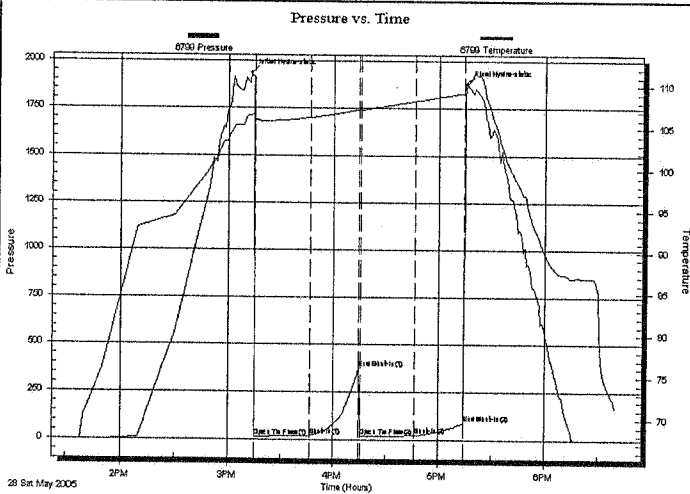
Serial #: 6799

Inside

Press@RunDepth: 23.87 psig @ 3881.00 ft (KB)  
 Start Date: 2005.05.28 End Date: 2005.05.28  
 Start Time: 13:37:40 End Time: 18:39:39

Capacity: 7000.00 psig  
 Last Calib.: 2005.05.28  
 Time On Btm: 2005.05.28 @ 15:13:09  
 Time Off Btm: 2005.05.28 @ 17:15:39

TEST COMMENT: IF-Weak died in 5 min  
 FF-No blow  
 Times-30-30-30-30



## PRESSURE SUMMARY

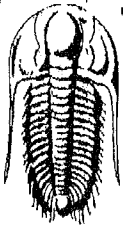
| Time (Mn.) | Pressure (psig) | Temp (deg F) | Annotation           |
|------------|-----------------|--------------|----------------------|
| 0          | 1933.38         | 106.53       | Initial Hydro-static |
| 2          | 14.49           | 105.67       | Open To Flow (1)     |
| 34         | 20.93           | 106.28       | Shut-In(1)           |
| 62         | 378.99          | 107.27       | End Shut-In(1)       |
| 63         | 21.28           | 107.20       | Open To Flow (2)     |
| 94         | 23.87           | 108.26       | Shut-In(2)           |
| 121        | 89.03           | 109.21       | End Shut-In(2)       |
| 123        | 1877.33         | 110.60       | Final Hydro-static   |

## Recovery

| Length (ft) | Description   | Volume (bbl) |
|-------------|---------------|--------------|
| 10.00       | OCM 10%o 90%m | 0.05         |
|             |               |              |
|             |               |              |
|             |               |              |
|             |               |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

DNOC  
Box 372  
Hays Ks 67601  
ATTN: Ron Nelson

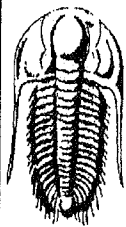
**Keller # 1-4**  
**4-13-21-Trego-Ks**  
Job Ticket: 22822      **DST#: 4**  
Test Start: 2005.05.28 @ 13:37:39

**Tool Information**

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3832.00 ft | Diameter: 3.80 inches | Volume: 53.75 bbl              | Tool Weight: 2800.00 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: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl               | Weight to Pull Loose: 50000.00 lb  |
|                           |                    |                       | <u>Total Volume: 53.90 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 3.00 ft            |                       |                                | String Weight: Initial 42000.00 lb |
| Depth to Top Packer:      | 3880.00 ft         |                       |                                | Final 42000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 43.00 ft           |                       |                                |                                    |
| Tool Length:              | 64.00 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         |            |          | 3860.00    |                                    |
| Shut In Tool              | 5.00         |            |          | 3865.00    |                                    |
| Hydraulic tool            | 5.00         |            |          | 3870.00    |                                    |
| Packer                    | 5.00         |            |          | 3875.00    | 21.00      Bottom Of Top Packer    |
| Packer                    | 5.00         |            |          | 3880.00    |                                    |
| Stubb                     | 1.00         |            |          | 3881.00    |                                    |
| Recorder                  | 0.00         | 6799       | Inside   | 3881.00    |                                    |
| Perforations              | 39.00        |            |          | 3920.00    |                                    |
| Recorder                  | 0.00         | 13254      | Outside  | 3920.00    |                                    |
| Bullnose                  | 3.00         |            |          | 3923.00    | 43.00      Bottom Packers & Anchor |
| <b>Total Tool Length:</b> | <b>64.00</b> |            |          |            |                                    |



