



DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co. Inc**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Red #1-36

36-14S-21W Trego,KS

Start Date: 2018.04.05 @ 14:05:00

End Date: 2018.04.05 @ 19:25:02

Job Ticket #: 63070 DST #: 1

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

Printed: 2018.04.09 @ 15:47:11



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63070

DST#: 1

ATTN: Marc Downing

Test Start: 2018.04.05 @ 14:05:00

GENERAL INFORMATION:

Formation: **LKC E**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:53:47

Time Test Ended: 19:25:02

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72 Hays/ 52

Interval: 3454.00 ft (KB) To 3473.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3473.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6755

Inside

Press@RunDepth: 20.32 psig @ 3455.00 ft (KB)

Capacity: psig

Start Date: 2018.04.05

End Date:

2018.04.05

Last Calib.:

2018.04.05

Start Time: 14:05:01

End Time:

19:25:02

Time On Btm:

2018.04.05 @ 15:53:02

Time Off Btm:

2018.04.05 @ 17:55:02

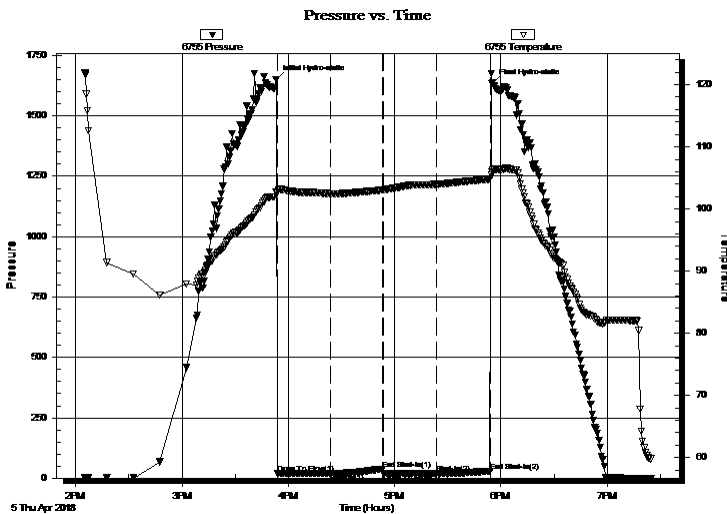
TEST COMMENT: IFP 30 Mintues/ Blow built to 3/4"

ISI 30 Mintues/ No blow back

FFP 30 Minutes/ Dead no blow

FSI 30 Mintues/ No blow back

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1650.83 | 102.66 | Initial Hydro-static |
| 1 | 18.57 | 102.63 | Open To Flow (1) |
| 31 | 20.42 | 102.47 | Shut-In(1) |
| 61 | 38.25 | 103.06 | End Shut-In(1) |
| 61 | 19.31 | 103.08 | Open To Flow (2) |
| 91 | 20.32 | 103.97 | Shut-In(2) |
| 121 | 29.69 | 104.84 | End Shut-In(2) |
| 122 | 1632.22 | 106.01 | Final Hydro-static |

Recovery

Gas Rates

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 1.00 | Mud 100% | 0.00 |
| | | |
| | | |
| | | |
| | | |

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63070

DST#: 1

ATTN: Marc Downing

Test Start: 2018.04.05 @ 14:05:00

GENERAL INFORMATION:

Formation: **LKC E**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:53:47

Time Test Ended: 19:25:02

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72 Hays/ 52

Interval: 3454.00 ft (KB) To 3473.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3473.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6752 Outside

Press@RunDepth: 32.14 psig @ 3456.00 ft (KB)

Capacity: psig

Start Date: 2018.04.05

End Date:

2018.04.05

Last Calib.:

2018.04.05

Start Time: 14:05:01

End Time:

19:25:02

Time On Btm:

2018.04.05 @ 15:53:17

Time Off Btm:

2018.04.05 @ 17:55:02

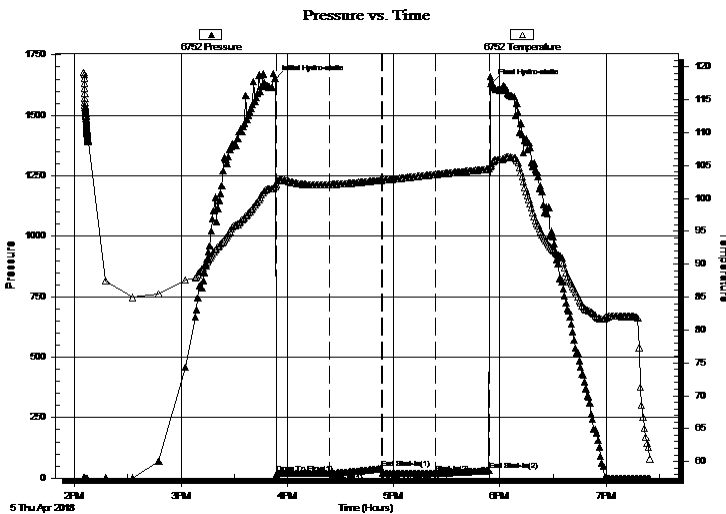
TEST COMMENT: IFP 30 Mintues/ Blow built to 3/4"

ISI 30 Mintues/ No blow back

FFP 30 Minutes/ Dead no blow

FSI 30 Mintues/ No blow back

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1649.90 | 102.03 | Initial Hydro-static |
| 1 | 18.59 | 102.14 | Open To Flow (1) |
| 31 | 19.01 | 102.11 | Shut-In(1) |
| 60 | 39.48 | 102.76 | End Shut-In(1) |
| 61 | 19.00 | 102.78 | Open To Flow (2) |
| 91 | 19.57 | 103.64 | Shut-In(2) |
| 121 | 32.14 | 104.49 | End Shut-In(2) |
| 122 | 1631.32 | 105.00 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 1.00 | Mud 100% | 0.00 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63070

DST#: 1

ATTN: Marc Downing

Test Start: 2018.04.05 @ 14:05:00

Tool Information

| | | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe: | Length: 3433.00 ft | Diameter: 3.80 inches | Volume: 48.16 bbl | Tool Weight: | 2000.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: | 20000.00 lb |
| Drill Collar: | Length: 30.00 ft | Diameter: 2.25 inches | Volume: 0.15 bbl | Weight to Pull Loose: | 78000.00 lb |
| | | | <u>Total Volume: 48.31 bbl</u> | Tool Chased | 0.00 ft |
| Drill Pipe Above KB: | 29.00 ft | | | String Weight: Initial | 56000.00 lb |
| Depth to Top Packer: | 3454.00 ft | | | Final | 56000.00 lb |
| Depth to Bottom Packer: | ft | | | | |
| Interval between Packers: | 19.00 ft | | | | |
| Tool Length: | 39.00 ft | | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------|-------------|------------|----------|------------|----------------------------|
| Shut-In Tool | 5.00 | | | 3439.00 | |
| Hydraulic tool | 5.00 | | | 3444.00 | |
| Top Packer | 5.00 | | | 3449.00 | |
| Packer | 5.00 | | | 3454.00 | 20.00 Bottom Of Top Packer |
| Recorder | 1.00 | 6755 | Inside | 3455.00 | |
| Recorder | 1.00 | 6752 | Outside | 3456.00 | |
| Anchor | 14.00 | | | 3470.00 | |
| Bullnose | 3.00 | | | 3473.00 | 19.00 Anchor Tool |

Total Tool Length: 39.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63070

DST#: 1

ATTN: Marc Downing

Test Start: 2018.04.05 @ 14:05:00

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|-------------|---------------|
| 1.00 | Mud 100% | 0.005 |

Total Length: 1.00 ft Total Volume: 0.005 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

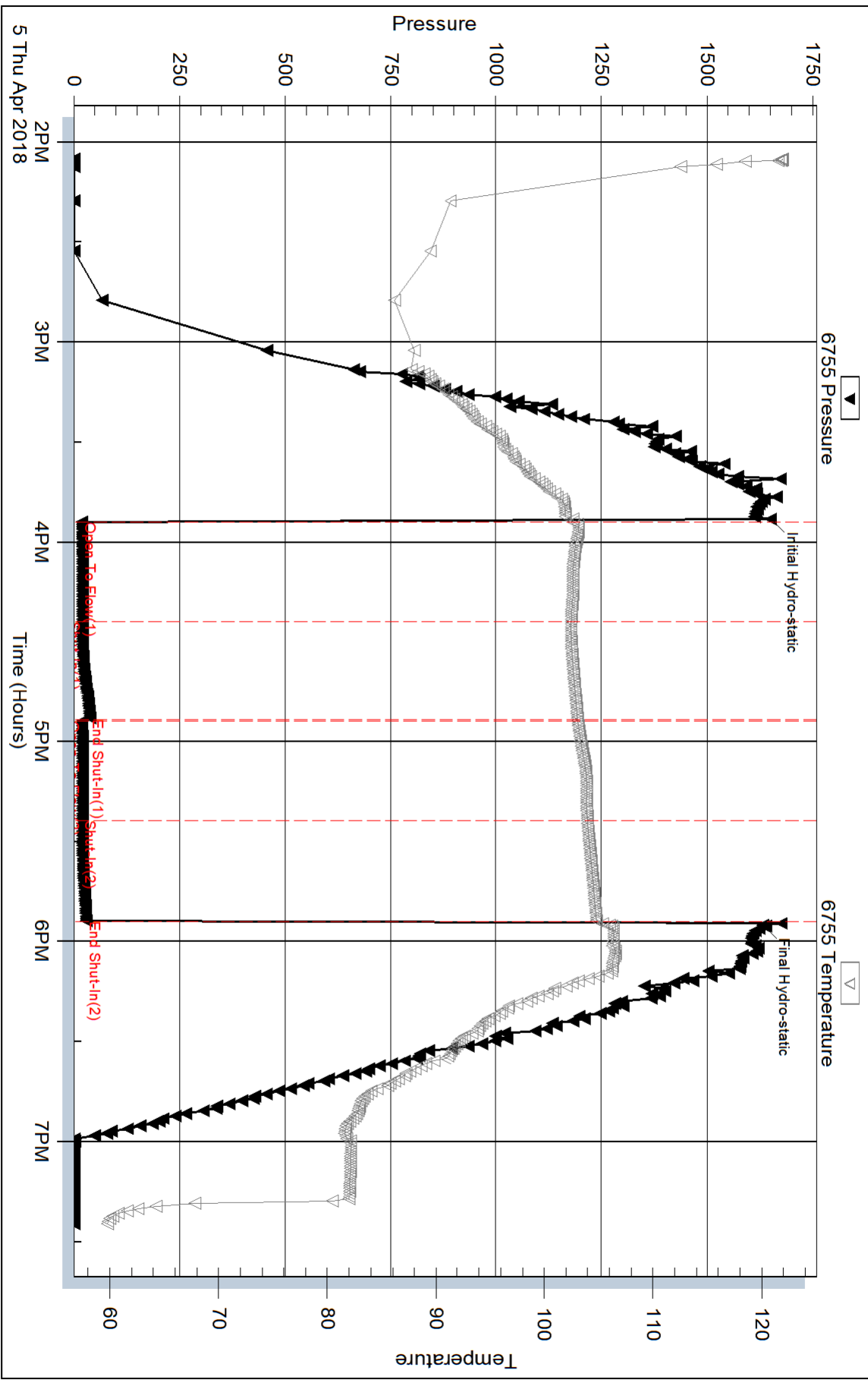
Serial #:

Laboratory Name:

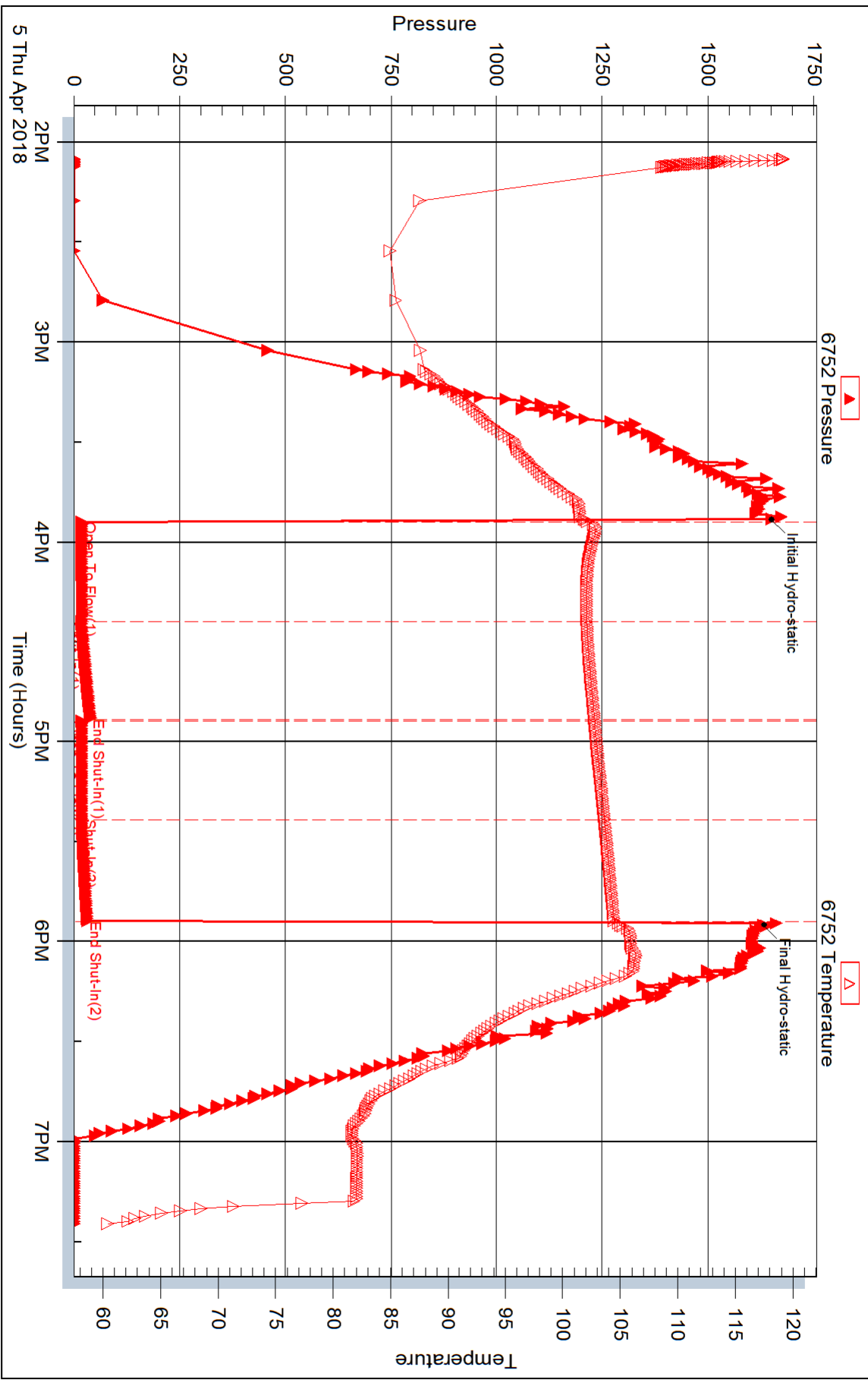
Laboratory Location:

Recovery Comments:

Pressure vs. Time



Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co. Inc**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Red #1-36

36-14S-21W Trego,KS

Start Date: 2018.04.06 @ 20:17:00

End Date: 2018.04.07 @ 02:39:02

Job Ticket #: 63071 DST #: 2

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

Printed: 2018.04.09 @ 15:46:42



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63071

DST#: 2

ATTN: Marc Downing

Test Start: 2018.04.06 @ 20:17:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:09:17

Time Test Ended: 02:39:02

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3726.00 ft (KB) To 3770.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3770.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6755

Inside

Press@RunDepth: 38.30 psig @ 3727.00 ft (KB)

Capacity: psig

Start Date: 2018.04.06

End Date:

2018.04.07

Last Calib.:

2018.04.07

Start Time: 20:17:01

End Time:

02:39:02

Time On Btm:

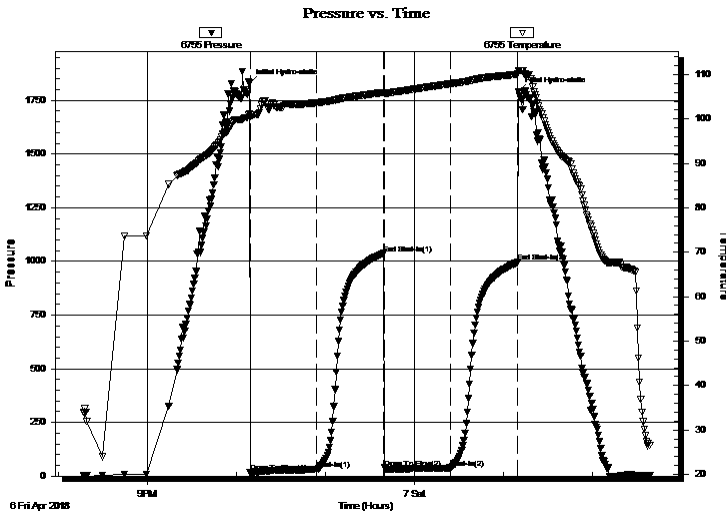
2018.04.06 @ 22:09:02

Time Off Btm:

2018.04.07 @ 01:10:17

TEST COMMENT: IFP 45 Minutes/ Blow built to 1 3/4"
ISI 45 Minutes/ No blow back
FFP 45 Minutes/ Blow built to 2"
FSI 45 Minutes/ No blow back

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1829.44 | 101.11 | Initial Hydro-static |
| 1 | 16.11 | 100.52 | Open To Flow (1) |
| 46 | 31.59 | 103.63 | Shut-In(1) |
| 91 | 1036.70 | 105.92 | End Shut-In(1) |
| 91 | 38.63 | 105.64 | Open To Flow (2) |
| 136 | 38.30 | 107.91 | Shut-In(2) |
| 181 | 995.14 | 110.06 | End Shut-In(2) |
| 182 | 1790.93 | 110.85 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------------------|--------------|
| 45.00 | Oily Mud/ Oil 30% Mud 70% | 0.36 |
| 5.00 | Clean Oil 100% | 0.07 |
| | | |
| | | |
| | | |

Gas Rates

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



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DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63071

DST#: 2

ATTN: Marc Downing

Test Start: 2018.04.06 @ 20:17:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:09:17

Time Test Ended: 02:39:02

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3726.00 ft (KB) To 3770.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3770.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6752 Outside

Press@RunDepth: 995.25 psig @ 3728.00 ft (KB)

Capacity: psig

Start Date: 2018.04.06

End Date:

2018.04.07

Last Calib.:

2018.04.07

Start Time: 20:17:01

End Time:

02:39:02

Time On Btm:

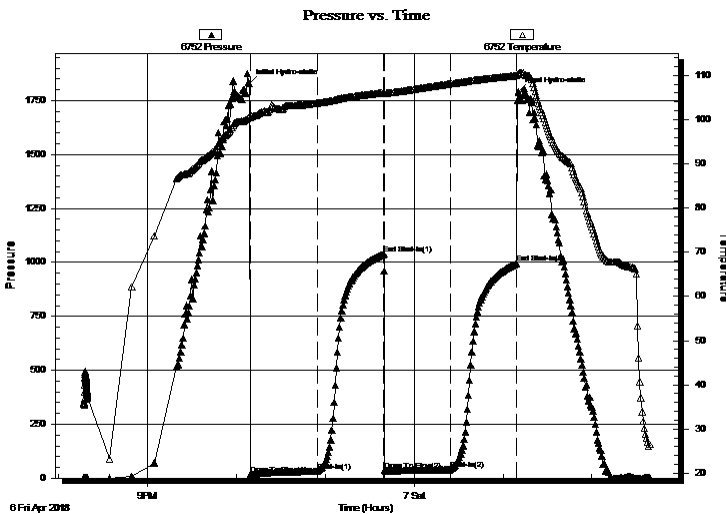
2018.04.06 @ 22:09:02

Time Off Btm:

2018.04.07 @ 01:10:17

TEST COMMENT: IFP 45 Minutes/ Blow built to 1 3/4"
ISI 45 Minutes/ No blow back
FFP 45 Minutes/ Blow built to 2"
FSI 45 Minutes/ No blow back

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1829.78 | 100.75 | Initial Hydro-static |
| 1 | 17.55 | 100.58 | Open To Flow (1) |
| 46 | 33.54 | 103.73 | Shut-In(1) |
| 91 | 1038.17 | 106.06 | End Shut-In(1) |
| 92 | 34.91 | 105.93 | Open To Flow (2) |
| 136 | 38.86 | 108.07 | Shut-In(2) |
| 181 | 995.25 | 109.96 | End Shut-In(2) |
| 182 | 1791.11 | 110.29 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------------------|--------------|
| 45.00 | Oily Mud/ Oil 30% Mud 70% | 0.36 |
| 5.00 | Clean Oil 100% | 0.07 |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63071

DST#: 2

ATTN: Marc Downing

Test Start: 2018.04.06 @ 20:17:00

Tool Information

| | | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe: | Length: 3681.00 ft | Diameter: 3.80 inches | Volume: 51.63 bbl | Tool Weight: | 2000.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: | 20000.00 lb |
| Drill Collar: | Length: 30.00 ft | Diameter: 2.25 inches | Volume: 0.15 bbl | Weight to Pull Loose: | 68000.00 lb |
| | | | <u>Total Volume: 51.78 bbl</u> | Tool Chased | 0.00 ft |
| Drill Pipe Above KB: | 5.00 ft | | | String Weight: Initial | 59000.00 lb |
| Depth to Top Packer: | 3726.00 ft | | | Final | 58000.00 lb |
| Depth to Bottom Packer: | ft | | | | |
| Interval between Packers: | 44.00 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 |
|------------------|-------------|------------|----------|------------|----------------|
|------------------|-------------|------------|----------|------------|----------------|

| | | | | | |
|----------------|-------|------|---------|---------|----------------------------|
| Shut-In Tool | 5.00 | | | 3711.00 | |
| Hydraulic tool | 5.00 | | | 3716.00 | |
| Top Packer | 5.00 | | | 3721.00 | |
| Packer | 5.00 | | | 3726.00 | 20.00 Bottom Of Top Packer |
| Recorder | 1.00 | 6755 | Inside | 3727.00 | |
| Recorder | 1.00 | 6752 | Outside | 3728.00 | |
| Anchor | 39.00 | | | 3767.00 | |
| Bullnose | 3.00 | | | 3770.00 | 44.00 Anchor Tool |

Total Tool Length: 64.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63071

DST#: 2

ATTN: Marc Downing

Test Start: 2018.04.06 @ 20:17:00

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: 48.00 sec/qt

Cushion Volume: bbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|---------------------------|---------------|
| 45.00 | Oily Mud/ Oil 30% Mud 70% | 0.358 |
| 5.00 | Clean Oil 100% | 0.070 |

Total Length: 50.00 ft Total Volume: 0.428 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