**TRILOBITE**  
TESTING, INC

# DRILL STEM TEST REPORT

FLUID SUMMARY

DNOC

Keller # 1-4

Box 372  
Hays Ks 67601

4-13-21-Trego-Ks

Job Ticket: 22822

DST#: 4

ATTN: Ron Nelson

Test Start: 2005.05.28 @ 13:37:39

## Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 57.00 sec/qt

Water Loss: 8.38 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 4000.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: deg API

deg API

ppm

## Recovery Information

Recovery Table

| Length<br>ft | Description           | Volume<br>bbl |
|--------------|-----------------------|---------------|
| 10.00        | OCM 10%o 90% <i>m</i> | 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:

Serial #: 6799

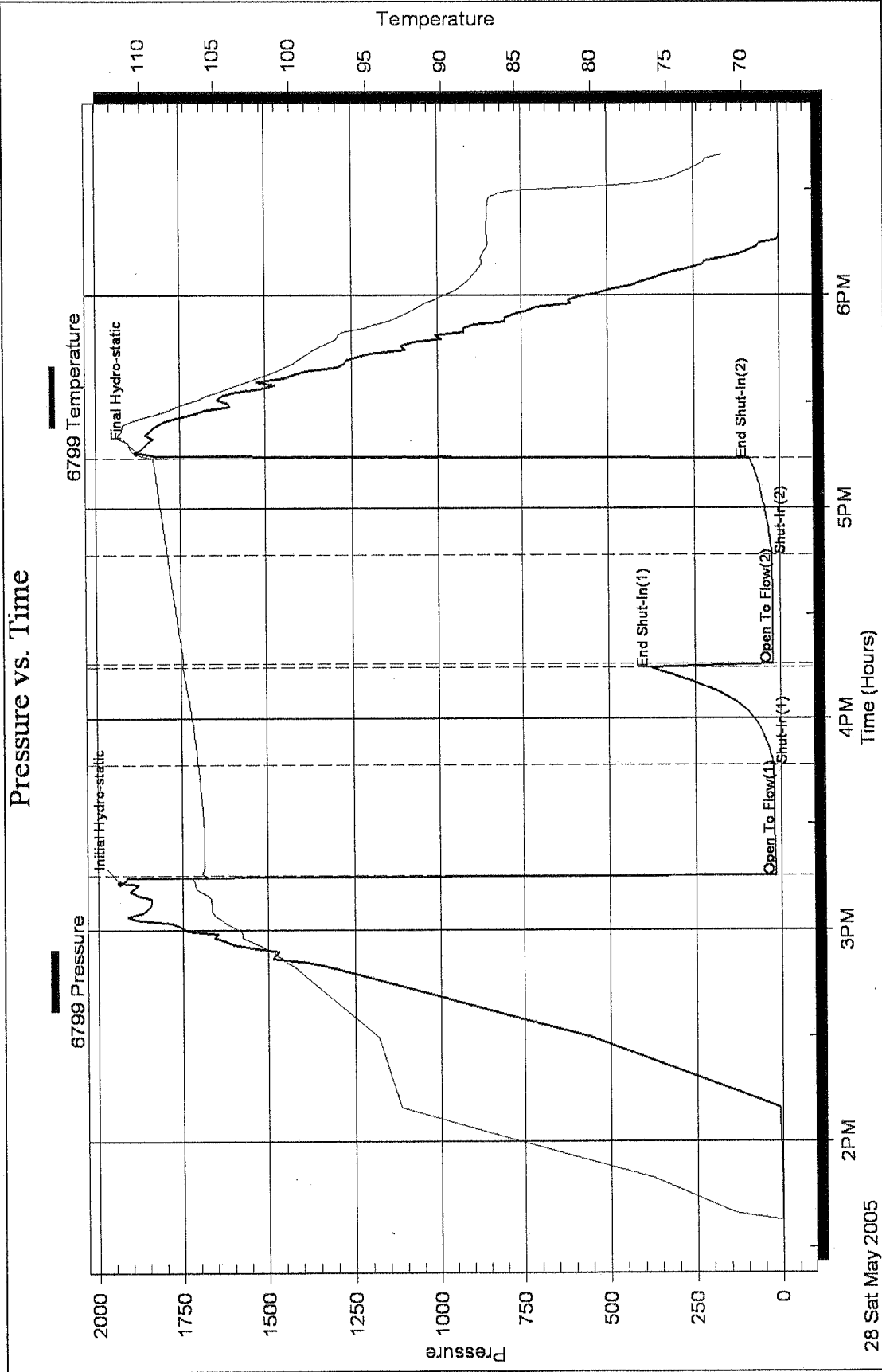
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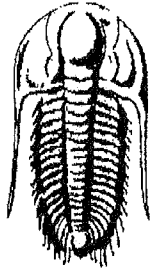
DNOC

4-13-21-Trego-Ks

DST Test Number: 4

### Pressure vs. Time





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

## DRILL STEM TEST REPORT

Prepared For: **DNOC**

Box 372  
Hays Ks 67601

ATTN: Ron Nelson

**4-13-21-Trego-Ks**

**Keller # 1-4**

Start Date: 2005.05.29 @ 08:45:49

End Date: 2005.05.29 @ 14:48:19

Job Ticket #: 22823                      DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

DNOC

Keller # 1-4

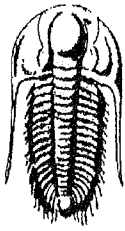
4-13-21-Trego-Ks

DST # 5

C-D

LKC

2005.05.29



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

DNOC  
Box 372  
Hays Ks 67601  
ATTN: Ron Nelson

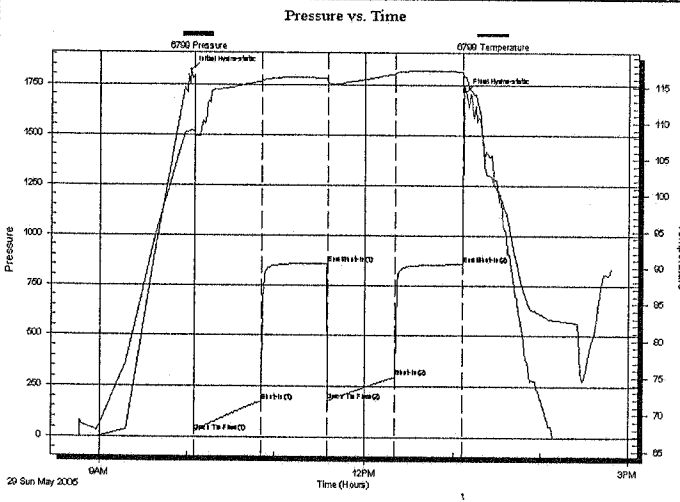
Keller # 1-4  
4-13-21-Trego-Ks  
Job Ticket: 22823      DST#: 5  
Test Start: 2005.05.29 @ 08:45:49

## GENERAL INFORMATION:

Formation: C-D LKC  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 10:05:19  
Time Test Ended: 14:48:19  
Interval: 3545.00 ft (KB) To 3587.00 ft (KB) (TVD)  
Total Depth: 4009.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole  
Tester: Dan Bangle  
Unit No: 21  
Reference Elevations: 2216.00 ft (KB)  
2208.00 ft (CF)  
KB to GR/CF: 8.00 ft