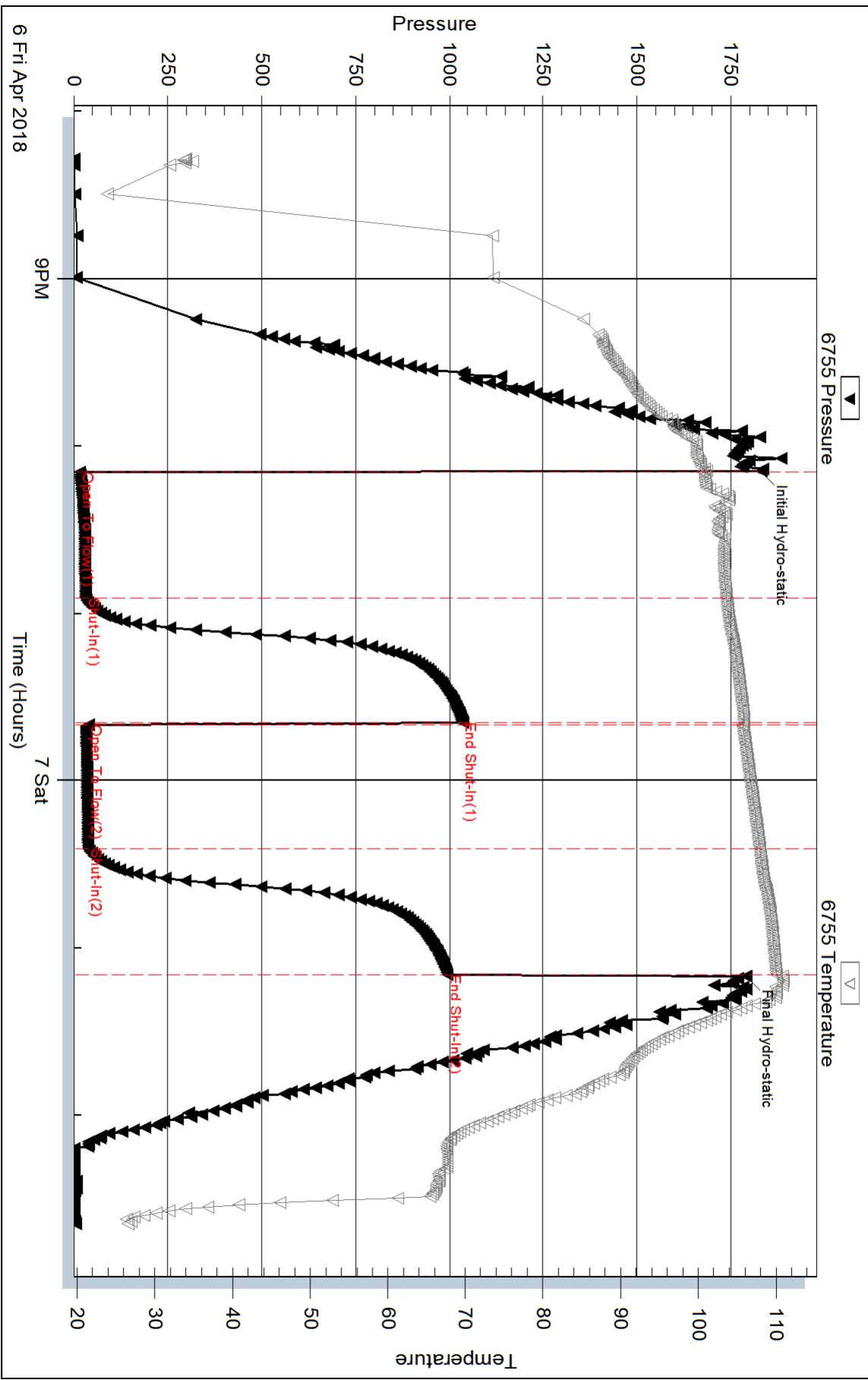
Serial #:

Laboratory Name:

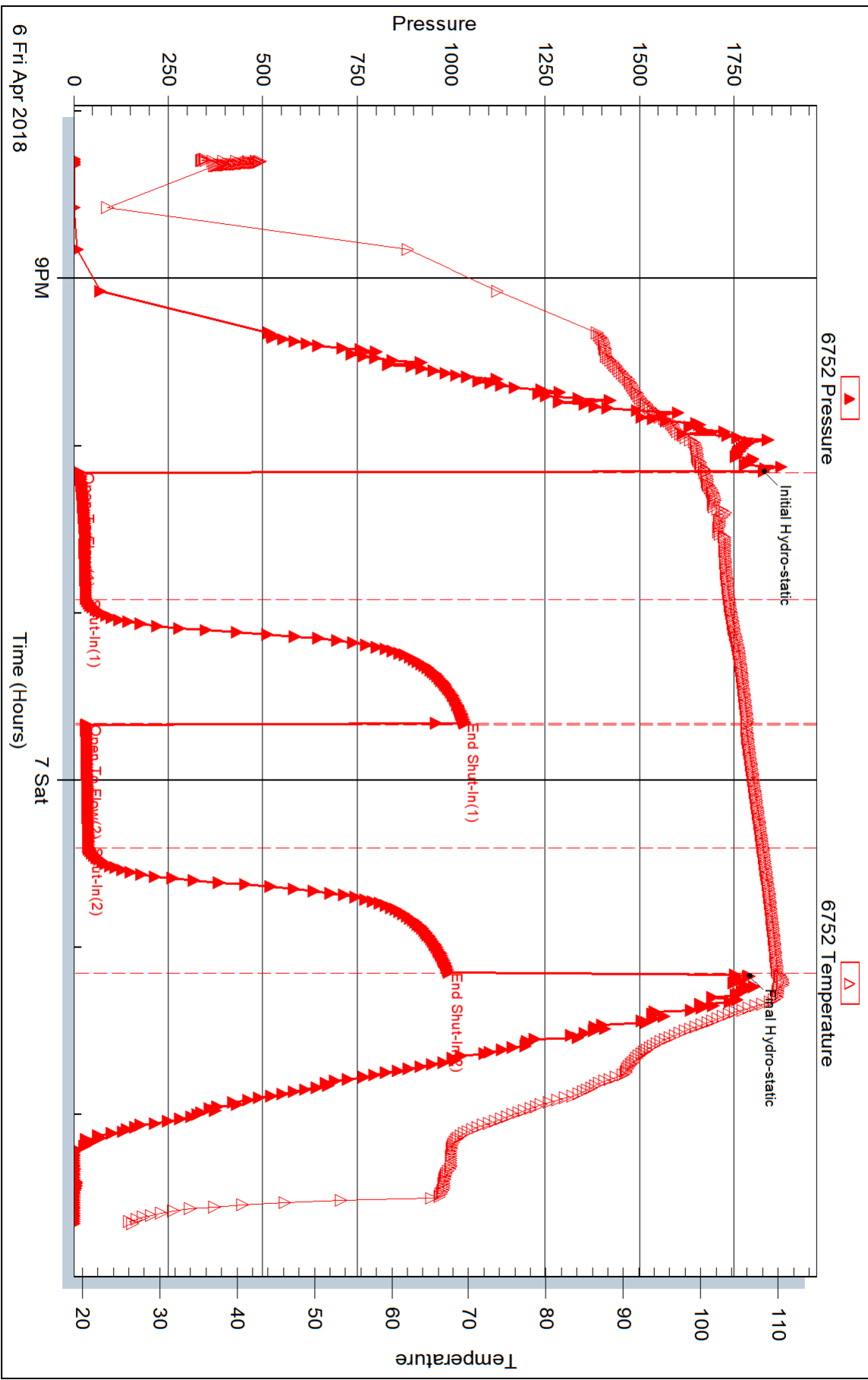
Laboratory Location:

Recovery Comments:

Pressure vs. Time



Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co. Inc**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Red #1-36

36-14S-21W Trego,KS

Start Date: 2018.04.07 @ 10:47:00

End Date: 2018.04.07 @ 17:03:02

Job Ticket #: 63072 DST #: 3

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

Printed: 2018.04.09 @ 15:46:20

Downing Nelson Oil Co. Inc
36-14S-21W Trego,KS
Red #1-36
DST # 3
Cherokee
2018.04.07



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63072

DST#: 3

ATTN: Marc Downing

Test Start: 2018.04.07 @ 10:47:00

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:31:02

Time Test Ended: 17:03:02

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3756.00 ft (KB) To 3805.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3805.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6755 Inside

Press@RunDepth: 17.35 psig @ 3757.00 ft (KB)

Capacity: psig

Start Date: 2018.04.07

End Date:

2018.04.07

Last Calib.:

2018.04.07

Start Time:

10:47:01

End Time:

17:03:02

Time On Btm:

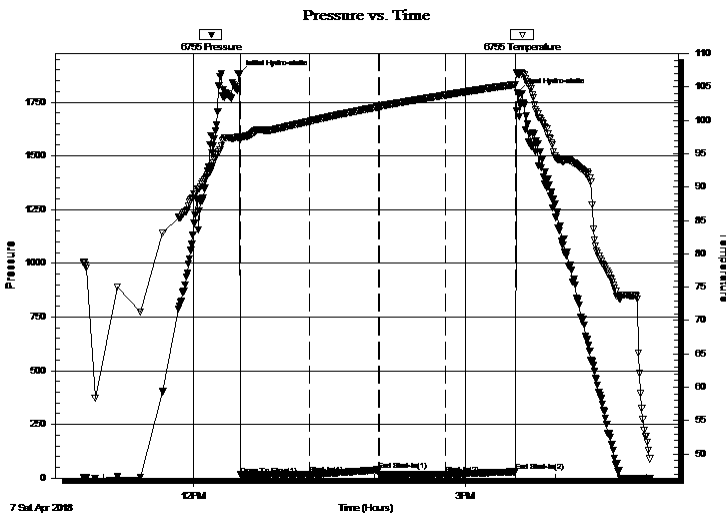
2018.04.07 @ 12:30:17

Time Off Btm:

2018.04.07 @ 15:34:47

TEST COMMENT: IFP 45 Minutes/ Blow built to 1 1/2"
ISI 45 Minutes/ Light blow back
FFP 45 Minutes/ Blow built to 1/2"
FSI 45 Minutes/ Light blow back

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1881.00 | 97.49 | Initial Hydro-static |
| 1 | 14.91 | 97.17 | Open To Flow (1) |
| 47 | 16.00 | 99.85 | Shut-In(1) |
| 92 | 38.25 | 102.01 | End Shut-In(1) |
| 93 | 16.47 | 102.04 | Open To Flow (2) |
| 137 | 17.35 | 103.79 | Shut-In(2) |
| 183 | 30.05 | 105.42 | End Shut-In(2) |
| 185 | 1795.77 | 107.07 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------------------------|--------------|
| 3.00 | Light oil spotted mud/ Mud 100% | 0.01 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63072

DST#: 3

ATTN: Marc Downing

Test Start: 2018.04.07 @ 10:47:00

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:31:02

Time Test Ended: 17:03:02

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3756.00 ft (KB) To 3805.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3805.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6752 Outside

Press@RunDepth: 31.24 psig @ 3758.00 ft (KB)

Capacity: psig

Start Date: 2018.04.07

End Date:

2018.04.07

Last Calib.:

2018.04.07

Start Time: 10:47:01

End Time:

17:03:02

Time On Btm:

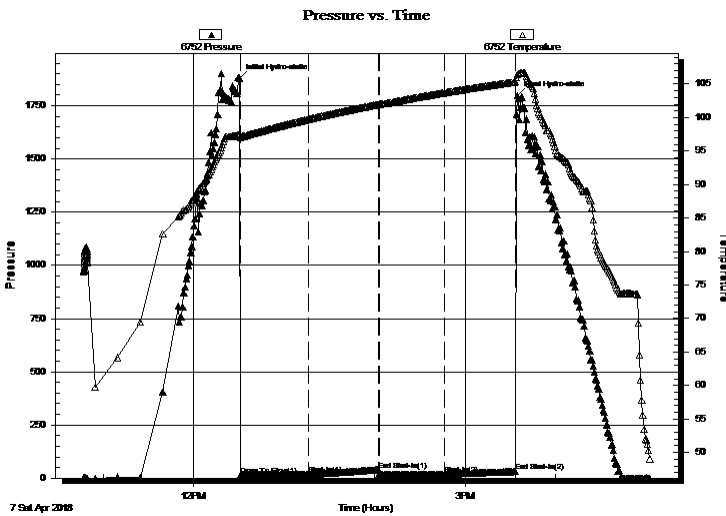
2018.04.07 @ 12:30:32

Time Off Btm:

2018.04.07 @ 15:34:47

TEST COMMENT: IFP 45 Minutes/ Blow built to 1 1/2"
ISI 45 Minutes/ Light blow back
FFP 45 Minutes/ Blow built to 1/2"
FSI 45 Minutes/ Light blow back

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1879.44 | 97.37 | Initial Hydro-static |
| 1 | 15.71 | 96.98 | Open To Flow (1) |
| 46 | 17.62 | 99.74 | Shut-In(1) |
| 92 | 39.28 | 101.96 | End Shut-In(1) |
| 93 | 17.66 | 101.97 | Open To Flow (2) |
| 136 | 17.75 | 103.71 | Shut-In(2) |
| 183 | 31.24 | 105.35 | End Shut-In(2) |
| 185 | 1796.69 | 106.44 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------------------------|--------------|
| 3.00 | Light oil spotted mud/ Mud 100% | 0.01 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63072

DST#: 3

ATTN: Marc Downing

Test Start: 2018.04.07 @ 10:47:00

Tool Information

| | | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe: | Length: 3712.00 ft | Diameter: 3.80 inches | Volume: 52.07 bbl | Tool Weight: | 2000.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: | 20000.00 lb |
| Drill Collar: | Length: 30.00 ft | Diameter: 2.25 inches | Volume: 0.15 bbl | Weight to Pull Loose: | 68000.00 lb |
| | | | <u>Total Volume: 52.22 bbl</u> | Tool Chased | 0.00 ft |
| Drill Pipe Above KB: | 6.00 ft | | | String Weight: Initial | 59000.00 lb |
| Depth to Top Packer: | 3756.00 ft | | | Final | 59000.00 lb |
| Depth to Bottom Packer: | ft | | | | |
| Interval between Packers: | 48.80 ft | | | | |
| Tool Length: | 68.80 ft | | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | | |
| Tool Comments: | | | | | |