**Serial #: 6799**      Inside  
Press@RunDepth: 298.06 psig @ 3546.00 ft (KB)      Capacity: 7000.00 psig  
Start Date: 2005.05.29      End Date: 2005.05.29      Last Calib.: 2005.05.29  
Start Time: 08:45:50      End Time: 14:48:19      Time On Btm: 2005.05.29 @ 10:02:49  
Time Off Btm: 2005.05.29 @ 13:07:49

**TEST COMMENT:** IF-Strong B-B in 16 min  
FF-Weak building to 6"  
Times-45-45-45-45



## PRESSURE SUMMARY

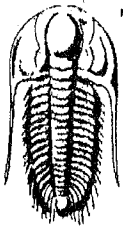
| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1821.38         | 108.93       | Initial Hydro-static |
| 3           | 24.19           | 108.22       | Open To Flow (1)     |
| 48          | 177.47          | 115.62       | Shut-In(1)           |
| 92          | 858.29          | 116.09       | End Shut-In(1)       |
| 93          | 180.89          | 115.66       | Open To Flow (2)     |
| 138         | 298.06          | 116.71       | Shut-In(2)           |
| 183         | 855.19          | 117.05       | End Shut-In(2)       |
| 185         | 1717.30         | 116.33       | Final Hydro-static   |

## Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 555.00      | Wtr         | 7.51         |
|             |             |              |
|             |             |              |
|             |             |              |
|             |             |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

DNOC  
Box 372  
Hays Ks 67601  
  
ATTN: Ron Nelson

Keller # 1-4  
**4-13-21-Trego-Ks**  
Job Ticket: 22823      **DST#: 5**  
Test Start: 2005.05.29 @ 08:45:49

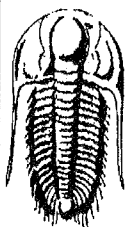
**Tool Information**

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3893.00 ft | Diameter: 3.80 inches | Volume: 54.61 bbl              | Tool Weight: 4000.00 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: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl               | Weight to Pull Loose: 50000.00 lb  |
|                           |                    |                       | <u>Total Volume: 54.76 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 399.00 ft          |                       |                                | String Weight: Initial 42000.00 lb |
| Depth to Top Packer:      | 3545.00 ft         |                       |                                | Final 46000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 470.00 ft          |                       |                                |                                    |
| Tool Length:              | 491.00 ft          |                       |                                |                                    |
| Number of Packers:        | 3                  | Diameter: 6.75 inches |                                |                                    |

Tool Comments:

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths                          |
|------------------|-------------|------------|----------|------------|---|
| Change Over Sub  | 1.00        |            |          | 3525.00    |   |
| Shut In Tool     | 5.00        |            |          | 3530.00    |   |
| Hydraulic tool   | 5.00        |            |          | 3535.00    |   |
| Packer           | 5.00        |            |          | 3540.00    | 21.00      Bottom Of Top Packer         |
| Packer           | 5.00        |            |          | 3545.00    |   |
| Stubb            | 1.00        |            |          | 3546.00    |   |
| Recorder         | 0.00        | 6799       | Inside   | 3546.00    |   |
| Perforations     | 37.00       |            |          | 3583.00    |   |
| Recorder         | 0.00        | 13254      | Outside  | 3583.00    |   |
| Blank Off Sub    | 1.00        |            |          | 3584.00    |   |
| Blank Spacing    | 3.00        |            |          | 3587.00    | 470.00      Tool Interval               |
| Packer           | 5.00        |            |          | 3592.00    |   |
| Stubb            | 1.00        |            |          | 3593.00    |   |
| Recorder         | 0.00        | 13248      | Outside  | 3593.00    |   |
| Drill Pipe       | 422.00      |            |          | 4015.00    | 1000490.00      Bottom Packers & Anchor |

**Total Tool Length: 491.00**



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

DNOO

Keller # 1-4

Box 372  
Hays Ks 67601

4-13-21-Trego-Ks

Job Ticket: 22823

DST#: 5

ATTN: Ron Nelson

Test Start: 2005.05.29 @ 08:45:49

**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: 57.00 sec/qt

Cushion Volume:

bbl

Water Loss: 8.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: inches

**Recovery Information**

Recovery Table

| Length<br>ft | Description | Volume<br>bbl |
|--------------|-------------|---------------|
| 555.00       | Wtr         | 7.512         |

Total Length: 555.00 ft

Total Volume: 7.512 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 6799

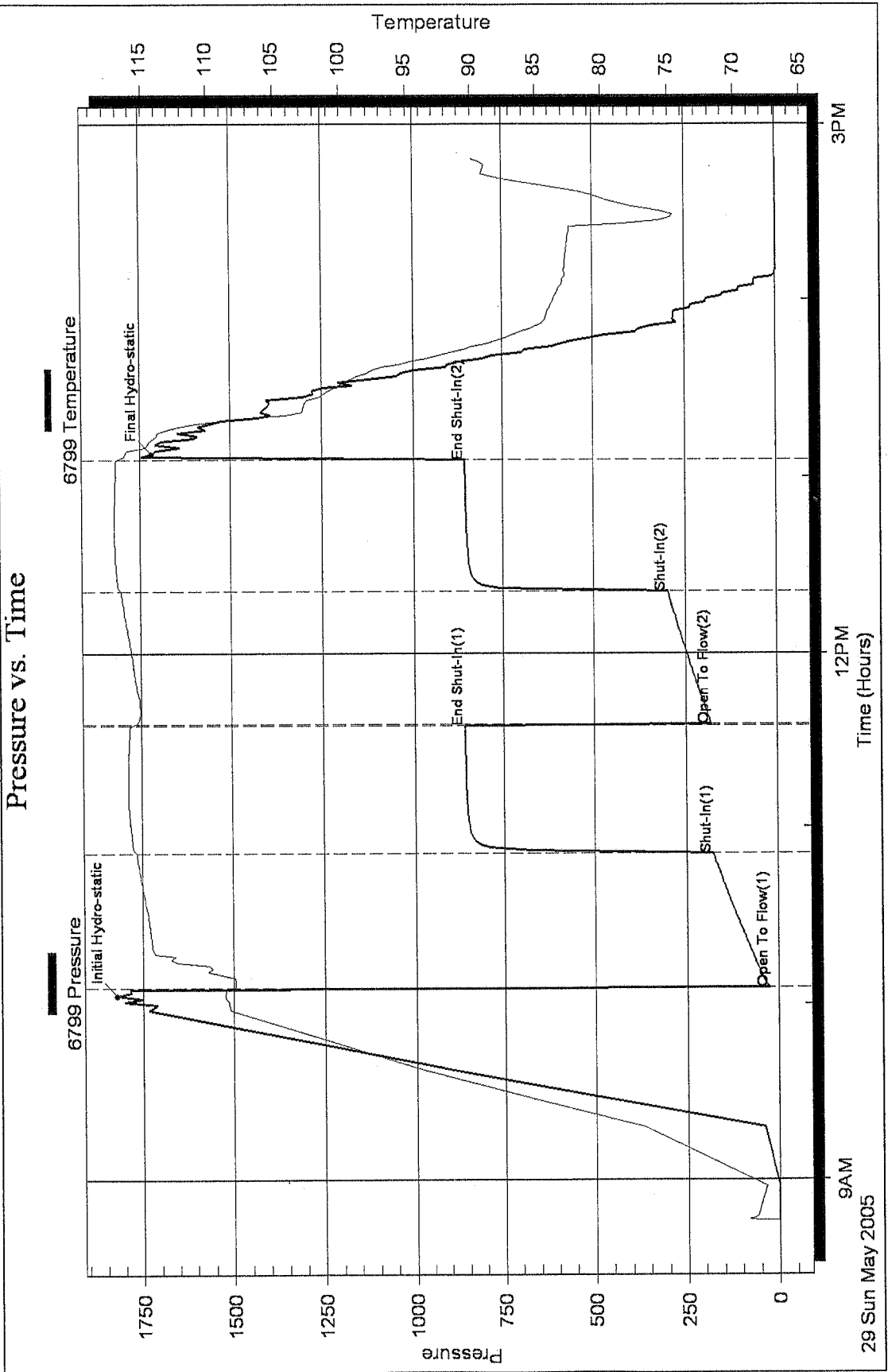
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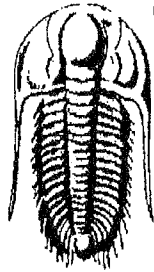
DNOC