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

| | | | | | |
|-----------------|-------|------|---------|---------|----------------------------|
| Shut-In Tool | 5.00 | | | 3741.00 | |
| Hydraulic tool | 5.00 | | | 3746.00 | |
| Top Packer | 5.00 | | | 3751.00 | |
| Packer | 5.00 | | | 3756.00 | 20.00 Bottom Of Top Packer |
| Recorder | 1.00 | 6755 | Inside | 3757.00 | |
| Recorder | 1.00 | 6752 | Outside | 3758.00 | |
| Anchor | 10.00 | | | 3768.00 | |
| Change Over Sub | 1.00 | | | 3769.00 | |
| Drill Pipe | 31.80 | | | 3800.80 | |
| Change Over Sub | 1.00 | | | 3801.80 | |
| Bullnose | 3.00 | | | 3804.80 | 48.80 Anchor Tool |

Total Tool Length: 68.80



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63072

DST#: 3

ATTN: Marc Downing

Test Start: 2018.04.07 @ 10:47:00

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: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|---------------------------------|----------------|
| 3.00 | Light oil spotted mud/ Mud 100% | 0.015 |

Total Length: 3.00 ft Total Volume: 0.015 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

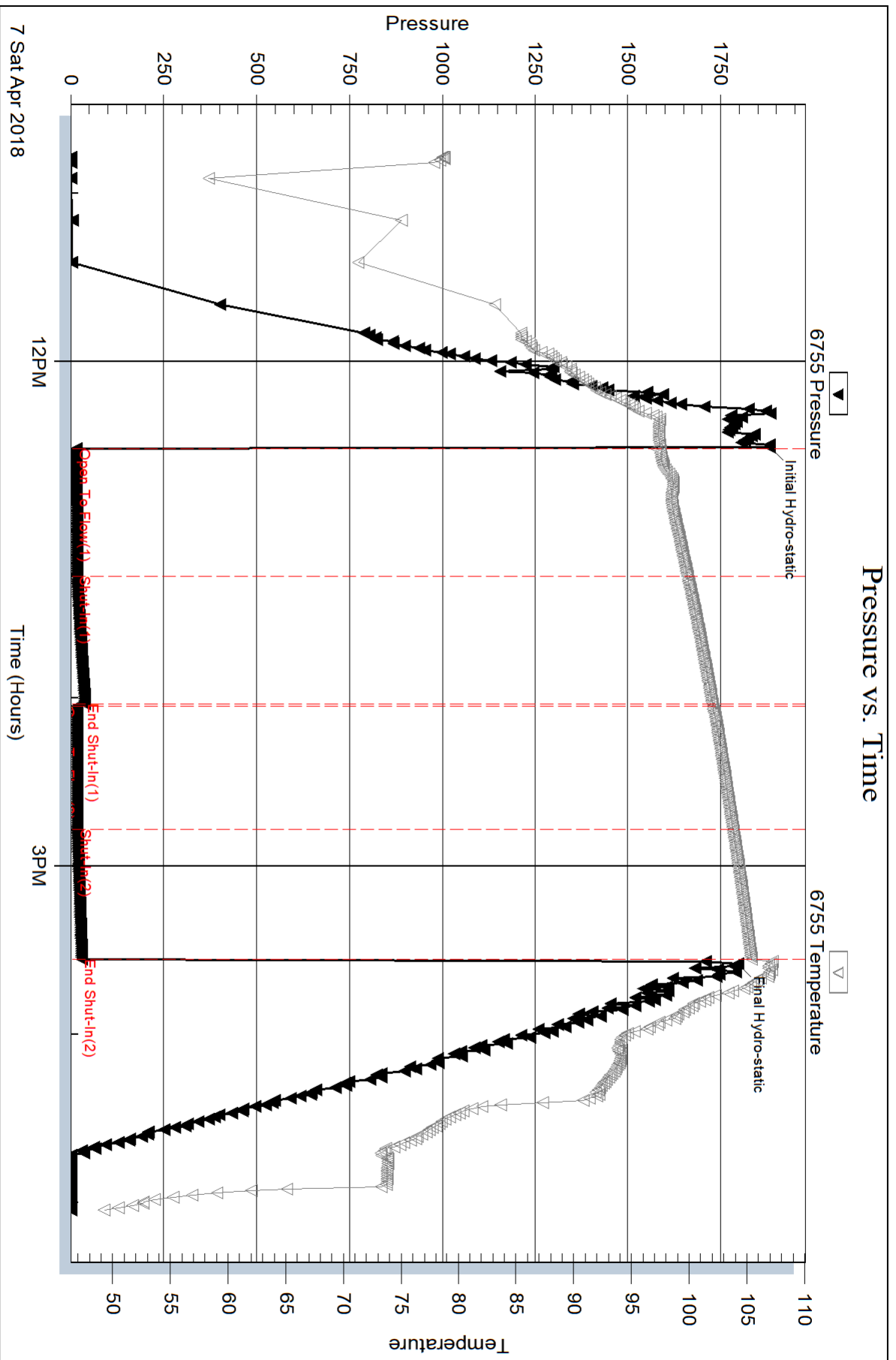
Serial #:

Laboratory Name:

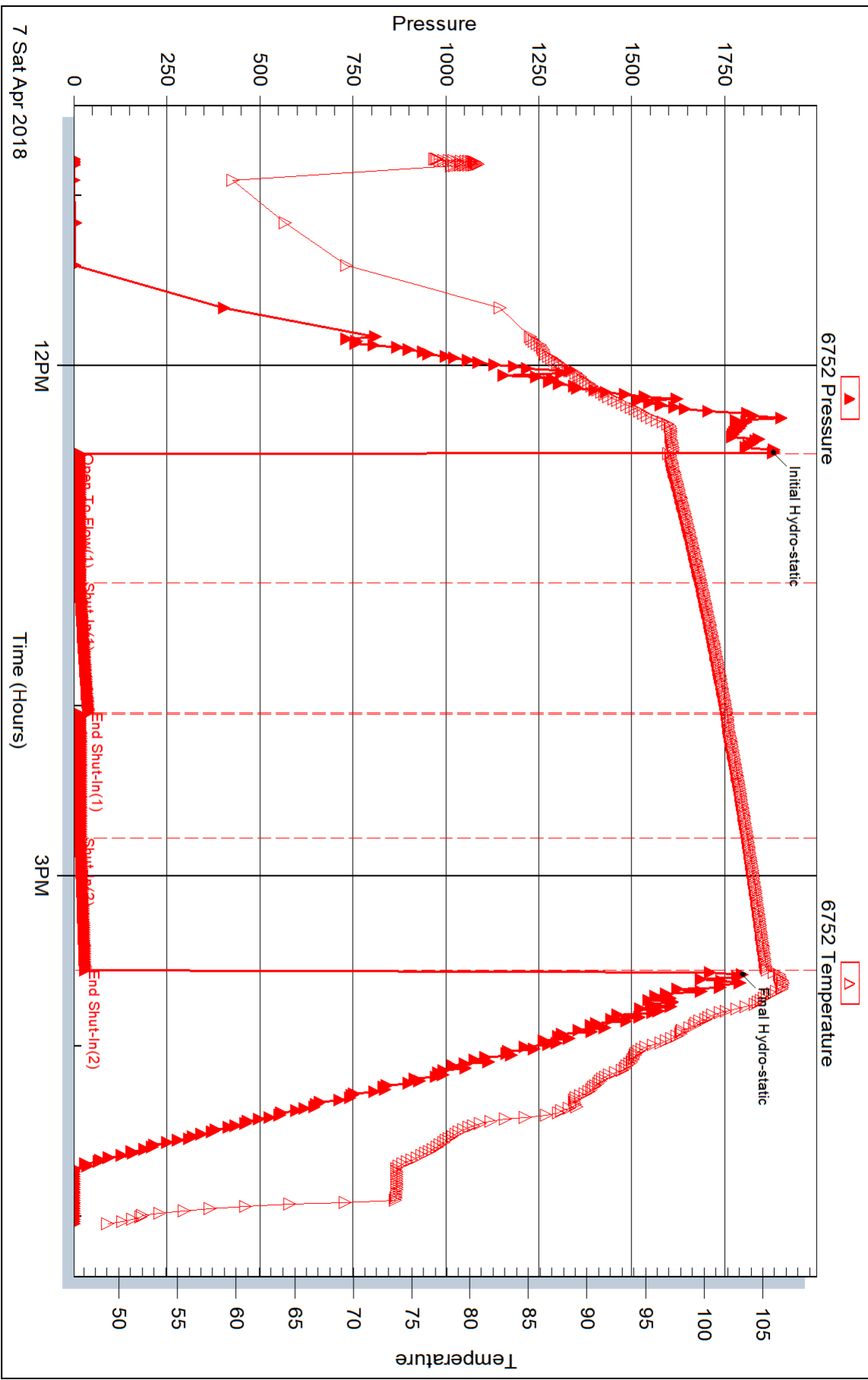
Laboratory Location:

Recovery Comments:

Pressure vs. Time



Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co. Inc**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Red #1-36

36-14S-21W Trego,KS

Start Date: 2018.04.08 @ 09:26:00

End Date: 2018.04.08 @ 15:38:02

Job Ticket #: 63073 DST #: 4

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

Printed: 2018.04.09 @ 15:45:41



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63073

DST#: 4

ATTN: Marc Downing

Test Start: 2018.04.08 @ 09:26:00

GENERAL INFORMATION:

Formation: **LKC H - J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:57:02

Time Test Ended: 15:38:02

Test Type: Conventional Straddle (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3512.00 ft (KB) To 3587.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3866.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6755

Inside

Press@RunDepth: 86.95 psig @ 3582.56 ft (KB)

Capacity: psig

Start Date: 2018.04.08

End Date:

2018.04.08

Last Calib.:

2018.04.08

Start Time:

09:26:01

End Time:

15:38:02

Time On Btm:

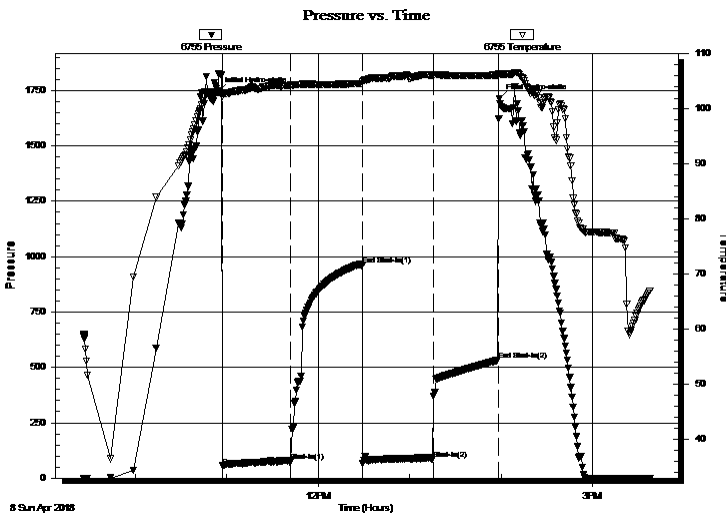
2018.04.08 @ 10:54:17

Time Off Btm:

2018.04.08 @ 13:58:47

TEST COMMENT: IFP 45 Minutes/ Blow built to 5"
ISI 45 Minutes/ No blow back
FFP 45 Minutes/ Blow built to 2"
FSi 45 Mintues/ No blow back

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1745.47 | 103.03 | Initial Hydro-static |
| 3 | 55.31 | 102.31 | Open To Flow (1) |
| 48 | 78.03 | 104.34 | Shut-In(1) |
| 95 | 961.23 | 104.69 | End Shut-In(1) |
| 95 | 67.22 | 105.04 | Open To Flow (2) |
| 141 | 86.95 | 106.21 | Shut-In(2) |
| 184 | 533.31 | 106.22 | End Shut-In(2) |
| 185 | 1713.27 | 106.39 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|------------------------------|--------------|
| 90.00 | Mud w /skim of oil in sample | 0.99 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63073

DST#: 4

ATTN: Marc Downing

Test Start: 2018.04.08 @ 09:26:00

GENERAL INFORMATION:

Formation: **LKC H - J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:57:02

Time Test Ended: 15:38:02

Test Type: Conventional Straddle (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3512.00 ft (KB) To 3587.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3866.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6752 Outside