4-13-21-Trego-Ks

DST Test Number: 5

### Pressure vs. Time





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **DNOC**

Box 372  
Hays Ks 67601

ATTN: Ron Nelson

**4-13-21-Trego-Ks**

**Keller # 1-4**

Start Date: 2005.05.29 @ 15:38:11

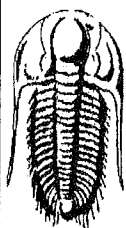
End Date: 2005.05.29 @ 20:40:11

Job Ticket #: 22824                      DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

DNOC  
 Box 372  
 Hays Ks 67601  
 ATTN: Ron Nelson

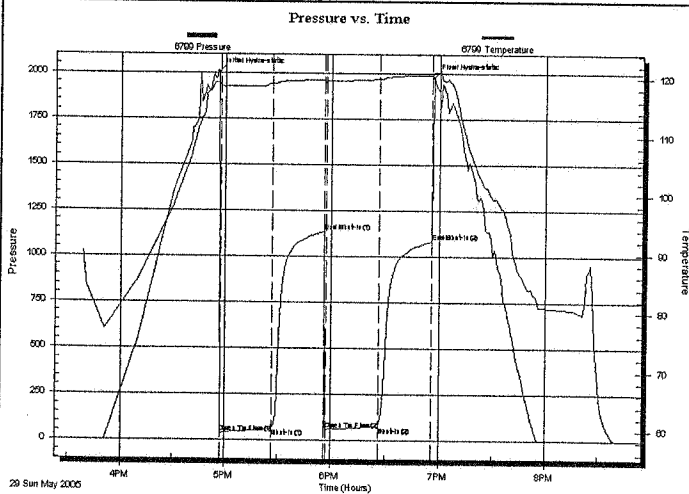
**Keller # 1-4**  
**4-13-21-Trego-Ks**  
 Job Ticket: 22824      DST#: 6  
 Test Start: 2005.05.29 @ 15:38:11

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: **No Whipstock:**                      ft (KB)  
 Time Tool Opened: 16:57:41  
 Time Test Ended: 20:40:11  
 Interval: **3910.00 ft (KB) To 3955.00 ft (KB) (TVD)**  
 Total Depth: **3400.00 ft (KB) (TVD)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Good**  
 Test Type: **Conventional Bottom Hole**  
 Tester: **Dan Bangle**  
 Unit No: **21**  
 Reference Elevations: **2216.00 ft (KB)**  
    **2208.00 ft (CF)**  
    KB to GR/CF: **8.00 ft**

**Serial #: 6799**      **Inside**  
 Press@RunDepth: **74.07 psig @ 3913.00 ft (KB)**  
 Start Date: **2005.05.29**      End Date: **2005.05.29**  
 Start Time: **15:38:12**      End Time: **20:40:11**  
 Capacity: **7000.00 psig**  
 Last Calib.: **2005.05.29**  
 Time On Btm: **2005.05.29 @ 16:56:11**  
 Time Off Btm: **2005.05.29 @ 18:56:41**

**TEST COMMENT:** IF-Weak building to 1 1/2"  
 FF-Weak building to 1/2"  
 Times-30-30-30-30



## PRESSURE SUMMARY

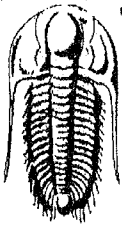
| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 2004.10         | 119.26       | Initial Hydro-static |
| 2           | 37.81           | 118.71       | Open To Flow (1)     |
| 31          | 60.71           | 119.04       | Shut-In(1)           |
| 60          | 1133.82         | 119.76       | End Shut-In(1)       |
| 61          | 57.74           | 119.45       | Open To Flow (2)     |
| 90          | 74.07           | 119.82       | Shut-In(2)           |
| 120         | 1081.57         | 120.59       | End Shut-In(2)       |
| 121         | 1975.41         | 120.97       | Final Hydro-static   |