Press@RunDepth: 950.63 psig @ 3582.56 ft (KB)

Capacity: psig

Start Date: 2018.04.08

End Date:

2018.04.08

Last Calib.:

2018.04.08

Start Time: 09:26:01

End Time:

15:38:02

Time On Btm:

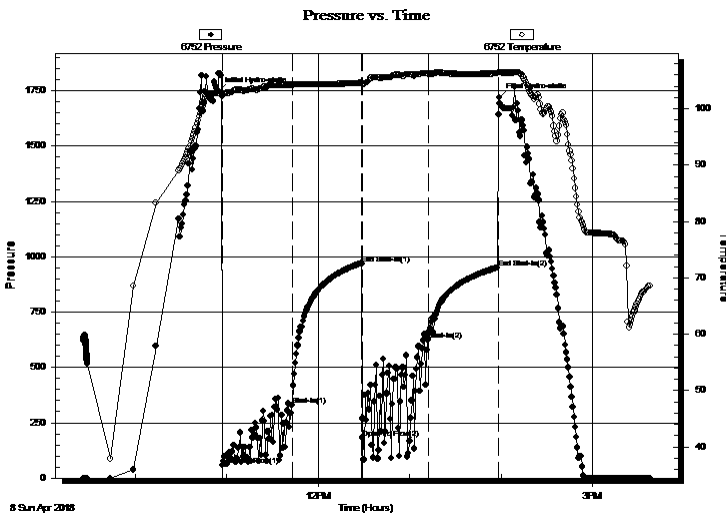
2018.04.08 @ 10:54:17

Time Off Btm:

2018.04.08 @ 13:58:47

TEST COMMENT: IFP 45 Minutes/ Blow built to 5"
ISI 45 Minutes/ No blow back
FFP 45 Minutes/ Blow built to 2"
FSi 45 Minutes/ No blow back

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1746.04 | 102.71 | Initial Hydro-static |
| 3 | 56.89 | 102.18 | Open To Flow (1) |
| 49 | 329.84 | 104.22 | Shut-In(1) |
| 94 | 96.92 | 104.54 | End Shut-In(1) |
| 95 | 181.55 | 104.28 | Open To Flow (2) |
| 138 | 622.48 | 106.18 | Shut-In(2) |
| 184 | 950.63 | 106.26 | End Shut-In(2) |
| 185 | 1717.74 | 106.39 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|------------------------------|--------------|
| 90.00 | Mud w /skim of oil in sample | 0.99 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63073

DST#: 4

ATTN: Marc Downing

Test Start: 2018.04.08 @ 09:26:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 3493.00 ft | Diameter: 3.80 inches | Volume: 49.00 bbl | Tool Weight: 2000.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: 20000.00 lb |
| Drill Collar: | Length: 30.00 ft | Diameter: 2.25 inches | Volume: 0.15 bbl | Weight to Pull Loose: 75000.00 lb |
| | | | <u>Total Volume: 49.15 bbl</u> | Tool Chased 0.00 ft |
| Drill Pipe Above KB: | 27.80 ft | | | String Weight: Initial 60000.00 lb |
| Depth to Top Packer: | 3512.00 ft | | | Final 61000.00 lb |
| Depth to Bottom Packer: | 3864.43 ft | | | |
| Interval between Packers: | 352.43 ft | | | |
| Tool Length: | 369.23 ft | | | |
| Number of Packers: | 3 | Diameter: 6.75 inches | | |

Tool Comments:

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

| | | | | | |
|------------------------|--------|------|---------|---------|----------------------------|
| Shut-In Tool | 5.00 | | | 3500.20 | |
| Hydraulic tool | 5.00 | | | 3505.20 | |
| Top Packer | 5.00 | | | 3510.20 | |
| Packer | 1.80 | | | 3512.00 | 16.80 Bottom Of Top Packer |
| Change Over Sub | 1.15 | | | 3513.15 | |
| Drill Pipe | 63.38 | | | 3576.53 | |
| Change Over Sub | 1.03 | | | 3577.56 | |
| Anchor | 5.00 | | | 3582.56 | |
| Recorder | 0.00 | 6755 | Inside | 3582.56 | |
| Recorder | 0.00 | 6752 | Outside | 3582.56 | |
| Packer (Interval Side) | 3.15 | | | 3585.71 | |
| Packer (Tail Side) | 1.60 | | | 3587.31 | |
| Blank Off Sub | 1.00 | | | 3588.31 | |
| Perforations | 18.00 | | | 3606.31 | |
| Change Over Sub | 1.10 | | | 3607.41 | |
| Drill Pipe | 253.19 | | | 3860.60 | |
| Recorder | 0.00 | 8322 | Below | 3860.60 | |
| Change Over Sub | 0.83 | | | 3861.43 | |
| Bullnose | 3.00 | | | 3864.43 | 352.43 Anchor Tool |

Total Tool Length: 369.23



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63073

DST#: 4

ATTN: Marc Downing

Test Start: 2018.04.08 @ 09:26:00

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: 49.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|------------------------------|---------------|
| 90.00 | Mud w /skim of oil in sample | 0.989 |

Total Length: 90.00 ft Total Volume: 0.989 bbl

Num Fluid Samples: 0

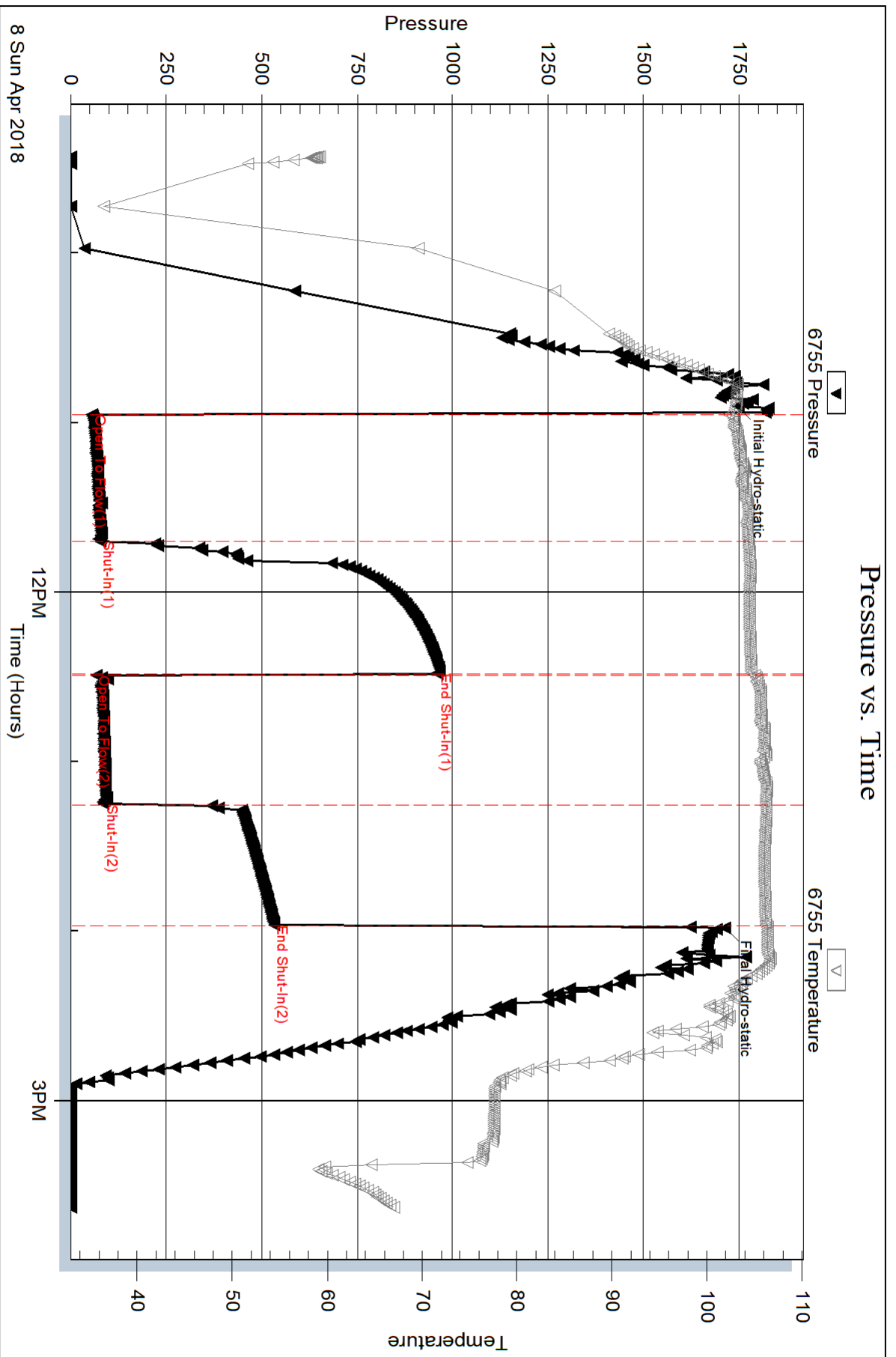
Num Gas Bombs: 0

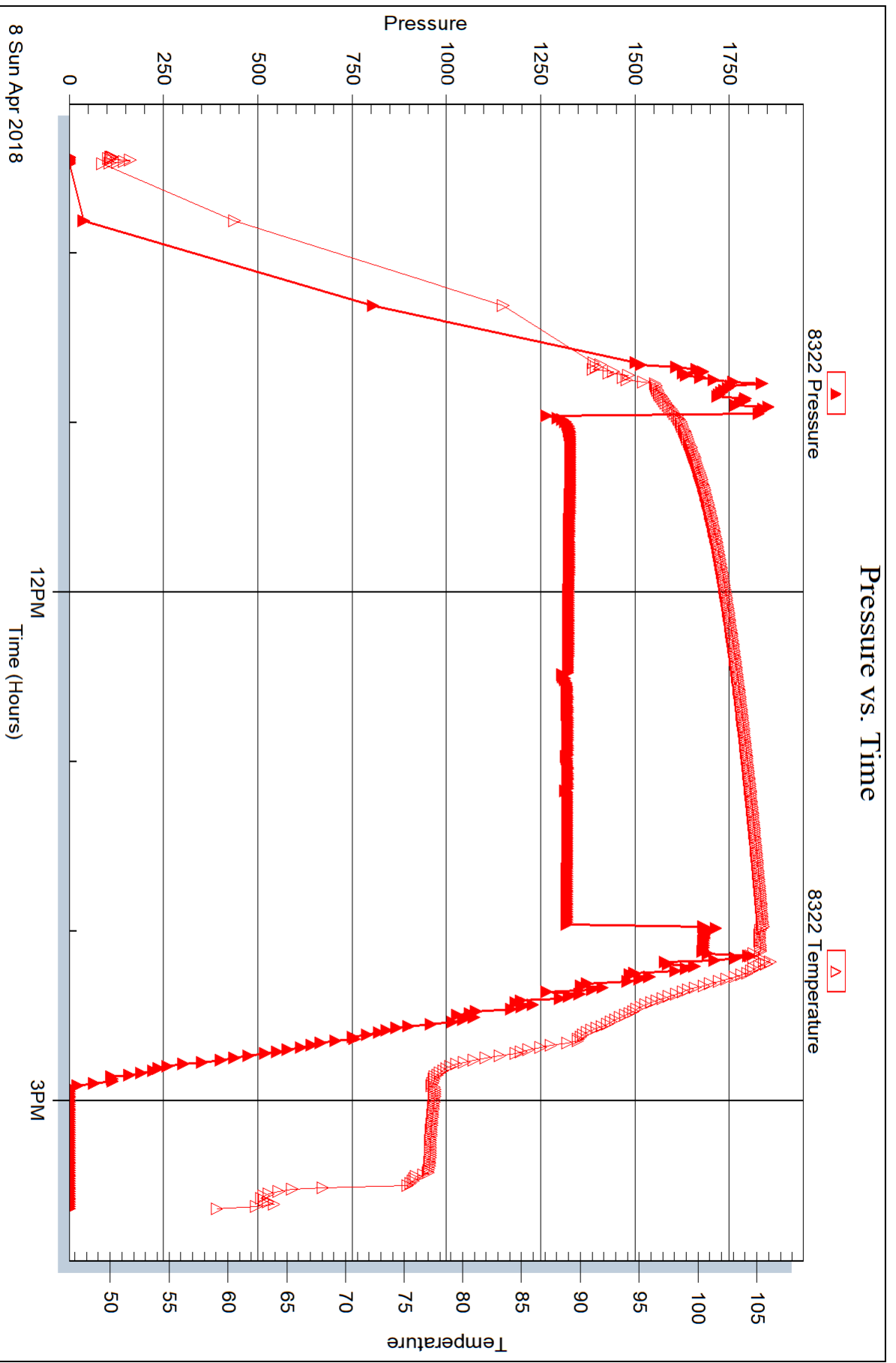
Serial #:

Laboratory Name:

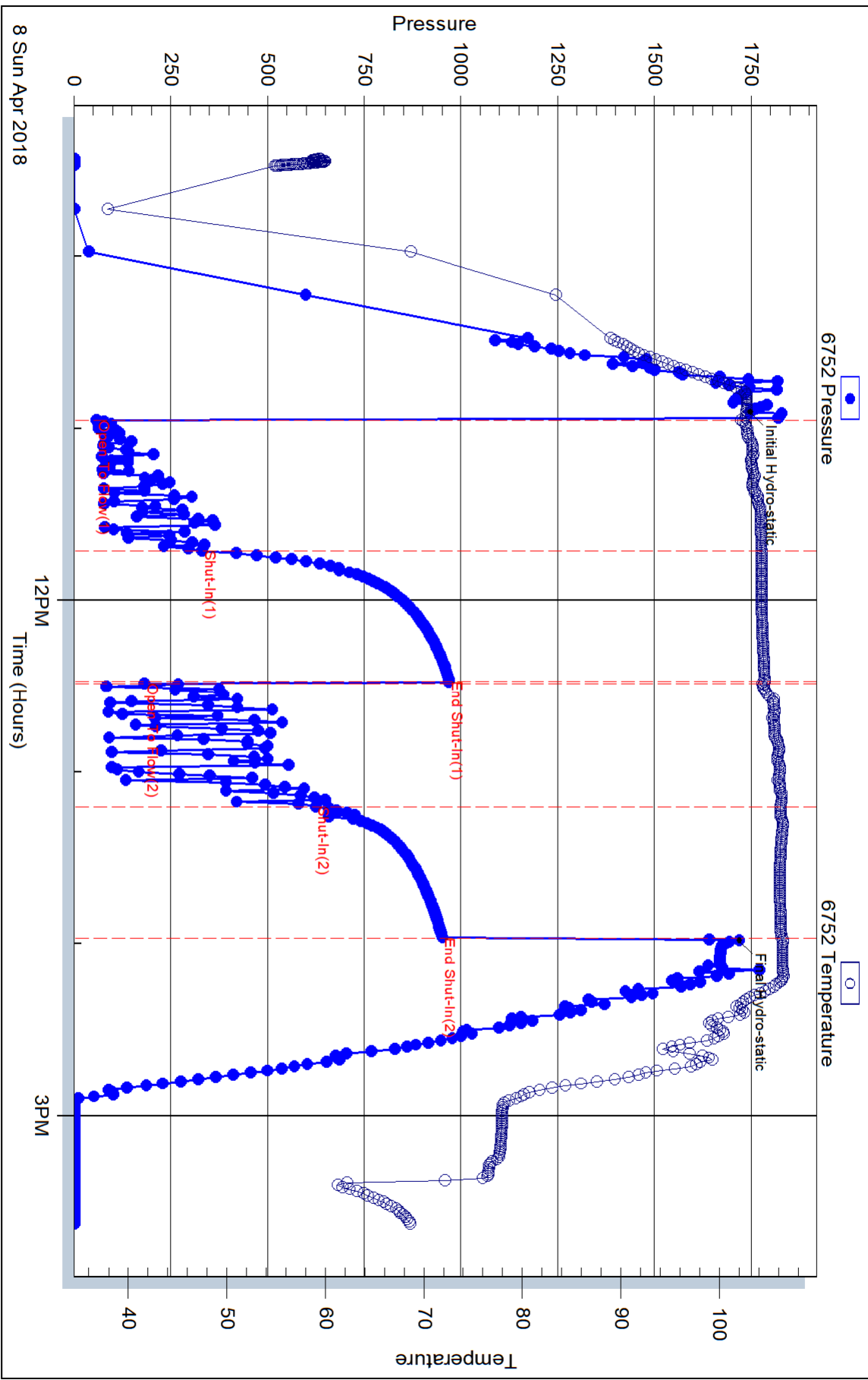
Laboratory Location:

Recovery Comments:





Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co. Inc**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Red #1-36

36-14S-21W Trego,KS

Start Date: 2018.04.08 @ 18:13:00

End Date: 2018.04.08 @ 22:27:17

Job Ticket #: 63074 DST #: 5

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

Printed: 2018.04.09 @ 15:26:58

Downing Nelson Oil Co. Inc
36-14S-21W Trego,KS
Red #1-36
DST # 5
LKC H
2018.04.08



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63074

DST#: 5

ATTN: Marc Downing

Test Start: 2018.04.08 @ 18:13:00

GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:33:17

Time Test Ended: 22:27:17

Test Type: Conventional Straddle (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3512.00 ft (KB) To 3536.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3536.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6755

Inside

Press@RunDepth: 29.70 psig @ 3512.00 ft (KB)

Capacity: psig

Start Date: 2018.04.08

End Date:

2018.04.08

Last Calib.:

2018.04.08

Start Time: 18:13:01

End Time:

22:27:17

Time On Btm:

2018.04.08 @ 19:32:47

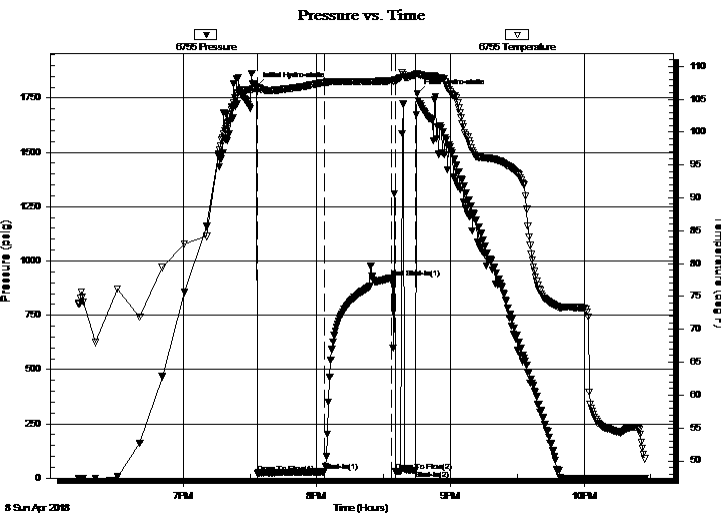
Time Off Btm:

2018.04.08 @ 20:45:17

TEST COMMENT: IFP 30 Mintues/ Blow built to 1/4" then died in 5 minutes

ISI 30 Minutes/ No blow back

FFP 10 Minutes/ Few bubbles at open then dead/ Flush tool few bubbles then dead/ Pull test



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1801.29 | 106.62 | Initial Hydro-static |
| 1 | 22.70 | 106.39 | Open To Flow (1) |
| 31 | 29.70 | 107.53 | Shut-In(1) |
| 61 | 923.42 | 107.78 | End Shut-In(1) |
| 63 | 32.24 | 107.65 | Open To Flow (2) |
| 72 | 35.38 | 108.68 | Shut-In(2) |
| 73 | 1769.80 | 108.84 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------------------------|--------------|
| 45.00 | Watery Mud/ Water 30% Mud 70% | 0.36 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63074

DST#: 5

ATTN: Marc Downing

Test Start: 2018.04.08 @ 18:13:00

GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:33:17

Time Test Ended: 22:27:17

Test Type: Conventional Straddle (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3512.00 ft (KB) To 3536.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3536.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 6752 Outside

Press@RunDepth: 924.42 psig @ 3512.00 ft (KB)

Capacity: psig

Start Date: 2018.04.08

End Date: 2018.04.08

Last Calib.: 2018.04.08

Start Time: 18:13:01

End Time: 22:27:17

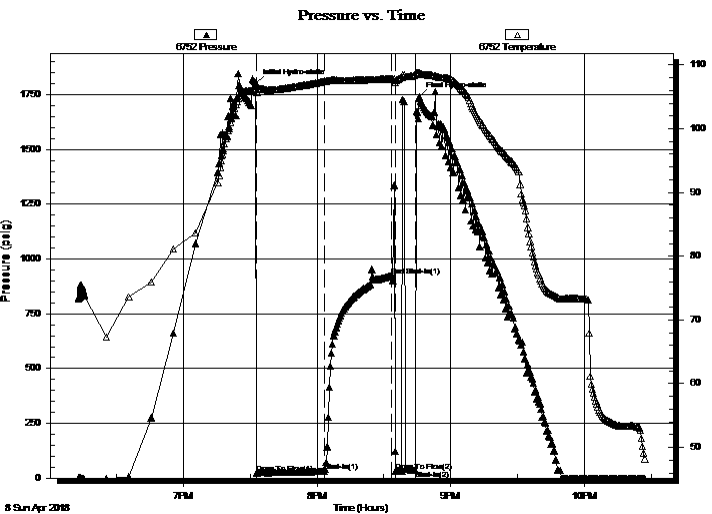
Time On Btm: 2018.04.08 @ 19:32:32

Time Off Btm: 2018.04.08 @ 20:45:47

TEST COMMENT: IFP 30 Mintues/ Blow built to 1/4" then died in 5 minutes

ISI 30 Minutes/ No blow back

FFP 10 Minutes/ Few bubbles at open then dead/ Flush tool few bubbles then dead/ Pull test



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1799.86 | 106.31 | Initial Hydro-static |
| 1 | 22.66 | 105.68 | Open To Flow (1) |
| 31 | 30.70 | 107.42 | Shut-In(1) |
| 61 | 924.42 | 107.78 | End Shut-In(1) |
| 63 | 33.49 | 107.58 | Open To Flow (2) |
| 72 | 36.64 | 108.45 | Shut-In(2) |
| 74 | 1738.81 | 108.72 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------------------------|--------------|
| 45.00 | Watery Mud/ Water 30% Mud 70% | 0.36 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co. Inc

36-14S-21W Trego, KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63074

DST#: 5

ATTN: Marc Downing

Test Start: 2018.04.08 @ 18:13:00

GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:33:17

Time Test Ended: 22:27:17

Test Type: Conventional Straddle (Initial)

Tester: Ken Swinney

Unit No: 72

Interval: 3512.00 ft (KB) To 3536.00 ft (KB) (TVD)

Reference Elevations: 2057.00 ft (KB)

Total Depth: 3536.00 ft (KB) (TVD)

2051.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 8322 Below (Straddle)

Press@RunDepth: 1298.04 psig @ 3542.85 ft (KB)

Capacity: psig

Start Date: 2018.04.08

End Date:

2018.04.08

Last Calib.:

2018.04.08

Start Time:

18:13:01

End Time:

22:27:17

Time On Btm:

2018.04.08 @ 19:32:17

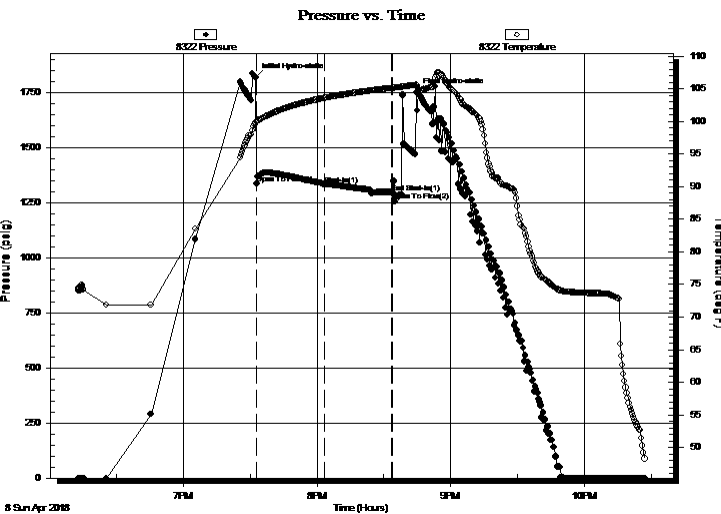
Time Off Btm:

2018.04.08 @ 20:44:32

TEST COMMENT: IFP 30 Mintues/ Blow built to 1/4" then died in 5 minutes

ISI 30 Minutes/ No blow back

FFP 10 Minutes/ Few bubbles at open then dead/ Flush tool few bubbles then dead/ Pull test