## Recovery

| Length (ft) | Description     | Volume (bbl) |
|-------------|-----------------|--------------|
| 90.00       | OCM 10% @ 90% m | 0.99         |
| 30.00       | CO              | 0.42         |
| 0.00        | 120 GIP         | 0.00         |
|             |                 |              |
|             |                 |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

DNOC  
Box 372  
Hays Ks 67601  
  
ATTN: Ron Nelson

**Keller # 1-4**  
**4-13-21-Trego-Ks**  
Job Ticket: 22824      **DST#: 6**  
Test Start: 2005.05.29 @ 15:38:11

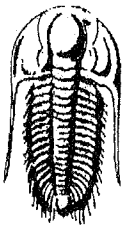
**Tool Information**

|                           |                    |                       |                   |                                    |
|---------------------------|--------------------|-----------------------|-------------------|------------------------------------|
| Drill Pipe:               | Length: 3888.00 ft | Diameter: 3.80 inches | Volume: 54.54 bbl | Tool Weight: 3500.00 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: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl  | Weight to Pull Loose: 55000.00 lb  |
|                           |                    | <b>Total Volume:</b>  | <b>54.69 bbl</b>  | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 29.00 ft           |                       |                   | String Weight: Initial 42000.00 lb |
| Depth to Top Packer:      | 3910.00 ft         |                       |                   | Final 42000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                   |                                    |
| Interval between Packers: | 101.00 ft          |                       |                   |                                    |
| Tool Length:              | 122.00 ft          |                       |                   |                                    |
| Number of Packers:        | 3                  | Diameter: 6.75 inches |                   |                                    |

Tool Comments:

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths                     |
|------------------|-------------|------------|----------|------------|------------------------------------|
| Change Over Sub  | 1.00        |            |          | 3890.00    |                                    |
| Shut In Tool     | 5.00        |            |          | 3895.00    |                                    |
| Hydraulic tool   | 5.00        |            |          | 3900.00    |                                    |
| Packer           | 5.00        |            |          | 3905.00    | 21.00 Bottom Of Top Packer         |
| Packer           | 5.00        |            |          | 3910.00    |                                    |
| Stubb            | 1.00        |            |          | 3911.00    |                                    |
| Perforations     | 1.00        |            |          | 3912.00    |                                    |
| Change Over Sub  | 1.00        |            |          | 3913.00    |                                    |
| Recorder         | 0.00        | 6799       | Inside   | 3913.00    |                                    |
| Drill Pipe       | 31.00       |            |          | 3944.00    |                                    |
| Change Over Sub  | 1.00        |            |          | 3945.00    |                                    |
| Recorder         | 0.00        | 13254      | Outside  | 3945.00    |                                    |
| Perforations     | 6.00        |            |          | 3951.00    |                                    |
| Blank Off Sub    | 1.00        |            |          | 3952.00    |                                    |
| Blank Spacing    | 3.00        |            |          | 3955.00    | 101.00 Tool Interval               |
| Packer           | 2.00        |            |          | 3957.00    |                                    |
| Stubb            | 1.00        |            |          | 3958.00    |                                    |
| Drill Pipe       | 53.00       |            |          | 4011.00    | 1000121.00 Bottom Packers & Anchor |

**Total Tool Length: 122.00**



**TRILOBITE**  
TESTING, INC

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

DNOC

Keller # 1-4

Box 372  
Hays Ks 67601

4-13-21-Trego-Ks

Job Ticket: 22824

DST#: 6

ATTN: Ron Nelson

Test Start: 2005.05.29 @ 15:38:11

**Mud and Cushion Information**

Mud Type: Gel Chem

Cushion Type:

Oil API:

36 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: inches

**Recovery Information**

Recovery Table

| Length<br>ft | Description           | Volume<br>bbl |
|--------------|-----------------------|---------------|
| 90.00        | OCM 10%o 90% <i>m</i> | 0.989         |
| 30.00        | CO                    | 0.421         |
| 0.00         | 120 GIP               | 0.000         |