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1821.03 | 99.67 | Initial Hydro-static |
| 1 | 1337.84 | 99.92 | Open To Flow (1) |
| 31 | 1334.68 | 103.54 | Shut-In(1) |
| 61 | 1298.04 | 105.06 | End Shut-In(1) |
| 62 | 1301.18 | 105.08 | Open To Flow (2) |
| 73 | 1750.16 | 105.59 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------------------------|--------------|
| 45.00 | Watery Mud/ Water 30% Mud 70% | 0.36 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63074

DST#: 5

ATTN: Marc Downing

Test Start: 2018.04.08 @ 18:13:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|-------------------------|------------------------------------|
| Drill Pipe: | Length: 3493.00 ft | Diameter: 3.80 inches | Volume: 49.00 bbl | Tool Weight: 2000.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: 20000.00 lb |
| Drill Collar: | Length: 30.00 ft | Diameter: 2.25 inches | Volume: 0.15 bbl | Weight to Pull Loose: 72000.00 lb |
| | | | Total Volume: 49.15 bbl | Tool Chased 0.00 ft |
| Drill Pipe Above KB: | 27.80 ft | | | String Weight: Initial 60000.00 lb |
| Depth to Top Packer: | 3512.00 ft | | | Final 60000.00 lb |
| Depth to Bottom Packer: | 3863.42 ft | | | |
| Interval between Packers: | 351.42 ft | | | |
| Tool Length: | 368.22 ft | | | |
| Number of Packers: | 3 | Diameter: 6.75 inches | | |
| Tool Comments: | | | | |

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------------|-------------|------------|----------|------------|----------------------------|
| Shut-In Tool | 5.00 | | | 3500.20 | |
| Hydraulic tool | 5.00 | | | 3505.20 | |
| Top Packer | 5.00 | | | 3510.20 | |
| Packer | 1.80 | | | 3512.00 | 16.80 Bottom Of Top Packer |
| Recorder | 0.00 | 6755 | Inside | 3512.00 | |
| Recorder | 0.00 | 6752 | Outside | 3512.00 | |
| Anchor | 19.00 | | | 3531.00 | |
| Packer (Interval Side) | 3.15 | | | 3534.15 | |
| Packer (Tail Side) | 1.60 | | | 3535.75 | |
| Perforations | 6.00 | | | 3541.75 | |
| Change Over Sub | 1.10 | | | 3542.85 | |
| Recorder | 0.00 | 8322 | Below | 3542.85 | |
| Drill Pipe | 316.57 | | | 3859.42 | |
| Change Over Sub | 1.00 | | | 3860.42 | |
| Bullnose | 3.00 | | | 3863.42 | 351.42 Anchor Tool |

Total Tool Length: 368.22



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Co. Inc

36-14S-21W Trego,KS

PO Box 1019
Hays KS 67601

Red #1-36

Job Ticket: 63074

DST#: 5

ATTN: Marc Downing

Test Start: 2018.04.08 @ 18:13:00

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:

25000 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|-------------------------------|----------------|
| 45.00 | Watery Mud/ Water 30% Mud 70% | 0.358 |

Total Length: 45.00 ft Total Volume: 0.358 bbl

Num Fluid Samples: 0

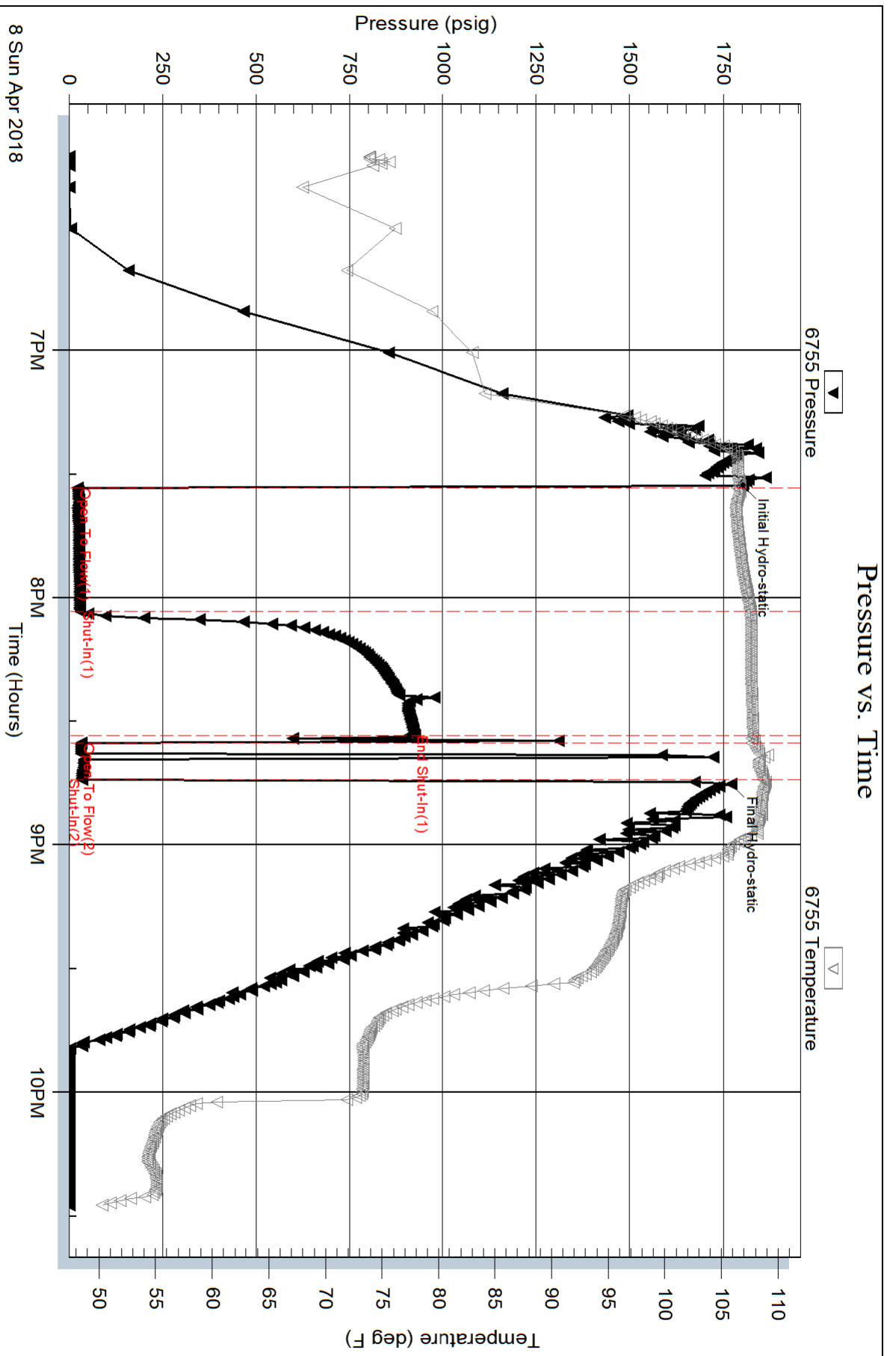
Num Gas Bombs: 0

Serial #:

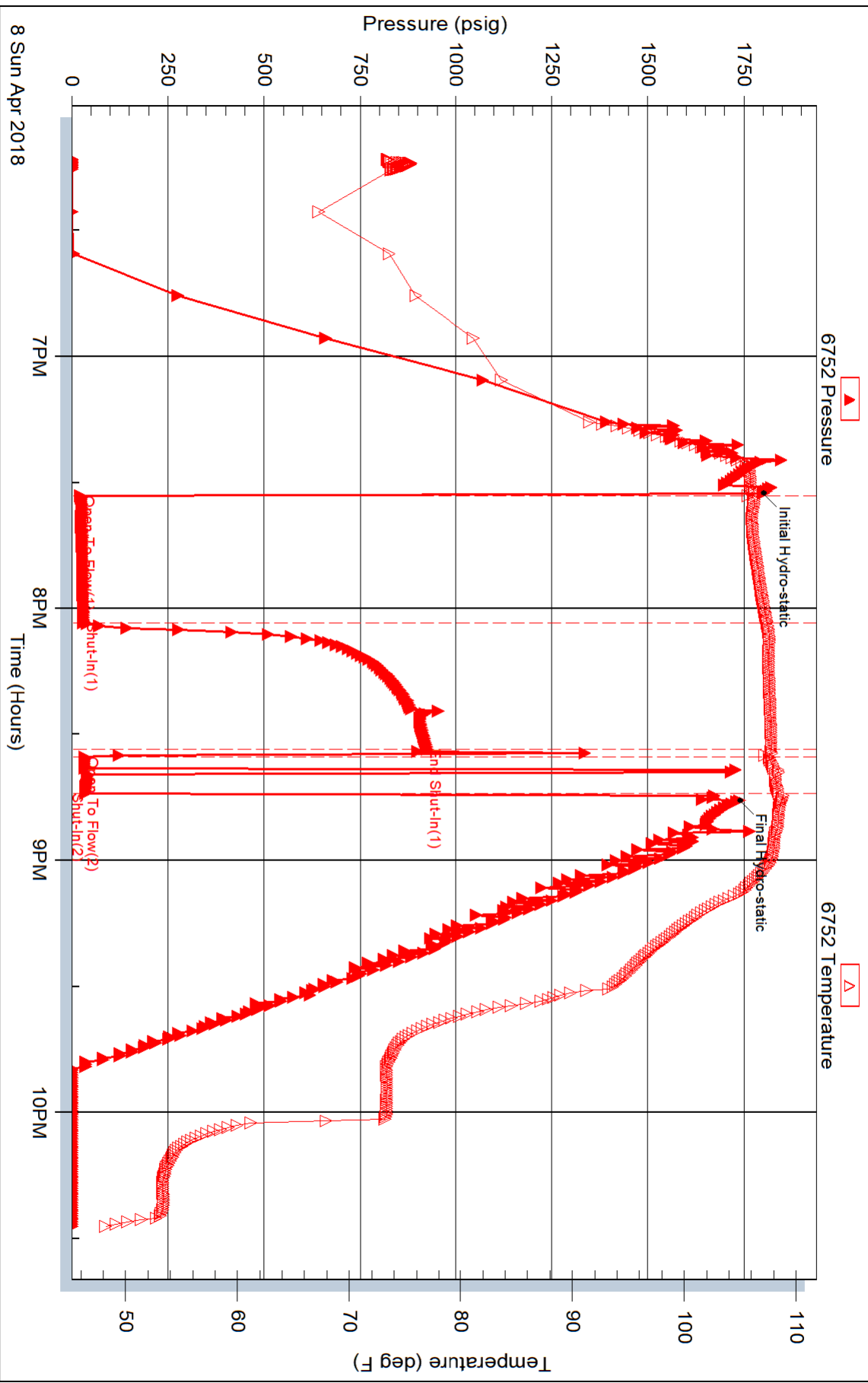
Laboratory Name:

Laboratory Location:

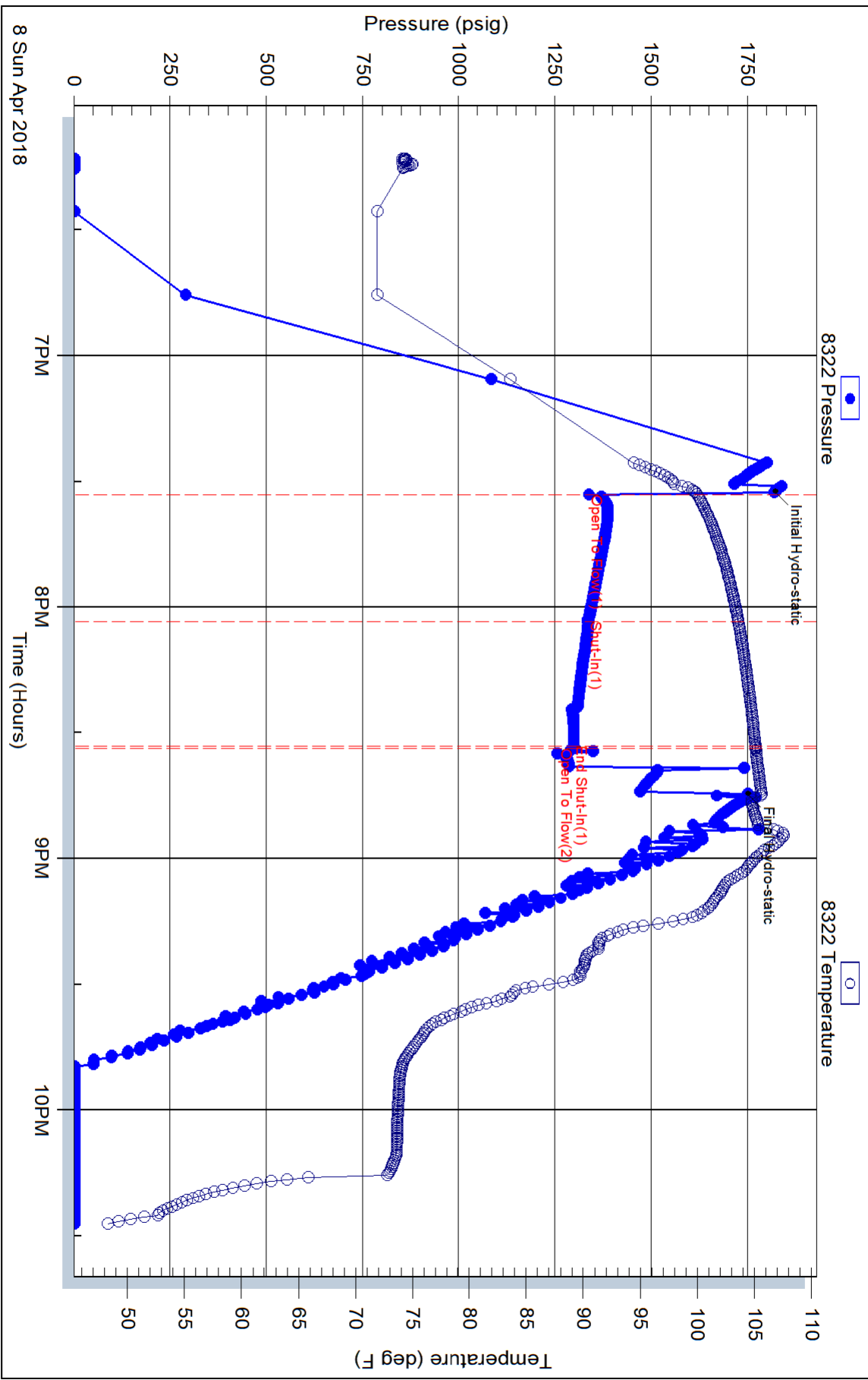
Recovery Comments: Recovery Resistivity .372 ohms @ 50 deg.

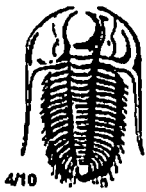


Pressure vs. Time



Pressure vs. Time





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63070

Well Name & No. Red #1-36 Test No. 1 Date 5 Apr 18
 Company Downing Nelson O.I. Company Inc Elevation 2057 KB 2051 GL
 Address 70 Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 3
 Location: Sec. 36 Twp. 14S Rge. 21W Co. Trego State _____

Interval Tested 3454 - 3473 Zone Tested Lansing Kansas City zone E
 Anchor Length 19 Drill Pipe Run 3433 Mud Wt. 8.8
 Top Packer Depth 3449 Drill Collars Run 30 Vis 5.0
 Bottom Packer Depth 3454 Wt. Pipe Run — WL 6.8
 Total Depth 3473 Chlorides 3500 ppm System LCM 1#

Blow Description I.F. Blow built to 3/4 inch

I.S.I. No blow back

FF Dead no blow

F.S.I. No blow back

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

Rec Total 1 BHT 104 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic 1650 Test 1050 T-On location 1:05 pm
 (B) First Initial Flow 18 Jars _____ T-Started 2:05 pm
 (C) First Final Flow 20 Safety Joint _____ T-Open 3:53 pm
 (D) Initial Shut-In 38 Circ Sub _____ T-Pulled 5:53 pm
 (E) Second Initial Flow 19 Hourly Standby _____ T-Out 7:25 pm
 (F) Second Final Flow 20 Mileage 52 52 Comments _____
 (G) Final Shut-In 29 Sampler _____
 (H) Final Hydrostatic 1632 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

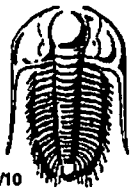
Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1102
 MP/DST Disc't _____

Sub Total 1102

Approved By _____

Our Representative



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63071

Well Name & No. Red #1-36 Test No. 2 Date 6 Apr 18
 Company Downing Nelson Oil Company Inc. Elevation 2057 KB 2057 GL
 Address PO Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 4
 Location: Sec. 36 Twp. 14S Rge. 21W Co. Trego State KS

Interval Tested 3726-3770 Zone Tested Marmaton
 Anchor Length 44 Drill Pipe Run 3681 Mud Wt. 9.0
 Top Packer Depth 3721 Drill Collars Run 30 Vis 48
 Bottom Packer Depth 3726 Wt. Pipe Run - WL 8.0
 Total Depth 3770 Chlorides 5000 ppm System LCM 1#

Blow Description I.F. Blow built to 1 3/4 inch
I.S.I No blow back
F.F Blow built to 2 inches
F.S.I No blow back

| Rec | Feet of | %gas | %oil | %water | %mud |
|-----------|------------------|------|------------|-----------|------|
| <u>45</u> | <u>0.1y Mud</u> | | <u>30</u> | <u>70</u> | |
| <u>5</u> | <u>Clean Oil</u> | | <u>100</u> | | |
| | | | | | |
| | | | | | |
| | | | | | |

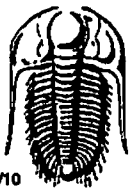
Rec Total 50 BHT 110 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1829 Test 1050 T-On Location 7:57 pm
 (B) First Initial Flow 16 Jars _____ T-Started 8:17 pm
 (C) First Final Flow 31 Safety Joint _____ T-Open 10:09 pm
 (D) Initial Shut-In 1036 Circ Sub _____ T-Pulled 1:09 am
 (E) Second Initial Flow 38 Hourly Standby _____ T-Out 2:40 am
 (F) Second Final Flow 38 Mileage 52 Comments _____
 (G) Final Shut-In 995 Sampler _____
 (H) Final Hydrostatic 1790 Straddle _____

Initial Open 45 Shale Packer _____
 Initial Shut-In 45 Ruined Packer _____
 Final Flow 45 Extra Packer _____
 Final Shut-In 45 Extra Recorder _____
 Sub Total 1102 Day Standby _____
 Accessibility _____
 Sub Total 1102 MP/DST Disc't _____

Approved By _____

Our Representative



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63072

Well Name & No. Red #1-36 Test No. 3 Date 7 Apr 18
 Company Downing Nelson Oil Company Inc Elevation 2057 KB 2051 GL
 Address PO Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 4
 Location: Sec. 36 Twp. 14S Rge. 21W Co. Yreka State KS

Interval Tested 3756-3805 Zone Tested Cherokee
 Anchor Length 49 Drill Pipe Run 3712 Mud Wt. 9.0
 Top Packer Depth 3751 Drill Collars Run 30 Vis 48
 Bottom Packer Depth 3756 Wt. Pipe Run — WL 8.0
 Total Depth 3805 Chlorides 5000 ppm System LCM 1#

Blow Description I.F. Blow built to 1 1/2 inches

I.S.I Light blow back

F.F. Blow built to 1/2 inch

F.S.I. Light blow back

| Rec | Feet of | %gas | %oil | %water | %mud |
|----------|--------------------------------|------|------|--------|-------------|
| <u>3</u> | <u>Lightly oil spotted mud</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 | Feet of | %gas | %oil | %water | %mud |

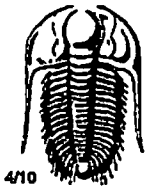
Rec Total 3 BHT 105 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1881 Test 1050 T-On Location 9:34 am
 (B) First Initial Flow 14 Jars _____ T-Started 10:47 am
 (C) First Final Flow 16 Safety Joint _____ T-Open 12:31 pm
 (D) Initial Shut-In 38 Circ Sub _____ T-Pulled 3:31 pm
 (E) Second Initial Flow 16 Hourly Standby _____ T-Out 5:04 pm
 (F) Second Final Flow 17 Mileage 52 Comments _____
 (G) Final Shut-In 30 Sampler _____
 (H) Final Hydrostatic 1795 Straddle _____

Initial Open 45 Shale Packer _____
 Initial Shut-In 45 Ruined Packer _____
 Final Flow 45 Extra Packer _____
 Final Shut-In 45 Extra Recorder _____
 Sub Total 0
 Total 1102
 MP/DST Disc't _____
 Sub Total 1102

Approved By _____

Our Representative



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63073

Well Name & No. Red #1-36 Test No. 4 Date 8 Apr 18
 Company Downing Nelson Oil Company Inc Elevation 2057 KB 2051 GL
 Address PO Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 4
 Location: Sec. 36 Twp. 14S Rge. 21W Co. Trego State KS

Interval Tested 3512-3587 Zone Tested Lansing/Kansas City zones H,I,J
 Anchor Length 75 Drill Pipe Run 3493 Mud Wt. 9.2
 Top Packer Depth 3507 Drill Collars Run 30 Vis 49
 Bottom Packer Depth 3512 Wt. Pipe Run - WL 8.0
 Total Depth 3866 Chlorides 5000 ppm System LCM 1#

Blow Description I.F. Blow built to 5 inches
I.S.I No blow back
E.F. Blow built to 2 inches
E.S.I. No blow back

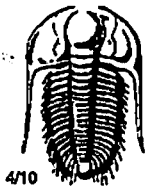
| Rec | Feet of | %gas | %oil | %water | %mud |
|-----------|--------------------------|------|------|------------|------|
| <u>90</u> | <u>Mud w/skin of oil</u> | | | <u>100</u> | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Rec Total 90 BHT 106 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1745 Test 1050 T-On Location 8:03 am
 (B) First Initial Flow 55 Jars _____ T-Started 9:26 am
 (C) First Final Flow 78 Safety Joint _____ T-Open 10:57 am
 (D) Initial Shut-In 961 Circ Sub _____ T-Pulled 1:57 pm
 (E) Second Initial Flow 67 Hourly Standby _____ T-Out 3:38 pm
 (F) Second Final Flow 86 Mileage 52 Comments _____
 (G) Final Shut-In 533 Sampler _____
 (H) Final Hydrostatic 1713 Straddle 600 Ruined Shale Packer _____

Initial Open 45 Shale Packer _____
 Initial Shut-In 45 Extra Packer _____
 Final Flow 45 Extra Recorder _____
 Final Shut-In 45 Day Standby _____
 Sub Total 1702 Accessibility _____
 Sub Total 1702 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63074

Well Name & No. Red #1-36 Test No. 5 Date 8 Apr 18
 Company Downing Nelson O.I. Company Inc Elevation 2057 KB 205-1 GL
 Address PO Box 1019 Hays Kansas 67601
 Co. Rep / Geo. Marc Downing Rig Discovery Rig 4
 Location: Sec. 36 Twp. 14S Rge. 21W Co. Trego State KS

Interval Tested 3512-3536 Zone Tested Lansing/Kansas City H
 Anchor Length 24 Drill Pipe Run 3493 Mud Wt. 9.2
 Top Packer Depth 3507 Drill Collars Run 30 Vis 49
 Bottom Packer Depth 3512 Wt. Pipe Run - WL 8.0
 Total Depth 3866 Chlorides 5000 ppm System LCM 1 #

Blow Description I.F. Blow built to 1/4 inch then died in 5 minutes
I.S.I. No blow back
F.F. Few bubbles at open then dead/Flush tool few bubbles then dead/Pull test
~~FFF~~

| Rec | Feet of | %gas | %oil | %water | %mud |
|------------|-------------------|------|------|-----------|-----------|
| <u>415</u> | <u>Watery Mud</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 | Feet of | %gas | %oil | %water | %mud |

Rec Total 45 BHT 108 Gravity _____ API RW .372 @ 50 °F Chlorides 25,000 ppm

(A) Initial Hydrostatic 1801 Test 1050 T-On Location 5:34 pm
 (B) First Initial Flow 22 Jars _____ T-Started 6:13 pm
 (C) First Final Flow 29 Safety Joint _____ T-Open 7:33 pm
 (D) Initial Shut-In 923 Circ Sub _____ T-Pulled 8:45 pm
 (E) Second Initial Flow 32 Hourly Standby _____ T-Out 10:29 pm
 (F) Second Final Flow 35 Mileage 52 Comments _____
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic 1269 Straddle 600

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 30
 Initial Shut-In 30
 Final Flow 10
 Final Shut-In _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1702
 Sub Total 1702
 Total 1702
 MP/DST Disc't _____

Approved By _____ Our Representative 