Total Length: 120.00 ft

Total Volume: 1.410 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 6799

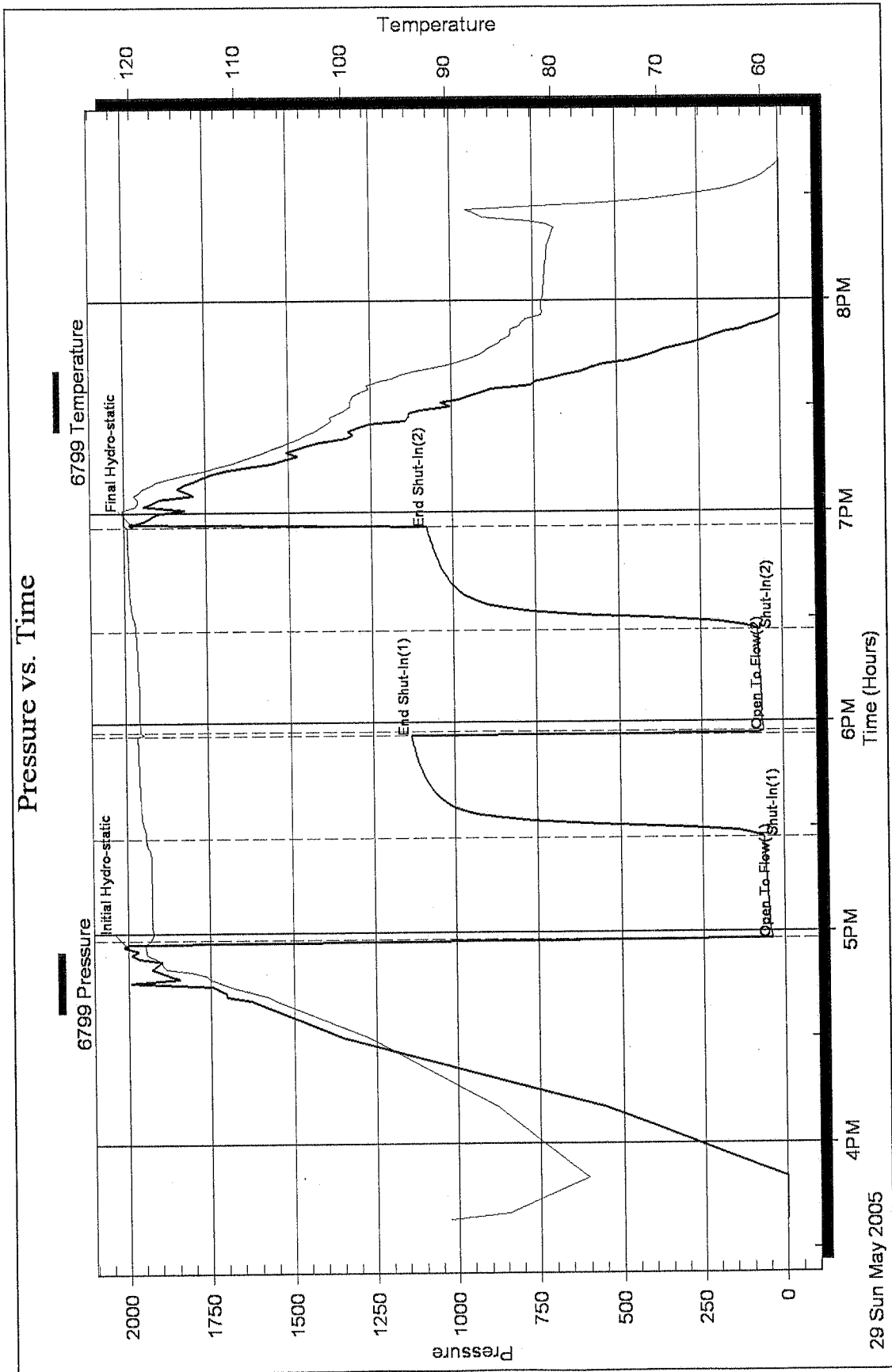
Inside

DNOG

4-13-21-Trego-Ks

DST Test Number: 6

### Pressure vs. Time



29 Sun May 2005

Triobite Testing, Inc

Ref. No: 22824

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